JACBS
Joint Annual Conference of Biomedical Science

第32屆

生物醫學
聯合學術年會

2017 The 32th Joint Annual Conference of Biomedical Science

Translational Medicine
Bench ↔ Bedside

March 25-26,2017

國防醫學院
National Defense Medical Center, Taipei, Taiwan
臺北市內湖區民權東路六段161號
No.161, Sec.6, Minquan East Road, Neihu Dist., Taipei

大會手冊

學生論文集

台灣生物化學及分子生物學學會
The Taiwan Society for Biochemistry and Molecular Biology

中華民國細胞及分子生物學學會
The Chinese Society of Cell and Molecular Biology

中華民國臨床生化學會
Chinese Association for Clinical Biochemistry

台灣毒物學學會
Toxicology Society of Taiwan

中國生理學會
The Chinese Physiological Society

台灣藥理學會
The Pharmacological Society in Taiwan

中華民國解剖學學會
The Association of Anatomists of the Republic of China

中華民國免疫學會
The Chinese Society of Immunology

台灣分子生物影像學會
Taiwanese Society for Molecular Imaging

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目錄 Contents

會議資訊

大會會長的話

生物醫學聯合學術年會是國內基礎醫學最重要的年度會議，為使生醫年會更加蓬勃發展，第三十二屆生物醫學聯合學術年會擴大為生化、細分、臨床生化、毒物、生理、藥理、解剖、免疫、分子影像共九個學會共同舉辦，「台灣生物化學及分子生物學學會」很榮幸負責本屆生物醫學聯合年會主要籌備工作。謹代表第三十二屆生物醫學聯合學術年會籌備委員會，誠摯歡迎您參加今年度的盛會！

本次大會主題為【轉譯醫學】，特別邀請到兩位大會主題講者 Plenary speakers：陳垣崇院士於第一天（3 月 25 日、星期六）分享他 Bedside to Bench 的研究成果，張子文執行長於第二天（3 月 26 日、星期日）講述他 Bench to Bedside 的成功經驗。本屆「大會聯合口頭論文競賽」即以【轉譯醫學】為主題，選取三名優秀年輕學者的研究成果，由陳教授及張教授親自頒獎，以茲鼓勵。

生物醫學聯合學術年會為激起台灣基礎醫學研究產生更多的火花，各學會同時進行特別演講、主題研討會及會員大會，並舉辦學生口頭及壁報論文競賽，期望能促進生物醫學各相關領域的學者與同學彼此交流，使資深學者能傳遞珍貴的研究經驗，讓年輕學子與學者有更多的動力來參與研究，共同提升台灣生物醫學相關領域的學術水準。本屆生醫年會還新增「Job Fair 徵才博覽會」與「學術單位招生博覽會」，讓國內生醫學術界與產業界利用這個平台，招募人才，並讓學、碩、博班畢業生，找到發展自己學、研、職場能力的舞台。

第三十二屆生物醫學聯合學術年會總共安排了六十一場國內外學者演講，並有上千篇學生與博後論文報告，為近年來演講與報告數目最多的一屆，希望此一年一度的生物醫學聯合學術年會盛會，為台灣基礎醫學的研究發展注入向上提升的力量。

本人謹代表第三十二屆生物醫學年會籌備委員會，感謝所有大會工作人員的辛勤付出，也感謝各廠商踴躍參展及贊助，及國防醫學院特別增加二樓空間，以容納更多的研討會與學術海報展，對於本次生醫年會新知討論與交流，有很大的助益。最後本人謹祝福本屆生物醫學年會順利成功！

台灣生物化學及分子生物學學會 理事長 王憲銘

參加年會注意事項

1. 會議會場禁止攜帶食物及飲料進入，會議進行中禁止飲食，敬請共同維護會場整潔。
2. 會場將提供餐點，用餐相關事宜：（請參照平面配置圖 p6-p8）
   A. 會場於一樓、二樓及三樓皆提供茶點供與會人員食用。
   B. 持有午餐兌換券者可至一樓與二樓之便當領取處領取便當及飲品，或至微風．三總商店街餐飲櫃消費。
   C. 可至一樓學生餐廳與二樓戶外休憩區，以及會場擺放桌椅處用餐，並請配合工作人員指示確實分類。
   D. 午餐兌換券僅供年會兩日使用，兌換時間為當日 18:00 前。
3. 大會主題競賽注意事項：
   A. 大會主題競賽將於 3 月 26 日（日）大會特別演講後進行大會主題競賽頒獎。
   B. 競賽時間與地點如下：

3 月 25 日（六）		論文編號	教室地點
上午組	9:20-10:20	NO.1 - NO.4	三樓 33 教室
下午組	12:30-13:30	NO.5 - NO.8	三樓 33 教室

4. 學會口頭論文報告注意事項：
   欲使用 PowerPoint 作口頭論文報告者，請確實遵守以下規定，以利會議程序之進行：
   A. 每位講者報告時間請依照各學會競賽規定進行。
   B. 請使用 Office 2000 以上或 Office XP 以上版本之 PowerPoint 軟體，其他版本之軟體請勿使用。
   C. 檔案存檔於隨身碟。請於報告前 30 分鐘，將隨身碟交給各該報告會場之大會工作人員。
   D. 與會前請確實執行掃毒動作及做好檔案備份，以利會議之進行。
   E. 各學會詳細口頭論文報告注意事項請參閱各學會競賽規則。
5. 壁報論文報告注意事項：
   A. 3 月 25 日（六）壁報論文展示及解說時段如下：

3 月 25 日（六）	論文張貼時間	展示時間	解說時間	拆除時間
上午組	08:30-09:00	09:00-13:00	12:00-13:00	13:10 以前
下午組	13:10-13:30	13:30-17:00	13:30-14:30	17:10 以前

   B. 3 月 26 日（日）壁報論文展示及解說時段如下

3 月 26 日（日）	論文張貼時間	展示時間	解說時間	拆除時間
上午組	08:30-09:00	09:00-12:30	11:30-12:30	12:40 以前
下午組	12:40-13:30	13:30-17:00	13:30-14:30	17:10 以前

   C. 壁報展示地點如下：（請參照平面配置圖 p6-p8）

國防醫學院三樓會場	
中華民國臨床生化學會	第 30、31 教室後方
中華民國解剖學學會	第 32、33 教室後方
國防醫學院二樓會場	
台灣毒物學學會	教室 28、29 中間空地
台灣分子生物影像學會	教室 28、29 中間空地
中華民國免疫學會	生理及生物物理學科材料準備室靠近北電梯的牆面
國防醫學院一樓會場	
台灣生物化學及分子生物學學會	中庭
中華民國細胞及分子生物學學會	中庭
中國生理學會	第 1、2 教室前方
台灣藥理學會	中庭

前往國防醫學院交通示意圖

年會舉辦地點 \ 國防醫學院 114 臺北市內湖區民權東路六段 161 號

接駁車排班 \

至台北車站搭乘 藍線 (板南線) 到南港站 2 號出口 搭乘往國防醫學院接駁車。
3 月 25~26 日 免費接駁車
班次：每 10 分鐘一班
早上 07:30~10:30 從南港捷運站 → 內湖國防醫學院 單向發車
下午 15:30~18:30 從內湖國防醫學院 → 南港捷運站 單向發車

附近大眾運輸 \

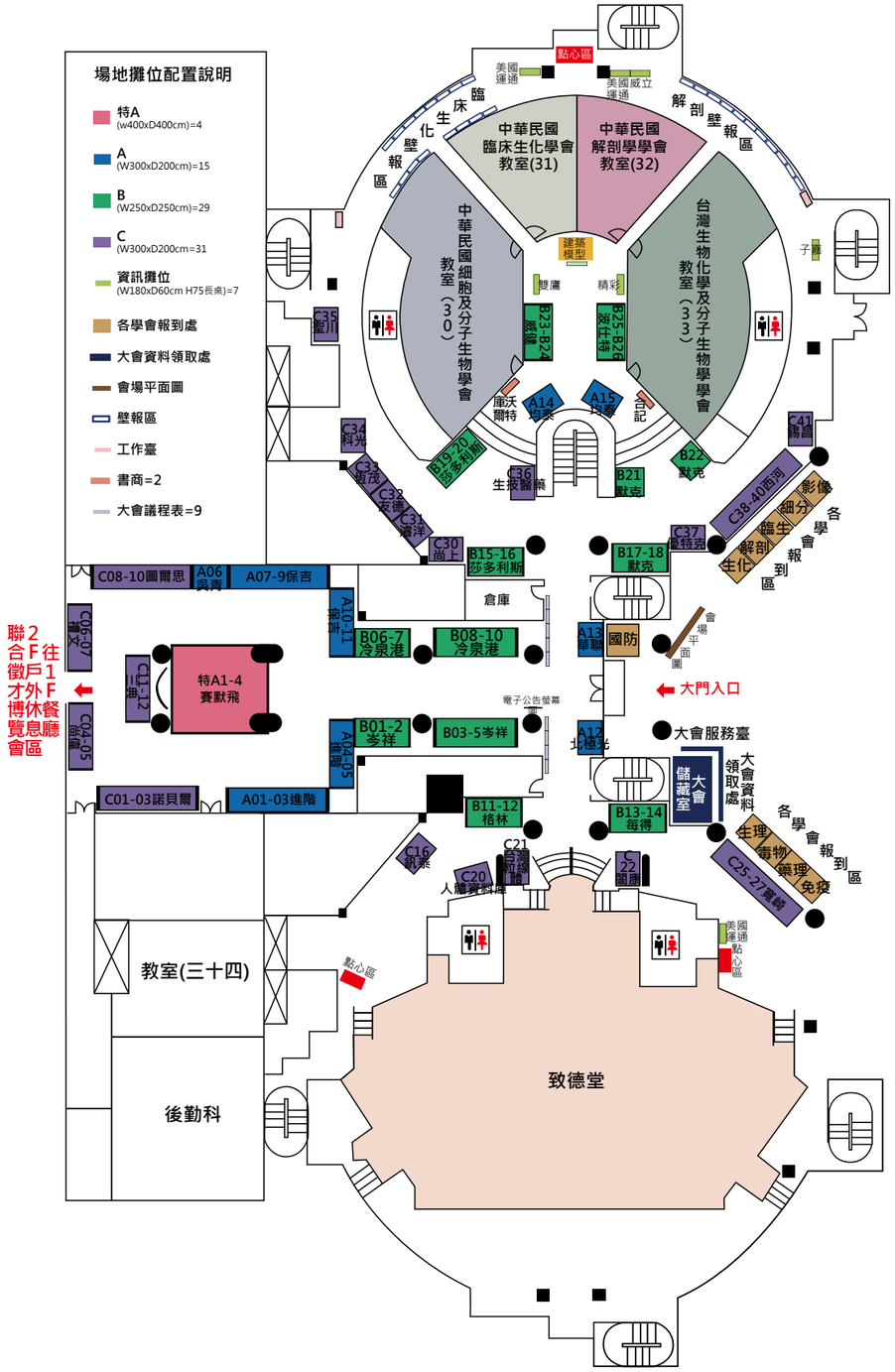
捷運板南線南港站 → 紅 32 (南港行政中心) 、專屬接駁車 → 目的地 (國防醫學院)
捷運板南線昆陽站 → 藍 36（亞東醫院）→ 目的地 (國防醫學院)

停車相關事宜 \

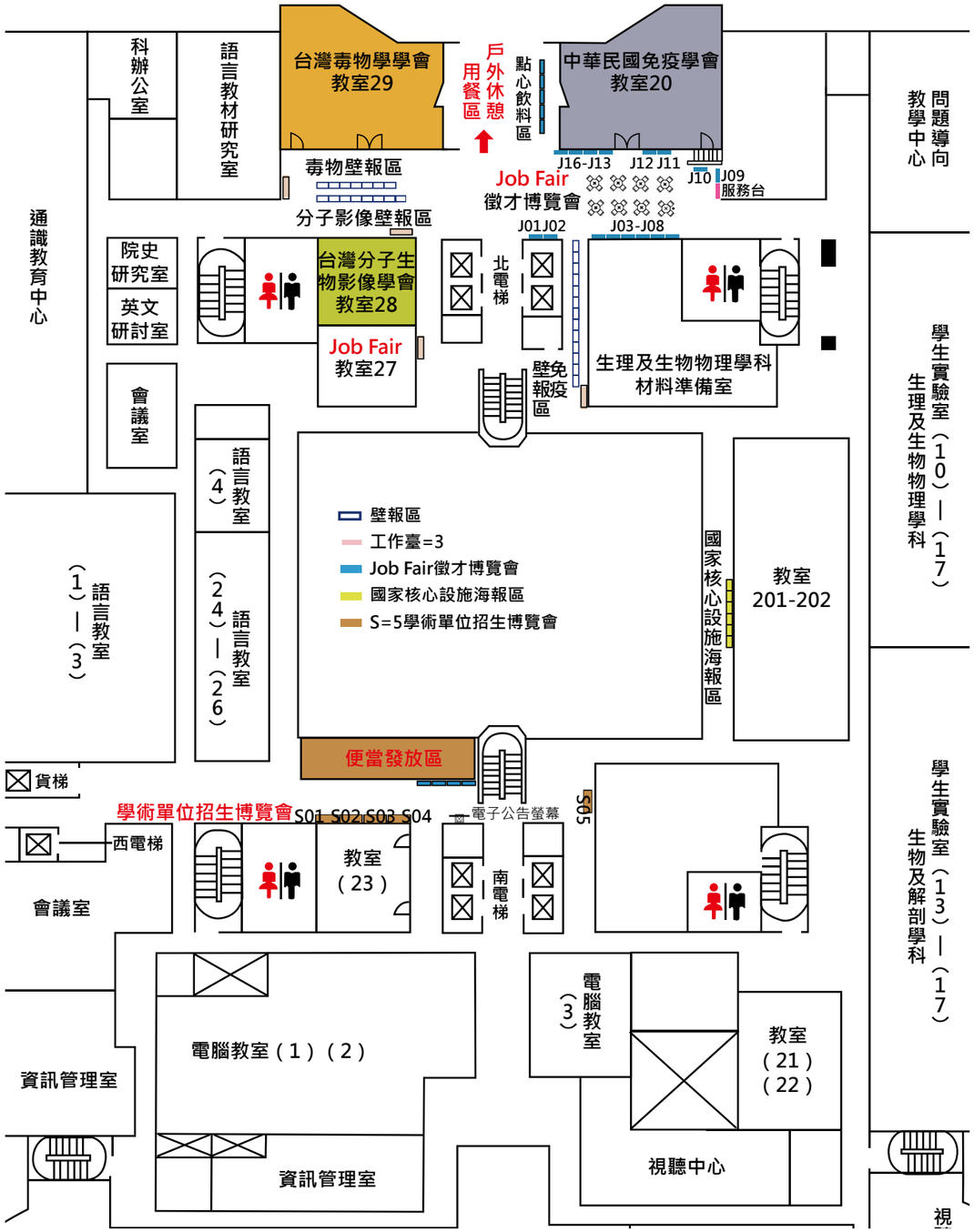
國防醫學院之停車場為免費停放 (由於停車位有限建議搭乘大眾運輸工具)
三軍總醫院之停車場，採計時方式計費，每小時為 40 元，請勿占用專用停車位

前往國防醫學院交通示意圖

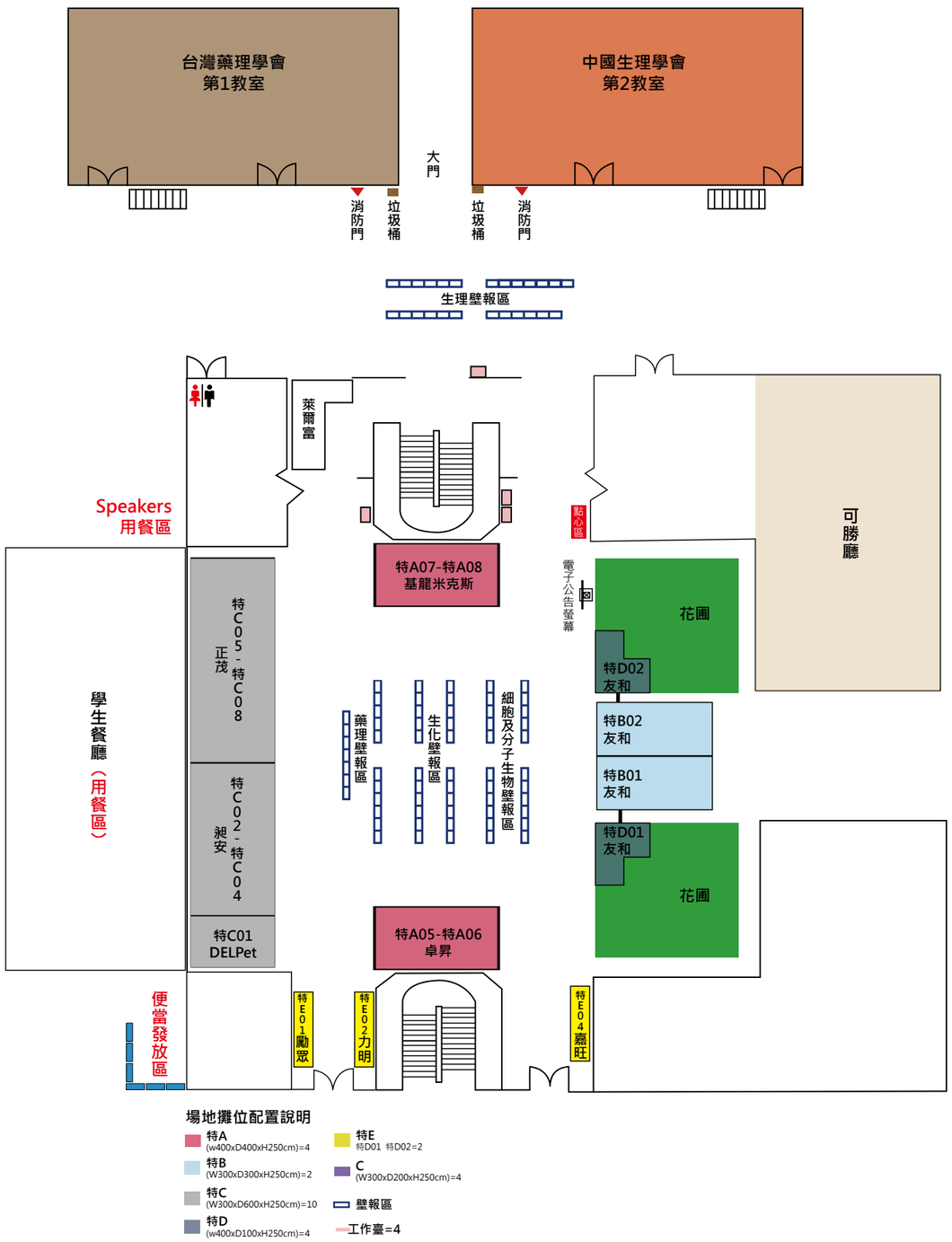
生物醫學會 3F 平面圖



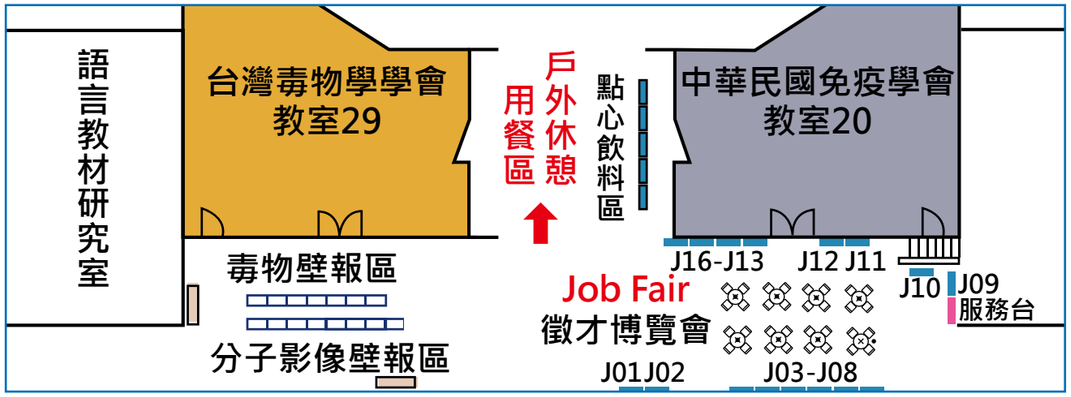
生物醫學會 2F 平面圖



生物醫學會 1F 平面圖

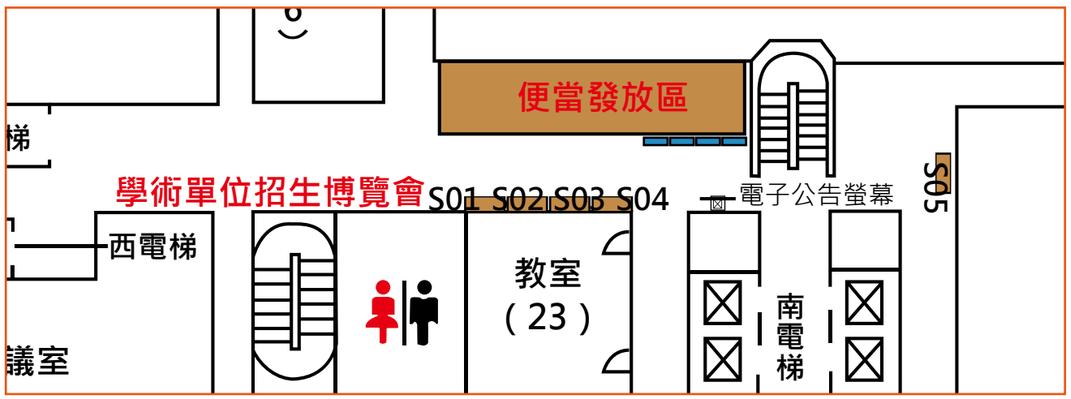


Job Fair 徵才博覽會平面圖



J01 J02	生技中心 (2)	J07	柏樂科研	J12	桑迪亞醫藥技術 (上海)
J03	因華生技	J08	台大生科院分生所	J13	體學生技
J04	永昕生醫	J09	清大生科院	J14	免疫功坊
J05	藥華醫藥	J10	戰國策智權	J15	生物產業協會
J06	台康生技	J11	體學生技	J16	欣揚科技

學術單位招生博覽會平面圖



S01	臺北醫學大學	S02	國立清華大學生命科學院	S03	國立成功大學
S04	中央研究院	S05	國立中興大學生命科學院		

第 32 屆生物醫學聯合學術年會會議資訊

開幕式 \106 年 3 月 25 日 10:35-10:55 三樓致德堂

大會特別演講 \

	時間	地點
大會特別演講 I	106 年 3 月 25 日 10:55-12:00	三樓致德堂
大會特別演講 II	106 年 3 月 26 日 10:15-11:20	三樓致德堂

學會特別演講及會員大會時間表 \

學會名稱	學會特別演講	學會會員大會	地點
台灣生物化學及分子生物學學會	106 年 3 月 25 日 14:30-15:20		三樓 第 33 教室
中華民國細胞及分子生物學學會	106 年 3 月 25 日 9:30-10:20		三樓 第 30 教室
中華民國臨床生化學會	106 年 3 月 25 日 9:30-10:20	106 年 3 月 25 日 10:20-10:35	三樓 第 31 教室
台灣毒物學學會	106 年 3 月 25 日 14:30-15:30	106 年 3 月 25 日 15:30-16:30	二樓 第 29 教室
中國生理學會	106 年 3 月 25 日 9:30-10:20	106 年 3 月 25 日 14:30-15:20	一樓 9:30 -10:20 可勝廳 14:30-15:20 第 2 教室
台灣藥理學會	106 年 3 月 25 日 14:30-15:30	106 年 3 月 25 日 15:30-16:30	一樓 第 1 教室
中華民國解剖學學會	106 年 3 月 25 日 9:30-10:20	106 年 3 月 25 日 12:00-12:30	三樓 第 32 教室
中華民國免疫學會	106 年 3 月 25 日 9:30-10:20		二樓 第 20 教室
台灣分子生物影像學會	106 年 3 月 25 日 9:30-10:20		二樓 第 28 教室

各學會名單與分工

第 32 屆生物醫學聯合學術年會參與學會暨理事長及秘書長名單 \

學會名稱	理事長	秘書長
台灣生物化學及分子生物學學會	王憶卿	張雋曦
中華民國細胞及分子生物學學會	龔行健	施修明
中華民國臨床生化學會	方偉宏	吳瑞菁
台灣毒物學學會	康照洲	姜至剛
中國生理學會	蔡少正	廖娟妙
台灣藥理學會	簡伯武	張雅雯
中華民國解剖學學會	馬國興	林谷峻
中華民國免疫學會	許秉寧	謝世良
台灣分子生物影像學會	劉仁賢	楊邦宏

第 32 屆生物醫學聯合學術年會籌備委員名單 \

總 召 集 人：王憶卿
總 連 絡 人：張雋曦

成立學術組及各秘書長任務分組：

文書出版組：張雅雯、張雋曦
廠商展示組：施修明、張雋曦
會　場　組：林谷峻、張雋曦
報　到　組：吳瑞菁、張雋曦
會　計　組：廖娟妙、張雋曦
公　關　組：姜至剛、張雋曦
學　術　組：張雋曦、張雅雯、施修明、林谷峻、吳瑞菁、廖娟妙、姜至剛

主要工作人員名單 \

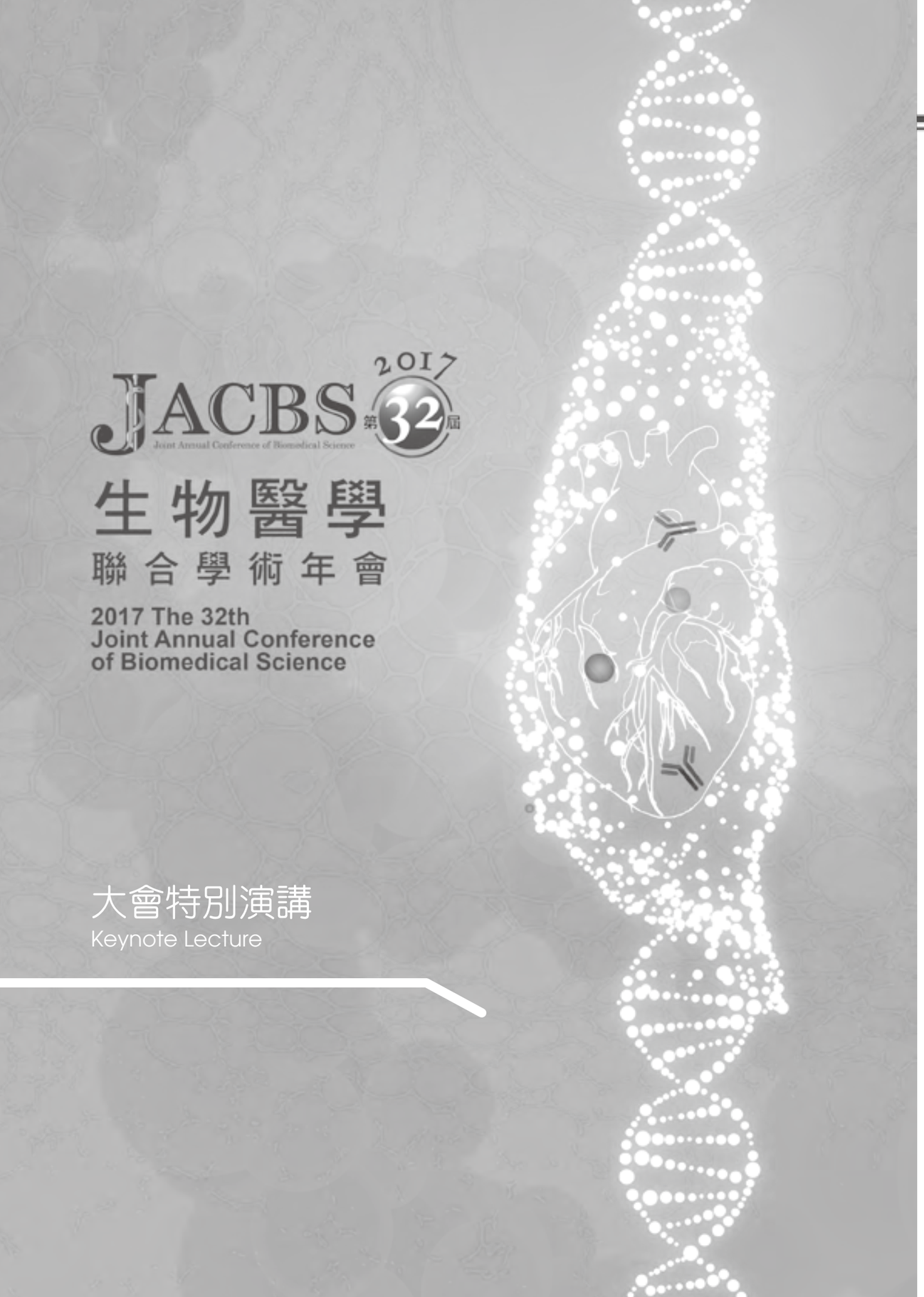
總 策 劃 人：歐陽穎華
執　行　組：陳品存、陳韻文
美　編　組：林純名
網　管　組：陳韻文、張詠傑、謝如珺
文　書　組：張欣慈

第 32 屆生物醫學聯合學術年會大會議程

3/25 (六)	一樓		二樓			三樓			
	藥理學會	生理學會	免疫學會	分子影像	毒物學會	細生學會	臨床生化	解剖學會	生化學會
	1 教室	2 教室	20 教室	28 教室	29 教室	30 教室	31 教室	32 教室	33 教室
08:00 09:30	報到								
09:30 10:20	9:00-10:20 藥理學會 研究生論文獎 決選演講 (張文昌) O25-O29	9:00~9:30 生理學之父 林可勝 院士 120 歲紀念活動 地點：可勝廳 Keynote Speech: Kim Elaine Barrett (蔡少正) L5 地點：可勝廳	Keynote Speech: Hiroshi Ohno (李建國) L8	Keynote Speech: Juri Gelovani (劉仁賢) L9	8:50-10:35 毒物學會 口頭論文競賽 (姜至剛) 017-024	Keynote Speech: 謝世良 (劉扶東) L2	Keynote Speech: 張憲彰 (方偉宏) L3	Keynote Speech: 吳武田 (馬國興) L7	9:20-10:20 大會主題 競賽決選 I: Translational Medicine (楊雅倩) O01-O04
10:20 10:35	休息 (大會茶點)						臨床生化 會員大會	休息 (大會茶點)	
10:35 10:55	開幕式 (致德堂)								
10:55 12:00	生醫年會大會特別演講 I　演講者：陳垣崇 院士								
12:00 13:00	各學會看板論文競賽 I (現場解說時段) / Job Fair 徵才 & 學術招生 博覽會							解剖會員大會	
	PH001-034	PY001-050	IM001-013	MI001-006	TX001-024	CM001-044	CB001-016	AN001-011	BC001-044
12:30 13:30	科技新知研討會								12:30-13:30 大會主題 競賽決選 II: Translational Medicine (李怡萱) O05-O08
	財團法人國家衛生研究院 - 斑馬魚核心設施 T1	尚博生物科技有限公司 T2	中央研究院 - 基因體研究中心 T3		台灣大昌華嘉股份有限公司 T4	卓昇有限公司 T5	北極光生物科技股份有限公司 T6	Elsevier T7	
13:30 14:30	各學會看板論文競賽 II (現場解說時段) / Job Fair 徵才 & 學術招生 博覽會								
	PH035-068	PY051-100	IM014-025	MI007-012	TX025-048	CM045-088	CB017-031	AN012-022	BC045-088
14:30 15:30	Keynote Speech: 林建煌 (簡伯武) L6	14:30-15:20 生理學會 會員大會 (蔡少正)	14:30-16:30 Symposium I: Mucosal Immunology 高承源 陳示國 張明熙 江皓森 (徐志文、張雅貞) S19-S22	Symposium I: Clinical Genomics-driven Predictive Platfo rm for Precision Oncology Ramanuj Dasgupta (謝雅茹) S23	Keynote Speech: 林俊良 (康照洲) L4	14:30-16:30 Symposium: Immuno-modulation 司徒惠康 許秉寧 江伯倫 謝奇璋 (司徒惠康) S05-S08	14:30-16:30 Symposium: Current trend in vitro diagnostics 賴朝松 吳靖宙 林致廷 (劉俊仁) S09-S11	14:30-16:30 Symposium I: Cancer Biology 王仰高 李怡琛 黃敏銓 陳瀅 (葉添順) S15-S18	14:30-15:20 Keynote Speech: David Lyden (王憶卿) L1
		15:20-15:30 休息							15:20-15:30 休息
15:30 15:45	15:30-16:30 藥理學會 會員大會 / 學會研究獎項 頒獎 (簡伯武)	15:30-17:30 Symposium I: GI Physiology: from Gut to Brain Yasuhiko Minokoshi 蔡曜聲 余佳慧 (謝博軒) S12-S14		休息 (大會茶點)	15:30-16:30 毒物學會 會員大會 (康照洲)				15:30-17:30 Symposium I: Biomarkers 王照元 俞松良 沈志陽 廖寶琦 (彭汪嘉康) S01-S04
15:45 16:45			16:30-16:45 休息	15:45-16:45 Symposium II: microCT: Development and pre-clinical applications 劉仁賢 李致賢 (高潘福、陳志成) S24-S25			16:30-16:45 臨床生化學會 壁報論文競賽 頒獎	16:30-16:45 休息	
16:45 17:45			免疫學會口頭 論文競賽 (陳念榮) O30-O33				大會聯合 口頭報告 I: Obesity & Metabolism (洪麗滿) O09-O12	大會聯合口 頭報告 II: Infectious/ inflammatory disease (花國鋒) O13-O16	

第 32 屆生物醫學聯合學術年會大會議程

3/26 (日)	一樓		二樓			三樓			
	藥理學會	生理學會	免疫學會	分子影像	毒物學會	細生學會	臨床生化	解剖學會	生化學會
	1 教室	2 教室	20 教室	28 教室	29 教室	30 教室	31 教室	32 教室	33 教室
08:00 09:00	報到								
09:00 10:00		8:30-10:00 口頭論文競賽 (蔡美玲) O74-O79	免疫學會 口頭論文競賽 (陳念榮) O86-O89	分子影像 學會口頭 論文競賽 (楊邦宏) O90-O94	8:30-10:15 毒物學會 口頭論文競賽 (姜至剛) O66-O73	大會聯合口頭 報告 III: Disease biomarkers (游佳融) O34-O37	大會聯合口 頭報告 IV: Neurobiology & technology (彭賢祐) O38-O41	解剖學會 口頭論文報告 (林谷峻) O80-O85	生化學會 口頭論文競賽 (李新城、徐欣伶、陳永恩) O42-O46
10:00 10:15	休息 (大會茶點)								
10:15 11:20	生醫年會大會特別演講 II　演講者：張子文 執行長								
11:20 11:30	大會主題口頭論文競賽頒獎								
11:30 12:30	各學會看板論文競賽 III / Job Fair 徵才 & 學術招生 博覽會								
	PH069-101	PY101-150	IM026-050	MI013-022	TX049-068	CM089-132	AN023-038	AN039-049	BC089-132
12:30 13:30	科技新知研討會								生化學會 口頭論文競賽 (李新城、徐欣伶、陳永恩) O47-O51
			中央研究院 - 台灣人體生物資料庫 T8		DELPet T9	轉譯醫學暨生技研發之生物資訊核心設施 T10		諾貝爾生物有限公司 T11	
13:30 14:30	各學會看板論文競賽 IV / Job Fair 徵才 & 學術招生 博覽會								
	PH102-134	PY151-200	IM051-076	MI023-032	TX069-088	CM133-177	AN050-065	AN066-076	BC133-176
14:30 15:30	14:30-16:30 Symposium I: Cardiovascular Pharmacology 葉竹來 陳文彬 許銘仁 張雅雯 (曾清俊、許準榕) S37-S40	14:30-16:30 Symposium II: Physiological Seminar 張凱雄 馬文隆 林子暘 何昱征 (林赫) S33-S36	14:30-16:30 Symposium II: Tumor Immunology 林俊彥 黃麗蓉 陶秘華 吳漢忠 (李建國、陳念榮) S45-S48	Symposium III: Theranostic application of radioisotopes 張志賢 羅彩月 (王信二) S49-S50	Symposium: Non Communica-ble Disease in Translational Toxicology 許美鈴 王家琪 招名威 (劉興華) S30-S32	14:30-16:30 細生學會 口頭論文 報告 (施修明) O52-O60	14:30-16:30 臨床生化學會 口頭論文競賽 (吳瑞菁) O61-O65	14:30-16:30 Symposium II: Disease Models and Pathogenesis 吳佳慶 林含貞 李宜達 許書豪 (陳玉怜) S41-S44	14:30-16:30 Symposium II: Drug development 陳鈴津 吳漢忠 謝興邦 張俊彥 (陳慶士) S26-S29
15:30 15:45				休息 (大會茶點)	15:30-16:00 毒物學學會 口頭暨壁報論文競賽 頒獎 (康照洲)				
15:45 16:45		16:30-17:00 生理學會 論文競賽 頒獎 (郭昶志)	16:30-16:45 免疫學會 口頭論文競賽 頒獎 (許秉寧)	分子影像學會 口頭競賽 頒獎 (楊邦宏)			16:30-16:45 臨床生化學會 口頭論文競賽 頒獎 (方偉宏)		16:30-16:45 生化學會 壁報論文 & 口頭論文競賽 頒獎 (王憶卿)
16:45 17:00									



大會特別演講

論文編號 \ K1　　106 年 3 月 25 日（六）10:55-12:00

地　點：三樓，致德堂
主持人：王憶卿 台灣生物化學及分子生物學學會 理事長
講　題：Charting a Course for a Successful Research in Translational Medicine
演講者：陳垣崇　院士
單　位：Institute of Biomedical Sciences, Academia Sinica

論文編號 \ K2　　106 年 3 月 26 日（日）10:15-11:20

地　點：三樓，致德堂
主持人：王憶卿 台灣生物化學及分子生物學學會 理事長
講　題：New Drug Research Brings Me Closer to Society: Sharing Experience in Inventing Two Series of Drugs
演講者：張子文　執行長
單　位：Immunwork, Inc.

K1

Speaker / 陳垣崇
Yuan-Tsong Chen

106 年 3 月 25 日（六）10:55-12:00
三樓，致德堂

成功的轉譯醫學研究探索之旅

Charting a Course for a Successful Research in Translational Medicine

Translational medicine is a two way bridge that connects laboratory research to clinical medicine by translating laboratory discovery into diagnostic tools, drugs and procedures, with ultimate goal to improve patient care and to enhance human health and well-being. Translational medicine is often inspired by patients and driven by sciences. Some of the keys to success in translational medicine research in academic settings include: disease/target selection, multidisciplinary approach, strong translational research team, good patent lawyer, strong corporate and venture development team and eventually an industry sponsor and partnership. This presentation will use lessons learned from two product development in academic settings to illustrate these points.

■Current Position:

Distinguished Research Fellow, Institute of Biomedical Sciences, Academia Sinica/
中央研究院生物醫學科學研究所　特聘研究員

■Education/Training:

1966-1973　M.D., National Taiwan University, College of Medicine, Taipei, Taiwan
1974-1976　M.Phil. (Human Genetics), Columbia University, New York, New York, USA
1976-1978　Ph.D. (Human Genetics), Columbia University, New York, New York, USA

■Professional and Research Experience:

1983-1988　Assistant Professor (Tenured), Department of Pediatrics, Duke University Medical Center
1988-1993　Associate Professor (Tenured), Department of Pediatrics, Duke University Medical Center
1993-now　Professor (Tenured), Department of Pediatrics, Duke University Medical Center
1995-2010　Professor, Department of Genetics, Duke University Medical Center
2001-now　Distinguished Research Fellow, Institute of Biomedical Sciences, Academia Sinica

■Awards and Honors:

2015　Distinguished Faculty Award, Duke University
2012　Inaugural Duke Medicine Innovations Award, Duke University
2008　Lifetime Contribution Award, The US Association for Glycogen Storage Disease
2007　Science and Engineering Achievement Award, Taiwanese-American Foundation, USA
2006　Michael Frank Research Prize for lifetime contributions to the diagnosis and treatment of genetic metabolic diseases
Elected Member (Fellow), The World Academy of Sciences
Outstanding Medical /Pharmaceutical Science and Technology Award, Yung Shin T.& T. Lee Medical & Pharm. Foundation
2002　Elected Member (Academician), Academia Sinica
2000　J.C. Pompe Award, First Recipient, Children's Pompe Foundation
1992　Honor of Contributions, The Association for Glycogen Storage Disease

■Selected Publications:

1. Lee TH, Ko TM, Chen CH, Lee MTM, Chang YJ, Chang CH, Huang KL, Chang TY, Lee JD, Chang KC, Yang JT, Wen MS, Wang CY, Chen YT, Hsieh CS, Chou SY, Liu YM, Chen HW, Liao HT, Wang CW, Chen SP, Lu LS, **Chen YT***, Wu JY. (2016) Identification of PTCSC3 as a novel locus for large-vessel ischemic stroke: A Genome-Wide Association Study. ***J Am Heart Assoc***, 5(3):e003003. doi: 10.1161/JAHA.115.003003.
2. Ko TM, Tsai CY, Chen SY, Chen KS, Yu KH, Chu CS, Huang CM, Wang CR, Weng CT, Yu CL, Hsieh SC, Tsai JC, Lai WT, Tsai WC, Yin GD, Ou TT, Cheng KH, Yen JH, Liu TL, Lin TH, Chen DY, Hsiao PJ, Weng MY, Chen YM, Chen CH, Liu MF, Yen HW, Lee JJ, Kuo MC, Wu CC, Hung SY, Luo SF, Yang YH, Chuang HP, Chou YC, Liao HT, Wang CW, Huang CL, Chang CS, Lee MTM, Chen P, Wong CS, Chen CH, Wu JY*, **Chen YT***, Shen CY*, for the Taiwan Allopurinol-SCAR Consortium. (2015) Use of HLA-B*58:01 genotyping to prevent allopurinol-induced severe cutaneous adverse reactions in Taiwan: national prospective cohort study. ***British Medical Journal*** , 351:h4848.
3. Wei CY, Lee MMT, **Chen YT*** (2012) Pharmacogenomics of adverse drug reactions: implementing personalized medicine. Human Molecular Genetics , R58-R65.
4. Chen P, Lin JJ, Lu CS, Ong CT, Hsieh PF, Yang CC, Tai CT, Wu SL, Lu CH, Hsu YC, Yu HY, Ro LS, Lu CT, Chu CC, Tsai JJ, Su YH, Lan SH, Sung SF, Lin SY, Chuang HP, Huang LC, Chen YJ, Tsai PJ, Laio HT, Lin YH, Chen CH, Chung WH, Hung SI, Wu JY, Chang CF, Chen L, **Chen YT***, Shen CY*, and the Taiwan SJS consortium (2011) Carbamazepine-induced toxic effects and HLA-B*1502 screening in Taiwan. ***New Engl J Med***, 364:1126-1133.
5. Chung WH, Hung SI, Yang JY, Su SC, Huang SP, Wei CY, Chin SW, Chiou CC, Chu SC, Ho HC, Yang CH, Lu CF, Wu JY, Liao YD and **Chen YT*** (2008) Granulysin is a key mediator for disseminated keratinocyte death in Stevens-Johnson syndrome and toxic epidermal necrolysis. ***-Nature Medicine***, 14:1343-1350.
6. Chung WH, Hung SI, Hong HS, Hsih MS, Yang LC, Ho HC, Wu JY, **Chen YT*** (2004) A marker for Stevens-Johnson syndrome. ***Nature*** , 428: 486.　*Corresponding author

K2

Speaker / 張子文
Tse-Wen Chang

■**Current Position:**
Immunwork, Inc. Founder, President and CEO/
免疫功坊公司　創立人、執行長

■**Education/Training:**
1966-1970　B.S., Chemistry, National Tsing Hua University
1970-1972　M.S., Institute of Chemistry, National Tsing Hua University
1973-1977　Ph.D., Cell & Developmental Biology, Harvard University
1977-1980　Postdoc, Center for Cancer Research, M.I.T.

■**Professional and Research Experience:**
1980-1981　Department Supervisor, Cellular Immunology, Ortho Pharmaceutical Corp., New Jersey
1981-1985　Director of Immunology, Vice President of Research, Centocor, Inc., Pennsylvania
1986-1991　Professor, Division of Molecular Virology, Bayler College of Medicine, Houston
1986-2007　Cofounder, V.P. R & D, Board Director, Tanox Inc., Houston
1996-2006　Professor, Dean, Tsing Hua Professor Life Science, College of Life Science, Tsing Hua University
2000-2003　President, Development Center for Biotechnology, Taipei
2006-2015　Distinguished Research Fellow, Genomics Research Center, Academia Sinica
2016-now　Founder, President & CEO, Immunwork, Inc., Taipei

■**Awards and Honors:**
2014　Prize in Biomedical Sciences, The World Academy of Sciences
2007　Honorary Fellow Award, American Academy of Allergy, Asthma, and Immunology
2004　Honorary Fellow Award, American College of Allergy, Asthma, and Immunology
2003　Xolair (derived from anti-IgE invention) approved by FDA for moderate to severe allergic asthma

■**Selected Publications:**
1. **Chang, T.W**. (2000) Pharmacological basis of anti-IgE therapy (a review). ***Nature Biotechnology*** 18, 157-162.
2. **Chang, T.W.** and Shiung Y.Y. (2006) Anti-IgE as a mast cell-stabilizing therapeutic agent. ***J. Allergy Clin. Immunol.*** 117, 1203-12.
3. **Chang, T.W.**, Wu, P.C., Hsu, C.L., and Hung, A.F. (2007) Anti-IgE antibodies for the treatment of IgE-mediated allergic diseases. ***Adv. Immunol.*** 93, 63-119.
4. Chu, H.M., Wright, J., Chan, Y.H., Lin, C.J., **Chang, T.W.**, and Lim, C. (2014) Two potential therapeutic antibodies bind to a peptide segment of membrane-bound IgE in different conformations. ***Nature Communications*** 5, article No. 3139.
5. **Chang, T.W.**, Chen, C., Lin, C.J., Metz, M., Church, M.K., and Maurer, M. (2015) The potential pharmacological mechanisms of omalizumab in patients with chronic spontaneous urticaria. ***J. Allergy & Clin. Immunol***. 135: 337-342.
6. "Tanox", "omalizumab", and "talizumb" in Wikipedia
www.immunwork.com

106 年 3 月 26 日（日）10:15-11:20
三樓，致德堂

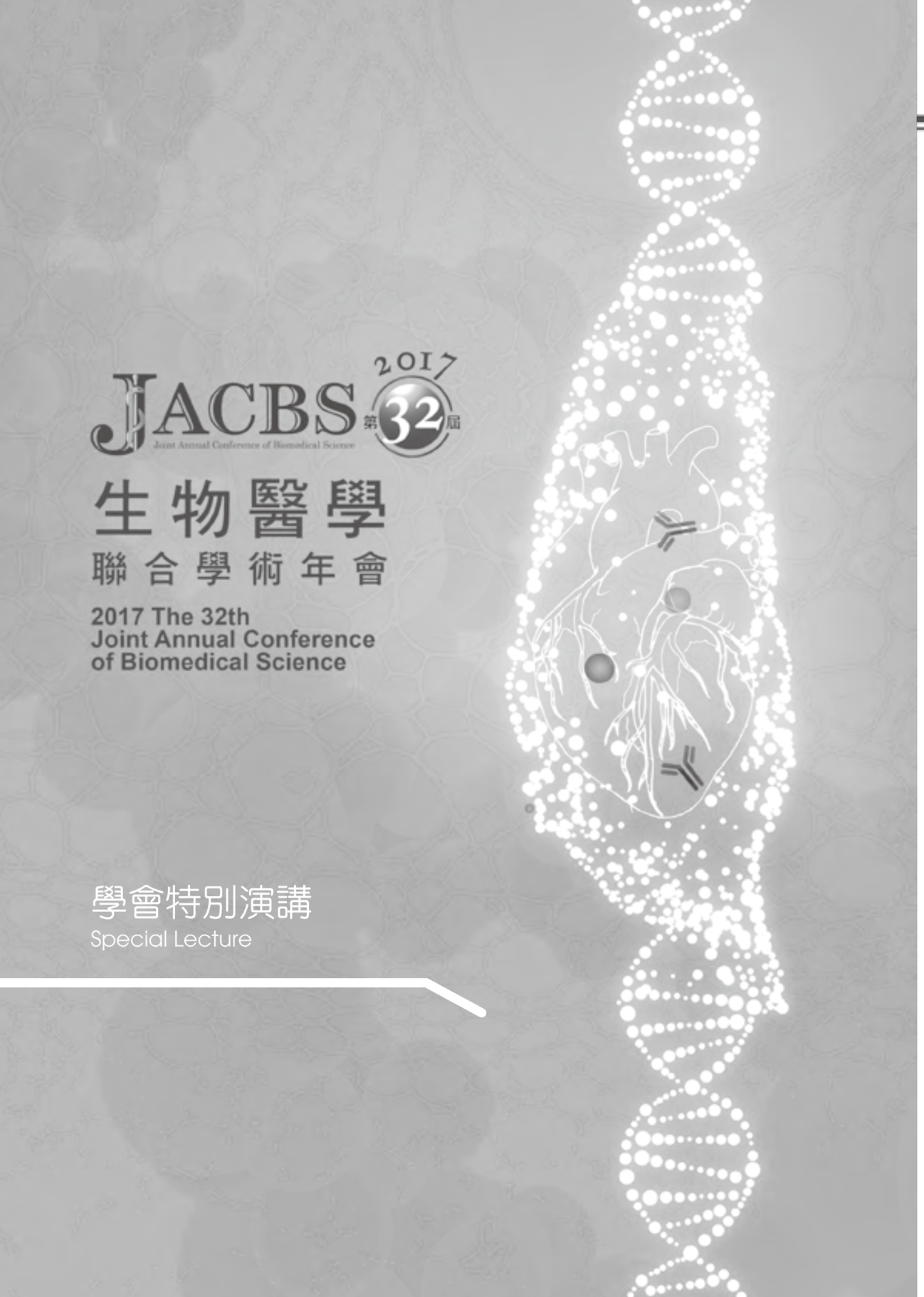
新藥研究讓我貼近社會： 兩系列新藥的發明經驗

New Drug Research Brings Me Closer to Society: Sharing Experience in Inventing Two Series of Drugs

The lecturer will share his experience in inventing and developing two series of new drugs. Both sets of the novel ideas came quite suddenly, but developing the ideas to applications have become his life-long pursuits. The program on targeting the IgE pathway started in 1987 and will still continue for many years. The T-E program started in 2014 and is on way to active development, as it has attracted broad interests from pharmaceutical industry.

1. Antibodies targeting the IgE pathway for the treatment of patients with severe allergic asthma, allergic rhinitis, atopic dermatitis, food allergy, and various allergic diseases, and other IgE-mediated, non-allergic diseases, such as chronic spontaneous urticaria and other skin inflammatory diseases. The set of antibody drugs include several anti-IgE antibodies, including omalizumab (Xolair) and anti-CemX antibodies. The clinical studies of the drugs in human patients help to understand IgE and B cell immunology, pathological mechanisms of various diseases, and pharmacological mechanisms of the drugs.
2. Various “T-E pharmaceuticals” for the potential treatment of patients with several types of cancer, autoimmune diseases, infectious diseases, central nervous system diseases, and others. The T-E molecules contain both targeting (T) and effector (E) moieties for achieving enhanced efficacy and decreased toxicity. More than 20 product candidates have been designed. Immunwork plans to develop the products through in-house efforts and international partnerships.

New drug development is a very lengthy process. While the path is dotted with numerous adverse surprises and major setbacks, the hard work is enlightened by the hopes that the drugs under development may be ultimately developed and can help patients. For the present lecturer, the new drug development career has brought him closer to his family, colleagues and peers, patients, and the general public, who share the prospects of his research work.



學會特別演講

論文編號 \ L1, (台灣生物化學及分子生物學學會) 106 年 3 月 25 日（六）14:30-15:20

地　點：三樓，第 33 教室
主持人：王憶卿　理事長
講　題：Tumor Exosomes Initiate Organ-Specific Metastasis
演講者：Dr. David Lyden
單　位：Department of Pediatrics, Weill Cornell Medical College, USA

論文編號 \ L2, (中華民國細胞及分子生物學學會) 106 年 3 月 25 日（六）09:30-10:20

地　點：三樓，第 30 教室
主持人：劉扶東　中研院副院長
講　題：Targeting CLEC5A for the Treatment of Acute Viral Infections
演講者：謝世良　特聘研究員
單　位：Genomics Research Center, Academia Sinica

論文編號 \ L3, (中華民國臨床生化學會) 106 年 3 月 25 日（六）09:30-10:20

地　點：三樓，第 31 教室
主持人：方偉宏　理事長
講　題：Development of Rapid Biosensors Based on AC Electrokinetics
演講者：張憲彰　教授
單　位：Department of Biomedical Engineering, National Cheng Kung University

學會特別演講

論文編號 \ L4, (台灣毒物學學會)　106 年 3 月 25 日（六）14:30-15:30

地　點：二樓，第 29 教室
主持人：康照洲　理事長
講　題：Sugar: The Bitter Truth About Kidney
演講者：林俊良　教授
單　位：Director of Medical Department , Chang Gung Memorial Hospital

論文編號 \ L5, (中國生理學會)　106 年 3 月 25 日（六）09:30-10:20

地　點：一樓，可勝廳
主持人：蔡少正　理事長
講　題：Physiological Consequences of Interactions of "Good" and "Bad" Bacteria with the Intestinal Epithelium
演講者：Dr. Kim Elaine Barrett
單　位：University of California, San Diego, School of Medicine, USA

論文編號 \ L6, (台灣藥理學會)　106 年 3 月 25 日（六）14:30-15:30

地　點：一樓，第 1 教室
主持人：簡伯武　理事長
講　題：Lung Fibrosis: from Molecular Mechanism to Drug Development
演講者：林建煌　教授
單　位：Graduate Institute of Medical Sciences, Taipei Medical University

學會特別演講

論文編號 \ L7, (中華民國解剖學學會)　106 年 3 月 25 日（六）09:30-10:20

地　點：三樓，第 32 教室
主持人：馬國興　理事長
講　題：Strategies for Enhancing Motoneuron Regeneration and Promoting Functional Recovery after Axonal Injury
演講者：吳武田　教授
單　位：LKS Faculty of Medicine, The University of Hong Kong, Hong Kong

論文編號 \ L8, (中華民國免疫學會)　106 年 3 月 25 日（六）09:30-10:20

地　點：二樓，第 20 教室
主持人：李建國　教授
講　題：Gut microbiota, Host Defense and Immunity
演講者：Dr. Hiroshi Ohno
單　位：RIKEN Research Center for Integrative Medical Sciences, Japan

論文編號 \ L9, (台灣分子生物影像學會)　106 年 3 月 25 日（六）09:30-10:20

地　點：二樓，第 28 教室
主持人：劉仁賢　理事長
講　題：Small Molecular Radiolabeled Ligands to Lectin-Binding Receptor Domains for Diagnosticc Imaging of Cancer
演講者：Dr. Juri Gelovani
單　位：Wayne State University, USA

L1

Speaker / David C. Lyden

106 年 3 月 25 日（六）14:30-15:20
三樓，第 33 教室

腫瘤胞外泌囊誘導器官特異性轉移

Tumor Exosomes Initiate Organ-Specific Metastasis

Metastasis to distant vital organs such as lung, liver, and brain is the most devastating feature of cancer progression, responsible for over 90% of cancer-associated deaths. In 1889, Stephen Paget first proposed that organ distribution of metastases is a non-random event, yet metastatic organotropism remains one of the greatest mysteries in cancer biology. Our recent studies uncovered that tumor-derived microvesicles, specifically exosomes, alter the microenvironment at future sites of metastasis to form pre-metastatic niches, creating a favorable “soil” for incoming metastatic “seeds”. However, by what mechanism this occurs, and the role of exosomes in tumor metastasis, remains unknown. To investigate the role of exosomes in organotropic metastasis, we have used two established organotropic human tumor models: the MDA-231 breast cancer (BC) cell line, and its variants known to metastasize to the lung, brain and bone, respectively, as well as two liver metastatic pancreatic cancer (PC) cell lines, BxPC3 and HPAF-2. We first analyzed the biodistribution of fluorescently-labeled exosomes derived from lung metastatic, brain metastatic or bone metastatic MDA-231 BC variants or PC cell lines, and found that BC exosomes follow the organ-specific distribution of the cells of origin, while PC exosomes home to the liver. In each target organ exosomes are taken up by different cell types: fibroblasts/epithelial cells in the lung, Kupffer cells in the liver, and endothelial cells in the brain. In the organotropic MDA-231 model, prior education with the lung tropic exosomes redirected metastasis of the bone tropic cells to the lung, demonstrating the unique capacity of exosomes to determine the site of metastasis. Unbiased proteomic profiling of exosomes revealed distinctive integrin expression patterns, and analysis of plasma exosomes from BC and PC patients that later developed site-specific metastasis revealed that specific exosomal integrins could predict metastatic spread. Recently, our group has identified unique exosome subpopulations and novel nanovesicles which packaged specific protein and genomic contents.

■Current Position:

Stavros S. Niarchos Professor, Department of Pediatrics, Weill Cornell Medical College, USA

Pediatric Neuro-oncologist, Memorial Sloan-Kettering Cancer Center, USA

■Education/Training:

1977-1981 B.S., University of Connecticut
1981-1986 Ph.D., University of Vermont
1985-1989 MD, Brown University

■Professional and Research Experience:

1995-1999 Special Fellow, Pediatric Hematology-Oncology, Memorial Sloan-Kettering Cancer Center
2002-2004 Assistant Professor of Pediatrics , Department of Pediatrics, Weill Cornell Medical College
2004-2013 Associate Professor of Pediatrics, Department of Pediatrics, Weill Cornell Medical College
2008-now Stavros S. Niarchos Chair in Pediatric Cardiology, Weill Cornell Medical College
2013-now Stavros S. Niarchos Professor with Tenure in Pediatrics, Weill Cornell Medical College
Professor of Cell and Developmental Biology, Cell and Developmental Biology Joint Program-Weill Cornell Medical College and Memorial Sloan-Kettering Cancer Center
2016-now Affiliated Principal Investigator, Champalimaud Research Programme

■Awards and Honors:

2014 Mina J. Bissel Award by University of Porto, Portugal
2012 Inaugural I.J. "Josh" Fidler Innovation in Metastasis Research Award
2011 Duke University Residency Alumni Award and Lecture
2010 European Microenvironment Society Award for European laboratories studying the pre-metastatic niche
2007 Presidential Award of Portugal - The Bial Medical Distinction Award

■Selected Publications:

1. Peinado H, Zhang H, Matei I, et al., **Lyden, D***. The pre-metastatic niche: An organotropic home. ***Nature Reviews Cancer***, 2017, In Press
2. Becker A, Thakur B, Weiss JM, Peinado H, **Lyden, D***. Extracellular vesicles in cancer: cell-to-cell mediators of metastasis. ***Cancer Cell,*** 2016;30(6):836-848.
3. Kenific CM, Nogués L, **Lyden, D***. Pre-Metastatic Niche Formation Has Taken Its TOLL. ***Cancer Cell***. 2016;30(2):189-191.
4. Hoshino A, Costa-Silva B, Shen T., et al., **Lyden, D***. Tumor exosome integrins determine organotropic metastasis. ***Nature*** 2015; 19;527(7578):329-335, PMID: 26524530
5. Costa-Silva B, Aiello NM, Ocean AJ, et al., **Lyden D***. Pancreatic cancer exosomes initiate pre-metastatic niche formation in the liver. ***Nat Cell Biol***. 2015; 17(6):816-826

L2

Speaker / 謝世良
Shie-Liang Hsieh

■**Current Position:**
Genomics Research Center, Academia Sinica/ 中央研究院基因體研究中心　特聘研究員

■**Education/Training:**
1977-1984　M.D. National Yang-Ming University (NYMU), Taiwan
1986-1988　Master. Inst of Microbiol. & Immunol., NYMU, Taiwan
1989-1992　D.Phil. Department of Biochemistry, University of Oxford, UK

■**Professional and Research Experience:**
1992-1993　Postdoctoral fellow, Stanford University (USA)
2005-2007　Director, Dep. of Microbiol. & Immunol.NYMU
2010-2013　Director, Institute of Clinical Medicine, NYMU
2008-2014　Director, Immunology Research Center, Taipei Veterans General Hospital

■**Awards and Honors:**
2004-present　Ohio State University Medical Center: Lucius A. Wing Chair of Cancer Research and Therapy
2010　Inaugural Innovator of the Year Award
Distinguished University Scholar Award
2008　Innovation in Drug Discovery Award
2003-2006　College of Pharmacy Kimberly Chair Professorship
2014　National Academy of Inventors elected fellow
2008　Hearst Foundation Award
2007, 2008　Prostate Cancer Foundation Award
2004　American Association for the Advancement of Science elected fellow
The V Foundation-AACR Translational Cancer Research award
1994　National Institutes of Health Shannon Award

■**Selected Publications:**

1. CLEC5A-mediated enhancement of the inflammatory response in myeloid cells contributes to influenza pathogenicity in vivo. Teng, O, Chen, ST, Hsu TL, Sia SF, Cole S, Valkenburg SA, Hsu TY, Zheng JT, Tu W, Bruzzone R, Peiris JSM, **Hsieh SL****, **Yen HL****. J. Virology; **2016** (JVI.01813-16).
2. Huang YL, Chen ST, Liu RS, Chen YH, Lin CY, Huang CH, Su PY, Liao CL, **Hsieh SL***. CLEC5A is Critical for Dengue Virus-induced Osteoclast Activation and Bone Homeostasis. J. Mol. Med, **2016**; DOI: 10.1007/s00109-016-1409-0
3. Wu MF, Chen ST, Yang AH, Lin WW, Lin YL, Chen NJ, Tsai IS, Li L, **Hsieh SL***. CLEC5A is critical for dengue virus-induced inflammasome activation in human macrophages. Blood 2013; **121**: 95-106.
4. Chen ST, Liu RS, Wu MF, Lin YL, Chen SY, Tan DTW, Chou TY, Tsai IS, Li L, **Hsieh SL***. *CLEC5A Regulates Japanese Encephalitis Virus-Induced Neuroinflammation and Lethality*. PLoS Pathogens 2012; 8(4): e1002655. doi:10.1371/journal.ppat.1002655.
5. Chen ST, Lin YL, Huang MT, Wu MF, Cheng SC, Lei HY, Lee CK, Chiou TW, Wong CH, **Hsieh SL***. *CLEC5A is critical for dengue virus-induced lethal disease*. Nature 2008; **453**: 672-5

106 年 3 月 25 日（六）09:30-10:20
三樓，第 30 教室

針對 CLEC5A 的標靶藥物開發： 急性病毒感染症

Targeting CLEC5A for the Treatment of Acute Viral Infections

Acute viral infections cause high mortality in endemic and pandemic infectious diseases. Most of severe viral infections are caused by RNA viruses, such a Flaviviruses, Coronaviruses, Orthomyxoviruses, and etc. The identification of endosomal TLRs (TLR3, TLR7/8) and cellular sensors (RIG-I, MDA-5) elucidate how host recognize various RNA structures to elicit interferon production and protect cells from further viral infections. In contrast, it is relatively unclear how viruses induce severe inflammation and cause tissue damage, plasma leakage, and shock syndrome. However, the 'pathogenic' host factor in flavivrus and influenza virus-induced vascular permeability change is still unclear.

By using human lectin array, we found several members of human C-type lectins receptor CLEC5A/MDL-1 interacts with intact virions and ds RNA directly, and are responsible for dengue virus-induced systemic permeability change, NALP3 activation, and upregulation of osteolytic activity. In addition, blockade of CLEC5A by antagonistic anti-CLEC5A mAb is able to reduce JEV-induced neuroinflammation and mortality. It is surprising to find that CLEC5A also interact with influenza virus A (IVA) directly, and blockade of CLEC5A reduce IAV-induced inflammasome activation and proinflammatory cytokine secretion. CLEC5A knockout mice are more resistant than wild type littermates in H5N1 infection, and are associated with reduced cell infiltration and lung inflammation. This observation suggests that CLEC5A is a host pathogenic factor in acute flavivruses and influenza viruses-induced inflammatory reaction, and antagonistic mAb against CLEC5A mAb is a promising therapeutic agent for the treatment of acute flaviviral and influenza virus infection in the future.

L3

Speaker / 張憲彰
Hsien-Chang Chang

■**Current Position:**
Department of Biomedical Engineering, National Cheng Kung University/
成功大學生物醫學工程學系　特聘教授

■**Education/Training:**

1982-1985　B.S., Department of Applied Chemistry, Tohoku University, Japan
1985-1987　M.S., Department of Applied Chemistry, Tohoku University, Japan
1987-1990　Ph.D., Department of Applied Chemistry, Tohoku University, Japan

■**Professional and Research Experience:**

2010-　present　Professor, Department of Biomedical Engineering, National Cheng Kung University, Taiwan, ROC
1999-2010　Vice Professor, Institute of Biomedical Engineering, National Cheng Kung University, Taiwan, ROC
1991-1999　Vice Professor, Institute of Biomedical Engineering, National Cheng Kung University, Taiwan, ROC
1990-1991　Research Associate, Department of Applied Chemistry, Tohoku University, Japan

■**Awards and Honors:**

Awards, Honors :
Innovation award in Taiwan (國家新創獎 2012, 2011, 2010)

Fields of Research :
Electrochemical study on NAD(H) regeneration for biosensors and bioreactor systems, Raman Spectroscopy on microorganism discrimination
Dielectrophoresis-based microfluidic chip for bio-particle separation and concentration
Rapid antimicrobial susceptibility test (AST) of Gram negative bacteria with β-Lactam antibiotics treatment by dielectrophoresis
Differentiation between infectious and non-infectious Ulcerative Keratitis by Raman spectra of human teardrops
in vitro diagnosis on rapid immunoassay and cross-matched blood.

■**Selected Publications:**

1. C. -C. Chung, I-F. Cheng, H. -M. Chen, H. -C. Kan, W. -H. Yang*, H. -C. Chang*, "Screening of antibiotic susceptibility to beta-Lactam induced elongation of Gram-negative bacteria based on dielectrophoresis", Analytical Chemistry, 84(2012)3347-3354
2. I-F. Cheng, H. -L. Yang, C. -C. Chung, H. -C. Chang*, “A rapid electrochemical biosensor based on an AC electrokinetics enhanced immuno-reaction”, Analyst, 138(2013)4656-4662.
3. I-F. Cheng*, H. -C. Chang, T. -Y. Chen, C. Hu, F. -L. Yang “Rapid (< 5 min) identification of pathogen in human blood by electrokinetic concentration and surface-enhanced Raman spectroscopy", Scientific Reports, 3(2013)2365-2373.
4. C. -C. Lin, Y. -M. Yang, P. -H. Liao, D. -W. Chen, H. -P. Lin*, H. -C. Chang* “A filter-like AuNPs@mesoSiO2 SERS substrate for S. aureus detection”, Biosensors and Bioelectronics, 53(2014)519-527.
5. C. -C. Chung, T. Glawdel, C. Ren*, Hsien-Chang Chang*, “Combination of AC Electroosmosis and Dielectrophoresis for Particle Manipulation on Electrically-Induced Microscale Wave Structures”, Journal of Micromechanics and Microengineering, Vol(Iss): 25(3), 035003

106 年 3 月 25 日（六）09:30-10:20
三樓，第 31 教室

以交流電動力學為基礎之快速生醫感測器的發展

Development of Rapid Biosensors Based on AC Electrokinetics

Fluorescent labelling and chromogenic reactions that are commonly used in conventional immunoassays typically utilize diffusion dominated transport of analytes, which is limited by slow reaction rates and long detection times. By integrating alternating current (AC) electrokinetics and electrochemical impedance spectroscopy (EIS), we construct an immunochip for rapid, sensitive, and label-free detection. AC electroosmosis (ACEO) and positive dielectrophoresis (DEP), induced by a biased AC electric field, can rapidly convect and trap the analyte onto an EIS working electrode within a few minutes. This allows the change of electron-transfer resistance (ΔRet) caused by the antibody-antigen (IgG-Protein A) binding to be measured and quantified in real time. The measured impedance change achieves a plateau after electrokinetic concentration for only 90 s, and the detection limit is able to reach 200 $pgml^{-1}$. Compared to the conventional incubation method, the electrokinetics-enhanced method is approximately 100 times faster in its reaction time, and the detection limit is reduced by 30 times. TheΔRet of the positive response is two orders of magnitude higher than the negative control, demonstrating excellent specificity for practical applications [1].

1. I-F. Cheng, H. -L. Yang, C. -C. Chung, H. -C. Chang*, “A rapid electrochemical biosensor based on an AC electrokinetics enhanced immuno-reaction”, Analyst, 138(2013)4656-4662.
2. C. -C. Chung, I-F. Cheng, H. -M. Chen, H. -C. Kan, W. -H. Yang*, H. -C. Chang*, "Screening of antibiotic susceptibility to beta-Lactam induced elongation of Gram-negative bacteria based on dielectrophoresis", Analytical Chemistry, 84(2012)3347-3354
3. I-F. Cheng*, H. -C. Chang, T. -Y. Chen, C. Hu, F. -L. Yang “Rapid (< 5 min) identification of pathogen in human blood by electrokinetic concentration and surface-enhanced Raman spectroscopy", Scientific Reports, 3(2013)2365-2373.

L4

Speaker / 林俊良
Chun-Liang Lin

■**Current Position:**
嘉義長庚醫院 內科部部長
腎臟科主治醫師

■**Education/Training:**
長庚大學 博士

■**Professional and Research Experience:**
嘉義長庚醫院 教授
嘉義長庚醫院 內科部部長
嘉義長庚醫院 醫學研究部主任
嘉義長庚醫院 腎臟科主任

■**Awards and Honors:**
2006 台舉醫學會研究獎
美國 AMA 優秀評審委員認證獎
2009 台灣腎臟醫學會研究獎
台灣腎臟醫學會優秀論文獎
2010 國家衛生研究院 (NHRI) 三年期創新研究計畫
2012 OUTSTANDING YOUNG INVESTIGATOR IN 9TH IDF-WPR CONGRESS/4TH AASD SCIENTIFIC MEETING (INVITED LECTURE: TARGETING EMBRYONIC STEM CELL SIGNALING IN DIABETIC NEPHROPATHY)
INVITED CHAIRPERSON AT THE 9TH IDF-WPR CONGRESS & 4TH AASD SCIENTIFIC MEETING IN KYOTO, JAPAN
2013 國家衛生研究院 (NHRI) 台灣 CKD 臨床指引，糖尿病腎病變組召集人
國家衛生研究院 (NHRI) 三年期創新研究計畫
2014 陳萬裕教授優秀論文獎

■**Selected Publications:**

1. 1***Lin CI et al***. MicroRNA-29a Promotion of Nephrin Acetylation Ameliorates Hyperglycemia-Induced Podocyte Dysfunction. J Am Soc Nephrol 25: 2014
2. ***Lin CI et al***. Modulation of Notch-1 signaling alleviates VEGF-mediated diabetic nephropathy. Diabetes. Aug. 2010; 59(8): 1915-1925.
3. ***Lin CI et al***. Dickkopf-1 Regulates High Glucose-Induced Mesangial Matrix Accumulation and Renal Dysfunction. J Am Soc Nephrol 2010; 21 124-135
4. ***Lin CI et al***. Wnt/beta-Catenin Signaling Modulates Survival of High Glucose-Stressed Mesangial Cells. J Am Soc Nephrol. 2006 Oct;17(10):2812-20
5. ***Lin CI et al***. **Ras modulation of superoxide activates ERK-dependent fibronectin expression in diabetes-induced renal injuries. Kidney Int. 2006 May;69(9):1593-600.**

106 年 3 月 25 日（六）14:30-15:30
二樓，第 29 教室

糖： 一個關於腎臟的殘酷事實

Sugar: The Bitter Truth About Kidney

Glucose is the form of energy you were designed to run on. Every cell in your body, every bacterium—and in fact, every living thing on the Earth—uses glucose for energy. Excess sugar is also a primary factor in countless other chronic disease states including fructose, obesity, and metabolic disease. A lot of new research has come out about how sugar (because of the high amount of fructose) can cause harm to the body. Beyond many harmful effects including insulin resistance from obesity due to over-intake of sugar, to be a nephrologist, however, in this lecture, I want to focus on the deleterious effects of high glucoses itself on kidney. Our laboratory is the leading group in the world currently working on diabetic nephropathy including the superoxide-mediating signaling transduction, in diabetic nephropathy at present, the role of Wnt/beta-catenin signaling, Notch1, DKK1 , and MicoRNA29a in diabetic nephropathy. Taken together, in this lecture, I will show you that modulation of these embryonic cell signaling, such as Wnt/β-catenin/DKK1 or Notch signals, in kidney may provide novel therapeutic strategies for diabetic nephropathy. Furthermore, I will also demonstrate that epigenetic modulation in high glucose microenvironment will lead to kidney dysfunction. To solve this issue, beyond control of sugar level in our body, we have designed a potential chemical compound that will provide you with new insights into the updated clinical care, basic research, signaling pathways and preventive strategies on diabetic nephropathy in the near future.

L5

Speaker / Kim Elaine BARRETT

106 年 3 月 25 日（六）09:30-10:20
一樓，可勝廳

Physiological Consequences of Interactions of "Good" and "Bad" Bacteria with the Intestinal Epithelium

The gastrointestinal epithelium, with its vast surface area, maintains a life-long and mutually beneficial relationship with a vast number of commensal microorganisms known as the microbiota. On the other hand, the surface area of the gut and its continuity with the external environment renders it vulnerable to pathogens that enter the body via the oral route. Many such infections are associated with diarrheal symptoms. We have shown that a prototypic invasive pathogen, Salmonella enterica, diminishes the capacity of the gut to reabsorb fluid and electrolytes, perhaps by shifting the balance of differentiation of GI stem cells from the absorptive to secretory lineages. This could account for the diarrhea that is a common occurrence in patients suffering from salmonellosis. Conversely, we have developed evidence that interactions between the intestinal epithelium and the commensal microbiota are beneficial for the host by positively regulating epithelial transport and barrier functions, both at baseline and when the epithelium is disrupted in the setting of inflammation and/or infection with invasive pathogens. The goal of my presentation, therefore, will be to review findings that underscore the multiplicity of mechanistic outcomes when intestinal epithelial cells encounter either pathogens and commensals, and to discuss the possible implications of these findings for the treatment of digestive disease states.

■Current Position:

Distinguished Professor of Medicine, University of California, San Diego, School of Medicine

■Education/Training:

1976-1979 B.Sc., Medicinal Chemistry, University College London, UK
1979-1982 Ph.D., Biological Chemistry, University College London, UK
1982-1985 Postdoctoral fellow, National Institutes of Health, Bethesda, MD, USA

■Professional and Research Experience:

1985-1988 Assistant Research Immunologist
1988-1992 Assistant Prof
1992-1996 Assoc. Prof
1996-2015 Professor of Medicine
1999-2006 Vice-Chair for Research, Department of Medicine
2006-2016 Dean of the Graduate Division
2015- Distinguished Professor of Medicine

■Awards and Honors:

2016-2021 Editor-in-Chief, The Journal of Physiology
2015 Bayliss-Starling Prize Lecturer, Physiological Society
2013-2014 President, American Physiological Society
2006 Davenport Lecturer, American Physiological Society
2004 Doctor of Medical Science, honoris causa, Queen's University Belfast

■Selected Publications:

1. Emge, J.R., K. Huynh, E.N. Miller, M. Kaur, C. Reardon, K.E. Barrett and M. G. Gareau: Modulation of the microbiota-gut-brain axis by probiotics in a murine model of inflammatory bowel disease. *Am. J. Physiol.: GI Liver Physiol*. 310: G989-G998, 2016.
2. Marchelletta, R., M. Gareau, S. Okamoto, D. Guiney, K. E. Barrett and J. Fierer: Salmonella-induced diarrhea occurs in the absence of IL-8 receptor (CXCR2)-dependent neutrophilic inflammation. *J. Infect. Dis*. (1): 128-136, 2015.
3. Smith, C.J., J.R. Emge, K. Berzins, L. Lung, R. Khamishon, P. Shah, D.M. Rodrigues, A.J. Sousa, C. Reardon, P.M. Sherman, K.E. Barrett, and M.G. Gareau: Probiotics normalize the gut-brain-microbiota axis in immunodeficient mice. *Am. J. Physiol.: GI Liver Physiol*. 307: G793-G802, 2014.
4. Barrett, K.E.: *Gastrointestinal Physiology*, 2nd Edition, McGraw-Hill, New York, 2014.
5. Marchelletta, R.R., M.G. Gareau, D.F. McCole, S. Okamoto, E. Roel, R. Klinkenberg, D. Guiney, J. Fierer, and K.E. Barrett: Altered expression and localization of ion transporters contribute to diarrhea in mice with *Salmonella*-induced enteritis. *Gastroenterology* 145: 1358-1368, 2013.

L6

Speaker / 林建煌
Chien-Huang Lin

■Current Position:
Vice President, Taipei Medical University/ 臺北醫學大學 副校長
Professor, Graduate Institute of Medical Sciences, Taipei Medical University/
臺北醫學大學醫學科學研究所 教授

■Education/Training:
1985-1989 B.S., Department of Pharmacy, Taipei Medical University
1989-1991 M.S., Institute of Pharmacology, College of Medicine, National Taiwan University
1991-1995 Ph.D., Institute of Pharmacology, College of Medicine, National Taiwan University
2009-2012 EMBA, College of Management, National Taiwan University

■Professional and Research Experience:
1997-2002 Associate Professor, Graduate Institute of Biomedical Technology, Taipei Medical University
2001-2004 Director, School of Respiratory Therapy, Taipei Medical University
2004-2009 Director, Graduate Institute of Medical Sciences, Taipei Medical University
2003-2009 Dean, Office of Research and Development, Taipei Medical University
2009-2011 Dean, Academic Affairs, Taipei Medical University
2011-2014 Chief Secretary, Secretariat, Taipei Medical University
2002 - Professor, Graduate Institute of Medical Sciences, Taipei Medical University

■Awards and Honors:
2011-2016 Subsidies for Distinguished Talents (特殊優秀人才獎勵) , Ministry of Science and Technology
2014 The Annual Research Achievement Award, Taipei Medical University
2012 The Program Project Grant Award, Taipei Medical University
2009 The Gold Research Award, Taipei Medical University
2005 The Outstanding Research Award, Taiwan Pharmacology Society

■Selected Publications:
1. Chen YC, Chen BC, Yu CC, Lin SH, **Lin CH***. (2016) miR-19a, -19b, and -26b mediate CTGF expression and pulmonary fibroblast differentiation. ***J. Cell. Physiol***. 231:2236-2248.
2. Weng CM, Yu CC, Kuo ML, Chen BC*, and **Lin CH*** (2014) Endothelin-1 induced connective tissue growth factor expression in human lung fibroblasts by ETAR-dependent JNK/AP-1 pathway. ***Biochem. Pharmacol***. 88:402-411.
3. Weng CM, Chen BC, Wang CH, Feng PH, Huang CD, Kuo HP*, **Lin CH***. (2013) The endothlin receptor mediates fibrocyte differentiation in chronic obstructive asthma. The involvement of connective tissue growth factor. ***Am. J. Respir. Crit.Care Med***. 188:298-308.
4. Chen BC, Chang HM, Hsu MJ, Shih CM, Chiu YH, Chiu WT, **Lin CH***. (2009) Peptidoglycan induces cyclooxygenase-2 expression in RAW 264.7 macrophages by activation the neutral sphingomyelinase-ceramide pathway. ***J. Biol. Chem***. 284:20562-20573.
5. Yu CC, Hsu MJ, Kuo ML, Chen MC, Bai KJ, Yu MC, Chen BC*, **Lin CH***. (2009) Thrombin-induced connective tissue growth factor expression in human lung fibroblasts requires the ASK1/JNK/AP-1 pathway. ***J. Immunol***. 182:7916-7927.

106 年 3 月 25 日（六）14:30-15:30
一樓，第 1 教室

肺纖維化的分子機制和藥物開發

Lung Fibrosis: from Molecular Mechanism to Drug Development

Lung fibrosis is characterized by excessive deposition of extracellular matrix (ECM) in lung tissue, which in turn causes lung function impairment. Fibrosis occurs in variety of lung diseases, such as chronic obstructive asthma (COA), tuberculosis (TB), and idiopathic pulmonary fibrosis (IPF). Fibrocytes are CD34+, CD45+, and collagen+ circulating progenitor cells, which are capable of differentiation to fibroblasts and myofibroblasts. Previous study indicated that fibrocytes might play a role in pulmonary fibrosis. However, the regulation of fibrocyte differentiation and proliferation in COA or TB is still unknown. Connective tissue growth factor (CTGF) had been reported to play a crucial role in fibroblast differentiation. However, the molecular mechanism of CTGF expression induced by proinflammatory stimuli is still unclear. Our previous study found that histone deacetylases (HDACs) played an important role in fibroblast differentiation. Recently, we found that a novel HDAC inhibitor (HDACi) could act as an anti-fibrosis agent. Consequently, this talk consists of the following three topics that provide the mechanism of lung fibrosis and the development of anti-fibrosis.

1. To define the role of CTGF expression in fibrocyte differentiation. Our study found that endothelin receptor A (ETAR) mediated fibrocyte differentiation through CTGF expression in COA. CTGF autocrine loop played an important role in fibrocyte differentiation in COA. Moreover, we also found that fibrocyte differentiation and proliferation were involved in lung fibrosis in TB patients.
2. o determine the molecular mechanism of CTGF expression. Our research showed that ET-1 induced CTGF expression through JNK/AP-1 signaling pathway in human lung fibroblasts. Furthermore, histone deacetylase 7 (HDAC7)/p300 was also involved in ET-1-induced AP-1 activation and CTGF expression in human lung fibroblasts. We also found that HDAC7, CTGF, and α-SMA were overexpressed in fibroblasts from COA patients compared to normal subjects. Moreover, we found that JNK/AP-1 and JAK/STAT3 signaling pathways were involved in thrombin-induced CTGF expression in human lung fibroblasts. MicroRNA mediates RNA silencing and post-transcriptional regulation of gene expression. We also found that miR-19a, -19b, and -26b mediated CTGF expression and pulmonary fibroblast differentiation.
3. To develope anti-fibrosis agent. The novel HDAC inhibitor (HDACi) suppressed TGF-β-, thrombin-, and ET-1-induced fibrogenic protein expression, such as CTGF, collagen, α-SMA, and fibronectin in human lung fibroblasts. This inhibitory effect of HDACi in CTGF expression is through the acetylation of MAP kinase phosphatase-1 (MKP-1), which in turn dephosphorylates MAPK. Furthermore, HDACi suppressed lung fibrosis, fibrogenic protein expression, and lung function in bleomycin-induced lung fibrosis mice model.

L7

Speaker / 吳武田
Wutian Wu

■**Current Position:**
Professor, LKS Faculty of Medicine, The University of Hong Kong
香港大學李嘉誠醫學院　教授

■**Education/Training:**
1972-1976　Medical degree, Zhongshan Medical College, Guangzhou, China
1979-1981　M.S. Zhongshan Medical College, Guangzhou, China
1986-1987　Visiting Scholar, University of Texas at San Antonio, TX, USA
1987-1991　Ph.D. Neuroscience, Eastern Virginia Medical School, Norfolk, VA, USA
1991-1993　Postdoc, Eastern Virginia Medical School, Norfolk, VA, USA

■**Professional and Research Experience:**
1993-1996　Assistant Professor, Neurosurgery and Anatomy, Eastern Virginia Medical School
1996-1997　Assistant Professor, Anatomy, Faculty of Medicine, The University of Hong Kong, Hong Kong SAR
1997-2007　Associate Professor, Anatomy, Faculty of Medicine, The University of Hong Kong, Hong Kong SAR
1998-　present, Professor, Anatomy Faculty of Medicine, The University of Hong Kong, Hong Kong SAR

■**Awards and Honors:**
2008　Research output prize, The University of Hong Kong
2012　National Science Award, China (2nd Class) 國家科學技術進步獎二等獎

■**Selected Publications:**
1. Hao Wu, Ruixia Deng, Xingmiao Chen, Waiman Connie Wong, Hansen Chen, XLei Gao, Yichu Nie, **Wutian Wu***, and Jiangang Shen*: Caveolin-1 Is Critical for Lymphocyte Trafficking into Central Nervous System during Experimental Autoimmune Encephalomyelitis. ***J of Neuroscience***, 36(19):5193–5199, 2016.
2. Zhang N, Lou Y, He L, Zhou L and **Wu W***: A self-assembly peptide nanofibrous scaffold reduces inflammatory response and promotes functional recovery in a mouse model of intracerebral hemorrhage. ***Nanomedicine: NBM***, 12:1205-1217, 2016.
3. Li H, Wong C, Li W, Ruven C, He L, Wu X, Lang BT, Silver J and **Wu W***: Enhanced regeneration and functional recovery after spinal root avulsion by manipulation of the proteoglycan receptor PTPσ. ***Sci Rep***, 5:14923. Doi:10.1038/srep 14923, 2015.
4. Su HX, Zhang WM, Guo JS, Guo AC, Yuan QJ, **Wu W***. Neural progenitor cells enhance the survival and axonal regeneration of injured motoneurons after transplantation into the avulsed ventral horn of adult rats. ***J. Neurotrauma***. 26(1):67-80, 2009.
5. Mi S, Hu B, Hahm K, Luo Y, Hui SK, Yuan Q, Wong WM, Wang L, Su HX, Chu TH, Guo JS, Zhang WM, So KF, Pepinsky B, Shao ZH, Graff C, Garber E, Jung V, Wu XK, **Wu W***: LINGO-1 Antagonist Promotes Spinal Cord Remyelination and Axonal Integrity in MOG-Induced Experimental Autoimmune Encephalomyelitis. ***Nature Medicine***, 13:1228-1233, 2007.

106 年 3 月 25 日（六）09:30-10:20
三樓，第 32 教室

促進運動神經元再生與功能恢復策略

Strategies for Enhancing Motoneuron Regeneration and Promoting Functional Recovery after Axonal Injury

Motoneurons innervate muscles and are responsible for body movement. Degeneration of motoneurons caused by injury or neurodegenerative diseases will result in denervation and atrophy of muscles which in tern causes motor function loss of affected body. Brachial plexus avulsion is a common clinical case in patients due to traffic accidence. Damage to the axons of motoneurons of the plexus causes loss of upper limb's function. Although surgical procedures can repair the injured nerve, recovery of function of the injured upper limb is often unsatisfied. This is because the injured motoneurons undergo degeneration and does not regenerate and re-innervate their target muscles effectively. To promote functional recovery after motoneuron damage one should understand mechanisms underlying motoneuron degeneration and strategies for enhancing axonal regeneration and re-innervation. This talk consists of the following aspects that provide mechanistic rational for promoting motor function recovery after axonal injury. 1). Understand mechanisms of motoneuron degeneration after axonal injury both in biochemistry and morphology. 2). Strategies that can enhance axonal regeneration, remyelination and reinnervation of muscles. 3). Strategies that can prevent muscular atrophy.

L8

Speaker / Hiroshi Ohno

■**Current Position:**
RIKEN Center for Integrative Medical Sciences/
理化学研究所統合生命医科学研究センター

■**Education/Training:**

1977-1983	B.Med., School of Medicine, Chiba University/M.D. (Medical License in Japan)
1983-1987	Intern/Resident, Chiba University Hospital
1987-1991	Ph.D., Graduate School of Medicine, Chiba University

■**Professional and Research Experience:**

1991-1997	Assist. Prof.; 1997-1999 Assoc. Prof., School of Medicine, Chiba Univerity
1994-1997	Visiting Scientist, National Institute of Child Health and Human Development. NIH, U.S.A.
1999-2004	Professor, Cancer Institute, Kanazawa University
2002-2013	Team Leader, RIKEN Research Center for Allergy and Immunology
2005-	Affiliate Professor, Graduate School of Medical Life Science, Yokohama City University
2007-	Affiliate Professor, Graduate School of Medical and Pharmaceutical Sciences, Chiba University
2013-	Group Director, RIKEN Center for Integrative Medical Sciences
2014-	Chief Scientist, RIKEN

■**Awards and Honors:**

2016	The 53rd Erwin fon Bälz Prize
2015	Grand Prize, The 20th Ando Momofuku Award
	Praemium Academiae Inohanae Chibae
1996	NIH Fellows Award for Research Excellence

■**Selected Publications:**

1. Kimura, S., Yamashita, M., Yamakami-Kimura, M., Sato, Y., Yamagata, A., Kobashigawa, Y., Inagaki, F., Amada, T., Hase, K., Iwanaga, T., **Ohno, H.***, Fukai, S.* Distinct Roles for the N- and C-terminal Regions of M-Sec in Plasma Membrane Deformation during Tunneling Nanotube Formation. ***Sci. Rep***. 6: 33548, 2016
2. Sugahara, H., Odamaki, T., Fukuda, S., Kato, T., Xiao, J. Z., Abe, F., Kikuchi, J., **Ohno H.*** Probiotic Bifidobacterium longum alters gut luminal metabolism through modification of the gut microbial community. ***Sci Rep***., 5: 13548, 2015
3. Matsumura, T., Sugawara, Y., Yutani, M., Amatsu, S., Yagita, H., Kohda, T., Fukuoka, S.-I., Nakamura, Y., Fukuda, S., Hase, K., **Ohno, H***., Fujinaga, Y.* Botulinum toxin A complex exploits intestinal M cells to enter the host and exert neurotoxicity. ***Nat. Commun.*** 6: 6255, 2015
4. Furusawa, Y., Obata, Y., Fukuda, S.*, Endo, T. A., Nakato, G., Takahashi, D., Nakanishi, Y., Uetake, C., Kato, K., Kato, T., Takahashi, M., Fukuda, N. N., Murakami, S., Miyauchi, E., Hino, S., Atarashi, K., Onawa, S., Fujimura, Y., Lockett, T., Clarke, J. M., Topping, D. L., Tomita, M., Hori, S., Ohara, O., Morita, T., Koseki, H., Kikuchi, J., Honda, K., Hase, K.*, **Ohno, H.*** Commensal microbe-derived butyrate induces colonic regulatory T cells. ***Nature*** 504(7480): 446-450, 2013
5. Fukuda, S., Toh, H., Hase, K., Oshima, K., Nakanishi, Y., Yoshimura, K., Tobe, T., Clarke, J. M., Topping, D. L., Suzuki, T., Taylor, T. D., Itoh, K., Kikuchi, J., Morita, H., Hattori, M., **Ohno, H.*** Bifidobacteria can protect from enteropathogenic infection through production of acetate. ***Nature***, 469(7331): 543-547, 2011

106 年 3 月 25 日（六）09:30-10:20
二樓，第 20 教室

Gut Microbiota, Host Defense and Immunity

Animal gut is colonized with a huge number of commensal bacteria; for example, the human colon is colonized with more than 40 trillions of commensal microbes classified into several hundred species, collectively called gut microbiota. These microbes closely interact with the host to establish the unique and complicated gut ecosystem, which deeply impacts host physiology and pathology including host defense and immunity. However, the underlying mechanisms of how gut ecosystem influences host defense and immune system have poorly understood.

We have proposed an integrated multi-omics approach, where different levels of exhaustive analyses such as (meta)genomics, (meta)transcriptomics and metabolomics are combined.

By applying the integrated multi-omics approach, we have shown that *Bifidobacterium*-derived acetate can modify gene expression of the colonic epithelium to confer resistance against enterohemorrhagic *Escherichia coli* O157, which ultimately protects mice from O157-infectious death.

We have also found that butyrate produced by gut micirobiota can enhance differentiation of colonic regulatory T (Treg) cells from naïve T cells, via epigenetic modification through its histone deacetylase inhibitory ability.

Finally, I would like to discuss the role of gut microbiota in the pathogenesis of multiple sclerosis (MS). MS is a demyelinating disease. While the precise mechanism of pathogenesis is not clear, it is thought to be an autoimmune disorder caused by the combination of host genetic factors and environmental factors; among the latter is the gut microbiota. We are studying experimental autoimmune encephalomyelitis (EAE), an animal model for MS with the integrated multi-omics approach, which will be introduced.

L9

Speaker / Juri G. Gelovani

■**Current Position:**
Professor, Biomedical Engineering, College of Engineering, Wayne State University, Detroit, MI/ 韋恩州立大學　教授

■**Education/Training:**
1986 MD, Medicine, University of Tartu, Estonia
1990 PhD, Neurosurgery, University of Tartu, Estonia
1991-1996 Postdoctoral Fellowship, Memorial Sloan-Kettering Cancer Center, Cotzias Neuro- Oncolology Laboratory, Department of Neurology, New York

■**Professional and Research Experience:**
2004-2012 Professor, Graduate School of Biomedical Sciences, University of Texas, Houston, TX.
2012- present Professor, Biomedical Engineering, College of Engineering, Wayne State University
present Professor, Center for Molecular Medicine and Genetics, School of Medicine, Wayne State University, Detroit
2014- present Professor, Karmanos Cancer Institute, Wayne State University, Detroit, MI
present Professor, Deparment of Obscetrics and Gynecology, School of Medicine, Wayne State University, Detroit, MI

■**Awards and Honors:**
2003 International Fellow Award, The Alexander von Humboldt Foundation
2004 The George and Barbara Bush Endowment for Innovative Cancer Research
2008 Service Award, The Society for Molecular Imaging (SMI)
2011 Service Award, The Academy of Molecular Imaging (AMI)
2012 Service Award, World Molecular Imaging Society (WMIS)

■**Selected Publications:**

1. Bonomi R, Mukhopadhyay U, Shavrin A, Yeh HH, Majhi A, Dewage SW, Najjar A, LuX, Cisneros GA, Tong WP, Alauddin MM, Liu RS, Magner TJ, Turkman N, **Gelovani JG** (2015) Novel Histone Deacetylase Class IIa Selective Substrate Radiotracers for PET Imaging of Epigenetic Regulation in the Brain. PLoS One. 2015 Aug 5;10(8):e0133512
2. Hosoya H, Dobroff A, Driessen W, Cristini V, Brinker L, Staquicini F, Cardó-Vila M, D'Angelo S, Ferrara F, Proneth B, Lin YS, Dunphy D, Dogra P, Melancon M, Stafford J, Miyazono K, **Gelovani JG**, Kataoka K, Sidman R, Brinker J, Arap W, Pasqualini R. (2016) An integrated nanotechnology platform for tumor-targeted multimodal imaging and therapeutic cargo release. Proc Natl Acad Sci USA. Feb 2 [Epub ahead of print]
3. Yao VJ, D' Angelo S, Butler KS, Theron C, Smith TL, Marchio S, **Gelovani JG**, Sidman RL, Dobroff AS, Brinker CJ, Bradbury ARM, Arap W, Pasqualini R. (2016) Ligand-targeted theranostic nanomedicines against cancer. J Control Release 2016 Jan 6 [Epub ahead of print]
4. Smith TL, Yuan Z, Cardó-Vila M, Sanchez Claros C, Adem A, Cui M-H, Branch CA, **Gelovani JG**, Libutti S, Sidman RL, Arap W, Pasqualini R. (2016) AAVP displaying octreotide for ligand-directed therapeutic transgene delivery in neuroendocrine tumors of the pancreas. Proc Natl Acad Sci USA. Feb 16 [Epub ahead of print]
5. Najjar AM, Manuri PR, Olivares S, Flores L 2nd, Mi T, Huls H, Shpall EJ, Champlin RE, Turkman N, Paolillo V, Roszik J, Rabinovich B, Lee DA, Alauddin M, **Gelovani J**, Cooper LJ. (2016) Imaging of Sleeping Beauty-Modified CD19-Specific T Cells Expressing HSV1-Thymidine Kinase by Positron Emission Tomography. Mol Imaging Biol. 18(6):838-848.

106 年 3 月 25 日（六）09:30-10:20
二樓，第 28 教室

凝集素結合受體之放射標誌物癌腫診斷照影研究

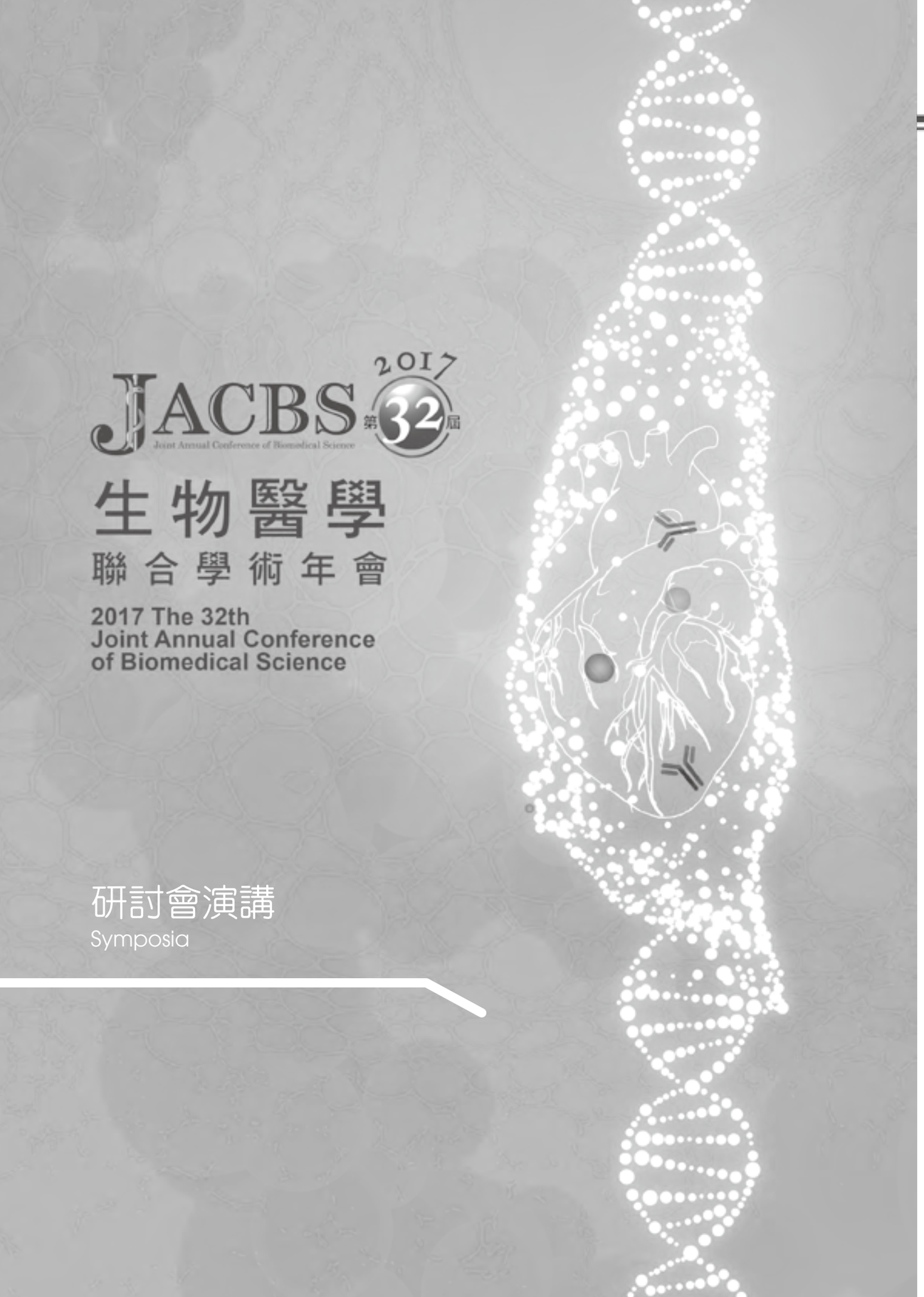
Small Molecular Radiolabeled Ligands to Lectin-Binding Receptor Domains for Diagnosticc Imaging of Cancer

Early and sensitive detection of several types of cancer using PET imaging with 18F-FDG is not feasible, because of their low glucose utilization (i.e., primary breast, prostate, hepatocellular cholangial, and pancreatic carcinomas, etc.). Therefore, novel PET imaging targets and radiotracers are urgently needed to enable the early and sensitive detection of hypoglycolytic types of tumors. With this aim we have been developing novel radiotracers targeted to lectin-binding domain-containing receptors that are highly overexpressed in many hypoglycolytic tumor types. In particular, we have been developing 18F-labeled synthetic small molecular ligands to HIP/PAP and Gal-3 receptors.

The HIP/PAP protein is a 16 kD secreted protein, which belongs to the group VII of a family of proteins that contain a C-type lectin like domain, which binds carbohydrates, and that it is also known as the "lactose-binding protein". Among pancreatic tumor biomarkers produced in peritumoral reactive pancreatic tissue, the hepatocarcinoma-intestine-pancreas/ pancreatitis-associated protein (HIP/PAP) was found to be over-expressed more than 130-fold in pancreatic acinar cells, as compared to normal pancreas. In contrast, only a 9-fold increased expression of HIP/PAP protein was observed in acinar cells in chronic pancreatitis. Also, fragments of HIP/PAP protein are immunodetectable in blood and their levels correlate with the severity of pancreatic inflammation and pancreatic carcinoma size. Furthermore, HIP/PAP protein is a promising target for the development of imaging agents, because it is also overexpressed in hepatocellular and cholangial carcinomas within the tumor cells. Recently, we reported on the optimized radiosynthesis of β-O-D-galactopyranosyl-(1,4′)-2′-deoxy-2′-[18F] fluoroethyl-D- glucopyranose ([18F]FEDL) for imaging HIP/PAP expressing pancreatic tumors. We demonstrated the efficacy of microPET/CT with [18F]-FEDL for detection of early microscopic pancreatic carcinoma lesions in a bioluminescent variant of an orthotopic pancreatic carcinoma xenograft model in mice. In mice does not accumulate in any of the major organs and was rapidly cleared from the circulation by renal clearance as non-metabolized parent compound. The results of non-invasive in vivo PET/CT imaging were validated by comparative in situ autoradiographic and immunohistochemical analyses. We concluded, that non-invasive detection of early pancreatic carcinomas with [18F]FEDL PET/CT imaging should aid the guidance of biopsies and additional imaging procedures, facilitate the resectability and improve the overall prognosis.

Galecting-3 (Gal-3) is a 31 kd-galactoside-binding lectin and a member of the galectin family. Gal-3 is formerly known as CBP35, Mac-2, and εBP, because of its affinity for IgE and HLB31 and laminin. Gal-3 consists of 3 structural domains: 1) NH2-terminal domain containing a serine phosphorylation site, important in regulating its cellular signaling; 2) collagen-α-like sequence cleavable by matrix metalloproteinases (MMPs); and 3) COOH-terminal containing a single carbohydrate-recognition domain (CRD) with high affinity for β-galactosides and the NWGR anti-death motif characteristic of the Bcl-2 family. Gal-3 is involved in cell–cell and cell–matrix mediated interactions by its carbohydrate-binding properties. Previous studies demonstrated that Gal-3 is significantly up-regulated in a variety of human cancers, and that metastatic tumors express higher levels of Gal-3 than primary cancers. Gal-3 is widely used as a well validated biomarker for immunohistochemical differential diagnosis of carcinomas from benign tumors. Through its interaction with specific ligands, Gal-3 is involved in multiple biological processes, including adhesion, apoptosis, differentiation, inflammation and metastasis. The structure of Gal-3 enables it to interact with a plethora of ligands and modulate diverse functions, including cell growth, adhesion, migration, invasion, angiogenesis, immune functions, apoptosis and endocytosis. Gal-3 interacts with Thomsen–Friedenreich antigen, a disaccharide Galβ1–3GalNAc, expressed on most adenocarcinomas. The TF antigen facilitates the mobilization of Gal-3 to the surface of endothelial cells. We and others have demonstrated that the expression of Gal-3 correlates with metastatic potential of several tumor cell lines. More recently, we found that Gal-3 expression was very low to non-detectable in normal breast tissue and very low in benign adenomatous and hyperplastic lesions. In contrast, a dramatic increase in Gal-3 expression was observed in DCIS lesions ($p<0.01$), and, especially, in invasive and metastatic ductal and lobular carcinomas, as compared to normal ($p<0.001$) and benign adenomatous/hyperplastic lesions ($p<0.01$). To image the Gal-3 expression in tumors, we developed a novel radiolabeled ligand, 3-[18F]fluoro-phenyl-triazolo- digagalectinlactoside (18F-FPTDG), using a "click chemistry" methodology. The results of in vitro radioligand binding assay have demonstrated that [18F]FPDTG is a specific and sensitive radioatracer for quantification of outer cell membrane-associated Gal-3 expression in breast carcinoma cell lines. PET/CT imaging in mice bearing breast cancer xenografts demonstrated increased accumulation and retention of [18F]FPDTG.

These pre-clinical studies with [18F]FEDL and [18F]FPDTG demonstrated the efficacy of PET imaging of lectin binding domain-containing protein receptors overexpression by hypoglycolytic tumors and justify future clinical studies in human patients.



研討會演講

台灣生物化學及分子生物學會 \

主　題：Biomarkers
時　間：106 年 3 月 25 日（週六）
地　點：三樓，第 33 教室
主持人：彭汪嘉康

編號	時段	演講者 & 講題
S1	15:30-16:00	Clinical Implication and Future Perspective of Biomarker for Surveillance and Treatment for Colorectal Cancer 王照元 / Division of Colorectal Surgery, Department of Surgery, Kaohsiung Medical University Hospital, Kaohsiung Medical University
S2	16:00-16:30	Biomarker Development and Clinical Practice in Precision Medicine 俞松良 / Department of Clinical Laboratory Sciences and Medical Biotechnology, College of Medicine, National Taiwan University
S3	16:30-17:00	Taiwan Biobank for the Health of the Next Generation 沈志陽 / Institute of Biomedical Sciences, Academia Sinica
S4	17:00-17:30	Biomarker Discovery Using Mass Spectrometry-based Proteomics and Metabolomics Approaches 廖寶琦 / Department of Environmental and Occupational Health, College of Medicine, National Cheng Kung University

中華民國細胞及分子生物學學會 \

主　題：Immunomodulation
時　間：106 年 3 月 25 日（週六）
地　點：三樓，第 30 教室
主持人：司徒惠康

編號	時段	演講者 & 講題
S5	14:30-15:00	Genetic Manipulation Towards Immune Tolerance : An Autoimmune Diabetic Mouse Model 司徒惠康 / Department of Microbiology and Immunology, National Defense Medical Center
S6	15:00-15:30	TNF Related Apoptosis-inducing Ligand (TRAIL) in Regulation of Inflammation and Bone Erosion in Autoimmune Inflammatory Diseases 許秉寧 / Graduate Institute of Immunology, National Taiwan University
S7	15:30-16:00	Immune Regulation for Immunological Diseases 江伯倫 / Graduate Institute of Clinical Medicine, NTU
S8	16:00-16:30	Redox Regulation as a Key for Immunomodulation 謝奇璋 / Institute of Clinical Medicine, National Cheng Kung University Medical College

研討會演講

中華民國臨床生化學會 \

主　題：Current Trend in In Vitro Diagnostics
時　間：106 年 3 月 25 日（週六）
地　點：三樓，第 31 教室
主持人：劉俊仁

編號	時段	演講者 & 講題
S9	14:30-15:10	Nanostructures on Biosensors for Biomedical Detection 賴朝松 / Department of Electronic Engineering, Chang Gung University
S10	15:10-15:50	Electrochemical Sensing Chips from Detection of Biomolecules to Estimation of Cellular Activity 吳靖宙 / Department of Bio-industrial Mechatronics Engineering, National Chung Hsing University
S11	15:50-16:30	CMOS Biotechnologies for In-Vitro Diagnosis of Biomolecules 林致廷 / Graduate Institute of Electronics Engineering, National Taiwan University

中國生理學會 \

主　題：GI Physiology:from Gut to Brain
時　間：106 年 3 月 25 日（週六）
地　點：一樓，第 2 教室
主持人：謝博軒

編號	時段	演講者 & 講題
S12	15:30-16:10	Hypothalamic Control for Dietary Carbohydrate and Fat Preference -Role of AMP-activated Protein Kinase- Yasuhiko Minokoshi/1) Division of Endocrinology and Metabolism, Department of Homeostatic Regulation, National Institute for Physiological Sciences 2) Department of Physiological Sciences, School of Life Science, Sakigake (The Graduate University for Advanced Studies)
S13	16:10-16:50	What Happened if Adipocytes Sleep on a Firm Mattress? 蔡曜聲 / Institute of Cellular and System Medicine, National Health Research Institutes
S14	16:50-17:30	Gut Bacteria on Colorectal Carcinogenesis: Friend or Foe? 余佳慧 / Graduate Institute of Physiology, National Taiwan University College of Medicine

研討會演講

中華民國解剖學學會 \

主　題：Cancer Biology
時　間：106 年 3 月 25 日（週六）
地　點：三樓，第 32 教室
主持人：葉添順

編號	時段	演講者 & 講題
S15	14:30-15:00	Vimentin Contributes to Cancer Epithelium-mesenchym Transition by Regulating Cytoskeletal Organization and Focal Adhesion Maturation 王仰高 / Department of Cell Biology and Anatomy, College of Medicine, National Cheng Kung University
S16	15:00-15:30	Translational Study of Visfatin in Breast Cancer 李怡琛 / Department of Anatomy, Kaohsiung Medical University
S17	15:30-16:00	The Functional Role of O-glycosylation in Cancer 黃敏銓 / Graduate Institute of Anatomy and Cell Biology, National Taiwan University
S18	16:00-16:30	The Mechanisms of Caffeine-inhibited Migration and Invasion in Glioma 陳瀅 / National Defense Medical Center

中華民國免疫學會 \

主　題：Mucosal Immunology
時　間：106 年 3 月 25 日（週六）
地　點：二樓，第 20 教室
主持人：徐志文、張雅貞

編號	時段	演講者 & 講題
S19	14:30-15:00	A Good Gut Feeling for Obesity Resistance: Dusp6 and Gut Microbiota 高承源 /Immunology Research Center, National Health Research Institutes
S20	15:00-15:30	Light Exposure at Night Influence Gut Microbiota 陳示國 / Department of Life Science, National Taiwan University
S21	15:30-16:00	Antagonists of IL-19 Ameliorates Allergen-induced Chronic Asthma 張明熙 / Dept. of Biochemistry and Molecular Biology, NCKU
S22	16:00-16:30	The Impact of Guanine Nucleotide Exchange Factor, Lfc on Neutrophil Immunity to Commensal Fungi for Intestinal Homeostasis 江皓森 / Department of Life Science, National Taiwan University

研討會演講

台灣分子生物影像學會 \

主　題：Advances of Optical Imaging in Molectular Medicine　　地　點：二樓，第 28 教室
時　間：106 年 3 月 25 日（週六）　　主持人：謝雅茹

編號	時段	演講者 & 講題
S23	14:30-15:30	Clinical Genomics-driven Predictive Platform for Precision Oncology Ramanuj DasGupta/ Genome Institute of Singapore; Cancer Therapeutics and Stratified Oncology

主　題：mircroCT:Development and Pre-clinical Application　　地　點：二樓，第 28 教室
時　間：106 年 3 月 25 日（週六）　　主持人：高潘福、陳志成

編號	時段	演講者 & 講題
S24	15:45-16:15	Micro-CT for Preclinical Use: state-of-the-art and Future Perspectives 劉仁賢 / National Yang-Ming University / Taipei Veterans General Hospital
S25	16:15-16:45	Micro-CT of Rodents: Current Status of Developments and Applications 李致賢 / Delta Electronics

台灣生物化學及分子生物學會 \

主　題：Drug Development　　地　點：三樓，第 33 教室
時　間：106 年 3 月 26 日（週日）　　主持人：陳慶士

編號	時段	演講者 & 講題
S26	14:30-15:00	Development of Immunotherapeutics to Target Cancer Associated Glycolipids 陳鈴津 / Institute of Stem Cell & Translational Cancer Research, Chang Gung Memorial Hospital at Linkou and Chang Kung University
S27	15:00-15:30	Development of Novel Drug Delivery Systems for Cancer Molecular Imaging and Therapy 吳漢忠 / Institute of Cellular and Organismic Biology, Academia Sinica
S28	15:30-16:00	Bench to Clinical Candidate: Novel Kinase Inhibitors in Cancer Therapy 謝興邦 / Institute of Biotechnology and Pharmaceutical Research, National Health Research Institutes
S29	16:00-16:30	Mechanistic Basis of Modulation of Ion Transporters Expression to Reverse Oxaliplatin Resistance 張俊彥 / College of Medicine, National Cheng Kung University

研討會演講

台灣毒物學學會 \

主　題：Non Communicable Disease in Translational Toxicology　　地　點：二樓，第 29 教室
時　間：106 年 3 月 26 日（週日）　　主持人：劉興華

編號	時段	演講者 & 講題
S30	14:30-14:50	New insight to ER Stress in Epithelial–mesenchymal Transition 許美鈴 / Institute of Biomedical Sciences, National Chung Hsing University
S31	14:50-15:10	Di-(2-ethylhexyl)phthalate (DEHP) Disturbed Food Allergic Responses in a Ovalbumin-induced Food Allergic Mouse Model 王家琪 /1) School of Pharmacy, Kaohsiung Medical University, Kaohsiung, Taiwan2) PhD Program in Toxicology, Kaohsiung Medical University, Kaohsiung, Taiwan
S32	15:10-15:30	The Impact of PM2.5 Particle in Cardiovascular System And Its Potential Prevention 招名威 / Department of Bioscience Technology, Chung Yuan Christian University

中國生理學會 \

主　題：Physiological Seminar　　地　點：一樓，第 2 教室
時　間：106 年 3 月 26 日（週日）　　主持人：林赫

編號	時段	演講者 & 講題
S33	14:30-15:00	Steroidogenesis and Cancer Precision Healthcare 張凱雄 / Institute of Cellular and System Medicine, National Health Research Institutes
S34	15:00-15:30	Pathophysiology of Cancer: the Tumor Macroenvironmental Regulation 馬文龍 / Graduate Institute of BioMedical Sciences, China Medical University
S35	15:30-16:00	Genetic Dissection of an in vivo Glioma Model in Drosophila 林子暘 / Graduate Institute of Life Sciences, National Defense Medical Center
S36	16:00-16:30	Molecular Mechanism and Therapeutic Strategy of Chronic Stress-induced Depression 何昱征 / Department of Medicine, Mackay Medical College

研討會演講

台灣藥理學會 \

主　題：Cardiovascular Pharmacology　　地　點：一樓，第 1 教室
時　間：106 年 3 月 26 日（週日）　　主持人：曾清俊、許準榕

編號	時段	演講者 & 講題
S37	14:30-15:00	Investigational Glucagon-like Peptide-1 (GLP-1) Receptor Agonists for the Treatment of Pulmonary Aarterial Hypertension 葉竹來 / Department of Pharmacology, Kaohsiung Medical University
S39	15:30-16:00	Pro-lymphangiogenetic Mechanisms of Interleukin-6 許銘仁 / Department of Pharmacology, Taipei Medical University
S40	16:00-16:30	Transition from Oxidative Stress to Nitrosative Stress Underlies Impaired Brain Stem Cardiovascular Regulation Induced by Organophosphate Poisoning 張雅雯 / Department of Physiology, National Cheng Kung University

中華民國解剖學學會 \

主　題：Disease Models and Pathogenesis　　地　點：三樓，第 32 教室
時　間：106 年 3 月 26 日（週日）　　主持人：陳玉怜

編號	時段	演講者 & 講題
S41	14:30-15:00	Dysregulation of Autophagy and Inflammation in Vein Graft Restenosis 吳佳慶 / Department of Cell Biology and Anatomy, National Cheng Kung University
S42	15:00-15:30	Double-edged sword? Study on the Mechanisms and Protective Effects of Hepatic Ischemia-reperfusion Injury 林含貞 / Department of Anatomy, School of Medicine, Kaohsiung Medical University
S43	15:30-16:00	Resveratrol Inhibits Urban Particulate Matter-induced COX-2/PGE2 Release in Human Fibroblast-like Synoviocytes via the Inhibition of Activation of NADPH Oxidase/ROS/NF-κB. 李宜達 / School of Medicine, College of Medicine, China Medical University, Taichung, Taiwan
S44	16:00-16:30	The Regulatory Role of MicroRNA-122 in Liver Polyploidization 許書豪 / Department of Anatomy and Cell Biology, College of Medicine, National Taiwan University

研討會演講

中華民國免疫學會 \

主　題：Tumor Immunology　　地　點：二樓，第 20 教室
時　間：106 年 3 月 26 日（週日）　　主持人：李建國、陳念榮

編號	時段	演講者 & 講題
S45	14:30-15:00	Breaking Down the Tolerogenic Tumor Microenvironment for Tumor Immunotherapy 林俊彥 / Chang Gung Memorial Hospital, Linkou Medical Center/Chang Gung University
S46	15:00-15:30	Aerobic Glycolysis Regulates the Expansion of Myeloid-derived Suppressor Cells in Tumor-bearing Hosts through Prevention of ROS-mediated Apoptosis 黃麗蓉 /Assistant Investigator, Institute of Molecular and Genomic Medicine, NHRI
S47	15:30-16:00	Synergistic Antitumor Effect by Radiation and Cancer Immunotherapy. 陶秘華 / Institute of Biomedical Sciences, Academia Sinica
S48	16:00-16:30	Development of Human Antibodies for Cancer Diagnostic and Therapeutic Applications 吳漢忠 /Institute of Cellular and Organismic Biology, Academia Sinica

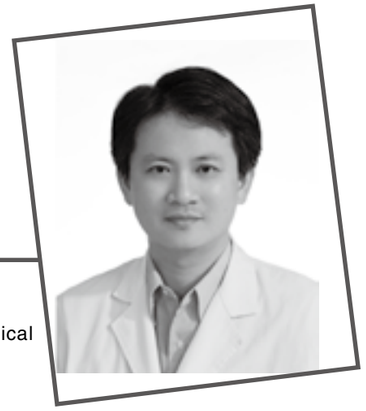
台灣分子生物影像學會 \

主　題：Theranostic Application of Radioisotopes　　地　點：二樓，第 28 教室
時　間：106 年 3 月 26 日（週日）　　主持人：王信二

編號	時段	演講者 & 講題
S49	14:30-15:00	Precision Medicine and Molecular imaging: New approaches toward Cancer Diagnosis and Therapeutic 張志賢 / Division of Isotope Applications, Institute of Nuclear Energy Research
S50	15:00-15:30	Status of the Thernostic Radiopharmaceuticals Development at INER 羅彩月 /Research Scientist and Vice Head of Isotope Application Division at INER

S1

Speaker / 王照元
Jaw-Yuan Wang



106 年 3 月 25 日（六）15:30-16:00
三樓，第 33 教室

生物標記在大腸直腸癌追蹤與治療的臨床應用與未來展望

Clinical Implication and Future Perspective of Biomarker for Surveillance and Treatment for Colorectal Cancer

Colorectal cancer (CRC) is a major public health problem. Early CRC detection, prechemotherapeutic and/or preradiotherapeutic responsiveness prediction, and postoperative micrometastasis monitoring are the hallmarks for successful CRC treatment. Curative surgery remains the mainstay of CRC therapy; however, approximately half of the patients receiving surgery alone ultimately relapse and die of metastatic CRC (mCRC). For several decades, efforts have been expended on the early detection of recurrent tumors to ensure adequate and effective treatment and improve patients' prognoses. Undetected micrometastatic tumor cells with reduced response to chemotherapeutic regimens contribute to the failure of primary curative surgery with subsequent adjuvant chemotherapy in patients with advanced CRC.

Although cancer biomarker discovery has rapidly proliferated and numerous biomarkers have been reported, relatively few of these are in clinical use. Some biomarkers do not translate into clinical practice, probably because of inherent technical challenges in their testing; in most cases, this failure is engendered by overlaps in the ranges of normal individuals and cancer patients, hindering an accurate distinction. Identifying specific colon tumor-associated molecular markers and developing accurate assays for effective disease monitoring would considerably improve the early diagnosis of recurrence, leading to more effective treatment. Heterogeneous tumor behaviors and individual patient responses to chemotherapeutic agents lead to variable outcomes. Therefore, the detection of tumor-shed cells in the bloodstream is highly critical for early identification of postoperative and/or adjuvant chemotherapeutic patients with CRC requiring further optimal therapy.

Primary tumors begin shedding neoplastic cells into the circulation at an early stage, and approximately 106 cells are shed daily per gram of tumor. Circulating tumor cells (CTCs) constitute a heterogeneous population of cells with different biological characteristics and are often different from their respective primary counterparts. Because early detection is one of the most effective means of reducing cancer mortality, CTCs can potentially aid in achieving an early noninvasive diagnosis of cancer. The genetic and phenotypic profiling of CTCs often differs from that of primary tumors, and it can be used to select the most effective targeted therapy. CTC characterization at different time points during the course of disease may provide useful predictive information for selecting the most appropriate treatment. Moreover, the persistent presence of posttherapeutic CTCs indicates resistance to adjuvant chemotherapy and/or radiotherapy; hence, CTCs also play a decisive role in the subsequent relapse of CRC. Consequently, studying CTCs can potentially individualize treatment strategies for patients with CRC and be used in a real-time tumor biopsy for designing individually tailored therapy against CRC.

■Current Position:
Vice superintendent, Kaohsiung Medical University Hospital, Kaohsiung Medical University/ 高雄醫學大學附設醫院副院長

■Education/Training:
1982-1989 M.D., Kaohsiung Medical College, Kaohsiung, Taiwan
1993-1996 M.S., Kaohsiung Medical College, Kaohsiung, Taiwan
1999-2003 Ph.D., Kaohsiung Medical University, Kaohsiung, Taiwan

■Professional and Research Experience:
2000-2003 Assistant Professor of Department of Surgery, Kaohsiung Medical University
2003-2006 Associate Professor of Department of Surgery, Kaohsiung Medical University
2006-now Professor of Department of Surgery, Faculty of Medicine, Kaohsiung Medical University
2008-now Professor of Graduate Institutes of Medicine and Medical Genetics, Kaohsiung Medical University
2012-now Professor of Graduate Institute of Clinical Medicine, Kaohsiung Medical University
2015-now Adjunct Professor of College of Pharmacy, Taipei Medical University, Taipei, Taiwan
2014-now Adjunct Professor of Institute of Clinical Medicine, National Sun Yat-Sen University of Technology
2015-now Adjunct Professor of Department of Electronic Engineering, National Kaohsiung University of Applied Science

■Awards and Honors:
2013 The outstanding academia-industry award, Kaohsiung Medical University
2014 The best scientific original paper of Taiwan Clinical Oncology Society: : Translational research group
The outstanding research award and the outstanding grant award, Kaohsiung Medical University
2015 The outstanding paper award of Taiwan Clinical Oncology Society: Translational research group
The outstanding grant award and the researcht award, Kaohsiung Medical University

■Selected Publications:
1. Chang YT, Huang MY, Yeh YS, Huang CW, Tsai HL, Cheng TL, **Wang JY***. A Prospective study of comparing multi-gene biomarker chip and serum carcinoembryonic antigen in the postoperative surveillance for patients with stage I-III colorectal cancer. ***PLoS One*** 2016;11:e0163264.
2. Huang MY, Tsai HL, Huang JJ, **Wang JY***. Clinical implications and future perspectives of circulating tumor cells and biomarkers in clinical outcomes of colorectal cancer. ***Transl Oncol*** 2016;9:340-7. Review article.
3. Yang IP, Tsai HL, Huang CW, Lu CY, Miao ZF, Chang SF, Juo SH, **Wang JY***. High blood sugar levels significantly impact the prognosis of colorectal cancer patients through down-regulation of microRNA-16 by targeting Myb and VEGFR2. ***Oncotarget.*** 2016;7:18837-50.
4. **Wang JY**, Sun J, Huang MY, Wang YS, Hou MF, Sun Y, He H, Krishna N, Chiu SJ, Lin S, Yang S, Chang WC*. STIM1 overexpression promotes colorectal cancer progression, cell motility and COX-2 expression. ***Oncogene*** 2015;34:4358-67.
5. Lu CY, Tsai HL, Uen YH, Hu HM, Chen CW, Cheng TL, Lin SR, **Wang JY***. Circulating tumor cells as a surrogate marker for determining clinical outcome to mFOLFOX chemotherapy in patients with stage III colon cancer. ***Br J Cancer*** 2013;108(4):791-7.

S2

Speaker / 俞松良
Sung-Liang Yu

■Current Position:
Professor, Dep. Clinical Laboratory Sciences and Medical Biotechnology, Natl. Taiwan University/ 台灣大學醫技系　教授

■Education/Training:
1986-1990　B.S., Dep. Clinical laboratory sciences and Medical Biotechnology, Nat. Taiwan University
1990-1992　M.S., Dep. Clinical laboratory sciences and Medical Biotechnology, Nat. Taiwan University
1992-1999　Ph.D.; Ins. Microbiology and Immunology, Nat. Yang-Ming University
1999-2007　Postdoc, Nat. Taiwan University Medical College

■Professional and Research Experience:
2007-2010　Assist. Prof.; Dep. Clinical laboratory sciences and Medical Biotechnology, NTU
2010-2014　Assoc. Prof.; Dep. Clinical laboratory sciences and Medical Biotechnology, NTU
2014-now　Prof.; Dep. Clinical laboratory sciences and Medical Biotechnology, NTU
Center for Optoelectronic Biomedicine, NTU
Dep. Pathology, NTU; Ins. Medical Device and Imaging, NTU
Grad. Ins. Clinical Medicine, NTU; ISO15189-certificated Pharmacogenomics Laboratory, NTU

■Awards and Honors:
2007　National Science Council Distinguished Contribution Award in Technology Transfer
2010　Mr. Wu, Da-Yo Memorial Award, National Science Council

■Selected Publications:
1. Chen HY†, **Yu SL**†, Ho BC†, Su KY, Hsu YC†, Chang CS, Li YC, Yang SY, Hsu PY, Ho H, Chang YH, Chen CY, Yang HI, Hsu CP, Yang TY, Chen KC, Hsu KH, Tseng JS, Hsia JY, Chuang CY, Yuan S, Lee MH, Liu CH, Wu GI, Hsiung CA, Chen YM, Wang CL, Huang MS, Yu CJ, Chen KY, Tsai YH, Su WC, Chen HW, Chen JJ, Chen CJ, Chang GC*, Yang PC*, Li KC*. R331W missense mutation of oncogene YAP1 is a germline risk allele for lung adenocarcinoma with medical actionability. ***J Clin Oncol***. 2015;33(20):2303-10.
2. Chen CC, Chen HY, Su KY, Hong QS, Yan BS, Chen CH, Pan SH, Chang YL, Wang CJ, Hung PF, Yuan SS, Chang GC, Chen JJW, Yang PC*, Yang YC*, **Yu SL*** Shisa3 associated with prolonged survival through promoting β-catenin degradation in lung cancer. ***Am J Respir Crit Care Med***. 2014;190(4):433-44. (corresponding author)
3. Su KY, Chen HY, Li KC, Kuo ML, Yang JC, Chan WK, Ho BC, Chang GC*, Shih JY*, **Yu SL***, Yang PC. Pretreatment epidermal growth factor receptor (EGFR) T790M mutation predicts shorter EGFR tyrosine kinase inhibitor response duration in patients with non-small-cell lung cancer.***Clin Oncol***. 2012;30(4):433-40.
4. **Yu SL**, Chen HY, Chang GC, Chen CY, Chen HW, Singh S, Cheng CL, Yu CJ, Lee YC, Chen HS, Su TJ, Chiang CC, Li HN, Hong QS, Su HY, Chen CC, Chen WJ, Liu CC, Chan WK, Chen WJ, Li KC, Chen JJ, Yang PC. MicroRNA signature predicts survival and relapse in lung cancer. ***Cancer Cell***. 2008;13(1):48-57.
5. Chen HY, **Yu SL**, Chen CH, Chang GC, Chen CY, Yuan A, Cheng CL, Wang CH, Terng HJ, Kao SF, Chan WK, Li HN, Liu CC, Singh S, Chen WJ, Chen JJ, Yang PC. A five-gene signature and clinical outcome of non-small cell Lung cancer. ***N Engl J Med*** 2007;356(1):11-20.

106 年 3 月 25 日（六）16:00-16:30
三樓，第 33 教室

精準醫學之生物標記研發與臨床實務

Biomarker Development and Clinical Practice in Precision Medicine

Precision medicine is the trend of modern therapy promoted by United States President, Obama, particularly, the Moonshot Oncology Network has officially gone globally in Sep. 2016. According to the cancer therapeutic strategies, we developed two lung cancer prognostic markers for chemotherapy, a 5-gene marker and a 5-microRNA marker that predict survival of patients with non-small cell lung, NSCLC and a 6-CNV marker (copy number variation) that can predict overall and disease-free survivals of patients with EGFR-activating mutation treated with EGFR-TKI. Cancer patients largely may benefit from the development of molecular target therapy and companion diagnosis. Patients avoid inappropriate treatment, adverse effects and poor life quality as well as unsatisfied survival by personalized medicine. We developed a quantification method for gene mutation by DNA mass spectrometry that can detect as low as 1% gene mutations. Based on these assays we establish an ISO15189 certificated reference Lab to provide more than 16,000 clinical services for clinical trials and translational medicine. We also identified the YAP1 R331W as an allele predisposed for lung adenocarcinoma with high familial penetrance. The adjusted Odds Ratio is 6.4 after screening for 3,000 individuals. It is the first germline driver mutation found in Asia. In the middle of 2016, we carried out PT test (proficiency test) of cfDNA for T790M detection, which is the first time performed in Asia. Besides of lung cancer, we identified two signatures, SNV-based and CNV-based, for predict the high-risky neoplasm subtypes before cancer formation. For women cancers, we developed BRCA detection for personalized therapy. The Taiwan-based fusion mutation detection for leukemia is also established. Most importantly, how to reduce the cancer incidence is the critical issue we should try to overcome in the near future.

S3

Speaker / 沈志陽
Chen-Yang Shen

■Current Position:
Research Fellow, Inst. of Biomedical Sciences, Academia Sinica/
中央研究院生醫研究所　研究員
Chief Executive, Taiwan Biobank, Academia Sinica/
中央研究院台灣人體生物資料庫　執行長

■Education/Training:
1979-1983　B.S. (Major: Public Health), National Taiwan University, Taipei, Taiwan
1985-1987　M.P.H. (Major: Epidemiology/Occupational Health/Industrial Hygiene) National Taiwan University, Taipei, Taiwan
1987-1992　Ph.D. (Major: Epidemiology/Cancer/Infectious Diseases) University of North Carolina at Chapel Hill, NC, USA.

■Professional and Research Experience:
1994-1995　Assistant Research Fellow, Institute of Biomedical Sciences, Academia Sinica
1995-2000　Assistant Research Fellow/Associate Professor Institute of Biomedical Sciences, Academia Sinica
2000-2007　Associate Research Fellow/Professor Institute of Biomedical Sciences, Academia Sinica
2007-now　Research Fellow/Professor Institute of Biomedical Sciences, Academia Sinica

■Awards and Honors:
2012　Breast Cancer Research Award, Taiwan Breast Cancer Foundation
2011　21st Wang Ming-Ning Award
Outstanding Research Award, National Science Council, Taiwan
2002　Outstanding Research Award, National Science Council, Taiwan
2001　Young Investigator Research Award, Academia Sinica, Taiwan

■Selected Publications:
1. Chou WC, Chen WT, Hsiung CN, Hu LY, Yu JC, Hsu HM, **Shen CY**. B-Myb Induces APOBEC3B expression leading to somatic mutation in multiple cancers. ***Sci Rep*** 2017 (in press).
2. Chen CH, Yang JH, Chiang CWK, , Hsiung CN, Wu PE, Chang LC, Chu HW, Chang J, Song IW, Yang SL, Chen YT, Liu FT, **Shen CY.** Population structure of Han Chinese in the modern Taiwanese population based on 10,000 participants in the Taiwan Biobank project. ***Hum Mol Genet*** 2016 doi: 10.1093/hmg/ddw346.
3. Ko TM, Tsai CY, Chen SY, Chen KS, Yu KH, Chu CS, Huang CM, Wang CR, Weng CT, Yu CL, Hsieh SC, Tsai JC, Lai WT, Tsai WC, Yin GD, Ou TT, Cheng KH, Yen JH, Liu DL, Lin6 TH, Chen DY, Hsiao PJ, Weng MY, Chen YM, Chen CH, Liu MF, Yen HW, Lee JJ, Kuo MC, Wu CC, Hung SY, Luo SF, Yang YH, Chuang HP, Chou YC, Liao HT, Wang CW, Huang CL, Chang CS, Lee MT, Chen P, Wong CS, Chen CH, Wu JY, Chen YT, **Shen CY**, for the Taiwan Allopurinol-SCAR Consortium. Use of HLA-B*58:01 genotyping to prevent allopurinol induced severe cutaneous adverse reactions in Taiwan: national prospective cohort study. ***BMJ*** 2015;351:h4848.
4. Huang YL, Chou WC, Hsiung CN, Hu LY, Chu HW, **Shen CY**. FGFR2 regulates Mre11 expression and double-strand break repair via the MEK-ERK-POU1F1 pathway in breast tumorigenesis. ***Hum Mol Genet*** 2015; 24:3506-17.
5. Chen P, Lin JJ, Lu CS, Ong CT, Hsieh PF, Yang CC, Tai CT, Wu SL, Lu CH, Hsu YC, Yu HY, Ro LS, Lu CT, Chu CC, Tsai JJ, Su YH, Lan SH, Sung SF, Lin SY, Chuang HP, Huang LC, Chen YJ, Tsai PJ, Laio HT, Lin YH, Chen CH, Chung WH, Hung SI, Wu JY, Chang CF, Chen L, Chen YT, **Shen CY**, for the Taiwan SJS consortium. Carbamazepine-induced toxic effects and HLA-B*1502 screening in Taiwan. ***N Engl J Med*** 2011;364:1126-33.

106 年 3 月 25 日（六）16:30-17:00
三樓，第 33 教室

台灣人體生物資料庫 - 下一世代的健康工程

Taiwan Biobank for the Health of the Next Generation

To understand the relationship between genetics, environmental exposure, diet, and the etiology/progression of chronic disease, the Taiwan Biobank (TWB) is establishing a scientific infrastructure accessible to biomedical researchers. Through the recruitment and follow-up of a cohort of 200,000 individuals from the general population and another of 100,000 patients with chronic diseases from medical centers, the Taiwan Biobank aims to improve the health of future generations and facilitate genomic research in Taiwan. Currently, more than 80,000 participants from different parts of Taiwan have been recruited, and more than 1,750,000 of biospecimens, including blood, urine DNA and tumor tissues, had been collected. Whole-genome genotyping of more than 20,000 individuals using TWBv1.0 chip (653,291 SNPs, specifically for the Han Chinese in Taiwan) was obtained. An investigation of the population structure in an initial freeze of 10,801 unrelated TWB participants shows that the Taiwanese Han Chinese clustered into three cline groups: 5% were of northern Han Chinese ancestry, 79.9% were of southern Han Chinese ancestry, and 14.5% belonged to a third (T) group. We also find that this T group is genetically distinct from neighboring Southeast Asians and Austronesian tribes but similar to other southern Han Chinese. Interestingly, high degree of LD between HLA haplotype A*33:03-B*58:01 and SNPs across the MHC region was observed in subjects with T origin, but not in other Han Chinese. Furthermore, whole genome sequencing of 1,500 individuals was completed. This work aims at (1) establishing a local reference for imputation and (2) detecting population-specific rare variants that would be of particular importance for the understanding of local diseases. Genomic features are currently under investigation. The release of TWB information and specimen would lead to the development of precision medicine in Taiwan, by which the progressive elucidation of risk factors and the molecular pathogenesis of disease will both improve disease prevention/prediction and facilitate therapy development.

S4

Speaker / 廖寶琦
Pao-Chi Liao

■**Current Position:**
Distinguished Professor, Department of Environmental and Occupational Health, College of Medicine, National Cheng Kung University/ 成功大學環境醫學研究所　特聘教授

■**Education/Training:**
1982-1986　BS, Department of Chemistry, National Tsing Hua University, Taiwan
1986-1988　MS, Department of Chemical Engineering, National Tsing Hua University, Taiwan
1990-1995　PhD, Department of Chemistry, Michigan State University, USA
1995-1997　Postdoctoral Researcher, Department of Biochemistry, Michigan State University, USA

■**Professional and Research Experience:**
1997-2002　Assistant Professor
2002-2006　Associate Professor
2006-2011　Professor
2010-2013　Department Chair
2011-　Distinguished Professor, Department of Environmental and Occupational Health, College of Medicine, National Cheng Kung University (NCKU), Taiwan
1998-now　Director, Analytical Laboratory for Trace Environmental Pollutants, NCKU
2002-now　Director, Proteomics and Metabolomics Research Core Laboratory, NCKU
2012-2015　President, Taiwan Proteomics Society
2015-now　President, Taiwan Society for Mass Spectrometry

■**Selected Publications:**
1. Wu, H.-Y., Goan, Y.-G., Chang, Y.-H., Yang, Y.-F., Chang, H.-J., Cheng, P.-N., Wu, C.-C., Zogoda, V.-G., Chen, Y.-J., **Liao, P.-C**.* Qualification and verification of serological biomarker candidates for lung adenocarcinoma by targeted mass spectrometry. ***Journal of Proteome Research*** 2015, 14,3039-3050
2. Chang, Y.-H., Lee, S.-H., Liao, I-C., Huang, S.-H., Cheng, H.-C.*, **Liao, P.-C**.* Secretomic analysis identifies A1AT as a required protein in cancer cell migration, invasion, andpericellular fibronectin assembly for facilitating lung colonization of lung adenocarcinoma cells. ***Molecular & Cellular Proteomics*** 2012, 11, 1320-1339.
3. Chang, Y.-H., Lee, S.-H., Chang, H.-C., Tseng, Y.-L., Lai, W.-W., Liao, C.-C., Tsay, Y.-G., **Liao, P.-C**.* Comparative Secretome Analyses using a hollow fiber culture system with label-free quantitative proteomics indicates the influence of PARK7 on cell proliferation and migration/invasion in lung adenocarcinoma. ***Journal of Proteome Research*** 2012, 11, 5167-5185.
4. Wen, Y.-T., Tsou, C.-C., Kuo, H.-T., Wu, J.-J.*, **Liao, P.-C**.* Differential secretomics of Streptococcus pyogenes reveals a novel peroxide regulator (PerR)-regulated extracellular virulence factor Mitogen Factor3 (MF3). ***Molecular & Cellular Proteomics*** 2011, 10, M110.007013-1-11.
5. Hsu, J.-F., Peng, L.-W., Li, Y.-J., Lin, L.-C., **Liao, P.-C**.* Identification of di-isononyl phthalate metabolites for exposure marker discovery using in vitro/in vivo metabolism and signal mining strategy with LC-MS data. ***Analytical Chemistry*** 2011, 83, 8725–8731.

106 年 3 月 25 日（六）17:00-17:30
三樓，第 33 教室

利用以質譜技術為基礎的蛋白體與代謝體方法找尋生物標記

Biomarker Discovery Using Mass Spectrometry-based Proteomics and Metabolomics Approaches

The introduction of sensitive ionization methods and continuing improvement in resolving power in the past decades has made mass spectrometry an ideal tool for biomarker discovery. The coupling of chromatography and mass spectrometry emerged to be the most powerful profiling techniques for global characterization of proteins and metabolites in biological systems. In this “omics” era, many researchers rely on mass spectrometry-based proteomic and metabolomic experimental approaches to search for potential biomarkers. In this talk, I will describe how I applied these approaches to (1) discover metastasis-promoting secretory proteins of lung cancer cells; (2) discover virulence factors secreted from Streptococcus pyogenes in response to wound environments; and (3) discover biomarkers for assessing exposure to toxicants. Challenges and limitations will be discussed.

S5

Speaker / 司徒惠康
Huey-Kang Sytwu

■**Current Position:**
National Defense Medical Center/
國防醫學院 教授 兼 院長

■**Education/Training:**

1987	MD/Medicine, National Defense Medical Center, Taipei, Taiwan
1997	PhD/Microbiology and Immunology/School of Medicine, Stanford University, U.S.A.

■**Professional and Research Experience:**

2004-	Professor, Department of Microbiology and Immunology, National Defense Medical Center, Taipei, Taiwan
2005-2009	Professor and Chairman, Graduate Institute of Medical Sciences, National Defense Medical Center, Taipei, Taiwan
2009-2011	Executive Dean, National Defense Medical Center, Taipei, Taiwan
2011-2013	Director, Medical Planning Division, Medical Affairs Bureau, Ministry of National Defense, Taipei, Taiwan
2013-	President, National Defense Medical Center, Taipei, Taiwan Director, Graduate Institute of Life Sciences, National Defense Medical Center and Academia Sinica, Taipei, Taiwan

■**Awards and Honors:**

2011-2014	Outstanding Research Award, National Science Council, R.O.C.
2014	Outstanding Contribution Award, The Chinese-Taipei Society of Laboratory Animal Sciences, R.O.C.
2015	The 59th Academic Award, Ministry of Education, R.O.C.

■**Selected Publications:**

1. Lin, G.-J., Huang, S.-W., Chen, Y.-W., Hueng, D.-Y., Chia, W.-T., Chien, M.-W., Yen, B.L., *__Sytwu, H.-K.__ (2011) Transgenic expression of murine chemokine decoy receptor D6 by islets reveals the role of inflammatory CC chemokines in the development of autoimmune diabetes in NOD mice. ***Diabetologia*** 54:1777-1787.
2. Lin, M.-H., Chou, F.-C., Yeh, L.-T., Fu, S.-H., Chiou, H.-Y., Lin, K.-I., Chang, D.-M., *__Sytwu, H.-K.__ (2013) B lymphocyte-induced maturation protein 1 (BLIMP-1) attenuates autoimmune diabetes in NOD mice by suppressing Th1 and Th17 cells. ***Diabetologia*** 56:136-146.
3. Yeh, L.-T., Maiw, S.-C., Lin, M.-H., Chou, F.-C., Shieh, S.-J., Chuang, Y.-P., Lin, S.-H., Chang, D.-M., *__Sytwu, H.-K.__ (2013) Different modulation of Ptpn22 on effector and regulatory T cells leads to attenuation of autoimmune diabetes in transgenic non-obese diabetic mice. ***Journal of Immunology*** 191:594-607.
4. Fu, S.-H., Lin, M.-H., Yeh, L.-T., Wang, Y.-L., Lin, S.-H., Chang, D.-M., *__Sytwu, H.-K.__ (2015) Targeting tumor necrosis factor receptor 1 assembly reverses Th17-mediated colitis through boosting a Th2 response. ***Gut*** 64:765-775.
5. Chien, M.-W., Lin, M.-H., Huang, S.-H., Fu, S.-H., Hsu, C.-Y., Yen, B.-L., Chen, J.-T., Chang, D.-M., *__Sytwu, H.-K.__ (2015) Glucosamine modulates T cell differentiation through downregulating N-linked glycosylation of CD25. ***The Journal of Biological Chemistry.*** 290:29329-29344

106 年 3 月 25 日（六）14:30-15:00
三樓，第 30 教室

基因調控導向免疫耐受性：自體免疫糖尿病小鼠之研究

Genetic Manipulation towards Immune Tolerance : An Autoimmune Diabetic Mouse Model

Insulin-dependent diabetes mellitus (IDDM) is a T cell-mediated autoimmune disease. To delineate the protective roles of some immune modulatory molecules, such as soluble decoy receptor 3 (DcR3), cytotoxic T lymphocyte antigen 4 (CTLA4), program death ligand 1 and 2 (PD-L1 and 2), heme oxygenase 1 (HO-1), and chemokine receptor D6 in the autoimmune process and to search for potential preventive and/or therapeutic targets in this disease, we have generated (a) insulin promoter (pIns)-sDcR3 transgenic non-obese diabetic (NOD) mice, (b) pIns-single chain anti-CTLA4 transgenic NOD mice, (c) pIns-single chain anti-4-1BB transgenic NOD mice, (d) pIns-PD-L1 transgenic NOD mice, (e) pIns-HO-1 transgenic NOD mice, and (f) pIns-D6 transgenic NOD mice and demonstrated their immunomodulatory potential and underlying mechanisms. Meanwhile, to explore the modulatory potential of interleukin-12, 23 and 27 on autoimmune diabetes, we have generated following transgenic, knockout and knockdown NOD mice: (1) Th1 and Th2 doubly transgenic (2) IL-12 knockout (3) IL-23 knockdown (4) IL-27 knockdown NOD mice. Our results revealed that 20% IL-12-deficient NOD mice still developed autoimmune diabetes, the diabetic incidence of IL-23 knockdown NOD mice is lower than that of control littermates, and the number and percentage of Th1 cells are dramatically decreased and Th17 cells are increased in IL-27 knockdown mice, indicating a differential role of IL-12 cytokine family in modulating Th1 and Th17 cell development during autoimmune diabetogenic process. Making full use of these unique mouse strains, we are quantitatively and qualitatively investigating the immunopathogenic mechanisms of autoimmune diabetes and providing valuable information for the development of novel immunotherapies.

S6

Speaker / 許秉寧
Ping-Ning Hsu

■Current Position:
Professor
Graduate Institute of Immunology, National Taiwan University

■Education/Training:

1984	M.D., National Taiwan University, College of Medicine
1997	Ph.D., Program of Immunology, Tufts University, Boston, MA. USA
1998-2008	Assistant Professor through Professor, National Taiwan University,
2007-2013	Chairman, Graduate Institute of Immunology, College of Medicine, National Taiwan University
2008-2014	Deputy Director, Department of Medical Research National Taiwan University Hospital

■Professional and Research Experience:

1997	Ph.D., Program of Immunology, Tufts University, Boston, MA. USA
1998-2003	Assistant Professor, Graduate Institute of Immunology, National Taiwan University
2003-2008	Associate Professor
2008-	Professor
1998-	Attending physician, Department of Internal Medicine, National Taiwan University
2012-2015	President Chinese Immunology Society

■Awards and Honors:

2000	The Federation of Immunological Societies of Asia-Oceania (FIMSA) young scholar award
2006	The Young Investigator Award, Academy Sinica
	The Chung Su-Chi Memorial Award in Chinese Immunology Society
2010	The Research Award in Chinese Immunology Society

■Selected Publications:

1. Huang SC, Tsai HF, Tzeng TZ, Liao HJ, **Hsu PN**. Lipid raft assembly and Lck recruitment in TRAIL costimulation mediates NF-κB activation and T cell proliferation. J. Immunol. 2011 186(2):931-9.
2. Lin WC, Tsai HF, Kuo SH , Wu MS, Lin CW, Hsu PI, Chen AL, **Hsu PN**. Translocation of *Helicobacter pylori* CagA into human B lymphocytes, the origin of MALT lymphoma. Cancer Res. 70: 5470-8. 2010.
3. Lin YJ, Huang LR, Yang HC, Tzeng HT, **Hsu PN**, Wu HL, Chen PJ, Chen DS. Hepatitis B virus core antigen determines viral persistence in a C57BL/6 mouse model. Proc Natl Acad Sci U S A. 2010 May 18;107(20):9340-5.
4. T Tsai HF, Wu CS, Chen YL, Liao HJ, Chyuan IT, Hsu PN. Galectin-3 suppresses mucosal inflammation and reduces disease severity in experimental colitis. J Mol Med (Berl). 2016 ;94(5):545-56.
5. Hsiu-Jung Liao, I-Tsu Chyuan, Chien-Sheng Wu, Shu-Wha Lin, Kun-Hung Chen, Hwei-Fang Tsai, Ping-Ning Hsu. Increased neutrophil infiltration, IL-1 production, and a SAPHO syndrome-like phenotype in PSTPIP2-deficient mice. Rheumatology 54(7):1317-26. 2015

106 年 3 月 25 日（六）15:00-15:30
三樓，第 30 教室

TRAIL 調控自體免疫發炎疾病中發炎反應及骨質破壞

TNF Related Apoptosis-inducing Ligand (TRAIL) in Regulation of Inflammation and Bone Erosion in Autoimmune Inflammatory Diseases

Tumor necrosis factor (TNF)-related apoptosis-inducing ligand (TRAIL) has been implicated in the regulation of inflammation in rheumatoid arthritis (RA), mainly due to promoting apoptosis of synoviocytes and infiltrating lymphocytes. The aim of this study was to investigate the immunomodulatory mechanism and role of TRAIL in inflammatory arthritis. In this study, we demonstrated that TRAIL significantly inhibited joint inflammation and reduced the severity of arthritis in this CIA animal model. Furthermore, TRAIL profoundly suppressed osteoclast activation, and restored bone erosion in rats with CIA. Suppression of joint inflammation was not due to inducing apoptosis in T cells, macrophages, or synovial fibroblasts by the TRAIL. In contrast, TRAIL directly inhibited T cell proliferation and suppressed the production of cytokines, indicating that TRAIL exerted its anti-inflammatory effects directly through inhibition of T cell activation. Our results conclude that TRAIL suppresses joint inflammation and inhibits bone erosion via an apoptosis-independent pathway, and directly inhibits T cell activation. Our results provide a novel apoptosis-independent role of the TRAIL in suppressing inflammatory arthritis, and shed light on developing new effective therapies for autoimmune inflammatory diseases.

S7

Speaker / 江伯倫
Bor-Luen Chiang

■Current Position:
Distinguished Professor, Graduate Institute of Clinical Medicine, NTU/
台大醫學院臨床醫學研究所 特聘教授

■Education/Training:

1976-1983	M.S., Medicine, National Taiwan University
1987-1991	Ph.D.; 1991.6-1991.11 Postdoc, Immunology, University of California at Davis

■Professional and Research Experience:

1992-1999	Assoc. Prof., Graduate Institute of Clinical Medicine, National Taiwan University
1999-	present Prof., Graduate Institute of Clinical Medicine, National Taiwan University
2014-	Distinguished Professor, National Taiwan University

■Awards and Honors:

2002	Wang Ming-Ling Outstanding Medical Research Award
2004, 2010	Outstanding Research Award of Department of Science and Technology (National Science Council)
2013	Wu Tien-Si Outstanding Medical Research Award
2004	NTUH Outstanding Research Award
2005	TienTe Lee Award
2012	TECO Award
2016	Academic Award of Ministry of Education

■Selected Publications:

1. Chen, C.-H., Lin, Y.-T., Wen, C.-Y., L-C Wang, L.-C., Lin, K.-H., Chiu, S.-H.,Yang, Y.-H. Lee, J.-H. and **Chiang, B.-L.** Quantitative assessment of allergic shiners in children with allergic rhinitis. J Allergy Clin Immunol 2009; 123:665. (IF: 12.485, Allergy 1/25)
2. Chang, C.-J., Yanh, Y.-H., Liang, Y.-C., Chiu, C.-J., Chu, K.-H., Chou, H.-N. and **Chiang, B.-L.** A novel phycobiliprotein alleviates allergic airway inflammation by modulating immune response. Am J Respir Crit Care Med 2011; 183:15. (IF: 13.118, Respiratory System 2/58)
3. Chiu, C.-J., Ling, T.-Y. and **Chiang, B.-L.** Isolation of SSEA-1+ pulmonary stem cells for the treatment of allergic asthma. Allergy 2015; 70: 374.* (IF: 6.335, Allergy 2/25) (cover story of April)
4. Chien C.-H., Yu, H.-H. and **Chiang, B.-L.** Single allergen-induced tolerance inhibits airway inflammation in conjugated allergen immunized mice. J Allergy Clin Immunol. 2015; 136: 1110.* (IF: 12.485, Allergy 1/25)
5. Chang, Y.-S., Lin, M.-H., Lee, J.-H., Lee, P.-I., Dai, Y.-S., Lin, Y.-T., Wang, L.-C., Yu, H.-H., Yang, Y.-H., Chen, C.-A., Wan, K.-S. and **Chiang, B.-L.** Melatonin supplement for children with atopic dermatitis and sleep disturbance- A randomized, double-blind, placebo-controlled crossover study. JAMA Pediatrics 16:1.* (IF: 9.528, Pediatrics 1/120)

106 年 3 月 25 日（六）15:30-16:00
三樓，第 30 教室

臨床免疫疾病的免疫調控

Immune Regulation for Immunological Diseases

Immunological diseases such as allergic and autoimmune diseases have become the major healthy issue worldwide. To further explore the possible therapeutic approaches, understanding the immune regulatory mechanisms become extremely critical. Among the immunological diseases, numerous studies performed with asthma animal models have shown increased T helper 2 (TH2) cytokine levels and decreased T helper 1 (TH1) cytokine levels within the affected airways. The mechanisms involved in autoimmune diseases are more complicated, however, immune dysregulation has been suggested to be critical in the development of autoimmune diseases. In the past several years, our team has dedicated in studying the immune regulation of immunological diseases and exploring the possible therapeutic development.

Oral tolerance is the most well studied mucosal tolerances. Intestinal epithelium constantly exposed to multiple food antigens and commensal bacteria and the default reaction of this system leads to systemic unresponsiveness. Several mechanisms have been proposed for the development of oral tolerance, including the deletion of antigen-specific T cells, induction of anergy and suppression by regulatory T cells, depending on the dosage of feeding. Our previous study with mite Derp2 allergen transgenic plant demonstrated that proteins derived from transgenic plant could decrease Derp2-specific IgE level and also alleviate airway inflammation. Further studies suggested that mucosal B cells play a critical role in the oral tolerance of immunological diseases.

In the past several years, our team has also focused on exploring the characteristics of a certain subpopulation of regulatory T cells induced by B cells. We have initially found that LAG3 molecule might play the critical role in the functions of Treg-of-B cells. Further, the results also demonstrated that Foxp3 and IL-10 were not necessary for the development and functions of Treg-of-B cells. All these results suggested that these Treg-of-B cells are different from the conventional naturally occurring regulatory T cells (nTreg cells) and inducible type 1 regulatory T cells (Tr1 cells). The regulatory T cells described in our study could be the novel subset of the regulatory T cells, which might open the brand new approaches for the pathway of immune regulation. In the past three years, we have analyzed these Treg-of-B cells with the methods of microarray and quantitative RT-PCR and identified a variety of candidate genes and molecules. We have applied these Treg/B cells for the treatment of several animal model of immunological diseases such as asthma, collagen-induced arthritis and inflammatory bowel disease. All the data suggested that Treg/B cells could alleviate disease severity of these immunological diseases. From our results, it is suggested that relatively large number of regulatory T cells could be induced with our approaches, which could make it easier for the potential application.

With further understanding the mechanisms of immune regulation in the immunological diseases, we will be able to develop the novel therapeutic approaches for immunological diseases in the future. Particularly, we would like to focus on the characterization and application of regulatory T cells induced by B cells for the future treatment of immunological diseases.

S8

Speaker / 謝奇璋
Chi-Chang K. Shieh

■Current Position:
Professor and Chairman, Institute of Clinical Medicine, National Cheng Kung University (NCKU) College of Medicine/ 國立成功大學醫學院臨床醫學研究所教授兼所長

■Education/Training:
1980-1987 B.M., Department of Medicine, National Taiwan University (NTU)
1987-1991 Pediatric Residency, Department of Pediatrics, NTU Hospital
1991-1996 Doctorate training; 1996 Ph.D.; Immunology Program, Harvard University

■Professional and Research Experience:
1998-2002 Assist. Prof
2002-2007 Assoc. Prof
2007-2009 Microbiology and Immunology, NCKU
2009-Prof Prof
2010- Chairman, Institute of Clinical Medicine, NCKU

■Awards and Honors:
2009- Editor in Chief, Immunology Section, Journal of Microbiology, Immunology and Infection
2012 Distinguished Research Award, Immunology Association (Taiwan)
Annual Award for Best Research Paper, National Cheng Kung University College of Medicine

■Selected Publications:
1. Chen CA, Chung WC, Chiou YY, Yang YJ, Lin YC, Ochs HD, Shieh CC* (2016, Oct). Quantitative analysis of tissue inflammation and responses to treatment in immune dysregulation, polyendocrinopathy, enteropathy, X-linked syndrome, and review of literature. Journal of Microbiology Immunology and Infection;49 (5):775-782.
2. Huang YF, Lo PC, Yen CL, Nigrovic PA, Chao WC, Wang WZ, Hsu GC, Tsai YS, Shieh CC*. (2015, Oct). Redox regulation of pro-IL-1
3. processing may contribute to the increased severity of serum-induced arthritis in NOX2-deficient mice. Antioxidants & Redox Signaling, 23(12): 973–984.
4. Yen CL, Chao WC, Wu CH, Huang YF, Chang CS, Tsai YS, Lin CF, Shieh CC*. (2014, Jul). Phosphorylation of glycogen synthase kinase-3 in metabolically abnormal obesity affects immune stimulation-induced cytokine production. International Journal of Obesity, 39, 270-278.
5. Liu SY, Wang WZ, Yen CL, Tsai MY, Yang PW, Wang JY, Ho CY, Shieh CC* (2011, Apr). Leukocyte NADPH oxidase is required for isocyanate-induced lung inflammation. Journal of Allergy and Clinical Immunology, 127(4), 1014-1023.

106 年 3 月 25 日（六）16:00-16:30
三樓，第 30 教室

以調控細胞氧化還原狀態調節免疫反應

Redox Regulation as a Key for Immunomodulation

The role of oxidant stress mediated by reactive oxygen species (ROS) produced by immune cells has changed from a pro-inflammatory stimulus to a more complex function with ROS as versatile regulators of immune and inflammatory pathways. The immune cells evolved with the fluctuating oxygen concentration in the atmosphere which may has conferred the leukocytes with the machinery capable of responding to different oxidant stress by changing their cellular activity. Our previous studies showed that NADPH oxidase 2 (NOX2) complex-derived ROS affect inflammation in different chronic inflammatory disorders in animal models for rheumatoid arthritis, occupational asthma, and neonatal development of lung inflammation. A remarkable example was found in serum-induced arthritis in mice, which we established by injecting arthritogenic serum into wild type and NADPH oxidase 2 (NOX2)-deficient mice. We found that the arthritis had a dominantly neutrophilic infiltrate and was more severe in Ncf1-/- mice, a mouse strain lacking the expression of the NCF1/p47phox component of NOX2 due to a homozygous mutation on the Ncf1 gene. The levels of IL-1β and IL-6 in inflamed joints were higher in Ncf1-/- than in controls. Antagonists of TNFα and IL-1β were equally effective in suppressing the arthritis in wild type mice while IL-1β blockade was more effective than TNFα blockade in Ncf1-/- mice. A caspase inhibitor, but not a cathepsin inhibitor, suppressed arthritic severity in the wild type mice, while only a cathepsin inhibitor, but not a caspase inhibitor, was effective in treating Ncf1-/- mice. Consistently, cathepsin B was found to proteolytically process human pro-IL-1β to its active form, and this activity was suppressed by ROS. This novel mechanism of a redox-mediated immune regulation through which leukocyte-produced ROS help to moderate the severity of arthritis may be important for devising optimal treatment for patients with different levels of tissue ROS. Different approaches have been taken to modulate immune responses through delivering the treatments to redox-sensitive targets. A more precise understanding of the redox regulation of immune responses and accurate vehicles to deliver the treatment promise to open up new ways of future therapies for immune-mediated diseases.

S9

Speaker / **賴朝松**
Chao-Sung Lai

■Current Position:
Dean, College of Engineering/ 長庚大學工學院　院長
Professor, Department of Electronic Engineering, Chang Gung University/
長庚大學電子系　教授
Department of Nephrology, Chang Gung Memorial Hospital, Taiwan/ 長庚醫院腎臟科　研究員

■Education/Training:
1977-1991　B.S., Department of Electronic Engineering, National Chiao Tung U
1991-1996　Ph.D., Institute of Electronic Engineering, National Chiao Tung University, Taiwan

■Professional and Research Experience:
1997-2001　Assistant Professor, Department of Electronic Engineering, Chang Gung University
2001-2002　Visiting Scholar, University of California, Berkeley, US
2001-2005　Associate Professor, Department of Electronic Engineering, Chang Gung University
2006-now　Professor, Department of Electronic Engineering, Chang Gung University, Taiwan
2007-2013　Chairman, Department of Electronic Engineering, Chang Gung University, Taiwan
2012-now　Dean, College of Engineering, Chang Gung University, Taiwan

■Awards and Honors:
2011　電子材料元件協會傑出成就獎
2013　長庚大學研究獎
2015　化學感測協會傑出教授獎
IEEE Electron Device Society, Distinguished Lecture (DL)
2016　長庚大學研究獎

■Selected Publications:
1. Kuan-I Ho, Mohamed Boutchich,* Ching-Yuan Su, Rosalia Moreddu, Eugene Sebastian Raj Marianathan, Laurent Montes, and **Chao-Sung Lai*** "A Self-Aligned High-Mobility Graphene Transistor: Decoupling the Channel with Fluorographene to Reduce Scattering" Advanced Materials (2015) SCI IF=17.493
2. Agnes Purwidyantri, Ching-Hsiang Chen, Bing-Joe Hwang, Ji-Dung Luo, Chiuan-Chian Chiou, Ya-Chung Tian, Chan-Yu Lin, Chi-Hui Cheng, **Chao-Sung Lai***, "Spin-coated Au-nano hole arrays engineered by nano sphere lithography for a Staphylococcus aureus 16SrRNA electrochemical sensor "Biosensors and Bioelectronics (2016) SCI IF=7.476
3. Yi-Ting Lin, Agnes Purwidyantri, Ji-Dung Luo, Chiuan-Chian Chiou, Chia-Ming Yang*, Chih-Hong Lo, Tsann-Long Hwang, Tzung-Hai Yen, and **Chao-Sung Lai*** "Programming a Nonvolatile Memory-like Sensor for KRAS Gene Sensing and Signal Enhancement" Biosensors & Bioelectronics (2016) SCI IF=7.476
4. Agnes Purwidyantri, Hsin-Chih Lai, Sheng-Hui Tsai, Ji-Dung Luo, Chiuan-Chian Chiou, Ya-Chung Tiane, Chi-Hui Chengh, Yi-Ting Lin ,**Chao-Sung Lai*** "Sensing performance of fibronectin-functionalized Au-EGFET on thedetection of S. epidermidis biofilm and 16S rRNA of infection-relatedbacteria in peritoneal dialysis" Sensors and Actuators B (2015) SCI IF=4.097
5. Chia-Ming Yang, Yuan-Hui Liao, Chun-Hui Chen, Tsung-Cheng Chen, **Chao-Sung Lai***, Dorota G. Pijanowska "P-I-N amorphous silicon for thin-film light-addressable potentiometric sensors", Sensors and Actuators B Chemical (2016) SCI IF=4.758

106 年 3 月 25 日（六）14:30-15:10
三樓，第 31 教室

奈米結構之生醫感測器於生醫檢測之運用

Nanostructures on Biosensors for Biomedical Detection

Nanostructure and nano material are attracting tools to improve the sensing performance in chemical and biomedical sensors, especially in low limit of detection in clinic applications. In our studies, several nanostructures applied in different sensor platform are verified to enhance the sensing performance. First is the nm-level high dielectric constant layer embedded in electrolyte-insulator-semiconductor structure for KRAS gene detection. In the structure, a non- nonvolatile memory-like sensor is fabricated to provide an extra chares storage layer to make DNA binding close to sensing membrane. The holes trapping in the Si3N4 layer caused by voltage stress programming on the electrolyte/SiO2/Si3N4/SiO2/Si (EONOS) structure successfully amplified the DNA hybridization signal in the overall capacitance analysis. In second platform, a nano patterning of gold nanoparticle (AuNP) arrays on an indium tin oxide (ITO) electrode using efficient and low-cost methods is proposed to detect Staphylococcusaureus 16S rRNA hybridization on cyclic voltammogram (CV) measurement. The Au-nanohole arrays on the ITO electrode provided a greater surface area and successfully enhanced the peak current of electrochemical measurements by 82% compared with bare ITO and contributed to an optimum sensitivity improvement in DNA hybridization detection by 23% and an limit of detection (LOD) of 10 pM. With these results provide insight for the use of this sensor in assisting physicians who deal with clinical samples and need to prescribe the most suitable antibiotics for the patients based on the pathogen(s) involved in the infection.

S10

Speaker / 吳靖宙
Ching-Chou Wu

106 年 3 月 25 日（六）15:10-15:50
三樓，第 31 教室

電化學感測晶片的應用：從生物分子檢測到細胞活性評估

Electrochemical Sensing Chips from Detection of Biomolecules to Estimation of Cellular Activity

Electrochemical biosensors have been widely used in the fields of clinical diagnostics, environmental monitoring, bioprocess estimation and food safety. Especially, the applications of electrochemical biosensors in the issues of in vitro diagnostics (IVD), point-of-care testing (POCT), precision medicine, therapeutic drug monitoring (TDM) etc. grow fast. The electrochemical biosensors have the advantages of easy massive production of electrodes, high compatibility with electrical detection and good integration of electrokinetic flow, which is well-suited to develop miniature diagnostic systems for the fast, easy, inexpensive and accurate biochemical detection. In this presentation, I will introduce my researches in three parts:

1. Integrating alternating current electrokinetic vortex and electrochemical impedance spectroscopy (EIS) detector on the same substrate for the label-free detection of DNA fragment and specific antigens. The EIS-based DNA chips can shorter the hybridization time to 2.5 min and lower the detection limit to 0.5 aM.
2. Innovative fabrication of copper-complex electrodes (cuprous oxide, copper phosphate) for the label-free detection of α-, β-, γ-amino acids and histamine for the determination of diseases and meat freshness.
3. Miniaturized dissolved oxygen sensors or IrOx-based pH sensors are integrated with a microfluidic system for the estimation of cellular respiratory activity and acidification.

■Current Position:
Department of Bio-industrial Mechatronics Engineering, National Chung Hsing University/ 國立中興大學生物產業機電工程學系　教授

■Education/Training:

1998-2003	Ph.D., Institute of Biomedical Engineering , National Cheng Kung University, Taiwan
1994-1996	M.S., Department of Biomedical Engineering, Chung-Yuan Christian University, Taiwan
1990-1994	B.S., Department of Biomedical Engineering, Chung-Yuan Christian University, Taiwan

■Professional and Research Experience:

2014-	present Professor, Dept. Bio-industrial Mechatronics Engineering, National Chung Hsing University, ROC
2010-2014	Associate Professor , Dept. Bio-industrial Mechatronics Engineering, National Chung Hsing University, ROC
2005-2010	Assistant Professor, Dept. Bio-industrial Mechatronics Engineering, National Chung Hsing University, ROC
2003-2005	Post-doctoral fellow (Graduate School of Science), Tohoku University, Japan

■Awards and Honors:

2016	Vice President of Association of Chemical Sensors in Taiwan
2014	Best Poster Award Winner in 65th Annual Meeting of International Society of Electrochemistry
2013	Young Scholar Innovative Competition Award of Taiwan Comprehensive University System
2012, 2013	Distinguished Paper Award of Association of Chemical Sensors in Taiwan
2012-2015	MOST Excellent young scholar project (優秀年輕學者研究計畫)

■Selected Publications:

1. M.-Y. Lee, J.-K. Chang, C.-C. Wu*, J. Peng "Ionic liquid-modified copper phosphate electrodes for the detection of α-amino acids in a weakly alkaline solution", Journal of The Electrochemical Society, 163 (2016), B768-B774
2. C.-C. Wu*, W.-C. Huang, C.-C. Hu "An ultrasensitive label-free electrochemical impedimetric DNA biosensing chip integrated with a DC-biased AC electroosmotic vortex", Sensors & Actuators: B. Chemical, 209 (2015) 61-68.
3. M.-Y. Lee, S.-J. Ding, C.-C. Wu*, J. Peng*, C.-T. Jiang, C.-C. Chou "Fabrication of nanostructured copper phosphate electrodes for the detection of α-amino acids", Sensors & Actuators: B. Chemical, 206 (2015) 584–591.
4. M.-Y. Lee, J. Peng, C.-C. Wu* "Geometric effect of copper nanoparticles electrodeposited on screen-printed carbon electrodes on the detection of α-, β- and γ-amino acids", Sensors & Actuators: B. Chemical, 186 (2013) 270-277.
5. Ching-Chou Wu*, Dong-Jie Yang "A label-free impedimetric DNA sensing chip integrated with AC electroosmotic stirring", Biosensors and Bioelectronics, 43 (2013) 348–354.

S11

Speaker / 林致廷
Chih-Ting Lin

■**Current Position:**
Graduate Institute of Electronics Engineering, National Taiwan University/
台灣大學電子工程學研究所

■**Education/Training:**

1992-1996	B.S. in Civil Engineering, National Taiwan University
1996-1998	M.S. in Applied Mechanics, National Taiwan University
2001-2003	M.S. in Electrical Engineering and Computer Science, University of Michigan – Ann Arbor
2003-2006	Ph.D. in Electrical Engineering and Computer Science, University of Michigan – Ann Arbor

■**Professional and Research Experience:**

2006-2012	Assistant Professor, Graduate Institute of Electronics Engineering, National Taiwan University
2012-2016	Associate Professor, Graduate Institute of Electronics Engineering, National Taiwan University
2016-	Professor, Graduate Institute of Electronics Engineering, National Taiwan University

■**Awards and Honors:**

2016	Ta-You Wu Memorial Award
	Outstanding Paper Award, Association of Chemical Sensors in Taiwan
2015	NARL CIC Chip Design Award
	Outstanding Paper Award, Association of Chemical Sensors in Taiwan

■**Selected Publications:**

1. S.-C. Lin, Y.-C. Tung, **C.-T. Lin*,** "A Frequency-Control Particle Separation Device Based on Resultant Effects of Electroosmosis and Dielectrophoresis," Applied Physics Letters, 2016, 109, 0537101.
2. D.-H. Kuan, I.-S. Wang, J.-R. Lin, C.-H. Yang, C.-H. Huang, Y.-H. Lin, **C.-T. Lin,** and N.-T. Huang, "A microfluidic device integrating dual CMOS polysilicon nanowire sensors for on-chip whole blood processing and the simultaneous detection of multiple analyte," Lab chip, 2016, DOI: 10.1039/C6LC00410E.
3. H.-T. Hsueh and **C.-T. Lin*,** "An incremental double-layer capacitance of a planar nano gap and its application in cardiac-troponin T detection," Biosensors and Bioelectronics, 79, 2016, 636-643.
4. S.-H. Shen, I-Shun Wang, Hua, Cheng, **C.-T. Lin*,** "An enhancement of high-k/oxide stacked dielectric structure for silicon-based multi-nanowire biosensor in cardiac troponin I detection," Sensors and Actuators B: Chemical, 218, 2015, 303-309, DOI: 10.1016/j.snb.2015.05.002.
5. P.-W. Yen, C.-W. Huang, Y.-J. Huang, M.-C. Chen, H.-H. Liao, S.-S. Lu, and **C.-T. Lin*,** "A device design of an integrated CMOS poly-silicon biosensor-on-chip to enhance performance of biomolecular analytes in serum samples," Biosensors and Bioelectronics, 2014, 61, 112-118

106 年 3 月 25 日（六）15:50-16:30
三樓，第 31 教室

可應用於體外檢測技術之半導體生醫電子元件

CMOS Biotechnologies for In-Vitro Diagnosis of Biomolecules

Surface potential affects biomolecular bindings and activities directly. Therefore, it is also a good indicator for surface modifications, such as biomolecular bindings. In this work, we proposed to measure the change of surface potential based on a coplanar nano-gap electrode device. Utilizing the nano-gap structure, the change of the surface potential can be determined by the electrical double layer capacitance. As a consequence, the proposed device can be used as a biomolecular sensing device. Different from traditional electrochemical measuring architectures, in the proposed sensing device, bio-conjugates are placed on the surface between the nano gap. The binding biomolecules change the potential of gap surfaces. This change modulates the electrical double layer (EDL) of electrode sidewalls and induces variations of capacitance measured from the nano-gap device. To validate the proposed sensing mechanism, surface modifications with different functional groups are employed to demonstrate electrode sidewall EDL contraction phenomena induced by gap-surface ion redistribution. Furthermore, different widths of nano-gap and biomolecules are used to demonstrate the improvement of biomolecular sensitivity and selectivity. These works pave the way to develop a nano-gap device with an easy-implemented capacitive measurement for applications of biomolecular diagnosis.

S12

Speaker / 箕越 靖彦
Yasuhiko Minokoshi

106 年 3 月 25 日（六）15:30-16:10
一樓，第 2 教室

Hypothalamic Control for Dietary Carbohydrate and Fat Preference-Role of AMP-activated Protein Kinase-

Food selection, which is essential to maintain metabolic homeostasis, is modulated by nutritional state, food palatability and social factors such as stress. We report that AMP-activated protein kinase (AMPK) in the paraventricular hypothalamus (PVH) regulates food selection behavior for high fat (HFD) and high carbohydrate (HCD) diets in mice. Overnight fasting, which activates AMPK in the PVH, increased selection of HCD but decreased that of HFD in C57BL/6J mice. Feeding of a HCD but not of the same calorie of a HFD resulted in a rapid improvement in ketone body metabolism in fasted mice. Expression of shRNA for AMPK in the PVH by lentivirus blunted the fasting-induced change in food selection. Expression of constitutively active AMPK in PVH neurons mimicked the effect of overnight fasting. Immunohistochemical analysis revealed the fasting-induced activation of AMPK in a subset of corticotropin-releasing hormone (CRH) neurons in rostral region of the PVH. Microinjection of CRH into the PVH increased selection of HCD but decreased that of HFD. Activation of CRH neurons in the PVH by DREADD (Designer Receptors Exclusively Activated by Designer Drug) technique also increased selection of HCD. In contrast, suppression of AMPK activity in CRH neurons or inhibition of CRH expression in the PVH, decreased the fasting-induced change in food selection. Diet-induced or KK-Ay obese mice increased selection of HFD that was associated with down-regulation of AMPK activity and CRH expression in the PVH. These results implicate that AMPK in a subset of CRH neurons in the PVH plays an important role in the control of food selection of HCD versus HFD.
Keywords: Food selection, AMPK, hypothalamus, CRH

■Current Position:

Professor of Division of Endocrinology and Metabolism, Department of Homeostatic Regulation, National Institute for Physiological Sciences, Japan
Professor of the Graduate University for Advanced Studies School of Life Science, Okazaki, Japan
Professor & Director of the Center for Experimental Animals, National Institutes of Natural Sciences, Okazaki, Japan

■Education/Training:

1983 M.D. Ehime University School of Medicine, Ehime, Japan
1987 Ph.D. Ehime University School of Medicine, Ehime, Japan

■Professional and Research Experience:

2015 Chair of the 36th Congress of JASSO
2012- A member of Advisory Board of JST PRESTO "Sakigake" Research Area "Elucidation and regulation in the dynamic maintenance and transfiguration of homeostasis in living body" (Chief : Prof. Kasuga)
2011- Professor & Director of the Center for Experimental Animals, National Institutes of Natural Sciences, Okazaki, Japan
2005- A member of the Board of Directors of Japan Society for the Study of Obesity (JASSO)

■Awards and Honors:

1999 Young Investigator Award for Obesity Research, JASSO
2015 Award for Outstanding Obesity Research, JASSO

■Selected Publications:

1. Shiuchi T, Haque MS, Okamoto S, Inoue T, Kageyama H, Lee S, Toda C, Suzuki A, Eric S. Bachman ES, Kim Y-B, Sakurai T, Yanagisawa M, Shioda S, Imoto K, Minokoshi Y. Hypothalamic orexin stimulates feeding-associated glucose utilization in skeletal muscle via sympathetic nervous system. **Cell Metabolism** 10: 466-480 (2009).
2. Imai J, Katagiri H, Yamada T, Ishigaki Y, Suzuki T, Kudo H, Uno K, Hasegawa Y, Gao J, Kaneko K, Ishihara H, Niijima A, Nakazato M, Asano T, Minokoshi Y, Oka Y. Regulation of pancreatic β cell mass by neuronal signals from the liver. **Science** 322: 1250-1254 (2008).
3. Minokoshi Y, Alquier T, Furukawa N, Kim Y-B, Lee A, Xue B, Mu J, Foufelle F, Ferré P, Birnbaum MJ, Stuck BJ, Kahn BB. AMP-kinase regulates food intake by responding to hormonal and nutrient signals in the hypothalamus. **Nature** 428: 569-574 (2004).
4. Yamauchi T, Kamon J, Minokoshi Y, Ito Y, Waki H, Uchida S, Yamashita S, Noda M, Kita S, Ueki K, Eto K, Akanuma Y, Froguel P, Foufelle F, Ferré P, Carling D, Kimura S, Nagai R, Kahn BB, Kadowaki T. Adiponectin stimulates glucose utilization and fatty-acid oxidation by activating AMP-activated protein kinase. **Nature Medicine** 8: 1288-1295 (2002).
5. Minokoshi Y, Kim Y-B, Peroni OD, Fryer LGD, Müller C, Carling D, Kahn BB. Leptin stimulates fatty acid oxidation in muscle by activation of AMP-activated protein kinase. **Nature** 415: 339-343 (2002).

S13

Speaker / 蔡曜聲
Yau-Sheng Tsai

■**Current Position:**
Professor, Institute of Clinical Medicine, National Cheng Kung University/
成功大學臨床醫學研究所教授

■**Education/Training:**
1990-1994 B.S., Department of Plant Pathology, National Taiwan University, Taiwan
1994-1996 M.S., Department of Biochemistry, National Cheng Kung University, Taiwan
2000-2005 Ph.D., Department of Pathology and Laboratory Medicine, University of North Carolina at Chapel Hill, USA

■**Professional and Research Experience:**
2005-2006 Postdoctoral fellow, Department of Pathology and Laboratory Medicine, UNC at Chapel Hill, USA
2006-2011 Assistant Professor, Institute of Clinical Medicine, National Cheng Kung University
2011-2016 Associate Professor, Institute of Clinical Medicine, National Cheng Kung University
2016- present Professor, Institute of Clinical Medicine, National Cheng Kung University

■**Awards and Honors:**
2016 Research Award in Basic Medicine from the CHENG-HSING Medical Foundation
Research Award from NHRI
2015 Research Award from NCKU Hospital
2012 Research Award in Basic Medicine from the CHENG-HSING Medical Foundation

■**Selected Publications:**
1. HC Tai, PJ Tsai, JY Chen, CH Lai, KC Wang, SH Teng, SC Lin, A Chang, MJ Jiang, YH Li, HL Wu, N Maeda, and **YS Tsai***. PPARγ level contributes to structural integrity and component production of elastic fibers in the aorta. ***Hypertension*** 67, 1298-1308, 2016.
2. YH Liu, **YS Tsai***, SC Lin, NS Liao, MS Jan, CT Liang, SW Hsu, WC Chen, JM Sung, N Maeda, and PJ Tsai*. Quantitative PPARγ expression affects the balance between tolerance and immunity. ***Sci Rep***. 6, 26646, 2016.
3. JY Chen, PJ Tsai, HC Tai, RL Tsai, YT Chang, MC Wang, YW Chiou, ML Yeh, MJ Tang, CF Lam, SC Shiesh, YH Li, WC Tsai, CH Chou, LJ Lin, HL Wu, and **YS Tsai***. Increased Aortic Stiffness and Attenuated Lysyl Oxidase Activity in Obesity. ***Arterioscler Thromb Vasc Biol.*** 33, 839-846, 2013.
4. HF Jheng, PJ Tsai, SM Guo, LH Kuo, CS Chang, IJ Su, and **YS Tsai***. Mitochondrial fission contributes to mitochondrial dysfunction and insulin resistance in skeletal muscle. ***Mol Cell Biol.*** 32, 309-319, 2012.
5. LH Kuo, PJ Tsai, MJ Jiang, YL Chuang, L Yu, KT Lai, and **YS Tsai***. Toll-like receptor 2 deficiency improves insulin sensitivity and hepatic insulin signalling in the mouse. *Diabetologia* 54, 168~179, 2011.

106年3月25日（六）16:10-16:50
一樓，第2教室

如果脂肪細胞睡在一個硬床墊會如何？

What Happened if Adipocytes Sleep on a Firm Mattress?

Obesity, defined as an expansion of white adipose tissue, is associated with chronic inflammation. Recent studies show that obesity is also accompanied by interstitial fibrosis and overexpression of extracellular matrix (ECM), leading to adipocyte dysfunction. Lysyl oxidase (LOX) is an enzyme crucial for ECM crosslinking and tissue stiffening. However, the role of LOX-mediated ECM crosslinking in the adipose tissue remains unclear. We hypothesize that obesity-associated inflammatory response upregulates LOX and ECM cross-linking, leading to adipose tissue stiffening and dysfunction. We applied a collagen gel system to investigate the effect of ECM rigidity on adipogenesis and mature adipocyte functions. First, we found that increased ECM rigidity impaired adipogenesis and deteriorated mature adipocyte functions, including insensitivity to insulin, inability to contract during the lipolytic cue and secrete adipokines, and sensitivity to inflammatory stimulation. Next, we tried to identify which cells and what stimuli upregulate matrix cross-linking factors. Our results showed that ob/ob adipose tissue exhibited an increased signal in the polarized view of picrosirius red stained section, as well as increased crosslinks and aggregated collagen in second harmonics generation (SHG) imaging. LOX was upregulated in the adipose tissue, particularly within the macrophage, of obese patients and mice. In vitro cell model showed that Raw 264.7 cells exhibited a significant response in LOX induction by LPS. Furthermore, treatment of RAW 264.7 cells with LPS induced cultured gel stiffening , and co-treatment of a LOX inhibitor BAPN reversed LPS treatment induced stiffening. Ex vivo LOX inhibition in ob/ob adipose tissue explants increased insulin sensitivity, adiponectin expression and lipolytic activity. Finally, in vivo LOX inhibition reversed metabolic impairment and adipocyte dysfunction in obesity. Taken together, our study underscores that macrophage and inflammatory response may orchestrate the adipose tissue cross-linking and stiffening, further causing adipocyte dysfunction in obesity.

S14

Speaker / 余佳慧
Linda Chia-Hui Yu

■Current Position:
Professor, Graduate Institute of Physiology, National Taiwan University College of Medicine/ 台灣大學醫學院生理所 教授

■Education/Training:
2002-2005 Post-doctoral fellow, University of Calgary, Calgary, Alberta, Canada
1997-2002 Ph.D., Programme of Physiology and Pharmacology, Department of Medical Sciences, Faculty of Health Sciences, McMaster University, Hamilton, Ontario, Canada
1995-1997 M.Sc., Department of Biology, Faculty of Science, University of Waterloo, Waterloo, Ontario, Canada

■Professional and Research Experience:
2016- Professor, Graduate Institute of Physiology, National Taiwan University College of Medicine, Taipei, Taiwan
2011-2016 Associate Professor, Graduate Institute of Physiology, National Taiwan University College of Medicine, Taipei, Taiwan
2005-2011 Assistant Professor, Graduate Institute of Physiology, National Taiwan University College of Medicine, Taipei, Taiwan

■Awards and Honors:
2013-2016 Outstanding Young Investigator Project Grant, Three-year project, Principle Investigator, Ministry of Science and Technology (MoST), Executive Yuan, Taiwan.
2013 Original article selected as 'Key Scientific Article' in Global Medical Discovery, Ontario, Canada.
2015-2011 Academic Research Bursary, National Taiwan University (top 15% SCI papers)
2011 Young Investigator Award, The 7th Federation of the Asian and Oceanian Physiological Society Congress (FAOPS) 2011

■Selected Publications:
1. Kuo WT, Lee TC, **Yu LC***. **(2016)** Eritoran suppresses colon cancer by altering a functional balance in Toll-like receptors that bind lipopolysaccharide. ***Cancer Research.*** 76(16):4684-95. **doi:** 10.1158/0008-5472.CAN-16-0172
2. Huang CY, Kuo WT, Huang CY, Lee TC, Chen CT, Peng WH, Lu KS, Yang CY, and **Yu LC***. **(2016)** Distinct cytoprotective roles of pyruvate and ATP by glucose metabolism on epithelial necroptosis and crypt proliferation in ischemic gut. ***Journal of Physiology.*** doi: 10.1113/JP272208.
3. Kuo WT, Lee TC, Yang HY, Chen CY, Au YC, Lu YZ, Wu LL, Wei SC, Ni YH, Lin BR, Chen Y, Tsai YH, Kung JT, Sheu F, Lin LW , and **Yu LCH***. **(2015)** LPS receptor subunits have antagonistic roles in epithelial apoptosis and colonic carcinogenesis. ***Cell Death & Differentiation*** 22 (10): 1590–1604. doi: 10.1038/cdd.2014.240.
4. **Yu LCH**, Shih YA, Wu LL, Lin YD, Kuo WT, Peng WH, Lu KS, Wei SC, Turner JR, Ni YH*. **(2014)** Enteric dysbiosis promotes antibiotic-resistant bacterial infection: systemic dissemination of resistant and commensal bacteria through epithelial transcytosis. ***American Journal of Physiology: Gastrointestinal and Liver Physiology.*** 307 (8): G824-G835. doi: 10.1152/ajpgi.00070.2014.
5. Wu LL, Peng WH, Kuo WT, Huang CY, Ni YH, Lu KS, Turner JR, and **Yu LCH***. **(2014)** Commensal bacterial endocytosis in epithelial cells is dependent on myosin light chain kinase-activated brush border fanning by interferon-gamma. ***American Journal of Pathology*** 184(8):2260-74. doi: 10.1016/j.ajpath.2014.05.003

106 年 3 月 25 日（六）16:50-17:30
一樓，第 2 教室

腸道菌在結直腸癌化所扮演之正負面角色

Gut Bacteria on Colorectal Carcinogenesis: Friend or Foe?

Intestinal epithelial cells undergo rapid turnover in a state of dynamic equilibrium. Imbalances between cell proliferation and death could lead to gut barrier defects or tumor formation. Human intestine inhabits 1012 to 1014 microbes with over 1000 bacterial species. Accumulating evidence showed that aberrant epithelial innate signaling to bacterial lipopolysaccharide (LPS) plays a critical role in driving normal epithelium to carcinogenesis. Studies in our laboratory have demonstrated that epithelial cells undergo apoptosis following LPS/CD14 activation via lipid messengers and Src/PKCζ signals in the absence of TLR4, whereas TLR4 expression rescued cell death against its coreceptor and antagonistically promoted cell proliferation and tumor growth. We next explored whether manipulation of the functional antagonism between LPS receptors by eritoran may suppress tumorigenesis. Eritoran, a molecule structurally similar to the lipid A moiety of LPS, is an investigational drug for treating sepsis. Eritoran administration via intracolonic, intragastric, or intravenous routes significantly reduced tumor burden in mice. In vitro cultures of primary tumor spheroids and cancer cell lines demonstrated dual modes for tumor suppression, including the induction of CD14/Src/PKCζ-mediated apoptosis and the blockade of TLR4-dependent proliferation. The unraveling knowledge of the interplay between epithelium and bacteria will bring novel immunotherapy for management of colon cancer.

S15

Speaker / 王仰高
Yang-Kao Wang

■**Current Position:**
Department of Cell Biology and Anatomy, College of Medicine, National Cheng Kung University/ 成功大學醫學院細胞生物及解剖學研究所 助理教授

■**Education/Training:**
1987-1991 B.S. Department of Biology, Fu-Jen Catholic University
1991-1994 M.S. Department of Physiology, National Cheng Kung University
1997-2003 Ph.D. Institute of Basic Medical Sciences, National Cheng Kung University

■**Professional and Research Experience:**
2004-2009 Postdoc, Department of Bioengineering, University of Pennsylvania, PA, USA
2009-2012 Research assisted investigator, National Cheng Kung University
2012-2014 Assistant Professor, Graduate Institute of Biomedical Materials and Tissue Engineering, Taipei Medical University
2014-Now Assistant Professor, Department of Cell Biology and Anatomy, National Cheng Kung University

■**Selected Publications:**

1. Chen HR, Yeh YC, Liu CY, Wu YT, Lo FY, Tang MJ* and **Wang YK***. DDR1 promotes E-cadherin stability via inhibition of integrin- β 1-Src activation-mediated E-cadherin endocytosis. Scientific Reports 6: 36336, 2016
2. Liu CY, Lin HH, Tang MJ, **Wang YK**. Vimentin contributes to epithelial-mesenchyme-transition cancer cell mechanics by mediating cytoskeletal organization and focal adhesion maturation. Oncotarget 6: 15966-83, 2015
3. **Wang YK**, Chen CS. Cell adhesion and mechanical stimulation in the regulation of mesenchymal stem cell differentiation. ***J Cell Mol Med***, 17: 823-32, 2013.
4. **Wang YK**, Yu X, Cohen DM, Wozniak MA, Yang MT, Gao L, Eyckmans J, and Chen CS. BMP-2-Induced signaling and osteogenesis is regulated by cell shape, RhoA/ROCK, and cytoskeletal tension. ***Stem Cells Dev***, 21: 1176-86, 2012.
5. Fu JP*, **Wang YK***, Yang MT, Desai, RD, Yu X, Liu ZJ and Chen CS. Mechanical regulation of cell function using geometrically modulated elastomeric substrates. ***Nature Methods***, 7:733-736, 2010. (*: **equal contribution to the paper**)

106 年 3 月 25 日（六）14:30-15:00
三樓，第 32 教室

Vimentin 透過調控細胞骨架及黏著斑以促進癌症之上皮－間質轉化

Vimentin Contributes to Cancer Epithelium-mesenchym Transition by Regulating Cytoskeletal Organization and Focal Adhesion Maturation

Modulations of cytoskeletal organization and focal adhesion turnover correlate to tumorigenesis and epithelial-mesenchymal transition (EMT), the latter process accompanied by the loss of epithelial markers and the gain of mesenchymal markers (e.g., vimentin). Clinical microarray results demonstrated that increased levels of vimentin mRNA after chemotherapy correlated to a poor prognosis of breast cancer patients. We hypothesized that vimentin mediated the reorganization of cytoskeletons to maintain the mechanical integrity in EMT cancer cells. By using knockdown strategy, the results showed reduced cell proliferation, impaired wound healing, loss of directional migration, and increased large membrane extension in MDA-MB 231 cells. Vimentin depletion also induced reorganization of cytoskeletons and reduced focal adhesions, which resulted in impaired mechanical strength because of reduced cell stiffness and contractile force. In addition, overexpressing vimentin in MCF7 cells increased cell stiffness, elevated cell motility and directional migration, reoriented microtubule polarity, and increased EMT phenotypes due to the increased β1-integrin and the loss of junction protein E-cadherin. The EMT-related transcription factor slug was also mediated by vimentin. The current study demonstrated that vimentin serves as a regulator to maintain intracellular mechanical homeostasis by mediating cytoskeleton architecture and the balance of cell force generation in EMT cancer cells.

S16

Speaker / 李怡琛
Yi-Chen Lee

106 年 3 月 25 日（六）15:00-15:30
三樓，第 32 教室

Visfatin 蛋白在乳癌之轉譯研究

Translational Study of Visfatin in Breast Cancer

Adipocytokines, adipocyte-secreted hormones, play a critical role in breast cancer development. Visfatin is an adipocytokine involved in cellular metabolism, inflammation, and cancer. This study investigated the roles of visfatin in breast cancer, and explored underlying mechanisms in clinical and experimental settings. Associations of tissue and serum visfatin with clinicopathologic characteristics and patient survival were assessed with Cox regression models and Kaplan–Meier analyses. Effects of extracellular visfatin on cultured breast cancer cells were examined, followed by in vivo investigation of tumor growth and metastasis in xenograft animal models. Breast cancer patients with high visfatin expression (tissue and serum levels) were associated with advanced tumor stage, increased tumor size and lymph node metastasis, and poor survival. Elevated phosphorylation of c-Abl and STAT3 in breast tumor tissues were correlated with high visfatin expression in patients. Visfatin promoted in vitro cell viability and metastatic capability were suppressed by imatinib (c-Abl inhibitor) and Stattic (STAT3 inhibitor). Tumor growth and lung metastasis occurred in visfatin-administered mice xenografted with breast cancer cells. Tail vein–injected mice with visfatin-pretreated breast cancer cells showed increased lung metastasis, which was suppressed by imatinib. High visfatin expression in breast cancer is associated with more malignant cancer behavior as well as poor patient survival. Visfatin promoted breast cancer through activation of c-Abl and STAT3 may provide an important molecular basis for future design of targeted therapies.

■Current Position:
Assistant professor/ 助理教授

■Education/Training:
1994-1998 B.S., Biology, Kaohsiung Medical University
2000-2002 M.S., Graduate Institute of Medicine, Kaohsiung Medical University
2004-2012 Ph.D., Graduate Institute of Medicine, Kaohsiung Medical University

■Professional and Research Experience:
2013-2017 Assist. Prof., Department of Anatomy, Kaohsiung Medical University

■Selected Publications:
1. Yang CH, Moi SH, Chuang LY, Yuan SS,Hou MF, **Lee YC***, Chang HW*. Interaction of MRE11 and Clinicopathologic Characteristics in Recurrence of Breast Cancer: Individual and Cumulated Receiver Operating Characteristic Analyses. **BioMed Research International** 2017 Accepted
2. **Lee YC**, Yin TC, Chen YT, Chai CY, Wang JY, Liu MC, Lin YC, Kan JY*. High Expression of Phospho-H2AX Predicts a Poor Prognosis in Colorectal Cancer. **Anticancer Res**.2015,35(4):2447-2454
3. Cheng YJ, **Lee YC**, Chiu WC, Tsai JW, Su YH, Hung AC, Chang PC, Huang CJ, Chai CY, Yuan SS*. High Id1 expression, a generally negative prognostic factor, paradoxically predicts a favorable prognosis for adjuvant paclitaxel plus cisplatin therapy in surgically treated lung cancer patients. **Oncotarget**.2014,5(22):11564-75.
4. **Lee YC**, Chen YJ ,Wu CC , Lou S , Hou MF,Yuan SS F.* Resistin expression in breast cancer tissue as a marker of prognosis and hormone therapy stratification. **Gynecol Oncol**.2012,125(3):742-750.
5. **Lee YC**, Yang YH, Su JH, Chang HL, Hou MF*, Yuan SS F.* High visfatin expression in breast cancer tissue is associated with poor survival. **CANCER EPIDEMIOLOGY BIOMARKERS & PREVENTION**.2011,9(20):1892-1910.

S17

Speaker / 黃敏銓
Min-Chuan Huang

106 年 3 月 25 日（六）15:30-16:00
三樓，第 32 教室

氧型醣化作用在癌症的功能性角色

The Functional Role of O-glycosylation in Cancer

Altered glycosylation is a hallmark of cancer. Changes in glycans regulate a wide range of tumor malignant phenotypes and are associated with tumor progression in several cancer types. N-glycosylation of proteins in cancer has been extensively studied. However, the functional role of O-glycosylation in cancer remains poorly understood. Our research has been focused on the GalNAc-type O-glycosylation, which is the most common type of O-glycosylation in mammals. Our results showed that the O-glycosylating enzymes, GALNTs and C1GALT1, are often dysregulated in cancers. Dysregulation of these enzymes modulates cellular phenotypes including cancer stemness, cell adhesion, migration, invasion, and apoptosis. We also demonstrate that several important surface molecules, such as receptor tyrosine kinases, integrins, and mucins, carry short GalNAc-type O-glycans and the altered O-glycans can modulate their properties and downstream signaling. Our research highlights the significant role of O-glycosylation in the pathogenesis of cancers.

■Current Position:
Professor, Graduate Institute of Anatomy and Cell Biology, National Taiwan University (NTU)/ 國立臺灣大學解剖學暨細胞生物學研究所　教授

■Education/Training:

1987-1991　B.S., Public Health, National Taiwan University
1995-1997　M.S., Department of Life Science, National Tsing Hua University
1997-2000　Ph.D., Institute of Cell Biology, University of Münster, Germany

■Professional and Research Experience:

2000-2001　Postdoc, Max-Planck-Institute of Physiological and Clinical Research, Germany
2001-2003　Associate Researcher, R&D Department, Abgenomics
2003-2007　Assistant Professor, Graduate Institute of Anatomy and Cell Biology, NTU
2007-2012　Associate Professor, Graduate Institute of Anatomy and Cell Biology, NTU

■Awards and Honors:

2013　Outstanding Teaching Award, NTU.

■Selected Publications:

1. Lin MC, Lin JJ, Hsu CL, Juan HF, Lou PJ*,**Huang MC***. GATA3 interacts with and stabilizes HIF-1α to enhance cancer cell invasiveness. ***Oncogene***.2017.1.11. accepted. (*Correspondence)
2. Liu SY, Shun CT, Hung KY, Juan HF, Hsu CL,**Huang MC***, I-Rue Lai IR*. Mucin glycosylating enzyme GALNT2 suppresses malignancy in gastric adenocarcinoma by reducing MET phosphorylation. ***Oncotarget***.2016 Mar 8;7(10):11251-62. (*Correspondence)
3. Chou CH, Huang MJ, Chen CH, Shyu MK, Huang J, Hung JS, Huang CS*, **Huang MC***. Up-regulation of C1GALT1 promotes breast cancer cell growth through MUC1-C signaling pathway. ***Oncotarget***. 2015 Mar 20;6(8):6123-35. (*Correspondence)
4. Wu YM#, Liu CH#, Huang MJ, Lai HS, Lee PH, Hu RH*, **Huang MC***. C1GALT1 enhances proliferation of hepatocellular carcinoma cells via modulating MET glycosylation and dimerization. ***Cancer Research***. 2013 Sep 1;73(17):5580-90. *Correspondence.
5. Chang HH#, Chen CH#, Chou CH, Liao YF, Huang MJ, Chen YH, Wang WJ, Huang J, Hung JS, Ho WL, Jeng YM, Che MI, Lee H, Lu MY, Yang YL, Jou ST, Lin DT, Lin KH, Hsu WM*, **Huang MC***. β-1,4-galactosyltransferase III enhances invasive phenotypes via β1 integrin and predicts poor prognosis in neuroblastoma. ***Clinical Cancer Research***. 2013 Apr; 19(7):1705-16. (*Correspondence)

S18

Speaker / 陳瀅
Ying Chen

■**Current Position:**
Associate Professor in Department and Graduate Institute of Biology and Anatomy, National Defense Medical Center/ 國防醫學院生物及解剖學研究所　副教授

■**Education/Training:**

2000-2004	B.S., Department of Nutrition, Taipei Medical University, ROC
2004-2010	Ph.D., Graduate Institute of Anatomy and Cell Biology, National Taiwan University (NTU), ROC
2005-2009	Teaching Assistant, Graduate Institute of Anatomy and Cell Biology, NTU
2009-2011	Post doctor, Graduate Institute of Anatomy and Cell Biology, NTU
2011-2014	Assistant Professor, Graduate Institute of Biology and Anatomy, National Defense Medical Center (NDMC), Taipei, ROC
2014-	Associated Professor, Graduate Institute of Biology and Anatomy, NDMC, Taipei, ROC

■**Professional and Research Experience:**
1.Investigation of metastasis and apoptosis on the glioblastoma cells.
2.The effect of uremia toxin on muscle cells.

■**Awards and Honors:**

2007	Outstanding Graduate Writing Award masterpiece of the National Taiwan University College of Medicine
2010	Poster masterpiece of natural products Application Development Seminar

■**Selected Publications:**
1. Hueng DY, Hsieh CH, Cheng YC, Tsai WC, **Chen Y***. Cordycepin inhibits migration of human glioblastoma cells by affecting lysosomal degradation and protein phosphatase activation. ***J Nutr Biochem***. 2017 Mar 41:109-116.
2. Cheng YC, Hueng DY, Huang HY, Chen JY and **Chen Y***. Magnolol and honokiol exert a synergistic anti-tumor effect through autophagy and apoptosis in human glioblastomas. ***Oncotarget*** 2016 May 17;7(20):29116-30.
3. Cheng YC, Ding YM, Hueng DY, Chen JY and **Chen Y***. Caffeine Suppresses the Progression of Human Glioblastoma via Cathepsin B and MAPK Signaling Pathway. ***J Nutr Biochem***. 2016 Jul;33:63-72.
4. **Chen Y***, Chou WC, Ding YM, Wu YC. Caffeine inhibits migration in glioma cells through the ROCK-FAK pathway. ***Cellular Physiology and Biochemistry***. 2014 Jun 33:1888-1898. ***first and corresponding author**
5. **Chen Y***, Yang SH, Hueng DY, Syu JP, Liao CC, Wu YC. Cordycepin induces apoptosis of C6 glioma cells through the adenosine 2A receptor-p53-caspase-7-PARP pathway. ***Chemico-Biological Interactions***. 2014 Jun 216:17–25. ***first and corresponding author**

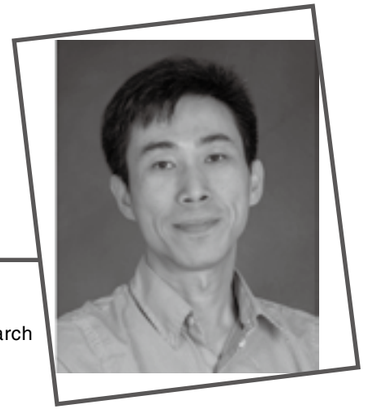
106 年 3 月 25 日（六）16:00-16:30
三樓，第 32 教室

咖啡因人類神經膠質瘤抑制移行與侵犯的機制

The Mechanisms of Caffeine-inhibited Migration and Invasion in Glioma

Glioblastoma has aggressive proliferative and invasive properties. In this research, we investigated the signaling mechanism of caffeine on the migration and invasion of glioma cells. Caffeine decreased the migration of rat C6 and human U87MG glioma cells and down-regulated the expression of phosphorylated focal adhesion kinase (p-FAK) and p-paxillin. Caffeine also decreased p-FAK staining at the edge of glioma cells and disassembled actin stress fibers. Additionally, caffeine elevated expression of phosphorylated myosin light chain (p-MLC), an effect that could be blocked by Y27632, a rho-associated protein kinase (ROCK) inhibitor. Y27632 also inhibited the caffeine-reduced expression of p-FAK and p-paxillin as well as cell migration. Besides, caffeine reduced the invasion in U87MG, GBM8401 and LN229 cells. Caffeine decreased mRNA, protein expression, and activity of cathepsin B. Moreover, mRNA and protein expression of tissue inhibitor of metalloproteinase-1 (TIMP-1) was upregulated by caffeine treatment, whereas matrix metalloproteinase-2 (MMP-2) was downregulated. The expression of Ki67, p-p38, phosphorylated extracellular regulated protein kinases (p-ERK), and membranous integrin β1 and β3 was decreased by caffeine. Y27632, blocked the caffeine-mediated reduction of cathepsin B, p-FAK, and p-ERK, and invasion. In addition, caffeine decreased the tumor size, cathepsin B and Ki67 expression in animal model. Caffeine reduced the migration and invasion of glioma cells through ROCK-cathepsin B/FAK/ERK signaling pathway and tumor growth in orthotopic xenograft animal model, supporting the anti-cancer potential in glioma therapy.

S19



Speaker / 高承源
Cheng-Yuan Kao

■Current Position:
Assistant Investigator - Immunology Research Center, National Health Research Institutes/ 國家衛生研究院免疫醫學研究中心　助研究員

■Education/Training:
1990-1994　B.S., Department of Biology, National Cheng-Kung University
1994-1996　M.S., Institute of Genetics Sciences, National Yang-Ming University
2000-2005　Ph.D., Genetics Graduate Group, University of California, Davis

■Professional and Research Experience:
2005-2010　Postdoctoral Researcher, Section of Cell and Developmental Biology, University of California, San Diego
2010-2011　Postdoctoral Researcher, Department of Internal Medicine, University of California, Davis
2011-2012　Assistant Project Scientist, Department of Internal Medicine, University of California, Davis
2012-　present Assistant Investigator, Immunology Research Center, National Health Research Institutes

■Awards and Honors:
2010-2011　Ruth L. Kirschstein National Research Service Award (T32-HL-07013)
2005　Graduate Student Travel Award, University of California, Davis

■Selected Publications:
1. Ruan JW, Statt S, Huang CT, Tsai YT, Kuo CC, Chan HL, Liao YC, Tan TH, **Kao CY***. Dual-specificity phosphatase 6 deficiency regulates gut microbiome and transcriptome response against diet-induced obesity in mice. ***Nat Microbiol***. 2016 Nov 28;2:16220.
2. Chen HD, **Kao CY**, Liu BY, Huang SW, Kuo CJ, Ruan JW, Lin YH, Huang CR, Chen YH, Wang HD, Aroian RV, Chen CS*. HLH-30/TFEB-mediated autophagy functions in a cell-autonomous manner for epithelium intrinsic cellular defense against bacterial pore-forming toxin in C. elegans. ***Autophagy.*** 2016 Nov 22:1-15.
3. Statt S, Ruan JW, Huang CT, Wu R, **Kao CY***. Lipidome and transcriptome profiling of pneumolysin intoxication identifies networks involved in statin-conferred protection of airway epithelial cells. ***Sci Rep***. 2015 May 29;5:10624.
4. Statt S, Ruan JW, Hung LY, Chang CY, Huang CT, Lim JH, Li JD, Wu R, **Kao CY***. Statin-conferred enhanced cellular resistance against bacterial pore-forming toxins in airway epithelial cells. ***Am J Respir Cell Mol Biol***. 2015 Nov;53(5):689-702.
5. **Kao CY**, Los FC, Huffman DL, Wachi S, Kloft N, Husmann M, Karabrahimi V, Schwartz JL, Bellier A, Ha C, Sagong Y, Fan H, Ghosh P, Hsieh M, Hsu CS, Chen L, Aroian RV*. Global functional analyses of cellular responses to pore-forming toxins. ***PLoS Pathog***. 2011 Mar;7(3):e1001314.

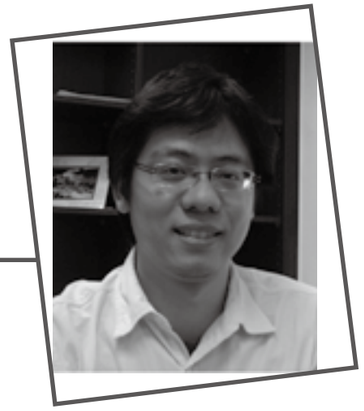
106 年 3 月 25 日（六）14:30-15:00
二樓，第 20 教室

吃不胖的好腸道 – 雙特異性去磷酸 六與腸道菌叢

A Good Gut Feeling for Obesity Resistance: Dusp6 and Gut Microbiota

Accumulating evidence has shown that gut microbiome plays profound role in development of obesity. High-fat diet could induce dysbiosis of gut microbiota to affect the energy harvest, metabolism and inflammatory response in host. Dusp6 deficient mice have been shown to be resistant to diet-induced obesity but the mechanisms are mostly unclear. In a germ-free mouse model, we found that fecal/gut microbiota derived from dusp6 deficient mice could significantly increase the energy expenditure and reduce the weight-gain of recipient wild-type mice on high-fat diet. By analyzing fecal 16S rRNA genes, dusp6 deficient mice have shown a resistance to high-fat-diet-mediated dysbiosis of gut microbiome. After the intestinal transcriptome of dusp6 deficient mice was profiled with RNA-seq, dusp6 deficiency is suggested to be an important regulator of Pparγ pathway and tight-junction genes. Importantly, dusp6 deficient mice have a high-fat diet specific response to reverse the high-fat-diet-induced perturbation on intestinal barrier functions and mucosal immunity that contribute to gut microbiome homeostasis. Our study demonstrates that dusp6 deficiency is a strong genetic factor dominating high-fat-diet-mediated effect and could rescue the high-fat-diet-mediated dysbiosis of gut microbiome in mice.

S20



Speaker / 陳示國
Shih-Kuo Chen

■**Current Position:**
Department of Life Science, National Taiwan University, Assistant Professor/
台大生命科學系　助理教授

■**Education/Training:**
1998-2002　B.S., Zoology, National Taiwan University, Taiwan.
2003-2007　Ph.D., Biology and Biochemistry, University of Houston, US.
2008-2012　PostDoc., Biology, Johns Hopkins University, US.

■**Professional and Research Experience:**
2012-　current Assistant Professor, Department of Life Science, National Taiwan University.

■**Awards and Honors:**
2013　Young Investigator Grant from MoST.

■**Selected Publications:**
1. Prigge CL, Yeh P-T, Liou N-F, Lee C-C, You S-F, Liu L-L, McNeill DS, Chew KS, Hattar S, **Chen S-K**, and Zhang D-Q. M1 ipRGCs Influence Visual Function through Retrograde Signaling in the Retina. *J. Neurosci*. 2016; 36(27):7184 -7197.
2. Fernandez DC*, Chang YT*, Hattar S, **Chen S-K**. Architecture of retinal projections to the central circadian pacemaker. *Proc Natl Acad Sci U S A*. 2016; 113(21):6047-52.
3. Joo HR1, Peterson BB, Dacey DM, Hattar S, **Chen S-K**. Recurrent axon collaterals of intrinsically photosensitive retinal ganglion cells. *Vis Neurosci*. 2013; 30(4):175-82.
4. **Chen S-K***, McNeill DS*, Chew KS*, Keeley PW, Ecker JL, Mao B, Pahlberg J, Sampath AP, Reese BE, Kuruvilla R, Hattar S. Bax regulates cell spacing and rod/cone signaling through ipRGCs. *Neuron*. 2013 6; 77(3):503-15.
5. **Chen S-K**, Badea TC, Hattar S*. Circadian rhythm entrainment and pupillary light response mediated by distinct populations of intrinsically photosensitive retinal ganglion cells. *Nature*. 2011; 476: 92-95

106 年 3 月 25 日（六）15:00-15:30
二樓，第 20 教室

夜晚光照對於腸道菌相的影響

Light Exposure at Night Influence Gut Microbiota

Light pollution has been associated with many human metabolic disorders, including obesity, pre-diabetes and cardiovascular disease. Nocturnal animals such as laboratory mice housed under conditions of dim light at night (dLAN) also showed similar phenotype. However, how light influences metabolic status remains unclear. Gut microbiota have also been shown to impact the health status, they can influence the homeostasis of the intestinal epithelium as well as neuronal functions in the brain. While we know changes in diet can shift the gut microbe composition, little is known regarding how other physiological inputs alter the gut microbe composition.

In the retina, intrinsically photosensitive retinal ganglion cells (ipRGCs) express blue light photopigment melanopsin. Using melanopsin knockout and ipRGC eliminated genetic mouse models, we showed that melanopsin signaling through ipRGC can transmit aberrant light information to shift gut microbiota. Furthermore, we found that elimination of ipRGC-sympathetic circuit can dampen the daily oscillation of the gut microbes, indicating that external light dark cycle, but not the internal circadian clock of the host, is the major force to drive the daily rhythmicity of the gut microbe. Together, our findings suggest light pollution at night can enhance the incidence of metabolic disorders through the blue light sensitive photopigment melanopsin, which may be indicative of negative consequences for those exposed to blue light at night, such as shift workers.

S21

Speaker / 張明熙
Ming-Shi Chang

■Current Position:
Chair Professor, Dept. of Biochemistry and Molecular Biology, NCKU/
國立成功大學醫學院生化所 講座教授

■Education/Training:
1970-1974 B.S., Dept. of Plant Pathology and Microbiology, National Taiwan University
1977-1979 M.S., Dep. Of Botany, University of Kansas, USA;
1983-1987 Ph.D.; Dept. of Microbiology & Immunology, USA
1986-1986 Postdoc. Fellow with Dr. David Goeddel, Genentech Inc., USA

■Professional and Research Experience:
1989-1997 Research Scientist, Amgen Inc., USA.
1996-1999 Director of R&D, Biosource International, USA.
2004-2006 Director, Graduate Institute of Biopharmaceutical Science, NCKU.
2008-2011 Director, Graduate Institute of Biochemistry, NCKU.
1999-2013 Professor, Dept. of Biochemistry and Molecular Biology, NCKU
2011- present, Director, Antibody New Drug Research Center, NCKU
2013- present, Chair Professor, Dept. of Biochemistry and Molecular Biology, NCKU

■Awards and Honors:
2015 12th national innovation award 國家新創獎
2014 11th National innovation award 國家新創獎
You-Yang Biotech invention award 有庠科技發明獎
2013 Wang Ming-Ning award 王民寧獎
Taiwan Biotech Award 台灣生技獎 - 年度創新獎
Outstanding research award (Ministry of Science and Technology) 國科會傑出獎
2012 Hou Jing-duei outstanding academic award 侯金堆傑出學術獎

■Selected Publications:
1. Hsu YH, Chiu YS, Chen WY, Huang KY, Jou IM, Wu PT, Wu CH, **Chang MS ***. Anti-IL-20 monoclonal antibody promotes bone fracture healing through regulating IL-20-mediated osteoblastogenesis.*Scientific Reports. 6:24339*. 2016.
2. Hsu YH, Wu CY, Hsing CH, Lai WT, Wu LW, **Chang MS ***. Anti-IL-20 monoclonal antibody suppresses prostate cancer growth and bone osteolysis in murine models. *PLoS One*. (10): e0139871. 2015.
3. Hsu YH and **Chang MS ***. IL-20 in rheumatoid arthritis. *Drug Discovery Today*. 1359-6446. 2015.
4. Chiu YS, Wei CC, Lin YJ, Hsu YH, **Chang MS ***. IL-20 and IL-20R1 antibodies protect against liver fibrosis. *Hepatology*. 60(3):1003-14. 2014.
5. Hsu YH, Chen WY, Chan CH, Wu CH, Sun ZJ, **Chang MS***. Anti-IL-20 antibody inhibits the differentiation of osteoclasts and protects against osteoporotic bone loss. *J. Exp Med*. 2011 Aug 29;208(9):1849-61

106 年 3 月 25 日（六）15:30-16:00
二樓，第 20 教室

介白素 19 拮抗劑改善過敏原誘導的慢性氣喘

Antagonists of IL-19 Ameliorates Allergen-induced Chronic Asthma

Asthma is a chronic inflammatory disease of the airway. The major symptom of asthma is due to airway narrowing and obstruction. IL-19 is a cytokine belonging to the IL-10 family. Our previous studies showed IL-19 was increased in the serum of patients with asthma through the induction of TH2 cytokines. To explore if the antagonist of IL-19 receptor (IL-20 R1) has any protection against asthma, we used Der P to induce chronic asthma animal model in IL-20R1 knock-out mice and analyze the effect of the receptor deficiency on asthma pathogenesis. Our results showed that IL-20R1 deficiency protected against asthma by inhibiting IL-19, IL-13, IgE, and blocked infiltration of immune cells in the bronchoalveloar lavage fluids(BALF). IL-20R1 knock-out mice are also protected from asthma by in vivo analysis of airway hyperresponsiveness (AHR) and Hematoxylin /eosin stain. We also found that the anti-IL-20R1 monoclonal antibody, 51D has therapeutic potential for asthma. The 51D antibody was intraperitoneally injected into the Der P sensitized mice. Treatment with 51D reduced airway hyperresponsiveness (AHR) and serum IgE. The numbers of eosinophils in bronchoalveolar lavage fluid and concentrations of IL-13 and IL-19 in serum were also significantly reduced compared to the control. The IL-19-induced in vitro differentiation of TH2 cell from IL-20R1 deficiency mice and IL-19-treated epithelial cell further confirmed our in vivo data. Therefore , our data demonstrate that anti-IL-20R1 monoclonal antibody, 51D can prevent the development of asthma in a mouse model and conclude that blockade of IL-19 may be a new therapeutic strategy for allergic asthma.

S22

Speaker / 江皓森
Hao-Sen Chiang

■**Current Position:**
Assistant Professor, Department of Life Science, National Taiwan University ／
台灣大學生命科學系　助理教授

■**Education/Training:**

1996-2000	B.S., Nutrition and Health Science, Taipei Medical University
2000-2002	M.S., Biochemistry and Molecular Biology, National Cheng-Kung University
2006-2011	Ph.D., Microbiology and Immunology, Georgetown University Medical Center
2011-2014	Postdoc, Gastroenterology, Massachusetts General Hospital, Harvard Medical School

■**Professional and Research Experience:**

2014-	Present Assistant Professor, Life Science, National Taiwan University

■**Awards and Honors:**

2016	科技部優秀年輕學者研究計畫
2014	科技部延攬特殊優秀人才
2011	AAI Trainee Abstract Award

■**Selected Publications:**

1. **Chiang HS**, Zhao Y, Song JH, Liu S, Wang N, Terhorst C, Sharpe AH, Basavappa M, Jeffrey KL, Reinecker HC. GEF-H1 controls microtubule-dependent sensing of nucleic acids for antiviral host defenses. *Nature Immunology*. 2014 Jan; 15(1):63-71 (Cover article).
2. Teramoto T, **Chiang HS**, Takhampunya R, Manzano M, Padmanabhan R, Maric M. Gamma interferon inducible lysosomal thiol reductase (GILT) ablation renders mouse fibroblasts sensitive to dengue virus replication. *Virology*. 2013 Jul 5; 441(2):146-51.
3. Chang SY, Song JH, Guleng B, Cotoner CA, Arihiro S, Zhao Y, **Chiang HS**, O'Keeffe M, Liao G, Karp CL, Kweon MN, Sharpe AH, Bhan A, Terhorst C, Reinecker HC. Intestinal dendritic cells survey circulatory antigens prior to induction of regulatory CD8α/β T cells. *Immunity*. 2013 Jan 24; 38(1):153-65.
4. **Chiang HS**, Maric M. Lysosomal thiol reductase negatively regulates autophagy by altering glutathione synthesis and oxidation. *Free Radic Biol Med*. 2011 Aug 1; 51(3):688-99.

106 年 3 月 25 日（六）16:00-16:30
二樓，第 20 教室

Lfc 調控嗜中性白血球對於腸道共生真菌的免疫平衡機制

The Impact of Guanine Nucleotide Exchange Factor, Lfc on Neutrophil Immunity to Commensal Fungi for Intestinal Homeostasis

The interaction between immunity and intestinal microbiome plays a critical role in maintaining health. It is generally well understood about the host immunity to bacterial microbiota and virome, while much less are elucidative about the interaction between commensal fungi and host immune system under normal physiological conditions and intestinal inflammation. Dysbiosis of gut mycobiota promotes colitis that recruits neutrophils from the circulation into the inflamed intestine against opportunistic fungi invasion for host immune responses. A recent proteome and confocal microscopy analysis of intestinal biopsies of patients with ulcerative colitis (UC) suggested that increased abundance of neutrophils and the presence of neutrophil extracellular traps (NETs) in the colon tissues of UC patients. However, the molecular machinery that underlies NETosis in the intestine and in vivo physiological condition remains incompletely understood.

The balance between commensal microbes and the host factors that regulates immune responses maintains intestinal homeostasis. Recently we have identified a guanine nucleotide exchange factor, Lfc as a central component of host defense activation during microbial infections. Furthermore, the expression of Lfc is enhanced in inflamed mucosal area of patients with inflammatory bowel diseases. In this talk, I will address that under intestinal inflammation, Lfc serves as a master regulator of immune responses by controlling NETs formation against opportunistic gut mycobiota for intestinal homeostasis.

S23

Speaker / Ramanuj DasGupta

■Current Position:
Associate Member, Cancer Science Institute, National University of Singapore
Founder and Scientific Advisor of iβeCa Therapeutics; ABLS-Bristol-Myers-Squibb (BMS)-NYU School of Medicine-based start-up for small molecule inhibitors against the Wnt pathway

■Education/Training:
1991-1994 B.Sc (Hons) Chemistry Delhi University, Delhi, India
1994-1996 B.A. Genetics Cambridge University, Cambridge, UK
1996-2002 Ph.D. Developmental Biology University of Chicago, Chicago, IL

■Professional and Research Experience:
2002-2005 RNAi, Wnt signaling Dr. Norbert Perrimon Harvard Medical School, Boston, MA

■Awards and Honors:
2007-2008 Breast Cancer Research Foundation, Concept Award from Department of Defense, USA.
2009-2010 NYSTEM Idea Award from New York Stem Cell Science, New York, USA
2010-2013 March of Dimes Research Grant, USA
2011-2015 American Cancer Society, Research Scholar Grant, USA
2012-2014 NYC BioAccelerate Prize, New York, NY, USA

■Selected Publications:
1. **Ramanuj Dasgupta** and Norbert Perrimon. (2004). "Using RNAi to catch Drosophila genes in a web of interactions: insights into cancer research. "Oncogene 23(51), 8359-65.
2. **Ramanuj DasGupta** (2009). "Functional genomic approaches targeting the Wnt signaling network". Current Drug Targets 10(7): 620-31.
3. **Ramanuj DasGupta** and Foster Gonsalves (2007). Book chapter; Wnt Signaling: Methods and Model Systems. "High-throughput RNAi Screen in Drosophila." Methods in Molecular Biology: Humana Press, USA.
4. Christoph Schaniel*, Dung-Fang Lee*, Foster C. Gonsalves*#, **Ramanuj DasGupta**#, and Ihor R. Lemischka. Methods in Enzymology (2010), vol 477. "Exploration of Self-Renewal and Pluripotency in ES Cells Using RNAi".
5. Tenzin Gocha, and **Ramanuj DasGupta**. (2014) Book chapter; "New insights about Wnt pathway mechanisms from global siRNA screens." Wnt Signaling in Development and Disease: Molecular Mechanisms and Biological Functions." ISBN: 978-1-118-44416-0; Wiley-Blackwell, USA.

106 年 3 月 25 日（六）14:30-15:30
二樓，第 28 教室

應用於精準腫瘤學之基因體驅動預後評估平台

Clinical Genomics-driven Predictive Platform for Precision Oncology

Precision medicine requires treatment individualization taking into account not only patient and tumor factors, but also intra-tumor heterogeneity and tumor evolution through time. We propose that the next generation of personalized precision drugs will come from the development of physiologically relevant “real- or accelerated-time” models of individual patient-specific tumors, that mimic tumor pathology, and progression. Importantly, such models could serve as a powerful personalized screening platform for clinical genomics-informed predictions for genetic and therapeutic vulnerabilities that can subsequently be used to provide testable therapeutic and diagnostic modalities in the clinic. With that in mind, we have developed a bank of primary patient-derived xenograft (PDx), and microtumor/primary cell line models of oral squamous cell carcinomas (OSCCs), and colorectal cancers (CRCs) that are amenable to high-throughput and high-content screens (HTS/HCS). Using comprehensive tumor profiling studies, and single cell transcriptomics in conjunction with image-based phenotypic screens, we are beginning to uncover novel therapeutic vulnerabilities, as well as key driver genes/pathways and their function that may regulate cancer metastasis and treatment resistance, the two most common causes of cancer-related mortality.

S24

Speaker / 劉仁賢
Ren-Shyan Liu

■Current Position:
Director and Professor, Biomedical Imaging and Radiological Sciences, Biomedical Imaging Research Center, Division of Nuclear Medicine, National Yang-Ming University Medical School and National PET/Cyclotron Center, Taipei Veterans General Hospital／陽明大學醫放系教授兼系主任兼臺北榮民總醫院教授級醫師

■Education/Training:

1971-1977 MD National Defense Medical Center, Taipei, Taiwan
1977-1982 Resident, Department of Nuclear Medicine, Taipei Veterans General Hospital
1990 Fellow, PET Center in KAFA, Julich and Department of Neurology, Köln University Hospital, Germany
1991 Fellow, PET Center in the Institute of Neurology, McGill University, Canada
1994 Fellow, PET Center in Iowa University Hospital, U.S.A.

■Professional and Research Experience:

Molecular-Genetic Imaging of Small Animal
Nuclear Oncology
Neuronuclear Medicine
Nuclear Endocrinology
Emergency Medical Planning and Management of Radiation Accident

■Awards and Honors:

2011 The Outstanding Research Award, Taipei Veterans General Hospital.
1995 The Outstanding Research Award, (Intra-arterial I-131 lipiodol and histoacryl in treatment of hepatoma), Atomic Energy Council, R.O.C.

■Selected Publications:

1. Kuo WY, Hwu L, Wu CY, Lee JS, Chang CW, **Liu RS***. STAT3/NF-κB-regulated Lentiviral TK/GCV Suicide Gene Therapy for Cisplatin-resistant Triple-negative Breast Cancer. ***Theranostics*** 2017:7(3): 647-663. (IF: 8.854)
2. Liu NW, Ke CH, Zhao YH, Chan KC, Tan TW, Lee JS, Chen YY, Chen I, Hsu TW, Hsieh YJ, Chang CW, Yang BH, Huang WS, **Liu RS*.** Evolutional Characterization of Photochemically Induced Stroke in Rats: A Multimodality Imaging and Molecular Biological Study. ***Translational Stroke*** Research 2016 Dec 1. [Epub ahead of print], DOI: 10.1007/s12975-016-0512-4. (IF: 4.503)
3. Kuo WY, Wu CY, Hwu L, Lee JS, Tsai CH, Lin KP, Wang HE, Chou TY, Tsai CM, Gelovani J, **Liu RS***. Enhancement of tumor initiation and expression of KCNMA1, MORF4L2 and ASPM genes in the adenocarcinoma of lung xenograft after vorinostat treatment. ***Oncotarget*** 2015;6(11):8663- 75. (IF: 6.627, Oncology 17/203)
4. Chang CY, Chang CP, Shih CC, Yang BH, Cheng CY, Chu LS, Wang SJ, **Liu RS***. Added Value of Dual-time-point 18F-FDG PET/CT with Delayed Imaging for Detecting Aortic Graft Infection. ***Medicine*** 2015;Jul;94(27):e1124. (IF: 5.723, MEDICINE, GENERAL & INTERNAL 15/153)
5. Hsieh YJ, Hwu L, Ke CC, Huang AL, Chen FD, Wu SJ, Chen SC, Zhao YH, **Liu RS***. Demonstration of Tightly Radiation-Controlled Molecular Switch Based on CArG Repeats by In Vivo Molecular Imaging. ***Mol Imaging Biol***. 2015 Dec;17(6):802-10.

106 年 3 月 25 日（六）15:45-16:15
二樓，第 28 教室

小動物 CT 臨床前應用之近況與未來展望

Micro-CT for Preclinical Use: State-of-the-art and Future Perspectives

Micro-computed tomography (micro-CT) is an essential tool for phenotyping and for elucidating diseases and their therapies for rodents in preclinical studies. The strengths of micro-CT lie in its high resolution, relatively low cost, and scanning efficiency. Micro-CT provides a reliable platform for small animal imaging that is complementary to other small animal imaging methods, enabling numerous morphological and functional imaging applications. Micro-CT provides high-resolution anatomic information, either on its own or in conjunction with lower-resolution functional imaging modalities such as positron emission tomography (PET), single-photon emission computed tomography (SPECT), and optical imaging devices. However, advanced applications of micro-CT produce functional information by translating clinical applications to model systems and by pioneering new ones. The radiation dose and low contrast associated with x-ray imaging are well-known; however, newly developed contrast agents and novel acquisition and reconstruction strategies show extraordinary promise in overcoming these limitations. Several image reconstruction strategies based on iterative, statistical, and gradient sparsity regularization are achievable with low radiation dose and more powerful computational resources. In addition, two contrast mechanisms have also been developing to achieve these goals. The first is spectral contrast for quantitative material discrimination in combination with passive or actively targeted nanoparticle contrast agents.

The second is phase contrast which measures refraction in biological tissues for improved contrast and potentially reduced radiation dose relative to standard absorption imaging. Combined with exciting new opportunities in spectral and phase contrast imaging, these developments will surely continue to expand the applications for micro-CT in small animal models. X-ray fluorescence computed tomography (XFCT) has been recently studied as a method for 3D imaging of low concentrations of probes containing high atomic number (Z) elements, showing promising results in detecting low concentrations of iodine, gadolinium, gold nanoparticles, and Cisplatin. XFCT may expand the applications of CT in drug development.

These technological advancements promise to develop micro-CT into a more powerful, functional and even molecular imaging modality for preclinical studies.

S25

106 年 3 月 25 日（六）16:15-16:45
二樓，第 28 教室

小動物用微型電腦斷層掃描儀：發展與應用現況

Micro-CT of Rodents: Current Status of Developments and Applications

Speaker / 李致賢
Jhih-Shian Lee

■Current Position:
Senior Systems Integration Supervisor, Delta Electronics ／
台達電子公司　科長

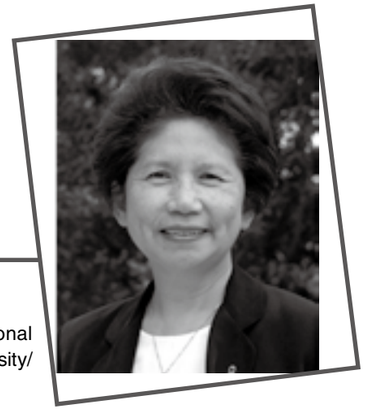
■Education/Training:
Ph.D.: Department of Biomedical Imaging and Radiological Sciences (BIRS), National Yang-Ming University
Master: Department of Biomedical Imaging and Radiological Sciences (BIRS), National Yang-Ming University.
Bachelor's Degree: Department of Biomedical Imaging and Radiological Sciences (BIRS), National Yang-Ming University

■Professional and Research Experience:
1.Medical imaging
2.Introduction of Computers
3.MATLAB
Research Experience
1.PET quantification in rodents
2.Image reconstruction
3.Image restoration using an artificial neural network
4.Image-derived input function using independent component analysis
5.Image de-noising using wavelet transforms

■Selected Publications:
1. **Lee JS**, Chen JC, "A single scatter model for X-ray CT energy spectrum estimation and polychromatic reconstruction", IEEE Transactions on Medical Imaging (accept) (IF:3.799, ranking: 10/102, 2/23)
2. Lai CL, **Lee JS**, Chen JC,” A curve fitting approach using ANN for converting CT number to linear attenuation coefficient for CT-based PET attenuation correction”, IEEE Transactions on Nuclear Science. 2014 (accept) (IF:1.455, ranking: 4/33) Co-first author
3. **Lee JS**, Su KH, Chang WY, Chen JC, "Extraction of an input function from dynamic micro-PET images using wavelet packet based sub-band decomposition independent component analysis", NeuroImage, 1273–1284, 2012,11. (IF: 6.132, ranking: 5/122, 2/14)
4. **Lee JS**, Su KH, Lin JC, Chuang YT, Chueh HS, Liu RS, Wang SJ, Chen JC ＊, "A novel blood-cell-two-compartment model for transferring a whole blood time activity curve to plasma in rodents", Computer Methods & Programs in Biomedicine, Volume 92, Issue 3, Pages 299-304, 2008,12. (IF: 1.093)
5. **Lee JS**, Su KH, Lin JC, Chuang YT, Chueh HS, Liu RS , Wang SJ, and Chen JC., "Transferring Independent Component Analysis Estimated FDG Whole Blood Time Activity Curve to Plasma in Rodents using Blood-Cell-Two-Compartment Model", Lecture Notes in Computer Science, Volume 4987/2008, 169-178, 2008. (EI)

Use of micro computed tomography (micro-CT) scanning continues to grow in preclinical research. Here we are focused on preclinical micro-CT imaging, reviewing relevant principles, technologies, and applications.
Micro-CT is a non-destructive 3D imaging technique that provides internal microstructure of a specimen without damaging the specimen. Micro-CT is widely used in medicine, pharmacy, biology, archeology, materials, electronics, geology and other fields of research. More recently micro-CT can also produce functional information (e.g. measuring cardiac functional metrics, measuring tumor vascular permeability with nanoparticle contrast agents).
The primary limitations of micro-CT imaging are relatively poor soft tissue contras and the associated radiation dose. We also focused on achieving high image quality with low radiation dose and ever more powerful computational resources (e.g. image reconstruction strategies based on iterative, statistical, and gradient sparsity regularization)

S26



Speaker / 陳鈴津
Alice Lin-Tsing Yu

■Current Position:
Distinguished Chair Professor and Co-Director, Institute of Stem Cell & Translational Cancer Research, Chang Gung Memorial Hospital at Linkou and Chang Kung University/
林口長庚醫院暨長庚大學　特聘講座教授

■Education/Training:
Fellow Division of Pediatric Hematology/ Oncology, Harvard University; Pediatric Residency, University of Chicago, Boston University, USA
Ph.D. Microbiology/Immunology, University of Chicago, USA
M.S. Graduate School, Yale University, USA
M.D. College/Professional School, National Taiwan University

■Professional and Research Experience:
2013-now Distinguished Chair Professor and Co-Director, Institute of Stem Cell & Translational Cancer Research, Chang Gung Memorial Hospital at Linkou and Chang Kung University
Distinguished Visiting Fellow, Genomics Research Center, Academia Sinica, Taiwan
2003-now Professor in Pediatrics, University of California in San Diego (UCSD), USA
2003-2013 Distinguished Research Fellow and Associate Director, Genomics Research Center, Academia Sinica
2004-2013 Joint Appointment Professor, College of Medicine, National Taiwan University
2001-2003 Professor and Chief, Division of Pediatric Hematology/Oncology, USA
1977-2003 Assistant Professor to Professor of Pediatrics, UCSD, USA

■Awards and Honors:
2016 Academician, Academia Sinica, Taiwan
Excellence in Technology Transfer Award 2016 from Federal Laboratory Consortium, USA for "Discovery to Commercialization: New Immunotherapy for Rare Childhood Cancer, Neuroblastoma"
2011 The 55th Academic Award from the Ministry of Education
2009 The 19th Wang Min-Ning Memorial Award for Outstanding Contribution to the Development Medical Science and Technology, National Health and Society
2001 Year 2000 "Key to Life" Award from the Leukemia & Lymphoma Society

■Selected Publications:
1. **Yu A.L.***, Gilman A.L., Ozkaynak M.F., London W.B., Kreissman S.G., Chen H.X., Smith M., Anderson B., Villablanca J.G., Matthay K.K., Shimada H., Grupp S.A., Seeger R., Reynolds C.P., Buxton A., Reisfeld R.A., Gillies S.D., Cohn S.L., Maris J.M., Sondel P.M. Anti-GD2 antibody with GM-CSF, interleukin-2, and isotretinoin for neuroblastoma. ***N Engl J Med*** 2010, 363(14): 1324-1334.
2. Wu T.N., Lin K.H., Chang Y.J., Huang J.R., Cheng J.Y., **Yu A.L.***, Wong C.H.* Avidity of CD1d-ligand-receptor ternary complex contributes to T-helper 1 (Th1) polarization and anticancer efficacy. ***Proc Natl Acad Sci U S A*** 2011, 108(42): 17275-17280.
3. Cheng J.Y., Wang S.H., Lin J., Tsai Y.C., Yu J., Wu J.C., Hung J.T., Lin J.J., Wu Y.Y., Yeh K.T., and **Yu A.L.*** Globo-H ceramide shed from cancer cells triggers translin-associated factor X-dependent angiogenesis. ***Cancer Research*** 2014, 74: 6856-66.
4. Lin H.H, Lee H.W, Lin R.J., Huang C.W., Liao Y.C., Chen Y.T., Fang J.M., Lee T.C., **Yu A.L.***, and Chang H.C.* Tracking and finding slow-proliferating/quiescent cancer stem cells with fluorescent nanodiamonds. ***Small*** 2015, 11: 4394-402.
5. Wang S.H., Lee A.C., Chen I.J., Chang N.C., Wu H.C., Yu H.M., Chang Y.J., Lee T.W., Yu J.C., **Yu A.L.***, and Yu J.* Structure-based optimization of GRP78-binding peptides that enhances efficacy in cancer imaging and therapy. ***Biomaterials*** 2016, 94:31-44.

106 年 3 月 26 日（日）14:30-15:00
三樓，第 33 教室

發展癌症標靶醣脂質之免疫療法

Development of Immunotherapeutics to Target Cancer Associated Glycolipids

Although the development of cancer immunotherapeutics is now flourishing, the list of targets of approved agents has been short and limited to protein molecules. The approval of Unituxin, a chimeric anti-GD2 antibody, ch14.18 for the treatment of high-risk neuroblastoma in 2015 marks the first new agent targeting a glycolipid molecule, thereby widening the net of potential pharmaceutical targets. It is also the first agent approved for therapy aimed specifically for neuroblastoma. This was largely based on the pioneer work of Dr. Yu and her leadership during the entire course of ch14.18 development, from preclinical studies all the way through the final randomized phase III clinical trial. Strategies to improve efficacy of Unituxin including combination with chemotherapy, or anti-PD1 will be discussed. Dr. Yu has recently focused on another glycan, Globo H, which is the most prevalent cancer-associated antigens. Her group provided the first evidence that 1) Globo H and its precursor, Gb5 (SSEA3) are present in breast cancer stem cells; 2) Globo H-ceramide (GHCer) acts as an immune checkpoint by suppressing T and B cell immune responses via downregulation of Notch1 signaling; 3) GHCer is incorporated into endothelial cells, enhancing angiogenesis. Clinically, Globo H+ breast cancer specimens contained Globo H+ tumor infiltrating lymphocytes, and higher vessel density than Globo-H- tumors. Mechanistic investigations linked its angiogenic effects to its binding to TRAX, thereby releasing PLCb1 from TRAX to trigger Ca2+ mobilization. Thus, GHCer plays triple roles in serving as a cancer antigen (including breast cancer stem cells), as an immune checkpoint and as an angiogenic factor, thereby propelling the ongoing multi-national phase II/III clinical trial of Globo H-KLH vaccine in breast cancer. The results showed significant prolongation of progression free survival and overall survival in those patients who generated significant anti-Globo H antibody responses. New generation of Globo H vaccine consisting of Globo Hconjugated with diphtheria toxoid and use of a novel NKT-stimulatory glycolipid analog of α-galactosylceramide is being developed.

S27

Speaker / 吳漢忠
Han-Chung Wu

■**Current Position:**
Institute of Cellular and Organismic Biology, Academia Sinica/
中央研究院細胞與個體生物學研究所　研究員

■**Education/Training:**

1984-1988 B.S., Department of Biology, National Cheng-Kung University
1988-1990 M.S., Institute of Biochemistry, College of Medicine, National Taiwan University
1990-1993 Ph.D., Institute of Pathology, College of Medicine, National Taiwan University

■**Professional and Research Experience:**

2001-2005 Assistant & Associate Professor in Institute of Pathology; and Graduate Institute of Oral Biology, College of Medicine, National Taiwan University
2005-2009 Associate Research Fellow in Institute of Cellular and Organismic Biology, Academia Sinica
2010-2016 Vice Director in Institute of Cellular and Organismic Biology, Academia Sinica
2010- Research Fellow in Institute of Cellular and Organismic Biology, Academia Sinica
2016- Director, Department of Intellectual Property and Technology Transfer, Academia Sinica

■**Awards and Honors:**

2015-2018 MOST Outstanding Research Award, MOST, Taiwan (2015 科技部傑出研究獎)
2015 侯金堆傑出榮譽獎
Taiwan Bio-development Foundation Award (2015 台灣生技醫藥發展基金會 TBF 生技講座)
2011 - 2014 NSC Outstanding Research Award, NSC, Taiwan (2011 國科會傑出研究獎)
2010 Yung-Shing Young Investigator Award (2010 年第五屆永信李天德醫藥科技獎)

■**Selected Publications:**

1. Yeh, C. Y., Hsiao, J. K., Wang, Y. P., Lan, C. H. and **Wu, H. C.***. Peptide-conjugated nanoparticles for targeted imaging and therapy of prostate cancer. ***Biomaterials*** 2016, 94, 31-44.
2. Wu, C. H., Kuo, Y. H., Hong, R. L., **Wu, H. C.***. A New α-Enolase-binding peptide enhances drug delivery efficiency and therapeutic efficacy against colorectal cancer. ***Science Translational Medicine*** 2015,7, 290ra91, 1-14.
3. Liao, M. Y., Lai, J. K., Kuo, M. Y. P., Lu, R., Lin, C. W., Cheng, P. C., Liang, K. H., **Wu, H. C.*** . An anti-EpCAM antibody EpAb2-6 for the treatment of colon cancer. ***Oncotarget*** 2015 6, 24947-24968.
4. Lin, C. W., Sun, M. S., Liao, M. Y., Chung, C. H., Chi, Y. H., Chiou, L. T., Yu, J., Lou, K. L., and **Wu, H. C.*** . Podocalyxin-like 1 promotes invadopodia formation and metastasis through activation of Rac1/Cdc42/Cortactin signaling in breast cancer cells. ***Carcinogenesis*** 2014, 35, 2425-2435.
5. Lu, R. M., Chang, Y. L., Chen, M. S. and **Wu, H. C.***. Single chain anti-c-Met antibody conjugated nanoparticles for in vivo tumor targeted imaging and drug delivery. ***Biomaterials*** 2011, 32, 3265-3274.

106 年 3 月 26 日（日）15:00-15:30
三樓，第 33 教室

研發新穎藥物傳輸系統運用於癌症的影像醫學及治療

Development of Novel Drug Delivery Systems for Cancer Molecular Imaging and Therapy

Lack of tumor specificity remains a major problem for chemotherapies in which side effects prevent the delivery of the drug dosages needed to eliminate the majority of cancer cells. Recently, we developed phage display methods to identify several novel peptides and human single chain variable fragment (scFv) antibodies that bind specifically to the plasma membrane of cancer cells. In an effort to develop targeting drug delivery systems, we used peptide-linked liposomes that carried doxorubicin to treat severe combined immunodeficiency (SCID) mice bearing human tumor xenografts. The peptide-functionalised liposomes were found to have an enhanced anti-tumor effect and reduced toxicity. Combined peptide-conjugated liposomal doxorubicin (peptide-LD) and peptide-conjugated liposomal vinorelbine (peptide-sLV) therapy exhibited an enhanced antitumor effect and markedly extended the survival of mice with human cancer in subcutaneous and orthotopic models. Targeting liposomes improved the therapeutic index by enhancing therapeutic efficacy, reducing side effects, and increasing the survival rate of tumor-bearing mice. The conjugation of targeting peptide to imaging agents, such as quantum dots (QDs) and superparamagnetic iron oxide nanoparticles (SPIONs), results in more precise delivery of these agents to tumor sites. In addition, in vivo imaging by scFv-conjugated quantum dots clearly demonstrated the potential clinical use of the scFv in tumor targeting and imaging. Ligand-conjugated liposomes enhance pharmacokinetic and pharmacodynamic properties, improve efficacy and safety profiles, and allows for controlled biodistribution and drug release. Our study indicates that peptide- or scFv-mediated drug delivery systems show great promise for their applications in tumor-targeted drug delivery and molecular imaging.

S28

Speaker / **謝興邦**
Hsing-Pang Hsieh

■Current Position:
Institute of Biotechnology and Pharmaceutical Research , National Health Research Institutes / 國家衛生研究院生技與藥物研究所　研究員兼副所長

■Education/Training:

1981-1985 B.S., Chemistry, National Tsing Hua University, Taiwan
1985-1987 M.S., Chemistry, National Tsing Hua University, Taiwan
1988-1993 Ph.D., Chemistry, State University of New York, Stony Brook, USA
1997-1998 Postdoc, Institute of Biological Chemistry, Academia Sinica, Taiwan

■Professional and Research Experience:

1998-2002 Assist. Investigator;
2002-2007 Assoc. Investigator;
2007-now Investigator; Institute of Biotechnology and Pharmaceutical Research, National Health Research Institutes (NHRI)
2015-now Associate Director, Institute of Biotechnology and Pharmaceutical Research, NHRI
2007-now Adjunct Professor, Department of Chemistry, National Tsing Hua University

■Awards and Honors:

2016 Wang Ming-Ning Award
2015 NHRI Outstanding Research Achievement Award
2013 TECO Award
2010 NSC Outstanding Award
2008 TienTe Lee Outstanding Award

■Selected Publications:

1. Hsu YC, Coumar MS, Wang WC, Shiao HY, Ke YY, Lin WH, Kuo CC, Chang CW, Kuo FM, Chen PY, Wang SY, Li AS, Chen CH, Kuo PC, Chen CP, Wu MH, Huang CL, Yen KJ, Chang YI, Hsu JT, Chen CT, Yeh TK, Song JS, Shih C, **Hsieh, H. P.*** Discovery of BPR1K871, a quinazoline based, multi-kinase inhibitor for the treatment of AML and solid tumors: Rational design, synthesis, in vitro and in vivo evaluation. ***Oncotarget***, 2016; 27;7(52):86239-86256 .
2. Shiao HY, Coumar MS, Chang CW, Ke YY, Chi YH, Chu CY, Sun HY, Chen CH, Lin WH, Fung KS, Kuo PC, Huang CT, Chang KY, Lu CT, Hsu JT, Chen CT, Jiaang WT, Chao YS, **Hsieh, H. P.*** Optimization of ligand and lipophilic efficiency to identify an in vivo active furano-pyrimidine Aurora kinase inhibitor. ***J. Med. Chem.*** 2013, 56, 5247–5260.
3. Wu JM, Chen CT, Coumar MS, Lin WH, Chen ZJ, Hsu JT, Peng YH, Shiao HY, Lin WH, Chu CY, Wu JS, Lin CT, Chen CP, Hsueh CC, Chang KY, Kao LP, Huang CY, Chao YS, Wu SY, **Hsieh, H. P.***, Chi YH.* Aurora kinase inhibitors reveal mechanisms of HURP in nucleation of centrosomal and kinetochore microtubules. ***Proc. Natl. Acad. Sci. U. S. A.*** 2013, 110, E1779-1787.
4. Wu CH, Coumar MS, Chu CY, Lin WH, Chen YR, Chen CT, Shiao HY, Rafi S, Wang SY, Hsu H, Chen CH, Chang CY, Chang TY, Lien TW, Fang MY, Yeh KC, Chen CP, Yeh TK, Hsieh SH, Hsu JT, Liao CC, Chao YS, **Hsieh, H. P.*** Design and synthesis of tetrahydropyridothieno[2,3-d]pyrimidine scaffold based epidermal growth factor receptor (EGFR) kinase inhibitors: the role of side chain chirality and Michael acceptor group for maximal potency. ***J. Med. Chem.*** 2010, 53, 7316–7326.
5. Coumar MS, Chu CY, Lin CW, Shiao HY, Ho YL, Reddy R, Lin WH, Chen CH, Peng YH, Leou JS, Lien TW, Huang CT, Fang MY, Wu SH, Wu JS, Chittimalla SK, Song JS, Hsu JT, Wu SY, Liao CC, Chao YS, **Hsieh, H. P.*** Fast-forwarding hit to lead: aurora and epidermal growth factor receptor kinase inhibitor lead identification. ***J. Med. Chem.*** 2010, 53, 4980-4988.

106 年 3 月 26 日（日）15:30-16:00
三樓，第 33 教室

從實驗室化合物到臨床試驗藥物：開發新穎抗癌激酶抑制劑

Bench to Clinical Candidate: Novel Kinase Inhibitors in Cancer Therapy

Targeted therapies by means of compounds that inhibit a specific target molecule represent a new perspective in the treatment of cancer. Molecules controlling cell proliferation and death, such as Serine/Threonine kinase and Tyrosine kinase, are among the major targets in cancer therapy. A current trend in the development of kinase inhibitors is the assumption that multi targeted therapy, which targets at several signaling pathways simultaneously, is more effective than single targeted therapy. Thus, paradigm in designing new anticancer drug is shifted: The drugs that act on multiple targets might have a better chance of inhibiting cancer cell proliferation than drugs that act on a single target.

Based on our achievement, we established a knowledge-based screening, followed by High Throughput Parallel Synthesis (HTPS) to synthesize more than 800 compounds. Further structure modification based on scaffold hopping approach by changing the pharmacophore moiety had led us to discover highly selective EGFR inhibitor DBPR112 that displayed EGFRL858R/T790M (IC50: 70 nM) and multiple kinase inhibitor DBPR114 that exhibited excellent in vitro inhibitory activities against more than 20 multiple oncogenic kinase enzymes and various cancer cell lines. In pharmacological study, Orally administered DBPR112 is active against the growth of human lung tumors subcutaneously growing in nude mice (HCC827 and H1975) at 50 and 100 mg/kg/day with no significant loss of the body weights. DBPR114 significantly shrank tumor in 8 different xenograft models including Mia-Paca2, AsPC-1 (pancreatic carcinoma), Hep3B (hepatocellular carcinoma), MKN-45 (gastric carcinoma), MOLM-13 and MV4;11 (acute myeloid leukemia), NTUB-1 (bladder cancer), and Colo-205 (colorectal carcinoma) at a dose of 3 to 20 mg/kg by intravenous administration.

In summary, both of DBPR112 and DBPR114 have been completed intensive preclinical development. In particular, DBPR112 was approved US and TW IND application last year and is currently undergoing Phase I trial in Taiwan as well as DBPR114 will file US IND in April, 2017.

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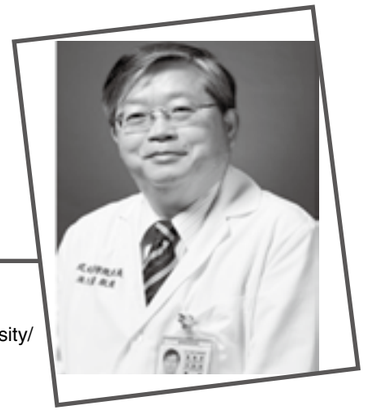

Speaker / 張俊彥
Jang-Yang Chang

■Current Position:
Distinguished Professor and Dean, College of Medicine, National Cheng Kung University/
國立成功大學醫學院　特聘教授兼院長

■Education/Training:

1982	M.D. National Defense Medical Center, Taipei, Taiwan, R.O.C.
1987-1989	Fellow of Medical Oncology Training Program of Institute of Biomedical Science, Academia Sinica
1989-1991	Visiting Scholar of Yale Medical School, Department of Pharmacology

■Professional and Research Experience:

1994	Associate Professor of internal medicine, NDMC
2000-2004	Associate investigator of NHRI
2004-2008	Investigator of NHRI
2008-2013	Distinguished Investigator and Director, National Institute of Cancer Research, NHRI

■Awards and Honors:

2005	徐千田防癌研究基金癌症傑出研究獎 (基礎組)
2010	經濟部國家發明創新獎
2013	第九屆奈米科技菁英獎

■Selected Publications:

1. Cheng Y.C., Liu, J.P., Kuo, C.C., Lai, W.Y., Shih, K.H., Chang, C.Y., Pan, W.Y., Tseng, J.T. and **Chang, J.Y***. MPT098, a novel microtubule inhibitor, destabilizes hypoxia-inducible-1α mRNA through decreasing nuclear-cytoplasmic translocation of RNA binding protein, HuR. ***Mol. Cancer Therapeutics***, 2013, 12(7): 1-11.
2. Shiah SG, Hsiao JR, Chang WM, Chen YW, Jin YT, Wong TY, Huang JS, Tsai ST, Hsu YM, Chou ST, Yen YC, Jiang SS, Shieh YS, Chang IS, Hsiao M and **Chang JY***. Downregulated miRNA-329 and miRNA-410 promote tumor proliferation and invasion through Wnt/β-catenin signaling pathway by targeting Wnt-7b in oral squamous cell carcinoma. ***Cancer Res.*** 2014, 74(24); 7560-72.
3. Chen SH, Kuo, CC, Li CF, Cheung CH, Tsou TC, Chiang HC, Yang YN, Chang SL, Lin LC, Pan HY, Chang KY and **Chang JY***.O6-Methylguanine DNA methyltransferase repairs platinum-DNA adducts following cisplatin treatment and predicts prognoses of nasopharyngeal carcinoma. ***Int J Cancer***, 2015, 137(6): 1291-305.
4. Chen SJ, Kuo CC, Pan HY, Tsou TS, Yeh SC and **Chang JY***. Mechanistic basis of a combination of D-penicillamine and platinum drugs synergistically inhibits tumor growth in oxaliplatin-resistant cervical cancer cell in vitro and in vivo. ***Biochemical Pharmacology,*** 2015, 95: 28-37.
5. Cheng CM, Shiah SW, Huang CC, Hsiao JR and **Chang JY***. Upregulation of miR-455-5P by the TGF-β –SMAD signaling axis promotes the proliferation of oral squamous cancer cells by targeting UBE2B. ***J Pathology,*** 2016, 240(1): 38-49.

106 年 3 月 26 日（日）16:00-16:30
三樓，第 33 教室

經由調控離子輸送因子的表現逆轉 oxaliplatin 抗藥性的機制研究

Mechanistic Basis of Modulation of Ion Transporters Expression to Reverse Oxaliplatin Resistance

The development of platinum drugs resistance in cancer cells severely reduces its antitumor efficacy. Thus, a dire need exists to develop new drugs or novel therapeutic strategies to overcome drug resistance. We previously generated an oxaliplatin-resistant subline, named S3, from the human cervical carcinoma SiHa cells, and its resistance phenotype was well-characterized. We identified that copper chelator D-penicillamine and iron chelator Desferal exerted similar synergistic killing effects on S3 cells when combined with oxaliplatin and cisplatin. Moreover, D-penicillamine and Desferal significantly promoted platinum-DNA adducts formation and thus sensitized cells to oxaliplatin and cisplatin treatments. Mechanically, D-penicillamine and Desferal exerted two distinct routes to conquer the drug resistance. D-penicillamine promoted the expression of copper influx transporter hCtr1 by increasing Sp1 transcription. Sp1 overexpression induced p53 degradation and reduced the expression of copper efflux transporter ATP7A, which expression was regulated by p53. In the parallel study, Desferal induced the expression of Sp1, which promoted the expression of NF-κB. The overexpression of Sp1 increased the expression of NF-κB and translocated it into the nucleus to bind to the TfR1 promoter region, which subsequently increased the expression of TfR1. Taken together, this study provides a new insight that the combination of ion chelators such as D-penicillamine and Desferal with oxaliplatin significantly increases the drug response of oxaliplatin resistant cells and effectively suppresses tumor growth.

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Speaker / 許美鈴
Meei-Ling Sheu

■**Current Position:**
Professor, Institute of Biomedical Sciences, College of Life Sciences, National Chung Hsing University, Taichung, Taiwan
Joint Appointment Research Fellow, Taichung Veterans General Hospital, Taichung 407, Taiwan

■**Education/Training:**

2000-2005	Ph.D. Institute of Toxicology College of Medicine, National Taiwan University, Taiwan
1997-1999	M.S. Institute of Anatomy and Cell Biology, National Yang-Ming University, Taiwan
1990-1993	B.S. Medical Technology, Chung Shan Medical University, Taiwan

■**Professional and Research Experience:**

2014-	Professor, Institute of Biomedical Sciences, National Chung Hsing University, Taichung, Taiwan Joint Appointment Research Fellow, Taichung Veterans General Hospital,Taichung, Taiwan
2011-2014	Associate Professor, Institute of Biomedical Sciences, National Chung Hsing University, Taichung, Taiwan
2009-2011	Assistant Professor, Institute of Biomedical Sciences, National Chung Hsing University, Taichung, Taiwan
2007-2009	Assistant Professor, Institute of Medical Technology, National Chung Hsing University, Taichung, Taiwan
2005-2007	Assistant Professor, School of Medical Laboratory and Biotechnology, Chung Shan Medical University, Taiwan

■**Awards and Honors:**

2015	Excellent Senior Career Development Award, National Chung Hsing University Excellent Research Development, Taichung Veterans General Hospital
2014	Outstanding Researcher Young Scientist Award, National Chung Hsing University The Best Basic Research Award, Asian-pacific Bayer Chinese Diabetes Forum Gene Medical Education Excellent Laboratory
2013	Outstanding Oral Presenter, Asian-pacific Bayer Chinese Diabetes Forum Gene Medical Education Excellent Laboratory
2006	Outstanding Academic Researcher, School of Medical Laboratory and Biotechnology, Chung Shan Medical University, Taiwan

■**Selected Publications:**

1. Wu SM, Lin WY, Shen CC, Pan HC, Keh-Bin W, Chen YC, Jan YJ, Lai DW, Tang SC, Tien HR, Chiu CS, Tsai TC, Lai YL, **Sheu ML***.Melatonin set out to ER stress signaling thwarts epithelial mesenchymal transition and peritoneal dissemination via calpain-mediated C/EBP β and NF κ B cleavage. J Pineal Res. 2016 Mar;60(2):142-54.
2. Lee WJ, Liu SH, Chiang CK, Lin SY, Liang KW, Chen CH, Tien HR, Chen PH, Wu JP, Tsai YC, Lai DW, Chang YC, Sheu WH, **Sheu ML***. Aryl Hydrocarbon Receptor Deficiency Attenuates Oxidative Stress-Related Mesangial Cell Activation and Macrophage Infiltration and Extracellular Matrix Accumulation in Diabetic Nephropathy. Antioxid Redox Signal. 2016 Feb 1;24(4):217-231.
3. Liu SH, Lee WJ, Lai DW, Wu SM, Liu CY, Tien HR, Chiu CS, Peng YC, Jan YJ, Chao TH, Pan HC, **Sheu ML***. Honokiol confers immunogenicity by dictating calreticulin exposure, activating ER stress and inhibiting epithelial-to-mesenchymal transition. Mol Oncol. 2015 Apr;9(4):834-49.
4. Lai DW, Liu SH, Karlsson AI, Lee WJ, Wang KB, Chen YC, Shen CC, Wu SM, Liu CY, Tien HR, Peng YC, Jan YJ, Chao TH, Lan KH, Arbiser JL, **Sheu ML***. The novel Aryl hydrocarbon receptor inhibitor biseugenol inhibits gastric tumor growth and peritoneal dissemination. Oncotarget. 2014 Sep 15;5(17):7788-804.
5. Liu SH, Sheu WH, Lee MR, Lee WJ, Yi YC, Yang TJ, Jen JF, Pan HC, Shen CC, Chen WB, Tien HR, **Sheu ML***. Advanced glycation end product N ε -carboxymethyllysine induces endothelial cell injury: the involvement of SHP-1-regulated VEGFR-2 dephosphorylation. J Pathol. 2013 Jun;230(2):215-27.

106 年 3 月 26 日（日）14:30-14:50
二樓，第 29 教室

內質網壓力在上皮細胞間質轉化作用

New Insight to ER Stress in Epithelial–mesenchymal Transition

The epithelial-to-mesenchymal transition (EMT) is important for the development of cancer metastases and organ fibrosis, conditions prevalent in pathological development. Endoplasmic reticulum stress (ER stress) as a novel target to regulate EMT and is also observed in many diseases, including cancer, diabetes, neurodegenerative disorders, and obesity. Cellular adaptation to ER stress is achieved by the activation of the unfolded protein response, which is an integrated signal transduction cascade that modulates many aspects of ER physiology. When these mechanisms of adaptation are insufficient to handle the unfolded protein load or cannot be reversed, cellular functions deteriorate, often leading to cell death. Accumulating evidence implicates ER stress-mediated cellular function and induced cell death as major contributors to potential major arena, making modulators of ER stress pathways potentially attractive targets for therapeutics discovery.

My laboratory has identified a number of ER stress mediated mechanisms for protein cleavage in tumors and elucidated their impacts on tumor progression and metastasis by peritoneal dissemination xenografts mouse models and highly metastatic orthotopic gastric cancer model. We identify that tumor progression locus 2 (Tpl2), aryl hydrocarbon receptor (AhR), Calreticulin (CRT) and CCAAT/enhancer binding protein beta (C/EBPβ) pathway is evident in peritoneal dissemination and correlates with disease progression. Importantly, pure compounds Honokoil, hormone Melatonin precise targeting these protein evokes calpain system activation. Moreover, we also demonstrated AhR genetic deficiency mice (AhRKO) could be a potential therapeutic approach for diabetic kidney fibrosis. Together, our findings uncover ER stress mediated mechanisms in epithelial–mesenchymal transition and hope to provide a new insight of therapeutic strategy from bench to beside.

S31

Speaker / 王家琪
Chia-Chi Wang

■Current Position:
Assistant Professor, School of Pharmacy,
Kaohsiung Medical University (KMU)

■Education/Training:
2005-2010 Ph.D.-Department and Graduate Institute of Veterinary Medicine, School of Veterinary Medicine, National Taiwan University (NTU), Taipei, Taiwan. Advisor: Tong-Rong Jan, Ph.D.
2003-2005 M.S.-Department and Graduate Institute of Veterinary Medicine, School of Veterinary Medicine, NTU. Advisor: Tong-Rong Jan, Ph.D.
1998-2003 B.S.-Department and Graduate Institute of Veterinary Medicine, School of Veterinary Medicine, NTU

■Professional and Research Experience:
2011 Assistant Professor- Ph.D. Program in Toxicology and School of Pharmacy, KMU
2014-2015 Adjunct Assistant Professor-Institute of Environmental Engineering, National Sun Yat-Sen University
2013- Adjunct Assistant Research Fellow, National Environmental Health Research Center, National Health Research Institutes, Miaoli, Taiwan
2012 Visiting Scholar, Biochemical Toxicology, National Center for Toxicological Research (NCTR), Food and Drug Administration (FDA), Jefferson, AR, USA
The immunomodulatory effects of natural compounds
Immunotoxicity of nanomaterials and environmental toxicants

■Awards and Honors:
2009 Excellent Poster Award, Annual Conference of Chinese Society of Veterinary Science, Taipei, Taiwan
Excellent SCI Research Article Award and Scholarship, School of Veterinary Medicine, NTU
2008 Excellent Oral Award. Toxicology Society of Taiwan, 2008 Annual Conference of Biomedical Sciences, Taipei, Taiwan
2007 Graduate Student Research Award, College of Bioresources and Agriculture, NTU
2004 Excellent Poster Award, Annual Conference of NTU Veterinary Medicine Alumni Association, Taipei, Taiwan

■Selected Publications:
1. **Chia-Chi Wang**, Po-Wei Yang, Sheau-Fang Yang, Kun-Pin Hsieh, Sung-Pin Tseng, Ying-Chi Lin* (2016, Dec). Topical Simvastatin Promotes Healing of Staphylococcus aureus-contaminated Cutaneous Wounds. *International Wound Journal*, 13(6):1150-1157. (SCI, 13/61, DEMATOLOGY).
2. Yin-Hua Cheng, Ih-Sheng Chen, Ying-Chi Lin, Chun-Wei Tung, Hsun-Shuo Chang, **Chia-Chi Wang*** (2016, Dec). Attenuation of antigen-specific T helper 1 immunity by Neolitsea hiiranensis and its derived terpenoids. *PeerJ*, 4, e2758. (SCI, 14/62, MULTIDISCIPLINARY SCIENCES).
3. **Chia-Chi Wang**, Qingsu Xia, Meng Li, Shuguang Wang, Yuewei Zhao, William H. Tolleson, Jun-Jie Yin, Peter P. Fu (2014, Oct). Metabolic Activation of Pyrrolizidine Alkaloids Leading to Phototoxicity and Photogenotoxicity in Human HaCaT Keratinocytes. *Journal of Environmental Science and Health, Part C: Environmental Carcinogenesis and Ecotoxicology,* 32(4), 362-384. (SCI, 14/90, TOXICOLOGY).
4. Ying-Chi Lin, **Chia-Chi Wang** and Chun-Wei Tung* (2014, Sep). An in silico toxicogenomics approach for inferring potential diseases associated with maleic acid. *Chemico-Biological Interactions,* 223(5), 38-44. (SCI, 34/90, TOXICOLOGY). (為共同第一作者)
5. **Chia-Chi Wang**, Yu-Ru Lin, Mei-Hsiu Liao*, Tong-Rong Jan* (2013, Jul). Oral supplementation with areca-derived polyphenols attenuates food allergic responses in ovalbumin-sensitized mice. *BMC Complementary and Alternative Medicine,* 13(-):154. (SCI, 5/24, INTEGRATIVE & COMPLEMENTARY MEDICINE)

106 年 3 月 26 日（日）14:50-15:10
二樓，第 29 教室

塑化劑鄰苯二甲酸二（2- 乙基己基）酯影響食物過敏之免疫毒理作用

Di-(2-ethylhexyl)phthalate (DEHP) Disturbed Food Allergic Responses in a Ovalbumin-induced Food Allergic Mouse Model

Chia-Chi Wang , Yin-Hua Cheng , Chun-Wei Tung , Lee Yi ,
王家琪 , 鄭尹華 , 童俊維 , 李易

Food safety is threatened by environmental toxicants which were contaminated from industrial processes. Di-(2-ethylhexyl) phthalate (DEHP), among the most-produced phthalates used as plasticizers to increase the flexibility of polyvinyl chloride (PVC) products, had been intentionally blended into emulsifier in Taiwan for years. DEHP has been ubiquitously detected in numerous drinks and food. The incident of phthalate-contaminated foodstuffs raises the concerns of exposure to DEHP-tainted foods on public health. Epidemiological studies revealed a positive association between DEHP exposure and the development of asthma, allergies, and atopic disorders. Although several toxicology studies indicate the adjuvant effects of DEHP to disturb the T cell functionality systemically or in the lung tissues of allergic animals, however, little is known regarding the effects of DEHP on intestinal immunity and its underlying mechanisms. As the primary source of DEHP exposure for most people is through the gastrointestinal tract, the objective of this study is to evaluate the effects of DEHP on intestinal immunity. The ovalbumin (OVA)-induced diarrhea mouse model was applied to study the adjuvant effects of DEHP on the incidence of allergic symptoms and pathological changes. The present data demonstrated that exposure to DEHP dose-dependently induced the severity of OVA-induced allergic responses. Several aspects were affected by DEHP including the acceleration of the occurrence of OVA-induced diarrhea, the increase in OVA-specific IgE in serum, and the induction of IL-4-secreting T cell in the villus and the degranulated mast cells within the crypt of the duodenum. Using transcriptomics analysis from a microarray experiment followed by pathway and disease enrichment analysis by Comparative Toxicogenomics Database, 37 genes were monotonically increased in DEHP-treated duodenum including genes involved in regulation of chemokine biosynthetic process, circulatory system development and regulation of transcription and associated with diseases of connective tissue, cardiovascular, immune and digestive systems. Next, proteomics study identified 21 differentially expressed proteins associated with cancer and diseases of the digestive and immune systems in DEHP-treated duodenum. Collectively, exposure of DEHP will exacerbate T helper 2-mediated allergic responses in the food allergic BALB/c model. Several genes were associated with the dysregulation of intestinal immunity by DEHP.

S32

Speaker / 招名威
Ming-Wei Chao

■**Current Position:**
Director
Center of Educational Development for Science and Humanity, Chung Yuan Christian University
Assistant Professor
Department of Bioscience Technology, Chung Yuan Christian University
Center for Nanotechnology, College of Science, Chung Yuan Christian University

■**Education/Training:**
1999-2002 BS degree, Department of Agriculture Chemistry, College of Agriculture, National Taiwan University.
2004-2009 PhD degree, Joint Graduate Program in Toxicology, Ernest Mario School of Pharmacy, Environmental and Occupational Health Sciences Institute, Rutgers, State University of New Jersey.

■**Professional and Research Experience:**
2009-2012 Postdoctoral fellow, Department of Biological Engineering, School of Engineering, Massachusetts Institute of Technology.

■**Awards and Honors:**
2015 Young Investigators Award of International Congress of Radiation Research
2013-2015 MOST Outstanding Talent Investigator Award
2009 Best Abstract and Poster Award from the In Vitro and Alternative Methods Specialty Section of SOT
2007 Langman Graduate Student Award from the American Association of Anatomists
Experimental Biology Travel Award

■**Selected Publications:**

1. Tseng CY, Chang JF, Wang JS, Chang YJ, Gordon MK, **Chao MW***. Protective Effects of N-Acetyl Cysteine Against Diesel Exhaust Particles-Induced Intracellular ROS Generates Pro-inflammatory Cytokines to Mediate the Vascular Permeability of Capillary-like Endothelial Tubes. *PLoS One*. 2015, Jul; 6;10(7):e0131911.
2. Tseng CY, Chung MC, Wang JS, Chang YJ, Chang JF, Lin CH, Hseu RS, **Chao MW***. Potent In Vitro Protection against PM2.5-caused ROS Generation and vasculature permeable by Long-Term Pretreatment of *Ganoderma Tsugae*.
3. *American Journal of Chinese Medicine.* 2016, Apr;44(2):355-76
Chao MW*, Yang CH, Lin PT, Yang YH, Chuang YC, Chung MC, Tseng CY. Exposure to PM2.5 causes genetic changes in fetal rat cerebral cortex and hippocampus. *Environmental Toxicology*. 2016. *Aug 19*; doi: 10.1002/tox.22335
4. **Chao MW**, Chen CP, Yang YH, Chuang YC, Chu TY, Tseng CY*. N-acetylcysteine attenuates lipopolysaccharide-induced impairment in lamination of Ctip2-and Tbr1- expressing cortical neurons in the developing rat fetal brain. *Scientific*
5. *Reports*. 2016, Aug 31;6:32373
Wang JS, Tseng CY, **Chao MW***. Diesel Exhaust Particles Contribute to Endothelia Apoptosis via Autophagy Pathway. *Toxicological Sciences*. 2016. In press.

106 年 3 月 26 日（日）15:10-15:30
二樓，第 29 教室

細懸浮微粒在心血管系統中的影響及其潛在的預防機轉

The Impact of PM2.5 Particle in Cardiovascular System And Its Potential Prevention

Epidemiological studies suggest that an increase of PM2.5 particles in ambient air corresponds to an increase in hospital-recorded myocardial infarctions within 48 h after exposure. Among the many theories to explain this data are endothelial dysfunction and translocation of PM2.5 into the vasculature. The mechanisms for such PM2.5-induced vascular permeability remain unknown. One of the major mechanisms underlying the effects of PM2.5 is suggested to be oxidative stress. Experiments have shown that PM2.5 induces the generation of ROS in endothelia. Transcription factor Nrf2 is translocated to the cell nucleus, activated transcription of the antioxidative enzyme HO-1, and the downstream VEGFA release. Furthermore, a recent study shows that PM2.5-induced intracellular ROS may cause the secretion of pro-inflammatory TNF-α and IL-6, which may induce endothelial permeability as well by promoting VEGFA release independently of HO-1 activation. These results demonstrated that the adherens junction molecule, VE-cadherin, becomes redistributed from the membrane at cell-cell borders to the cytoplasm in response to PM2.5, disrupting cell-cell junction integrity. PM2.5 are occasionally found in the endothelial cell cytoplasm and in the differentiated capillary-like tube cell lumen. In addition, PM2.5-induced ROS plays also a central role in the initiation of both autophagy and apoptosis. Acute exposure to low dose of PM2.5, the levels of ATG12-ATG5, p62, and LC3 increase, followed by LC3-I cleavage and sequentially colocalized with LAMP-2. When cells lacked the ability to induce autophagy, DEP was unable to induce cell senescence and most of the cells survived. Nevertheless, high dose PM2.5 exposure stimulates ATP depletion, followed by depolarization of their actin cytoskeleton, which sequentially inhibits PI3K/Akt activity and augments endothelial apoptosis but disrupts the p53 negative regulator, Mdm2. Addition of certain ROS scavengers is able to suppress PM2.5-induced oxidative stress efficiently and reduces subsequent disorders by increasing endogenous glutathione.

S33

Speaker / 張凱雄
Kai-Hsiung Chang

■**Current Position:**
Institute of Cellular and System Medicine, National Health Research Institutes/
國家衛生研究院　助研究員

■**Education/Training:**

1995-1999	B.S. National Taiwan Normal University, Taipei, Taiwan
2001-2004	M.S. National Taiwan University, Taipei, Taiwan
2004-2008	Ph.D. Rutgers University/University of Medicine and Dentistry of New Jersey
2009-2013	Postdoc, University of Texas Southwestern Medical Center

■**Professional and Research Experience:**

2013-2015	Research Associate, Department of Cancer Biology, Cleveland Clinic Foundation
2016-	Assistant Investigator, Institute of Cellular and System Medicine, National Health Research Institutes

■**Awards and Honors:**

2013	Best in Science Award, Lerner Research Institute, Cleveland Clinic Foundation
2006	Young Investigator Award, Robert Wood Johnson Medical School, UMDNJ

■**Selected Publications:**

1. Hearn, W.D.J., AbuAli, G., Reichard, C.A., Reddy, C.A., Magi-Galluzzi, C., **Chang, K.H.**, Carlson, R., Rangel, L., Reagan, K., Davis, B.J., Karnes, R.J., Kohli, M., Tindall, D., Klein, E.A., Sharifi, N. HSD3B1 and resistance to androgen-deprivation therapy in prostate cancer: a retrospective, multicohort study. (2016) ***Lancet Oncology*** (in press).
2. **Chang K.H.**, Li, R., Lotan, Y., Roehrborn, C.G., Liu, J., Vessella, R., Nelson, P., Kapur, P., Guo, X., Mirzaei, H., Auchus, R.J., Sharifi, N. A genetic mechanism augments DHT synthesis in castration-resistant prostate cancer. (2013) ***Cell***, 154(5): 1074-84.
3. **Chang K.H.**, Sharifi N. Prostate cancer-from steroid transformations to clinical translation. (2012) ***Nat Rev Urol.***, 9(12): 721-4.
4. Li, R., Evaul, K., Sharma, K.K., **Chang, K.H.**, Yoshimoto, J., Liu, J., Auchus, R.J., Sharifi, N. Abiraterone inhibits 3β-hydroxysteroid dehydrogenase: a rationale for increasing drug exposure in castration-resistant prostate cancer. (2012) ***Clin Cancer Res.***, 18(13): 3571-9.
5. **Chang K.H.**, Li R, Papari-Zareei M, Watumull L, Zhao YD, Auchus RJ, Sharifi N. Dihydrotestosterone synthesis bypasses testosterone to drive castration-resistant prostate cancer. (2011) ***Proc Natl Acad Sci U S A.***, 108(33): 13728-33.

106 年 3 月 26 日（日）14:30-15:00
一樓，第 2 教室

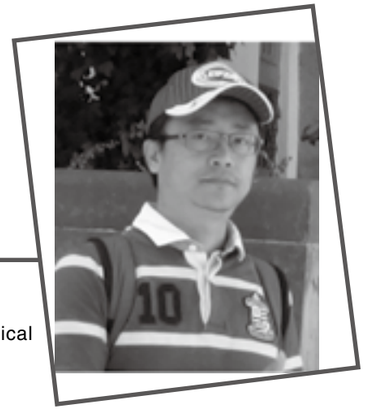
荷爾蒙生合成與癌症精準醫療照護

Steroidogenesis and Cancer Precision Healthcare

Androgen deprivation therapy (ADT) is the frontline treatment for advanced prostate cancer. However, resistance almost invariably occurs after initial response for about 2 years. Relapsed tumor inevitably progresses as currently incurable disease, castration resistance prostate cancer (CRPC). Intratumoral steroidogenesis is mechanistically linked to CRPC development. We previously identified 5 alpha-dione pathway is the predominant route for tumor self-synthesis of dihydrotestosterone in the scenario of ADT. In this pathway, we also discovered a gain-of-function mutation in the steroidogenic machinery in CRPC cell line models as well as CRPC patient tissues. Specifically, the mutation converts nucleotide 1245A→C of the HSD3B1 (hydroxysteroid dehydrogenase 3B1) gene. This gain-of-function mutation prolongs protein half-life of 3βHSD1 and leads to an augment of DHT synthesis, resulting in sustained AR signaling and disease progression. Noticeably, while this mutation can be acquired somatically in tumor, it is also heritable as a germline variant in a form of a single nucleotide polymorphism (SNP) (i.e. rs1047303). Here, we present evidence of rs1047303 as a useful genetic biomarker to predict a priori a patient's response or resistance to ADT, credentialing en route for precision healthcare of prostate cancer patients.

S34

Speaker / 馬文隆
Wen-Lung Ma



■Current Position:
Associate Professor , Graduate Institute of BioMedical Sciences, China Medical University/ 中國醫藥大學生物醫學研究所　副教授

■Education/Training:
1997 B.S., Chinese Medical College, Taiwan (Nursing)
1999 M.S., National Cheng Kung University, Taiwan (Physiology)
2009 Ph.D., University of Rochester, New York (Pathology)

■Professional and Research Experience:
2016- Associate Professor, Graduate Institute of BioMedical Sciences, China Medical University
2011-2016 Assistant Professor, Graduate Institution of Clinical Medical Science, China Medical University
2009-2011 Research Fellow, Department of Pathology, University of Rochester Medical Center, NY, USA

■Awards and Honors:
2017 Invited Speaker: 2017, 32nd Joint Annual Conference of BioMedical Sciences, Taipei, 25th~26th/Mar, 2017. Host by the "The Chinese Physiological Society".
2015 Distinguished Young Scientist Award grant from Taiwan MOST for four year support.
2012 Outstanding Research Faculty Award, China Medical University
Aflac Inc. Young Investigator Award, Travel grant for Scientist-In-Training Award for participating American Association for Cancer Research (AACR) Annual meeting (101st AACR), Washington, D.C.
2010 Outstanding Scientific Article Award, Taiwan Liver Diseases Association

■Selected Publications:
1. W-C Chang, S-F Huang, Y-M Lee, H-C Lai, B-H Cheng, W-C Cheng, Y-P Ho, L-B Jeng, **W-L Ma***, Cholesterol Import and Steroidogenesis are Biosignatures for Gastric Cancer Progression, *Oncotarget.* DOI: 10.18632/oncotarget.13524 (* corresponding author)
2. Y-M Lee, W-C Chang, **W-L Ma***, Hypothesis: Solid Tumors Behave As Metabolic Dictators, 2016 *Journal of Cellular and Molecular Medicine*, 2016, doi: 10.1111/jcmm.12794 (* corresponding author)
3. **WL Ma***, CL Hsu, CC Yeh, MH Wu, CK Huang, LB Jeng, YC Hung, TY Lin, S Yeh, C Chang, Hepatic androgen receptor suppresses hepatocellular carcinoma metastasis through modulation of cell migration and anoikis, *Hepatology.* 2012 56(1): 176-85. (* first author; cited 52)
4. Wu MH, Ma WL, Hsu CL, Chen YL, Ou JH, Ryan CK, Hung YC, Yeh S, Chang C. Androgen receptor promotes hepatitis B virus-induced hepatocarcinogenesis through modulation of hepatitis B virus RNA transcription. *Science Translational Medicine.* 2010 May 19;2(32):32ra35. (* co-first author; cited 120)
5. W-L Ma*, C-L Hsu, M-H Wu, C-T Wu, C-C Wu, J-J Lai, Y-S Jou, C-W Chen, S Yeh, C Chang, Androgen receptor is a new potential therapeutic target for the treatment of hepatocellular carcinoma, *Gastroenterology.* 2008 Sep;135(3):947-55, 955. (* first author; cited 132)

106 年 3 月 26 日（日）15:00-15:30
一樓，第 2 教室

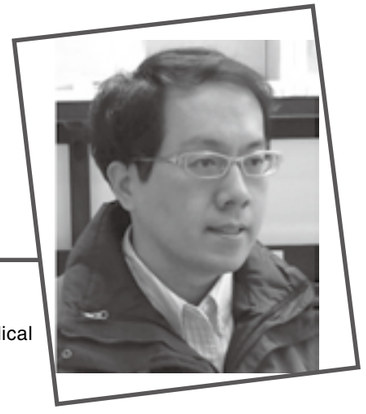
癌症的生理病理探討：腫瘤巨環境調控

Pathophysiology of Cancer: the Tumor Macroenvironmental Regulation

Cancer is considered one of the most complicated human diseases for which the mechanism is still largely unknown. Hunting for "Cancer Driver" genes and manipulating "tumor microenvironment"were the most important tasks for cancer biologists. Now the paradigm shifting of systemic modifying agents in the past decade, e.g., immuuno-therapy, has made a tremendous advances toward progression improvement. While the launching of "Cancer Moonshot" project has focused on clinical outcome management, the concept changing in basic scientists has been gradually approaching to the curiosity of pathophysiological cancer phenotyping. In this talk, the developing concept called "Endocrine Organ-Like Tumor" hypothesis will be introduced to highlight the importance of tumor MACRO-environmental regulation. The EOLT hypothesis can be defined as: Cancer overpowers body homeostasis in an endocrine organ like manner. The tumor and host counter-regulate each other in a regulatory feedback and continually evolving fashion throughout the developmental stages of cancer. In the past few years, we have been pursued this hypothesis, and discovered some evidences to support it. The following two examples will be addressed in the talk.

1.Resources and Destination of Cholesterol: The lipoprotein/receptor route for Cholesterol Bioflux is the cancer prognosis biosignature.
2.The unexpected dyslipidemic lipoprotein function: Bioactive Lipid Bioflux for cancer growth.

S35



Speaker / 林子暘
Tzu-Yang Lin

■Current Position:
Assistant Professor, Graduate Institute of Life Sciences, National Defense Medical Center/ 國防醫學院生命科學研究所　助理教授

■Education/Training:

1995	B.S. Biology, National Sun Yet-Sen University, Kaohsiung, Taiwan
1997	M.S. Radiation Biology, National Tsing Hua University, Hsinchu, Taiwan
2004	Ph.D., Molecular & Cellular Biology, National Tsing Hua University, Hsinchu, Taiwan

■Professional and Research Experience:

2004-2008	Postdoctoral Fellow, National Health Research Institute, Taiwan
2009-2014	Visiting Postdoctoral Fellow, NICHD/NIH, USA
2014-	Assistant Prof., Graduate Institute of Life Sciences, National Defense Medical Center, Taiwan

■Awards and Honors:

2016	Guest editor of the journal "Cell & Bioscience"

■Selected Publications:

1. **Lin, T. Y.**, Luo J., Shinomiya K., Ting C. Y., Lu Z., Meinertzhagen, I.A., and Lee, C. H. (2016) Mapping Chromatic Pathways in the Drosophila Visual System. ***Journal of Comparative Neurology,*** 524(2), 213-227. (Featured cover image)
2. Karuppudurai, T.*, **Lin, T. Y.*** Ting, C. Y., Pursley, R., Melnattur, K.V., Diao, F., White, B.H., Macpherson, L.J., Gallio, M., Pohida, T., and Lee, C. H. (2014) A Hard-wired Glutamatergic Circuit Pools and Relays UV Signals to Mediate Spectral Preference in *Drosophila. **Neuron,*** 81, 603-615. **(*co-first author)**
3. Shinomiya, K., Karuppudurai, T., **Lin, T. Y.**, Lu, Z., Lee, C. H., and Meinertzhagen, I.A. (2014) Candidate Neural Substrates for Off-edge Motion Detection in *Drosophila*. ***Current Biology,*** 10, 1062-70.
4. Ting, C. Y., McQueen, P.G., Pandya, N., **Lin, T. Y.**, Yang, M., Onteddu, V.R., O'Connor, M.B., McAuliffe, M., and Lee, C. H. (2014) Photoreceptor-derived dActivin Promotes Dendritic Termination and Restricts Receptive Fields of First-order Interneurons in *Drosophila. **Neuron,*** 81, 830-846
5. **Lin, T. Y.**, Huang, C. H., Kao, H. H., Liou, G. G., Yeh, S. R., Cheng, C. M., Chen, M. H., Pan, R. L., and Juang, J. L. (2009) Abi plays an opposing role to Abl in Drosophila axonogenesis and synaptogenesis. ***Development,*** 136 (18), 3099-3107.

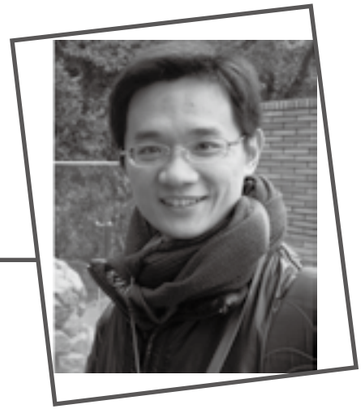
106 年 3 月 26 日（日）15:30-16:00
一樓，第 2 教室

以果蠅活體模式研究膠質母細胞瘤之癌化機轉

Genetic Dissection of an in vivo Glioma Model in Drosophila

Glioblastoma, the most prevalent brain tumor in adults, carries the poorest prognosis. Frequent genetic alterations that activate epidermal growth factor receptor (EGFR) and phosphatidylinositol-3 kinase (PI3K) signaling have been associated with gliomagenesis. In order to create a whole animal approach which individual factors of oncogenic signaling can be readily elucidated, we induced glioma formation in the adult Drosophila brain by activating EGFR-PI3K pathway. Glioma-induced animals show significantly enlarged brain volume and early locomotor abnormalities. Also, they exhibit a much shorter lifespan than normal flies. This in vivo model provides several robust phenotypic readouts, which allow us to decipher pathogenic signaling pathways in a whole animal setting. In this study, using glial specific-RNAi knockdown in adult glioma, we silenced several evolutionally conserved metabolic pathways to identify essential genes for neoplastic transformation. Our results revealed that when silencing a gene, which controls cholesterol homeostasis, can prolong lifespan of glioma bearing flies. In tumor, its human orthologue is overexpressed in high-grade glioma and correlated with poor patient survival. Moreover, functional assessments in human glioma cell lines demonstrate its essential role for tumor proliferation. These results imply that the perturbation of cholesterol homeostasis strongly related to glioma formation. Further investigation of potential candidate genes identified in our Drosophila genetic screens may reveal novel metabolic mechanisms involved in gliomagenesis and for promising therapeutics to treat glioma.

S36



Speaker / 何昱征
Yu-Cheng Ho

■**Current Position:**
Department of Medicine, Mackay Medical College/
馬偕醫學院醫學系　助理教授

■**Education/Training:**
2009-2015　Ph.D., Graduate Institute of Pharmacology, College of Medicine, National Taiwan University

■**Professional and Research Experience:**
2016-　Assistant professor, Department of Medicine, Mackay Medical College

■**Awards and Honors:**
2012　Outstanding Research Award, College of Medicine, National Taiwan University
2014　Outstanding Research Award, College of Medicine, National Taiwan University
2016　Outstanding Research Award, College of Medicine, National Taiwan University
2012　Outstanding Research Award, Taiwan Pharmacological Society
2014　Outstanding Research Award, Taiwan Pharmacological Society

■**Selected Publications:**
1. Lai CY*, **Ho YC***, Hsieh MC, Wang HH, Cheng JK, Chau YP, Peng HY. Spinal Fbxo3-Dependent Fbxl2 Ubiquitination of Active Zone Protein RIM1α Mediates Neuropathic Allodynia through CaV2.2 Activation. ***Journal of Neuroscience*** 2016; 36(37):9722-38.
2. **Ho YC**, Cheng JK, Chiou LC. Impairment of adenylyl cyclase-mediated glutamatergic synaptic plasticity in the periaqueductal grey in a rat model of neuropathic pain. ***The Journal of Physiology*** 2015; 593(13):2955-73.
3. **Ho YC**, Cheng JK, Chiou LC. Hypofunction of glutamatergic neurotransmission in the periaqueductal gray contributes to nerve-injury-induced neuropathic pain. ***Journal of Neuroscience*** 2013; 33(18):7825-36.
4. **Ho YC**, Lee HJ, Tung LW, Liao YY, Fu SY, Teng SF, Liao HT, Mackie K, Chiou LC. Activation of orexin 1 receptors in the periaqueductal gray of male rats leads to antinociception via retrograde endocannabinoid (2-arachidonoylglycerol)-induced disinhibition. ***Journal of Neuroscience*** 2011; 31(41):14600-10.

106 年 3 月 26 日（日）16:00-16:30
一樓，第 2 教室

長期壓力誘導憂鬱症之分子機制探討與治療策略

Molecular Mechanism and Therapeutic Strategy of Chronic Stress-induced Depression

Chronic stress induces neuropsychiatric diseases, such as major depressive disorder, are characterized by maladaptive and dysfunctional organization of behavioral responses that strongly affect the well-being of people. Major depressive disorder (MDD) affecting more than 120 million people worldwide every year is a heterogeneous illness influenced by a variety of factors, including environmental stressful factors. Subjects repeatedly exposure to stressor leads to an elevation of risk to suffer from depression. However, despite intensive research during the past several decades, the pathophysiology and neurobiological mechanisms of depressive disorders remain elusive.

A critical issue is how chronic stress leads to depression-like behaviors. We hypothesized that dysregulation of excitatory transmission in the brainstem contributes to chronic stress-induced depression-like behaviors. Our results demonstrated that chronic stress elicits AMPA receptors switch through a glucocorticoid receptor-dependent mechanism in the midbrain contributing to depression-like behaviors. These observations of maladaptive brain plasticity after chronic stress provide new insights into stress-induced neuropsychiatric diseases.

S37

Speaker / 葉竹來
Jwu-Lai Yeh

■Current Position:
Department of Pharmacology, College of Medicine, Kaohsiung Medical University/
高雄醫學大學醫學系藥理學科　教授兼科主任

■Education/Training:

1983-1987　B.S., School of Pharmacy, Kaohsiung Medical College, Kaohsiung, Taiwan
1987-1989　M.S., Graduate Institute of Medicine, Kaohsiung Medical College
1989-1994　Ph.D., Graduate Institute of Medicine, Kaohsiung Medical College

■Professional and Research Experience:

1989-1998　Bachelor, Department of Pharmacology, Kaohsiung Medical College
1998-2005　Associate Professor, Department of Pharmacology
2003-2004　Visiting scholar, Department of Neurology, College of Medicine, University of Virginia
2005-　Professor, Department of Pharmacology, Kaohsiung Medical University
2016-2016　Visiting scholar, School of Pharmacy, The University of North Carolina at Chapel Hill

■Awards and Honors:

2007, 2013,　Outstanding award for teaching, College of Medicine, Kaohsiung Medical University
2014　Outstanding award for teaching, College of Medicine, Kaohsiung Medical University
2008, 2014　Outstanding award for mentor, College of Medicine, Kaohsiung Medical University

■Selected Publications:

1. Lee MY, Tsai KB, Hsu JH, Shin SJ, Wu JR*, **Yeh JL***. (2016) Liraglutide prevents and reverses monocrotaline-induced pulmonary arterial hypertension by suppressing ET-1 and enhancing eNOS/sGC/PKG pathways. **Scientific Reports** 6:31788.
2. Wu JR, Hsu JH, Dai ZK, Wu BN, Chen IJ, Liou SF*, and **Yeh JL***. (2016) Activation of eNOS by a xanthine derivative ameliorates hypoxia-induced apoptosis in endothelial progenitor cells. **Journal of Pharmacy and Pharmacology** 68:810-818.
3. Liou SF, Hsu JH, Chu HC, Lin HH, Chen IJ, **Yeh JL***. (2015) KMUP-1 promotes osteoblast differentiation through cAMP and cGMP pathways and signaling of BMP-2/Smad1/5/8 and Wnt/β-catenin. **Journal of Cellular Physiology** 230:2038-2048.
4. Hsu JH, Yang RC. Lin SJ, Liou SF, Dai ZK, **Yeh JL***, Wu JR*. (2014) Exogenous heat shock cognate protein 70 pretreatment attenuates cardiac and hepatic dysfunction with associated anti-inflammatory responses in experimental septic shock. **Shock** 42:540-547
5. Liou SF, Hsu JH, Lin IL, Ho ML, Hsu PC, Chen LW, Chen IJ, **Yeh JL***. (2013) KMUP-1 suppresses RANKL-induced osteoclastogenesis and prevents ovariectomy-induced bone loss: roles of MAPKs, Akt, NF-κB and calcium/calcineurin/NFATc1 pathways. **PLoS One** 8:e69468.

106 年 3 月 26 日（日）14:30-15:00
一樓，第 1 教室

類升糖素胜 -1（GLP-1）受體促效劑用於治療肺動脈高壓之研究

Investigational Glucagon-like Peptide-1 (GLP-1) Receptor Agonists for the Treatment of Pulmonary Arterial Hypertension

Pulmonary arterial hypertension (PAH) is pathologically characterized by pulmonary vascular remodeling. The abnormal proliferation, apoptosis, and migration of pulmonary arterial smooth muscle cells (PASMC) contribute to pulmonary vascular remodeling. Studies have shown that diabetes is a risk factor for PAH. Glucagon-like peptide-1 (GLP-1) is a derivative of the transcription product of proglucagon gene and it has insulinotropic, insulinomimetic, and glucagonostatic effects, thereby exerting multiple complementary actions to lower blood glucose in subjects with type 2 diabetes mellitus. Recent studies indicated that GLP-1 and its analogs to have direct effects on the cardiovascular system. Liraglutide, a glucagon-like peptide-1 receptor (GLP-1R) agonist, is widely used to treat diabetes. Here, we report that liraglutide had both preventive and therapeutic effects on monocrotaline (MCT)-induced PAH in rats.

Animal models of PAH will be established using Wistar rats by a single subcutaneous injection of MCT (60 mg/kg). In our studies, we demonstrated that GLP-1 analogue liraglutide had both preventive and treatment effects on MCT-induced PAH. From the analysis of lung and heart morphology, liraglutide improved the medial wall thickening of the rat pulmonary arteries and right ventricle hypertrophy induced by MCT. The mechanisms by which liraglutide inhibit PAH may be due to activation of eNOS and sGC in PA endothelium, and inhibition of ROCK II in PASMCs by liraglutide may protect against MCT-induced chronic PAH over long-term administration. The inhibition of endothelial ROCK by liraglutide can initiate eNOS expression, and PKG can be increased by liraglutide-induced enhancement of eNOS, activation of sGC and inhibition of ROCK. We also found that liraglutide exerts anti-proliferative and anti-migration effects in PASMCs. Treatment with ligratulide blocked the PDGF-inducible progression through the G0/G1 to the S-phase of the cell cycle in synchronized cells. Liraglutide also significantly increase the contractile phenotype marker α-SMA expression and decreased the synthetic phenotype marker p-YAP expression stimulated by PDGF. Consequently, liraglutide may have cytoprotective effect against endothelial dysfunction on MCT-induced PAH rat that is mediated by an interaction between the cGMP-PKG and the cAMP-PKA-activated pathways. Through these studies we suggested that GLP-1 and its analogs may have a therapeutic role in pulmonary vascular remodeling.

S39

Speaker / 許銘仁
Ming-Jen Hsu

■**Current Position:**
Department of Pharmacology, Taipei Medical University/
台北醫學大學藥理學科　教授

■**Education/Training:**
1993-1997　B.S., School of Pharmacy, Taipei Medical University
1998-2003　Ph.D ., Graduate Institute of Pharmacology, National Taiwan University
2003-2006　Ph.D.; Postdoc, Graduate Institute of Medical Sciences , Taipei Medical University

■**Professional and Research Experience:**
2006-2007　Assist. Prof.; Graduate Institute of Medical Sciences , Taipei Medical University
2007-2011　Assist. Prof.; Department of Pharmacology, Taipei Medical University
2011-2015　Assoc. Prof.; Department of Pharmacology, Taipei Medical University
2015-　Professor, Department of Pharmacology, Taipei Medical University

■**Selected Publications:**

1. Huang YH, Yang HY, Hsu YF, Chiu PT, Ou G, **Hsu MJ*.** (2014) Src contributes to IL6-induced vascular endothelial growth factor-C expression in lymphatic endothelial cells. ***Angiogenesis*** 17:407-418.
2. Chuang YF, Yang HY, Ko TL, Hsu YF, Sheu JR, Ou G, **Hsu MJ*.** (2014) Valproic acid suppresses lipopolysaccharide-induced cyclooxygenase-2 expression via MKP-1 in murine brain microvascular endothelial cells. ***Biochemical Pharmacology*** 88:372-383.
3. Chen WC,#, Yen CS,# Huang WJ, Hsu YF, Ou G, **Hsu MJ*.** (2015) WMJ-S-001, a novel aliphatic hydroxamate derivative, exhibits anti-inflammatory properties via MKP-1 in lipopolysaccharide-stimulated RAW264.7 macrophages. ***British Journal of Pharmacology*** 172:1894-1908.
4. Huang YH, Huang SW, Hsu YF, Ou G, Huang WJ*, **Hsu MJ*.** (2015) The effects of a novel aliphatic chain hydroxamate derivative WMJ-S-001 in HCT116 colorectal cancer cell death. ***Sci Rep.*** 5:15900.
5. Huang YH, Yang HY, Huang SW, Ou G, Hsu YF, **Hsu MJ*.** (2016) Interleukin-6 Induces Vascular Endothelial Growth Factor-C Expression via Src-FAK-STAT3 Signaling in Lymphatic Endothelial Cells. ***PLoS One.*** 11:e0158839.

106 年 3 月 26 日（日）15:30-16:00
一樓，第 1 教室

介白質 -6 的促淋巴管新生作用機轉之探討

Pro-lymphangiogenetic Mechanisms of Interleukin-6

Lymphangiogenesis, the formation of lymphatic capillaries by lymphatic endothelial cells (LECs), occurs both in normal tissues as well as in pathological processes including tumor metastasis. Similar to angiogenesis, lymphangiogenesis relies on the regulation of several lymphangiogenic factors. Vascular endothelial growth factor-C (VEGF-C) is currently the best-characterized lymphangiogenic factor that acts via VEGF receptor-3 (VEGFR-3). In normal adult tissues, VEGFR-3 expression is largely restricted to the LECs, and its activation is responsible for LEC proliferation, migration, and survival. Many studies have demonstrated that lymphatic capillaries proliferate during inflammation. The potent pro-inflammatory cytokine interleukin-6 (IL-6) is highly elevated in a variety of human malignancies. It is recently reported that IL-6 induces tumor lymphangiogenesis through VEGF-C induction in tumor cells. However, whether IL-6 alters VEGF-C expression in LECs remain unclear. We are thus interested in exploring the mechanisms underlying IL-6-induced VEGF-C induction and lymphangiogenesis in LECs. The limitations of studies on lymphangiogenesis and signaling cascades in LECs are the difficulties in the isolation and propagation of LECs from different organs. To overcome these limitations, we selected a ‘‘conditionally immortalized’’ line of murine LECs (SV-LECs) that express SV40 large T and retain their ‘lymphatic’ endothelial characteristics after repeated passages as a cell model. In this study, we demonstrated that IL-6 activates Src-mediated FAK, ERK and p38MAPK signaling, leading to C/EBPβ, p65 and STAT3 activation, VEGF-C induction and lymphangiogenesis in SV-LECs.

S40

Speaker / 張雅雯
Alice Y.W. Chang

■**Current Position:**
Department of Physiology, National Cheng Kung University/
成功大學醫學院生理所　教授

■**Education/Training:**

1984-1988 B.S., School of Pharmacy, Taipei Medical University
1991-1993 M.S., Department and Institute of Pharmacology, National Yang-Ming University
1993-1998 Ph.D., Department and Institute of Pharmacology, National Yang-Ming University

■**Professional and Research Experience:**

1998-2001 Assist. Prof.; Department of Biological Sciences, and Center for Neuroscience, National Sun Yat-sen University
2001-2005 Assoc. Prof.; Department of Biological Sciences, and Center for Neuroscience, National Sun Yat-sen University
2005-2009 Prof.; Department of Biological Sciences, and Center for Neuroscience, National Sun Yat-sen University
2009-2014 Prof.; Institute for Translational Research in Biomedicine, Kaohsiung Chang Gung Memorial Hospital
2014 - Prof.; Department of Physiology, National Cheng Kung University

■**Awards and Honors:**

2009-2014 CGMH Acadamic Research Award
2008 NSYSC Teaching Excellence Award
2007 NSYSC Academic Research Award
2006 The Pharmacological Society in Taiwan Outstanding Research Award
2001 NSYSC Excellent Young Researcher Award

■**Selected Publications:**

1. Huang CW, Tsai MH, Chen NC, Chen WH, Lu YT, Lui CC, Chang YT, Chang WN, **Chang AYW***, Chang, CC. (2015) Clinical significance of circulating vascular cell adhesion molecule-1 to white matter disintegrity in Alzheimer's dementia. ***Thrombosis and Haemostasis,*** 114:1230-1240.
2. **Chang AYW***, Li FCH, Huang CW, Wu JCC, Dai KY, Chen CH, Li SH, Su CH, Wu RW. (2014) Interplay between brain stem angiotensins and monocyte chemoattractant protein-1 as a novel mechanism for pressor response after ischemic stroke. ***Neurobiology of Diseases*** 71:292-304.
3. Li FCH, Li BPT, Wu JY, Wu JCC, **Chang AYW***. (2013) Transition from oxidative stress to nitrosative stress in rostral ventrolateral medulla underlies fatal intoxication induced by organophosphate mevinphos. ***Toxicological Sciences*** 135:202-217.
4. Li FCH, Yen JC, Chan SHH, **Chang AYW***. (2012) Bioenergetics failure and oxidative stress in brain stem mediates cardiovascular collapse associated with fatal methamphetamine intoxication. ***PLoS One*** 7:e30589.
5. Chan SHH, Chan JYH, Hsu KS, Li FCH, Sun EYH, Chen WL, **Chang AYW***. (2011) Amelioration of central cardiovascular regulatory dysfunction by tropomyocin receptor kinase B in mevinphos intoxication model of brain stem death. ***British Journal of Pharmacology*** 164:2015-2028.

106 年 3 月 26 日（日）16:00-16:30
一樓，第 1 教室

氧化壓力轉變為硝化壓力主責有機磷中毒損傷腦幹心臟血管調控機能

Transition from Oxidative Stress to Nitrosative Stress Underlies Impaired Brain Stem Cardiovascular Regulation Induced by Organophosphate Poisoning

It is well-known that cardiovascular (CV) toxicity is associated with high mortality induced by organophosphate (OP) poisoning. Whereas the underlying mechanism is traditionally suggested to be inhibiting acetylcholinesterase, accumulating synaptic acetylcholine and over-activating cholinergic receptors, therapeutic strategy involving cholinergic inhibition does not reach complete effectiveness. Therefore, alternative underlying mechanisms for OP intoxication are still required for the development of new therapy again OP poisoning. Employing the OP mevinphos (Mev), our laboratory has established an OP intoxication rat model that targeted the rostral ventrolateral medulla (RVLM), the crucial brain stem site for maintaining arterial pressure (AP) and sympathetic vasomotor tone, to delineate the molecular and cellular mechanisms of OP-induced cardiovascular dysregulation. We found that nitric oxide (NO) produced by NO synthase (NOS) I and II in RVLM played, respectively, a sympathoexcitatory and sympathoinhibitory role in the CV responses during pro-life Phase I and pro-death Phase II Mev intoxication. In addition, activation of NADPH oxidase and subsequent increase of superoxide level mediated by upregulation of type I angiotensin receptor (AT1R) expression at the RVLM was responsible for maintaining baroreflex-mediated sympathetic vasomotor tone, AP and survival after Mev intoxication. On the other hand, detrimental CV consequence and fatality induced by Mev intoxication was mediated by an augmentation of AT2R expression and subsequent peroxynitrite production at the RVLM. Our present results suggested that the transition from oxidative stress to nitrosative stress in the RVLM, resulting in the transition from sustained to impaired brain stem CV regulation plays a crucial role in OP-elicited cardiovascular fatality.

S41

Speaker / 吳佳慶
Chia-Ching (Josh) Wu

■Current Position:
Professor, Department of Cell Biology and Anatomy, NCKU /
國立成功大學細胞生物與解剖學研究所　教授

■Education/Training:

2006-2008	Post Doctoral Fellow, National Health Research Institutes
2005-2006	Biomedical Engineering Officer, Tri-Service General Hospital
2003-2005	Research Scholar, University of California, San Diego
2000-2005	Ph.D., Biomedical Engineering, NCKU

■Professional and Research Experience:

2017-	current Division Leader, Center for Micro/Nano Science and Technology(CMNST), NCKU
2013-	current Vice Director, International Research Center for Wound Regeneration and Repair (iWRR), NCKU
2016-	Current Professor, Department of Cell Biology and Anatomy, NCKU
	Professor, Institute of Basic Medical Sciences, NCKU
2012- 2016	Joint Professor, Department of Biomedical Engineering, NCKU
	Associate Professor, Department of Cell Biology and Anatomy, NCKU
	Associate Professor, Institute of Basic Medical Sciences, NCKU
2010-2012	Joint Associate Professor, Department of Biomedical Engineering, NCKU
2008-2012	Joint Assistant Professor, Department of Biomedical Engineering, NCKU
	Assistant Professor, Department of Cell Biology and Anatomy, NCKU
2008-2009	Assistant Professor, Institute of Basic Medical Sciences, NCKU
2007-2008	Adjunct Professor, National Health Research Institutes
	Adjunct Assistant Professor, Institute of Biomedical Engineering, NCKU

■Awards and Honors:

2009-2014	Editor, Frontiers in Bioengineering and Biotechnology; International Journal of Tissue Regenerations
2014-current	AP Council, Tissue Engineering and Regenerative Medicine International Society (TERMIS)
2015	Merit of Ta-You Wu, MOST
2012, 2015	Outstanding teaching award, NCKU,
2014	Excellent Research Award, Taiwan Comprehensive University System

■Selected Publications:

1. C. Liu, A.L. Tsai, P.C. Li, C.W. Huang, C.C. Wu*, Endothelial Differentiation of Bone Marrow Mesenchyme Stem Cells Applicable to Hypoxia and Increased Migration through Akt and NFkB Signals, Stem Cell Research & Therapy, (2017) (in Press)
2. C.F. Huang, Y.J. Chang, Y.Y. Hsueh, C.W. Huang, D.H. Wang, T.C. Huang, Y.T. Wu, F.C. Su, M. Hughes, C.M. Chuong, C.C. Wu*, Assembling Composite Dermal Papilla Spheres with Adipose-derived Stem Cells to Enhance Hair Follicle Induction, Scientific Reports (2016) 6:26436 (*corresponding author)
3. Y.Y. Hsueh, D.H. Wang, T.C. Huang, Y.J. Chang, W.C. Shao, T.L. Tuan, M. Hughes, C.C. Wu*, Novel skin chamber for rat ischemic flap studies in regenerative wound repair, Stem Cell Research & Therapy (2016) 7:72 (*corresponding author)
4. Y.J. Chang, H.C. Huang, Y.Y. Hsueh, S.W. Wang, F.C. Su, C.H. Chang, M.J. Tang, Y.S. Li, S.H. Wang, K.K. Shung, S. Chien, C.C. Wu*, Role of Excessive Autophagy Induced by Mechanical Overload in Vein Graft Neointima Formation: Prediction and Prevention, Scientific Reports (2016) 26;6:22147. doi: 10.1038/srep22147 (*corresponding author)
5. Y.Y. Hsueh, Y.J. Chang, C.W. Huang, F. Handayani, Y.L. Chiang, S.C. Fan, C.J. Ho, Y.M. Kuo, S.H. Yang, Y.L. Chen, S.C. Lin, C.C. Huang, C.C. Wu*, Synergy of endothelial and neural progenitor cells from adipose-derived stem cells to preserve neurovascular structures in rat hypoxic-ischemic brain injury, Scientific Reports (2015) 5 doi: 10.1038/srep14985 (*corresponding author)

106 年 3 月 26 日（日）14:30-15:00
三樓，第 32 教室

細胞自噬失調與發炎引發靜脈架橋後血管再窄化

Dysregulation of Autophagy and Inflammation in Vein Graft Restenosis

Little is known about the interrelations among autophagy, endothelial damage and inflammatory responses in the pathological progression of vein graft disease. Recently, we elucidated the stenosis initiation using a high-frequency ultrasonic (HFU) echogenicity platform and estimated the endothelium yield stress from von-Mises stress computation to predict the damage locations in living rats over time. We also discovered that venous-arterial transition induced excessive autophagy and inflammation to trigger the signal cascades leading to the apoptosis of venous endothelial cells (ECs) and neointimal hyperplasia. To mimic the vein graft disease induced by mechanical overload, we use the arterial laminar shear stress (ALSS) to elicit inflammatory responses in venous ECs. Assessing the inflammatory protein expressions using western blotting showed an increase of COX-2, which indicated inflammatory induction, in venous ECs after subjected to ALSS for 24 hrs. We transfected different inflammation-related promoters (such as COX2, MCP-1, and NFκB) into the venous ECs and subjected them to the ALSS to further elucidate the inflammatory signaling cascades during venous-arterial transition. In addition, the ex vivo perfusion of ALSS to isolated veins further confirmed the autophagy dysfunction to trigger venous EC damages. The pretreatment of veins with an autophagy inhibitor or anti-inflammatory drug prior to the grafting surgery provides a successful therapuetic strategy to decrease neointima formation. This study provides novel knowledge for the detailed mechanism of inflammation and autophagy regulation in venous endothelial damage resulting from arterialization.

S42

Speaker / 林含貞
Han-Chen Lin

■Current Position:
Assistant Professor of Department of Anatomy, School of Medicine, Kaohsiung Medical University/ 高雄醫學大學醫學系解剖學科　助理教授

■Education/Training:
2004-2008　B.S., Life Science, National Taiwan University
2008-2010　M.S., Institute of Anatomy and Cell Biology, National Taiwan University
2010-2015　Ph.D., Institute of Anatomy and Cell Biology, National Taiwan University

■Professional and Research Experience:
2015-2016　Postdoc, Internal Medicine, Kaohsiung Medical University Hospital
2016-　Assistant Professor of Department of Anatomy, School of Medicine, Kaohsiung Medical University

■Awards and Honors:
2014　第 29 屆生物醫學聯合學術年會－壁報展示，獲中華民國解剖學會壁報論文獎第二名
2013　第 28 屆生物醫學聯合學術年會－壁報展示，獲中華民國解剖學會壁報論文獎第一名
2012　第 27 屆生物醫學聯合學術年會－壁報展示，獲中華民國解剖學會壁報論文獎第一名

■Selected Publications:
1. **H.-C. Lin**, S.-Y. Liu, E.-Y. Yen, T.-K. Li, I-R. Lai. (2016). MicroRNA-183 mediates protective postconditioning of the liver by repressing Apaf-1. **Antioxidants & Redox Signaling** [Epub ahead of print]
2. **H.-C. Lin**, P. Narasimhan, S.-Y. Liu, Pak H. Chan, I-R. Lai. (2014). Postconditioning mitigates cell death following oxygen and glucose deprivation in PC12 cells and forebrain reperfusion injury in rats. **Journal of Neuroscience Research** 93(1):140-8
3. **H.-C. Lin**, I-R. Lai. (2013). Mitotracker probes and mitochondrial membrane potential. **Shock** 39(6):543
4. **H.-C. Lin**, S.-Y. Liu, H.-S. Lai, I-R. Lai. (2013). Isolated mitochondria infusion mitigates ischemia-reperfusion injury of the liver in rats. **Shock** 39(3):304-10
5. **H.-C. Lin**, T.-K. Lee, C.-C. Tsai, I-R. Lai, K.-S. Lu. (2012). Ischemic postconditioning protects liver from ischemia-reperfusion injury by modulating mitochondrial permeability transition. **Transplantation** 93(3):2265-71

106 年 3 月 26 日（日）15:00-15:30
三樓，第 32 教室

雙面刃？肝臟缺血再灌流傷害相關機制與保護效應之探討

Double-edged Sword? Study on the Mechanisms and Protective Effects of Hepatic Ischemia-reperfusion Injury

Ischemia-reperfusion injury (IR injury) happens during organ transplantation, cardiac infarct, stroke, and trauma. Recovery of the blood, which called reperfusion, is necessary for the ischemic tissues. However, reperfusion causes extra injury other than ischemia. Therefore, investigation of attenuating IR injury is essential for the success rate of organ transplantation and the prognosis of cardiac infarct and stroke. Therapies for reducing IR injury are as follows: 1. Drugs, 2. Cell therapy, 3. Conditioning, 4. Organelle therapy. Conditioning is a maneuver received a brief period of ischemia and reperfusion, and it can be divided into preconditioning, postconditioning, and remote conditioning according to the executive time point and tissues. The protective mechanisms are different between these maneuvers. We set up an in vivo model called oxygen-glucose deprivation (OGD) to imitate ischemia-reperfusion, and an animal model of hepatic IR injury to investigate the protective effects and mechanisms of ischemia postconditioning (iPoC) on hepatic IR injury. First, we discovered that three cycles of 1 min reperfusion by releasing the clip across the left hepatic artery followed by 1 min of ischemia of liver by clamping the left hepatic artery performed on Wistar rats (iPoC group) reduced the elevation of serum ALT, apoptosis of hepatocytes, and 4-hydroxy-2-nonenal (4-HNE, a product of lipid peroxidation) compare to that of IR group. The cytosolic cytochrome c expression significantly decreased, and the mitochondrial membrane potential was also preserved in iPoC group. Mitochondria permeability transition pore (mPTP) was responsible for changes of mitochondrial membrane potential. The protective effects of iPoC was reduced by mPTP opener with ATR and mimicked by the inhibitor of mPTP opening with NIM811. Furthermore, the miRNAs profiles in the rats' livers with or without iPoC after IR injury was analyzed by microarray. The target of miRNA was identified by luciferase assay. MicroRNA mimics and inhibitors were used in OGD injury in Clone 9 cells (an epithelial cell line isolated from normal liver of a young male rat) and partial liver IR injury in mice to test the function of miR-183 in the postconditioning. The expression of miR-183 was increased in the iPoC livers, and miR-183 repressed Apaf-1 mRNA expression. Hypoxic postconditioning (HPoC) and miR-183 mimics significantly decreased cell death after OGD, but miR-183 inhibitors eliminated the protection of HPoC. The increased expression of Apaf-1 and downstream caspase 3 / 9 activations after OGD were mitigated by HPoC or the addition of miR-183, while miR-183 inhibitor diminished the effect of HPoC on Apaf-1-capsapse signaling. Ischemic postconditioning (iPoC) and agomiR-183 decreased the elevation of serum ALT after liver IR in the mice, but antagomiR-183 mitigated the effect of iPoC. The results of H&E and TUNEL staining were compatible with biochemical assay. Besides, iPoC and agomiR-183 decreased the expression of Apaf-1 after IR injury in mice's livers, while antagomiR-mediated prevention of miR-183 expression led to an increased protein expression of Apaf-1 in the postischemic livers.
By utilizing these models, we demonstrated that iPoC protected liver from IR injury through: (1). Modulating mPTP and reducing the production of reactive oxygen species, (2). Up-regulating miR-183 to inhibit the expression of its target mRNA, Apaf-1.OGD and hepatic IR injury models are effective for investigating the mechanisms of IR injury and the protective mechanisms.

S43

Speaker / 李宜達
I-Ta Lee

■**Current Position:**
School of Medicine, College of Medicine, China Medical University, Taichung, Taiwan/
中國醫藥大學醫學院醫學系　助理教授

■**Education/Training:**

2013-2014 Postdoctor-Department of Physiology and Pharmacology and Health Aging Research Center, College of Medicine, Chang Gung University, Kwei-San, Tao-Yuan, Taiwan

2011-2013 Department of Anesthetics, Chang Gung Memorial Hospital at Lin-Kou and College of Medicine, Chang Gung University, Kwei-San, Tao-Yuan, Taiwan

2005-2010 Ph.D.-Division of Physiology and Pharmacology, Graduate Institute of Biomedical Sciences, College of Medicine, Chang Gung University, Kwei-San, Tao-Yuan, Taiwan

2003-2005 MS.-Institute of Anatomy and Cell Biology, College of Medicine, National Yang-Ming University, Taipei, Taiwan

1999-2003 BS.-Department of Life Science, College of Science and Engineering, Fu Jen Catholic University, Xinzhuang, New Taipei City, Taiwan

■**Professional and Research Experience:**

2014 Assistant Prof.-School of Medicine, College of Medicine, China Medical University, Taichung, Taiwan

■**Awards and Honors:**

2016 第 12 屆許鴻源博士中醫藥學術獎，許鴻源博士中國醫藥獎學金委員會

第 9 屆中國醫藥大學暨亞洲大學生物科技研討會口頭論文競賽 佳作，本校 (含附醫)

2009 第 24 屆生物醫學聯合學術年會台灣生物化學及分子生物學學會壁報論文競賽優秀獎，台灣生物化學及分子生物學學會

2005 第 9 屆中華民國解剖學學會碩博士研究生學術論文競賽友和壁報論文獎，中華民國解剖學學會

■**Selected Publications:**

1. Lee CW#, Lin ZC#, Hsu LF, Fang JY, Chiang YC, Tsai MH, Lee MH, Li SY, Hu SC, **Lee IT***, Yen FL*. Eupafolin ameliorates COX-2 expression and PGE2 production in particulate pollutants-exposed human keratinocytes through ROS/MAPKs pathways. J Ethnopharmacol. 2016 Aug 2;189:300-9. (#equal contribution) (R/C=2/24, INTEGRATIVE & COMPLEMENTARY MEDICINE)
2. Hu SC#, **Lee IT#**, Yen MH, Lin CC, Lee CW*, Yen FL*. Anti-melanoma activity of Bupleurum chinense, Bupleurum kaoi and nanoparticle formulation of their major bioactive compound saikosaponin-d. J Ethnopharmacol. 2016 Feb 17;179:432-42. (#equal contribution) (R/C=2/24, INTEGRATIVE & COMPLEMENTARY MEDICINE)
3. **Lee IT#**, Lin CC#, Hsu CK, Wu MY, Cho RL, Yang CM*. Resveratrol inhibits Staphylococcus aureus-induced TLR2/MyD88/NF- κ B-dependent VCAM-1 expression in human lung epithelial cells. Clin Sci (Lond). 2014 Sep;127(6):375-90. (#equal contribution) (R/C=16/124, MEDICINE, RESEARCH & EXPERIMENTAL)
4. **Lee IT#**, Lin CC#, Wang CH, Cherng WJ, Wang JS, Yang CM*. ATP stimulates PGE2/cyclin D1-dependent VSMCs proliferation via STAT3 activation: Role of PKCs-dependent NADPH oxidase/ROS generation. Biochem Pharmacol. 2013 Apr 1;85(7):954-64. (#equal contribution) (R/C=18/255, PHARMACOLOGY & PHARMACY)
5. Cheng SE#, **Lee IT#**, Lin CC, Hsiao LD, Yang CM*. Thrombin induces ICAM- 1 expression in human lung epithelial cells via c-Src/PDGFR/PI3K/Aktdependent NF- κ B/p300 activation. Clin Sci (Lond). 2014 Aug 1;127(3):171-83. (#equal contribution) (R/C=16/124, MEDICINE, RESEARCH & EXPERIMENTAL)

106 年 3 月 26 日（日）15:30-16:00
三樓，第 32 教室

研究白藜蘆醇對抗細懸浮微粒 PM2.5 誘發人類滑液膜中纖維母細胞發炎之保護機轉

Resveratrol Inhibits Urban Particulate Matter-induced COX-2/PGE2 Release in Human Fibroblast-like Synoviocytes via the Inhibition of Activation of NADPH Oxidase/ROS/NF-κB.

Human fibroblast-like synoviocytes (FLSs) play a role in joint synovial inflammation in rheumatoid arthritis (RA). Few studies showed that particulate matter (PM) air pollution could augment progression of RA. However, this still needs more research to clarify the mechanism. Up-regulation of cyclooxygenase (COX)-2 and its metabolite prostaglandin E2 (PGE2) are implicated in various inflammatory diseases. Resveratrol, a polyphenol found mainly in grapes and red wine, has antioxidant and anti-inflammatory activities. Here, we showed that resveratrol reduced PM-induced COX-2/PGE2 expression in human FLSs. We observed that resveratrol attenuated PM-enhanced NADPH oxidase activity and ROS generation. In addition, PM induced Akt, ERK1/2, or p38 MAPK activation, which was inhibited by resveratrol. Finally, we demonstrated that PM enhanced NF-κB p65 phosphorylation and NF-κB promoter activity, which were reduced by pretreatment with the ROS inhibitor or resveratrol. Thus resveratrol functions as a suppressor of PM-induced inflammatory signaling pathways by inhibiting COX-2/PGE2 expression.

S44

Speaker / 許書豪
Shu-Hao Hsu

■Current Position:
Assistant Professor/ 助理教授

■Education/Training:
19972001 B.S., Department of Zoology, National Taiwan University, Taiwan
2001-2003 M.S., Department of Anatomy and Cell Biology, National Taiwan University, Taiwan
2006-2012 Ph.D., Molecular, Cellular, and Developmental Biology Program, The Ohio State University, USA

■Professional and Research Experience:
2013-2015 Postdoctoral Associate in Department of Pathology, McGowan Institute of Regenerative Medicine, University of Pittsburgh, USA
2015- Present Assistant Professor in Department of Anatomy and Cell Biology, National Taiwan University, Taiwan

■Awards and Honors:
2014 Invited speaker in Federation of American Societies for Experimental Biology (FASEB) science research conference: liver biology
2011 Scholar-in-Training Award in American Association for Cancer Research (AACR) 102th annual meeting

■Selected Publications:
1. Hsu SH, Delgado ER, Otero PA, Teng KY, Kutay H, Meehan KM, Moroney JB, Monga JK, Hand NJ, Friedman JR, Ghoshal K, Duncan AW. (2016) MicroRNA-122 Regulates Polyploidization in the Murine Liver. **Hepatology**. Aug;64(2):599-615.
2. Hsu SH, Wang B, Kutay H, Bid H, Shreve J, Zhang X, Costinean S, Bratasz A, Houghton P, Ghoshal K.(2013) Hepatic loss of miR-122 predisposes mice to hepatobiliary cyst and HCC upon diethylnitrosamine exposure. **Am J Pathol.** Dec;183(6):1719-30.
3. Wang B, Hsu SH, Wang X, Kutay H, Bid HK, Yu J, Ganju R, Jacob S, Yuneva M, Ghoshal K. (2013) Reciprocal regulation of miR-122 and c-Myc in hepatocellular cancer: Role of E2F1 and TFDP2. **Hepatology**. Feb;59(2):555-66.
4. Hsu SH, Yu B, Wang X, Lu Y, Schmidt CR, Lee RJ, Lee LJ, Jacob ST, Ghoshal K. (2013) Cationic lipid nanoparticles for therapeutic delivery of siRNA and miRNA to murine liver tumor. **Nanomedicine**. Nov;9(8):1169-80
5. Hsu SH, Wang B, Kota J, Yu J, Costinean S, Kutay H, Yu L, Bai S, La Perle K, Chivukula RR, Mao H, Wei M, Clark KR, Mendell JR, Caligiuri MA, Jacob ST, Mendell JT, Ghoshal K. (2012) Essential metabolic, anti-inflammatory and anti-tumorigenic functions for miR-122 in mouse liver. **J Clin Invest**. Aug; 122 (8).

106 年 3 月 26 日（日）16:00-16:30
三樓，第 32 教室

MicroRNA-122 調控肝臟細胞染色體多倍化之分子機制

The Regulatory Role of MicroRNA-122 in Liver Polyploidization

Mammalian liver is featured with polyploidy, a numerical increase to the entire set of chromosomes per cell, affecting ~90% of hepatocytes in mice and 50% in humans. The normal liver polyploidization initiates during early liver development, a period when diploid/euploid hepatocytes undergo cytokinesis failure and generate binucleate polyploid hepatocytes after cell division. The goal of our study was to identify novel signals that regulate polyploidization, and we focused on microRNAs (miRNAs). First, to determine the role of miRNAs in the regulation of hepatic polyploidy, we examined the ploidy profiles of the livers from Dicer1 liver-specific knockout mice, in which mature miRNAs were globally depleted. The deficiency of miRNAs dramatically reduced the number of binucleate hepatocytes, indicating that miRNAs is essential to liver polyploidization. Second, a survey of age dependent expression of miRNAs in wild-type mice highlighted a subset of miRNAs, including miR-122, that is increasingly expressed at 2-3 weeks, a period when liver binucleation occurs. These findings prompted us to examine Mir122 knockout mice and observed a profound, lifelong depletion of polyploid hepatocytes; this ploidy defect was further ameliorated by adenovirus-mediated overexpression of miR-122 in vivo and in vitro, proving the critical role miR-122 plays in liver polyploidization. Finally, we identified six direct targets of miR-122 (Cux1, Rhoa, Iqgap1, Mapre1, Nedd4l, and Slc25a34) that regulate cytokinesis. Inhibition of these six target genes induced failed cytokinesis and promoted hepatic binucleation. Taken together, our data demonstrate that liver-specific miR-122 is both necessary and sufficient in hepatic polyploidization, and these studies will be fundamental to the future investigation on the role of miR-122 in liver maturation, homeostasis, and diseases.

S45

Speaker / 林俊彥
Chun-Yen Lin

■Current Position:
Department of Internal Medicine, Chang Gung Memorial Hospital, Linkou Medical Center; Chang Gung Univerity/
長庚醫院林口醫學中心內科部　副部長；長庚大學醫學系　教授

■Education/Training:
1980-1987　M.D. Taipei Medical University, Taiwan
1997-2002　D.Phil. Sir William Dunn School of Pathology, University of Oxford, UK

■Professional and Research Experience:
1989-1994　Resident Physician, Department of Medicine and Department of Gastroenterology, Chang Gung Memorial Hospital, Linkou Medical Center
2011-2015　Associate Chairperson, School of Medicine, College of Medicine; Chang Gung University
2014-2016　Chief, Department of Hepatology, Chang Gung Memorial Hospital, Linkou Medical Center

■Awards and Honors:
2011　Research Award, Chang Gung University
2012　Teaching Award, Chang Gung Memorial Hospital
　　Research Award, NSC, Taiwan
2013　Research Award, NSC, Taiwan

■Selected Publications:
1. Kang CW, Dutta A, Chang LY, Mahalingam J, Lin YC, Chiang JM, Hsu CY, Huang CT, Su WT, Chu YY, **Lin CY***. Apoptosis of tumor infiltrating effector TIM-3+CD8+ T cells in colon cancer. Scientific Reports. 2015; 5: 15659.
2. Chang LY, Lin YC, Chiang JM, Mahalingam J, Su SH, Huang CT, Chen WT, Huang CH, Jeng WJ, Chen YC, Lin SM, Sheen IS, **Lin CY*.** Blockade of TNF-α signaling benefits cancer therapy by suppressing effector regulatory T cell expansion. Oncoimmunology, 2015: 4 (10), e1040215
3. Lin YC, Mahalingam J, Chiang JM, Su PJ, Chu YY, Lai HY, Fang JH, Huang CT, Chiu CT, **Lin CY***. Activated but not resting regulatory T cells accumulated in tumor microenvironment and correlated with tumor progression in patients with colorectal cancer. Int. J. Cancer; 2013; 132(6):1341-50.
4. Mahalingam J, Lin YC, Chiang JM, Su PJ, Chu YY, Lai HY, Fang JH, Huang CT, Chiu CT, **Lin CY***. LAP+CD4+ T cells are suppressors accumulated in the tumor sites and associated with the progression of colorectal cancer. Clinical Cancer Research. 2012:18(19); 1–10
5. Chang LY, Lin YC, Mahalingam J, Huang CT, Chen TW, Kang CW, Peng WM, Chu YY, Chiang JM, Dutta A, Day YJ, Chen TC, Yeh CT, **Lin CY***. Tumor-derived chemokine CCL5 enhances TGF-β mediated killing of CD8+ T cells in colon cancer by T regulatory cells. Cancer Research. 2012; 72: 1092-1102.

106 年 3 月 26 日（日）14:30-15:00
二樓，第 20 教室

藉由突破腫瘤微環境的免疫耐受性來達成腫瘤的免疫治療

Breaking Down the Tolerogenic Tumor Microenvironment for Tumor Immunotherapy

Cancer treatment is still a nightmare for the clinicians and patients alike though huge amount of resources had been invested to develop new treatment strategies. Tumor immunotherapy had been proposed to be a possible strategy to treat cancer patients for more than 50 years. A lot of efforts had been investigated in the tumor immunotherapies in the hope of finding out the Holy Grail for the treatment of cancer during this time. With initial long-term disappointment, new treatment strategies focusing some inhibitory molecules like CTLA-4 and PD1 had really given some progress and had invoked huge responses from either medical sector, pharmaceutical sector and even investment sector, even the clinical responses by these strategies was still far from satisfaction.

Recently, an issue about tumor microenvironment becomes an important study subject for the tumor immunologist. In this presentation, the idea of active role of tumor in forging the “inflamed” tumor microenvironment will be discussed. In addition, some efforts done in our lab to breakdown the tolerogenic tumor microenvironment like blocking the chemokine/chemokine receptor interaction, TNF-α/TNFR interaction and reversing the phenotype of immune cells in tumor microenvironment like apoptotic CD8+T cells and inhibitory myeloid derived suppressor cells will be discussed as well.

S46

Speaker / 黃麗蓉
Li-Rung Huang

■Current Position:
Assistant Investigator, Institute of Molecular and Genomic Medicine, NHRI /
國家衛生研究院 助研究員

■Education/Training:
1991-1996 B.V.M. National Chung-Hsing University, Taiwan
1996-1998 M.S. Graduate Institute of Immunology, National Taiwan University, Taiwan (NTU)
2000-2007 Ph.D. Graduate Institute of Microbiology, National Taiwan University, Taiwan

■Professional and Research Experience:
1998-2000 Research Assistant, Institute of Molecular Biology, Academia Sinica, Taiwan
2007-2008 Postdoctoral fellow, Graduate Institute of Clinical Medicine, NTU
2008-2013 Postdoctoral fellow, Institute of Molecular Medicine and Experimental Immunology, University of Bonn, Germany
2013- Assistant Investigator, Institute of Molecular and Genomic Medicine, National Health Research Institutes, Taiwan

■Awards and Honors:
1998 Shen Fong-Wen Award for excellent master student
2007 Award for excellent Ph.D. thesis, Liver Disease Prevention &Treatment Research Foundation
The 17th Annual Wang Ming-Ning Award for medical Ph.D. thesis
2004, 2005 Travel grant awards, International Meeting on the Molecular Biology of Hepatitis B Viruses
2007, 2010 Travel grant awards, International Meeting on the Molecular Biology of Hepatitis B Viruses
2011,2012 Travel grant awards, International Meeting on the Molecular Biology of Hepatitis B Viruses
2011 BONFOR research prize, Research Commission of Medical School of University of Bonn, Germany (2011)

■Selected Publications:
1. Knolle, P.A., Böttcher, J., Huang, L.R. The role of hepatic immune regulation in systemic immunity to viral infection. ***Med. Microbiol. Immunol.*** 204:21-7, 2015
2. Huang, L.R., Wohlleber, D., Reisinger, F., Jenne, C.N., Cheng, R.L., Abdullah, Z., Schildberg, F.A., Odenthal, M., Dienes, H.P., van Rooijen, N., Schmitt, E., Garbi, N., Croft, M., Kurts, C., Kubes, P., Protzer, U., Heikenwalder, M. and Knolle, P.A. Intrahepatic myeloid-cell aggregates enable local proliferation of CD8 T cells and successful immunotherapy against chronic viral liver infection. ***Nat Immunol.*** 14:574-583, 2013
3. Krebs, K., Böttinger, N., Huang, L.R., Chmielewski, M., Arzberger, S., Gasteiger, G., Jäger, C., Schmitt, E., Bohne, F., Aichler, M., Uckert, W., Abken, H., Heikenwalder, M., Knolle, P.A. and Protzer, U., T cells expressing a chimeric antigen receptor that binds Hepatitis B virus envelop proteins control virus replication in mice. **Gastroenterology**, 145:456-65, 2013
4. Huang, L.R., Gäbel, Y.A., Graf, S., Arzberger, S., Kurts, C., Heikenwalder, M., Knolle, P.A., and Protzer, U. Transfer of HBV genomes using low doses of adenovirus vectors leads to persistent infection in immune competent mice, **Gastroenterology** 142:1447-50, 2012
5. Huang, L.R., Wu, H.L., Chen, P.J. and Chen, D.S., An immunocompetent mouse model for the tolerance of human chronic hepatitis B virus infection. **Proc Natl Acad Sci U S A**. 103: 17862-67, 2006

106 年 3 月 26 日（日）15:00-15:30
二樓，第 20 教室

Chinese Title：需氧糖解作用能預防骨髓衍生抑制細胞內活性氧化物質所造成之細胞凋零以調節其擴增

Aerobic Glycolysis Regulates the Expansion of Myeloid-derived Suppressor Cells in Tumor-bearing Hosts through Prevention of ROS-mediated Apoptosis.

Immunotherapy aiming to rescue or boost anti-tumor immunity is an emerging strategy for management of various cancers. The efficacy of immunotherapy is strongly controlled by the immunological milieu of cancer patients. Myeloid-derived suppressor cells (MDSCs) are heterogeneous immature myeloid cell populations with immunosuppressive functions accumulating in individuals during tumor progression. The signaling mechanism of MDSC activation has been well studied, however, there is little known about the metabolic status of MDSCs and the physiological role of their metabolic reprogramming. In this study, we discovered that myeloid cells up-regulated their glycolytic genes when encountered tumor-derived factors. MDSCs exhibited higher glycolytic rate than their normal cell compartment did, which contributed to the proliferation and survival of the MDSCs in tumor-bearing hosts. Boosting glycolysis prevented excess ROS production, which further protected MDSCs from apoptosis. Most importantly, we identified the glycolytic metabolite, phosphoenolpyruvate (PEP), as a vital anti-oxidant agent able to prevent excess ROS production and therefore contributed to the survival of MDSCs. Consequently, targeting MDSCs with analogs of specific glycolytic metabolites, e.g. 2-PG or PEP may diminish the accumulation of MDSCs and reverse the immunosuppressive milieu in tumor-nearing individuals. These findings suggest that glycolytic metabolites play important roles in modulation of fitness of MDSCs and could be potential targets for anti-MDSC strategy.

S47

Speaker / 陶秘華
Mi-Hua Tao

■Current Position:
Institute of Biomedical Sciences, Academia Sinica/ 中央研究院生物醫學研究所　研究員

■Education/Training:
1979-1983　B.S. National Taiwan University, Taipei, Taiwan
1985-1986　Master, Microbiology&Immunology, Columbia University, New York, U.S.A.
1985-1990　Ph.D., Microbiology&Immunology, Columbia University, New York, U.S.A.
1990-1993　Postdoctoral fellow, Oncology,Stanford University, U.S.A.

■Professional and Research Experience:
1997-1999　Coordinator, Division of Cancer Research, IBMS, Academia Sinica
1993-1998　Assistant Research Fellow, IBMS, Academia Sinica, Taipei, Taiwan
1998-2004　Associate Research Fellow, IBMS, Academia Sinica, Taipei, Taiwan
2005-2006　Coordinator, Division of Infectious Disease and Immunology, IBMS, Academia Sinica
2004-　present Research Fellow, IBMS, Academia Sinica, Taipei, Taiwan
2006-2008　Deputy Director, IBMS, Academia Sinica

■Awards and Honors:
1999 -　Research Award for Junior Research Investigators, Academia Sinica, Taipei, Taiwan (中央研究院年輕學者研究著作獎)
2000　Outstanding Research Award, National Science Council, Taiwan (國科會傑出研究獎)
2001　ISI Citation Classic Award for "Most-Cited Papers" from 1981-1999 in Taiwan. ISI Thomson Scientific and National Science Council, Taiwan. (ISI 台灣經典引文獎，台灣地區 1981-1999 年引用次數最多的 20 篇論文)
2003　Outstanding Research Award, National Science Council, Taiwan (國科會傑出研究獎)
2005　Chief Meeting Organizer, Symposium of Gene Therapy: Current Progress and Prospects, Taipei, Taiwan
2010　Co-chairs, Genetic Therapeutics session, Taiwan-ACGA 2010 International Conference on Genetic and Genomic Medicine, May 2-5, 2010, Academia Sinica, Taipei, Taiwan

■Selected Publications:
1. Chen, C. C., C. M. Chang, C. P. Sun, C. P. Yu, P. Y. Wu, K. S. Jeng, C. P. Hu, P. J. Chen, J. C. Wu, C. Shih, M. E. Gershwin, & M. H. Tao*. (2012) U*se of RNA Interference to Modulate Liver Adenoma Development in A Murine Model Transgenic for Hepatitis B Virus*. **Gene Ther** 19:25-33.
2. Pan, W. Y., C. H. Lo, C. C. Chen, P. Y. Wu, S. R. Roffler, S. K. Shyue, & M. H. Tao*. (2012) *Cancer immunotherapy using a membrane-bound interleukin 12 with B7-1 transmembrane and cytoplasmic domains*. **Mol. Ther**. 20:927-37
3. Sun, C. P., T. H. Wu, C. C. Chen, P. Y. Wu, Y. M. Shih, K. Tsuneyama & M. H. Tao*. (2013) *Studies of Efficacy and Liver Toxicity Associated With AAV-mediated RNA Interference*. **Human Gene Ther** 24:739-50.
4. Shih, Y. M., C. P. Sun, H. H. Chou, T. H. Wu, C. C. Chen, P. Y. Wu, Y. C. Chen, K. D. Bissig & M. H. Tao. (2015) *Combinatorial RNA interference therapy prevents selection of pre-existing HBV variants in human liver chimeric mice*. **Sci Rep** 5:15259
5. Zhang, T. Y., Q. Yuan, J. H. Zhao, Y. L. Zhang, L. Z. Yuan, Y. Lan, Y. C. Lo, C. P. Sun, C. R. Wu, J. F. Zhang, Y. Zhang, J. L. Cal, X. R. Guo, X. Liu, X. B. Mo, W. X. Luo, T. Cheng, Y. X. Chen, M. H. Tao, J. W. Shih, Q. J. Zhao, J. Zhang, P. J. Chen, Y. A. Yuan & N. S. Xia. (2016) *Prolonged suppression of HBV in mice by a novel antibody that targets a unique epitope on hepatitis B surface antigen*. **Gut** 65: 658-71.

106 年 3 月 26 日（日）15:30-16:00
二樓，第 20 教室

合併放射線和免疫治療以增加癌症治療效果

Synergistic Antitumor Effect by Radiation and Cancer Immunotherapy

Traditionally, it is thought that the effect of radiation therapy (RT) is mediated via radiation-induced DNA double-strand breaks and induction of apoptosis of tumor cells and stromal cells. However, recent studies in animal models showed that the success of RT in controlling local tumor regression also depend upon RT-induced innate and adaptive immune responses. In addition to induce the local antitumor effect, in some rare circumstances, RT can also mediate tumor regression at a site in non-irradiated area, a phenomenon called “abscopal effect”. Evidence suggests that the immune system may play an important role in this radiation-induced systemic antitumor event. Tumor employs several immunosuppressive mechanisms in its microenvironment to prevent antitumor immune responses. These include soluble factors, such as immunosuppressive cytokines (IL-10, TGF-β) and immunosuppressive cells, such as regulatory T cells and a variety of tumor-associated myeloid cells. In this immunosuppressive environment it is very challenging to elicit an effective antitumor immunity which can reliably induce sustained control of the primary tumors and prevent occurrence of metastasis. We reason that radiation could play an important role in modulating the immunosuppressive microenvironment towards an environment able to support effective immunity by releasing tumor antigens from dead tumor cells, providing inflammatory signals and eliminating immunoregulatory cells. We propose to apply immunostimulating adjuvants during or right after RT to further enhance the antitumor immune responses, which not only can help induce regression of the locally treated tumors, but may also have a systemic anti-metastatic effect. In this presentation, I will use three murine cancer models, including an orthotopic hepatocellular carcinoma model, a colon cancer liver metastasis model, and an oncogen-driven spontaneous mammary gland tumor model, to demonstrate the antitumor efficacy of radiation and immunotherapy combination effect.

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Speaker / 吳漢忠
Han-Chung Wu

■**Current Position:**
Institute of Cellular and Organismic Biology, Academia Sinica/
中央研究院細胞與個體生物學研究所　研究員

■**Education/Training:**

1984-1988　B.S., Department of Biology, National Cheng-Kung University
1988-1990　M.S., Institute of Biochemistry, College of Medicine, National Taiwan University
1990-1993　Ph.D., Institute of Pathology, College of Medicine, National Taiwan University

■**Professional and Research Experience:**

2001-2005　Assistant & Associate Professor in Institute of Pathology; and Graduate Institute of Oral Biology, College of Medicine, National Taiwan University
2005-2009　Associate Research Fellow in Institute of Cellular and Organismic Biology, Academia Sinica
2010-2016　Vice Director in Institute of Cellular and Organismic Biology, Academia Sinica
2010-　present Research Fellow in Institute of Cellular and Organismic Biology, Academia Sinica
2016-　present　Director, Department of Intellectual Property and Technology Transfer, Academia Sinica

■**Awards and Honors:**

2015-2018　MOST Outstanding Research Award, MOST, Taiwan (2015 科技部傑出研究獎)
2015　侯金堆傑出榮譽獎
　　Taiwan Bio-development Foundation Award (2015 台灣生技醫藥發展基金會 TBF 生技講座)
2011-2014　NSC Outstanding Research Award, NSC, Taiwan (2011 國科會傑出研究獎)
2010　Yung-Shing Young Investigator Award (2010 年第五屆永信李天德醫藥科技獎)

■**Selected Publications:**

1. Kuan, I. I., Liang, K. H., Wang, Y. P., Kuo, T. W., Meir, Y. J. J., Wu, S. C. Y., Lu, J., and **Wu, H. C.*** (2017). EpEX/EpCAM and Oct4 or KLF4 alone are sufficient to generate induced pluripotent stem cells through STAT3 and HIF2α. ***Scientific Reports*** (Accepted).
2. Yeh, C. Y., Hsiao, J. K., Wang, Y. P., Lan, C. H. and **Wu, H. C.*** (2016). Peptide-conjugated nanoparticles for targeted imaging and therapy of prostate cancer. ***Biomaterials*** 94, 31-44.
3. Wu, C. H., Kuo, Y. H., Hong, R. L., **Wu, H. C.*** (2015). A New α-Enolase-Binding Peptide Enhances Drug Delivery Efficiency and Therapeutic Efficacy Against Colorectal Cancer. ***Science Translational Medicine*** 7, 290ra91, 1-14.
4. Liao, M. Y., Lai, J. K., Kuo, M. Y. P., Lu, R., Lin, C. W., Cheng, P. C., Liang, K. H., **Wu, H. C.*** (2015). An anti-EpCAM antibody EpAb2-6 for the treatment of colon cancer. ***Oncotarget*** 6, 24947-24968.
5. Tang, C.T., Li, P. C., Liu, I. J., Liao, M. Y., Chiu, C. Y., Chao, D. Y., and **Wu, H. C.*** (2015). An Epitope-Substituted DNA Vaccine Improves Safety and Immunogenicity against Dengue Virus Type 2. ***PLoS Negl Trop Dis*** 9, e0003903.

106 年 3 月 26 日（日）16:00-16:30
二樓，第 20 教室

研發人類抗體技術運用於癌症的影像醫學及治療

Development of Human Antibodies for Cancer Diagnostic and Therapeutic Applications

Epithelial cell adhesion molecule (EpCAM) is known to be overexpressed in epithelial-transformed neoplasia and tumor-intiated cells (TICs). However, its role on gene regulation and tumorigenesis in TICs remains unclear. Here we show that elevations of EpCAM and reprogramming factors (c-Myc, Oct4, Nanog, and Sox2) were expressed concomitantly in TICs. We found that EpCAM regulates reprogramming factors and EMT gene expressions, thereby promoting tumor invasion, self-renewal, and initiation abilities. Gene regulation by EpCAM was mediated through the release of extracellular domain (EpEX) and the nuclear translocation of intracellular domain (EpICD). EpICD translocates into the nuclei, bind to the promoters and activates expression of reprogramming genes, which is critical in tumorigenesis. Collectively, the EpCAM plays an important role in regulating the expression of reprogramming genes and EMT factors, and possesses the cancer-initiating and -perpetuating abilities in TICs, which suggests possible new strategies for cancer therapy.

Recently, we have generated six novel monoclonal antibodies (mAbs), which specifically bind to cancer cells, but not to normal cells. One EpCAM mAb, EpAb2-6, was found to induce cancer cell apoptosis in vitro, inhibit tumor growth, and prolong the overall survival of mice with human colorectal, pancreatic or oral carcinoma xenografts. EpAb2-6 also increases the therapeutic efficacy of irinotecan, fluorouracil, and leucovorin (IFL) therapy in tumor-bearing mice. Furthermore, EpAb2-6 inhibits production of the EpCAM intracellular domain (EpICD), thereby decreasing 鯰-catenin translocation into the nucleus, while activating expression of p53 and p21. Subsequent analysis indicated that EpAb2-6 can potentially inhibit the growth and proliferation of tumorspheres.

Recently, we have generated a high quality phage-displayed human single chain variable fragment (scFv) antibody library with complexity exceeding 6 × 1010 transformants. This library can be utilized to identify human antibodies that specifically bind to cancer-targeted proteins, such as VEGFR2. We employed affinity maturation to improve the binding affinity of anti-VEGFR2 mAbs and engineered it into a fully human antibody. Compared to IMC-1121B (an anti-VEGFR2 mAb approved by FDA, April 2014), our anti-VEGFR2 human IgG possessed superior ability to inhibit VEGF-A signaling and increase therapeutic efficacy for treatment of cancer. Collectively, our results indicate that these novel humanized and human mAbs can potentially be used for cancer immune therapy and molecular imaging.

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106 年 3 月 26 日（日）14:30-15:00
二樓，第 28 教室

精準醫學與分子影像應用於癌症研究的現況與未來

Precision Medicine and Molecular Imaging: New Approaches toward Cancer Diagnosis and Therapeutic

Speaker / 張志賢
Chih-Hsien Chang

■Current Position:
Division of Isotope Applications, Institute of Nuclear Energy Research/
核能研究所同位素應用組　研究員兼組長

■Education/Training:
2001-2006　Ph.D. Pharmacology, National Yang Ming University, Taipei, Taiwan
1991-1993　M.S. Microbiology and Immunology, National Yang Ming University, Taiwan
1987-1991　B.S. Biology, National Cheng Kung University, Tainan, Taiwan

■Professional and Research Experience:
2016-　present　Researcher, Institute of Nuclear Energy Research
2007-2016　Associate Researcher, Institute of Nuclear Energy Research
2000-2007　Assistant Researcher, Institute of Nuclear Energy Research

Precision medicine is progressively becoming a hot topic related to biomedical investigation and clinical practice. Over the past decade, the widespread use of nuclear molecular imaging has proven to improve the efficiency in selecting the candidate drugs that should either be abandoned or moved forward into clinical trials. This helps not only with the development of safer and effective drugs but also with the shortening of time-to-market. In this brief talk, we will review applications of nuclear molecular imaging in Drug Development, especially the core technologies and efforts of Institute of Nuclear Energy Research (INER) in this field.

■Selected Publications:

1. Lin LT, Chang CY, **Chang CH**, Wang HE, Chiou SH, Liu RS, Lee TW, Lee YJ.Involvement of let-7 microRNA for the therapeutic effects of Rhenium-188-embedded liposomal nanoparticles on orthotopic human head and neck cancer model. Oncotarget. 2016 7(40):65782-65796.
2. Chang CC, **Chang CH**, Shen CC, Chen CL, Liu RS, Lin MH, Wang HE. Synthesis and characterization of a novel radioiodinated phenylacetamide and its homolog as theranostic agents for malignant melanoma. Eur J Pharm Sci. 2016 81:201-9
3. **Chang CH**, Liu SY, Chi CW, Yu HL, Chang TJ, Tsai TH, Lee TW, Chen YJ. (2015) External beam radiotherapy synergizes 188Re-liposome against human esophageal cancer xenograft and modulates 188Re-liposome pharmacokinetics. *Int J Nanomedicine*. 19(10):3641-9.
4. Chang CC, **Chang CH**, Shen CC, Chen CL, Liu RS, Lin MH, Wang HE. (2015) Synthesis and evaluation of $^{123/131}$I-Iochlonicotinamide as a novel SPECT probe for malignant melanoma. *Bioorg Med Chem*. 23(9):2261-9.
   Huang FY, Lee TW, **Chang CH**, Chen LC, Hsu WH, Chang CW, Lo JM. (2015) Evaluation of 188Re-labeled PEGylated nanoliposome as a radionuclide therapeutic agent in an orthotopic glioma-bearing rat model. *Int J Nanomedicine* 9(10) 463-7.
5. **Chang CH**, Liu SY, Lee TW. (2014) Pharmacokinetics of BMEDA after intravenous administration in beagle dogs. *Molecules* 19(1):538-49.

S50

Speaker / 羅彩月
Tsai-Yueh Luo

■Current Position:
Research Scientist and Vice Head of Isotope Application Division at INER/
研究員兼同位素組　副組長

■Education/Training:
1984 Bachelor, School of Pharmacy, National Taiwan University, Taipei
1991 Master, Institute of Pharmacology, National Taiwan University, Taipei
2004 Ph.D., Institute of Pharmacology, National Taiwan University, Taipei

■Professional and Research Experience:
1985-1990 Pharmacist: National Taiwan University Hospital
1991-2006 Assistant Researcher: Isotope Application Division, INER
2007-2016 Associate Researcher: Isotope Application Division, INER
2016-now Researcher: Isotope Application Division, INER

■Awards and Honors:
Award of 11th Innovation

■Selected Publications:

1. Cheng CC , Guan SS , Yang HJ , Chang CC , **Luo TY** , Chang J , Ho AS Blocking heme oxygenase-1 by zinc protoporphyrin reduces tumor hypoxia-mediatedVEGF release and inhibits tumor angiogenesis as a potential therapeutic agent against colorectal cancer. J Biomedical Sci. 2016; 23:18
2. **Tsai-Yueh Luo**, PC Cheng, PF Chiang, YL Wu, CH Yeh, CK Fan and WJ Lin. 188Re-HYNIC- trastuzumab enhances the effect of apoptosis induced by trastuzumab in HER2- overexpressing breast cancer cells. *Ann Nucl Med*. 2015, 29: 52-62.
3. Guan SS, Chang JS, Cheng CC, **Luo TY**, Ho AS, Wang CC, Wu CT, Liu SH. Afatinib and its encapsulated polymeric micelles inhibits HER2-overexpressed colorectal tumor cell growth in vitro and in vivo. *Oncotarget*. 2014, 5(13), 4868-80.
4. Cheng PC, Huang CC, Chiang PF, Lin CN, Li LL, Lee TW, Lin B, Chen IC, Chang KW, Fan CK, **Luo TY**. Radioprotective effects of Antrodia cinnamomea are enhanced on immune cells and inhibited on cancer cells. *Int J Radiat Biol*. 2014 Apr 8. [Epub ahead of print]
5. Ho AS, Chen CH, Cheng CC, Wang CC, Lin HC, **Luo TY**, Lien GS, Chang J. Neutrophil elastase as a diagnostic marker and therapeutic target in colorectal cancers. *Oncotarget*. 2014 Jan 30;5(2):473-80.

106 年 3 月 26 日（日）16:00-16:30
二樓，第 28 教室

核能研究所診療用核醫藥物之研發現況

Status of the Thernostic Radiopharmaceuticals Development at INER

Institute of Nuclear Energy Research (INER) has been engaged in the development of new thernostic radiopharmaceuticals from new imaging tracers to expanded use of radionuclide therapy to improve the healthcare.

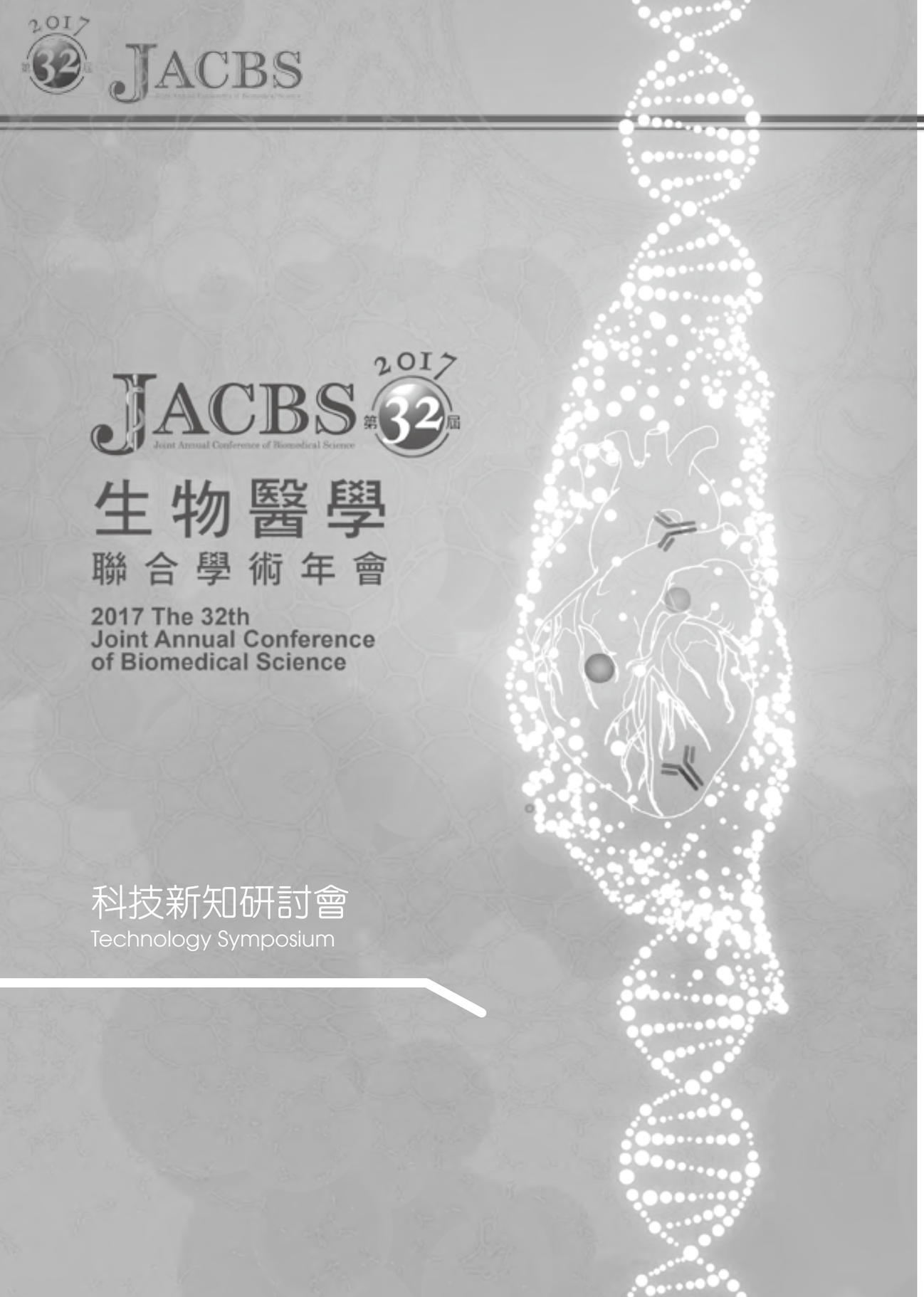
Cancer is the leading death causes in the world as well as in Taiwan. Early detection and combined therapy is the trends of cancer management in the future. INER has developed different approaches for the diagnosis and treatment of cancers precisely.188Re-liposome is a novel liposomal therapeutic coupling radioisotope, 188Re, developed by Institute of Nuclear Energy Research (INER). Given the encouraging results of preclinical efficacy and toxicity studies, an exploratory investigational new drug (eIND) study for evaluation of distribution, pharmacokinetics and safety of 188Re-liposome had been conducted. Among the 12 evaluable patients, two of them showed tumor response. Based on the positive results, a phase I trial to determine the maximum tolerated dose (MTD) and safety of 188Re-liposome was proposed for treatment of metastatic cancer patients who failed or cannot tolerate standard chemotherapy. The study is cooperated and kept going with Taipei Veterinary General Hospital. H3MN-16ET is a suitable tetradentate ligand for 188Re isotope labeling and shows good lipophilicity in Lipiodol. The animal data demonstrate that 188Re-MN-16ET/Lipiodol has a high tumor accumulation in the hepatoma rat model. The clinical trial application of 188Re-MN-16ET/Lipiodol for hepatoma treatment was approved by TFDA and will be cooperated with National Taiwan University Hospital in this year.

DOTA-NIR790, based on a heptamethine cyanine-based dye, has been synthesized and evaluated in animal cancer model. The results showed that DOTA-NIR790 has the potential to be a cancer-targeted multimodal probe for the detection of cancer with near infrared fluorescent (NIRF) and nuclear medicine imaging. Carbonic anhydrase 9 (CA9) has been proven to be overexpressed in tumor hypoxia area. We screened several sulfonamide compounds to evaluate the potential of binding to CA9 and labeled with a radioisotope for the detection of tumor hypoxia. The preliminary data showed sulfonamide has the imaging efficacy for this hypoxia in an animal model of colorectal cancer (CRC).

Alzheimer's disease is a common form of neurodegeneration. FEONM is one of the new radiopharmaceutical designed by INER which could be labeled with radionuclide 18F to monitor the expression of Aβ plaque and tau protein. We proved that radio-fluorination to the precursor of FEONM is very rapid in the kinetic studies. The preliminary experiment showed that 18F-FEONM could be distributed in the AD rat brain. Further animal studies will be performed to evaluate the potential of 18F-FEONM to be a brain imaging agent.

Histone deacetylases (HDACs) expression level in human has been correlated with several forms of neurodegenerative diseases. A series of the new HDACi chemicals were designed and evaluated in rat model. MicroPET/CT studies in rats showed that 18F- Fluoroethyl-INER1577 could penetrate BBB and shows the potential to be a HDAC imaging agent.

We will keep on developing new radiopharmaceuticals for the clinical needs. The cooperation among INER and the physicians in clinic and scientists in the different research fields will be continually enhanced to expand the nuclear medicine application.



科技新知研討會

T1

演講題目 \

小兵立大功—

斑馬魚如何扮演對抗人類疾病的先驅英雄

Speaker：
喻秋華
國家衛生研究院 分子與基因醫學研究所 研究員

國立陽明醫學院 / 微生物及免疫學研究所博士
國立清華大學 / 生物資訊與結構生物研究所兼任教授

Moderator：
喻秋華
國家衛生研究院 分子與基因醫學研究所 研究員

時　間：106 年 3 月 25 日（六）12:30-13:30
地　點：一樓，第 1 教室
單　位：財團法人國家衛生研究院－
斑馬魚核心設施

疾病研究和新藥開發都要使用各種動物做實驗，小鼠等哺乳類動物成本昂貴、生命週期長、體內發育不易觀察，使得此類研究有其相當的困難。斑馬魚由於其具有的優點如體外受精、體外發育、繼代快、成本低且基因組與人類有 87% 高度同源性，已成為研究人類疾病的熱門模式。

從 2015 年 5 月開始臺灣斑馬魚核心設施加上兩個研究單位，成立「臺灣斑馬魚核心設施 - 人類疾病模式中心」，擴大服務理念，發展前瞻技術並提供一站式服務，完成 3 件基因剔除魚、2 件 TALEN 介導基因敲除魚利用 Tol2 Gateway 產生 17 個質體、斑馬魚評估黑色素生成試驗 7 件、以以斑馬魚進行減肥測試 42 件、協助客戶篩選出抗骨質疏鬆症藥物 4 件、完成 7 件抗血管新生作用的分析、完成 5 件發育缺陷的分析、11 件患者衍生異種移植藥物篩選平台協助客戶篩選藥物、2 件斑馬魚藥物篩選平台 - 肝毒性、5 件共軛焦顯微鏡影像擷取、此外也提供 11 件原位雜交、16 件 Zebrafish tissues preparation。未來我們將繼續發展斑馬魚行為及神經退化模式，最終能提供全套客製化解決斑馬魚研究之方案。預期能提昇國內斑馬魚研究的深度與廣度，且質量並重。期待未來最終能成立一家「一站式」全方位生技服務公司，協助客戶群使用斑馬魚來解決各項所關注的生物醫學議題。

在癌症研究中，懸而未決的問題的是基因組的複雜性和藥物抗性，長期藥物治療控制癌症是一項重大挑戰。本技術利用患者衍生異種移植模式結合次世代定序技術開發肝癌的個人化醫療，進行臨床前測試的精準醫療研究。建立基因圖譜，藉由病人基因圖譜之差異將病人分群進行標靶治療，將有助於病患的療效。本技術包含基因體學人源化腫瘤的動物模式。基因體學之研究將鑑定腫瘤樣本中的基因體變異，探討腫瘤基因體之異質性及抗藥性之基因組演變。人源化腫瘤的動物模式進行藥效測試：小鼠將用以保存腫瘤細胞並繼代，不同代數腫瘤細胞將以斑馬魚異種移植進行藥效測試，並進行定序分析基因組演變。本技術的優點包含：1. 基因體學之研究：將達成如下兩項目標：(1) 鑑定腫瘤樣本中的基因體變異，包含單點突變、插入或缺失突變、拷貝數變異，及染色體重組；(2) 探討腫瘤基因體之異質性及抗藥性之基因組演變。2. 患者衍生異種移植的動物模式進行藥效測試：小鼠將用以保存腫瘤細胞並繼代，不同代數腫瘤細胞將以斑馬魚異種移植進行藥效測試，將達成如下三項目標：(1) 進一步改善此系統的成功率，及更健全此系統；(2) 探討與臨床結果之相關性；(3) 預測癌症病患化療抗藥性。

T2

演講題目 \

Stepping Stone to Next Generation Flow Cytometry

時　間：106 年 3 月 25 日（六）12:30-13:30
地　點：一樓，第 2 教室
單　位：尚博生物科技有限公司

Speaker：
楊利君
尚博生技 產品經理

陽明大學碩士
南港生技育成中心流式細胞儀培訓班講師
SONY Biotechnology 認證之產品與維修工程師
流式細胞儀經驗達 13 年

Moderator：
吳雅婷 (尚博生技 資深業務產品專員)
中興大學碩士
南港生技育成中心流式細胞儀培訓班講師
曾擔任 BD 資深臨床培訓專員
流式細胞儀經驗達 7 年

流式細胞儀為常見細胞檢測方式，其強大之處在於高速檢測單一粒子標定的螢光變化，問世至今，在細胞生物研究領域扮演不可或缺的角色。從 1973 年開始發展流式細胞技術的 40 年間，儀器設計皆以獨立偵測器搭配光學濾片方式，接收特定波長的螢光訊號。隨著多色實驗需求與日俱增，儀器規格日趨複雜，進而導致實驗調整參數大幅提升 (例如螢光補償)，增加了技術門檻、設定困難度及操作誤差。

為增進多色發展，流式技術合併全光譜偵測分析成為新一代研發的核心重點！ Sony 公司整合光學、電子及軟體技術，將長久以來難以達成的終極目標「流式技術合併全光譜偵測分析」付諸實現！ Sony 開發次世代光譜式細胞分析儀，是世界唯一全光譜掃描、無須螢光補償的流式細胞分析儀，光譜式細胞分析儀的誕生令使用者 " 簡單進入多色分析 " 世界，不僅促進細胞研究的發展，也開啓流式細胞技術嶄新的紀元！

T3

演講題目 \

How an Integrated High-Throughput Screening Platform Can Help Your Study

時　間：106 年 3 月 25 日（六）12:30-13:30
地　點：二樓，第 20 教室
單　位：中央研究院－基因體研究中心

Speaker：
Ying-Ta Wu (email: ywu@gate.sinica.edu.tw)
The Genomics Research Center, Academia Sinica
The ChemBank & High-Throughput Screening Resource Center, NRPB, MOST

Moderator：
Ying-Ta Wu
The Genomics Research Center, Academia Sinica
The ChemBank & High-Throughput Screening Resource Center, NRPB, MOST

Thanks to the advance in molecular biology and informatics, investigators can now reveal more clearly than before the potential disease targets and the molecular pathways that involve. Nevertheless, to accelerate the finding from the curiosity driven study to medical practice remains the main subject that we are facing today. Therefore, The Genomics Research Center (GRC) in Academia Sinica established an ultra High-Throughput Screening (uHTS) facility whose mission is to help the investigators to rapidly identify bioactive compounds for target mechanism validation and therapeutics discovery. It aims to make usefulness of information obtained from basic research for the development of new practical applications. The uHTS facility is operated by a group of experienced staff and is competent to develop and automate biological assays for high throughput screening and conduct big data analysis for cheminformatics. Hence, our objective is to provide comprehensive and cost-effect HTS services, making HTS accessible and useful to all investigators. The GRC has collected near two million compounds, including natural products, approved drugs, known bioactives, and synthetic chemicals, for high-throughput screening services. The GRC uHTS system is built, tested, and demonstrated its utility to identify diversified bioactives for various disease targets. In this presentation, we will introduce the facility, its present status and services.

T4

演講題目 \

奈米粒子追蹤分析技術在生命科學領域之應用
Applications of Nanoparticle Tracking Analysis in Life Science

時　間：106 年 3 月 25 日（六）12:30-13:30
地　點：二樓，第 29 教室
單　位：大昌華嘉股份有限公司

Speaker：

Dr. Yu-Su Chen, Application Specialist, Malvern Instruments

Dr. Chen investigated the use of phosphonium-functionalized gold nanoparticles for cancer therapeutics and got Ph.D. degree in 2014. Then she joined Malvern as application specialist in the same year and is responsible for nano particulate systems.

Moderator：

Mr. Forest Lee, Senior Specialist, DKSH Taiwan

Mr. Lee joined GE Healthcare in 2006 and was responsible for techniques of label-free interaction analysis. He joined DKSH in 2015 for promoting nano technique in life sciences.

Nanoparticle Tracking Analysis (NTA) can size and measure concentration of both microvesicles and exosomes at a low concentration and, when used in conjunction with fluorescent labels, can selectively determine and analyze specific types of particle within a complex sample.

Main Applications:

- Development of drug delivery systems
- Viral vaccine research
- Nanotoxicology and biomarker detection
- Protein aggregation research
- Extracellular vesicle characterization

奈米粒子追蹤技術可測定微胞體及胞泌小體的大小及濃度，利用螢光標記也可以選擇性分析特定的粒子。其主要應用包含：藥物傳輸系統的開發、病毒疫苗研究、奈米毒性與生物標誌偵測、蛋白質聚集研究、胞泌體表徵等。

T5

演講題目 \

Optimizing ELISA, Immunoassays for Accurate Results and Introduction to Matched Antibody Pairs, SimpleStep ELISA® Kits

時　間：106 年 3 月 25 日（六）12:30-13:30
地　點：三樓，第 30 教室
單　位：卓昇有限公司

Speaker：

Dr. Leung Ching Hei (梁正晞博士)

Scientific Support Supervisor, Abcam (Hong Kong) Ltd.

Ph.D in Medical Sciences (Chinese University of Hong Kong)
M.Phil in Biochemistry (Chinese University of Hong Kong)
BSc in Biochemistry (Chinese University of Hong Kong)

梁正晞博士在研究院修讀的時期專注於癌症生物學方面的研究。在香港中文大學生物化學系完成哲學碩士課程後，他轉到臨床腫瘤學系的癌症表觀遺傳學實驗室 (Cancer Epigenetics Laboratory) 從事癌症表觀遺傳學的相關研究並取得哲學博士學位。於 2011 年加入 Abcam (Hong Kong) Ltd. 的科學支援團隊至今，對多種實驗室技術如 western blot, IHC 及 ELISA 等均擁有豐富的相關理論知識和經驗。

Moderator：

王珊 (Shan Wang)

Technical support Specialist of Interlab Company

Many commercial assay kits perform with high sensitivity and a broad dynamic range using purified proteins, but fail to perform in experimental sample types. This talk aims to review key steps to take when developing an ELISA or immunoassay to ensure sensitive, specific and accurate quantification. Optimization strategies including titrating antibody pairs to improve signal to noise, alleviating matrix effects, optimizing sample dilutions and calibrating protein standards will be discussed. This talk also covers validation steps such as normalization of batch variability and testing for recovery and linearity of dilutions.

Matched antibody pairs of Abcam are recombinant, monoclonal antibodies that are developed and optimized for use in relevant sample types like plasma and serum for reliable performance. Matched antibody pairs are used in SimpleStep ELISA® kits and multiplex immunoassays for results that can be confidently reproduced over the course of the study, between researchers and across different ELISA-based assays. SimpleStep ELISA® kit is a single wash, colorimetric sandwich ELISA assay providing improved and differentiated performance characteristics while still retaining the familiar process and standard data outputs of a traditional ELISA kit. The SimpleStep ELISA® kit enables researchers to quantify target proteins in 90 minutes.

T6

演講題目\

1. Surface Plasmon Resonance: Principle, Instrumentation, and Applications

2. Practical Considerations of Using Imaging Tools for Establishing Clonality of Mammalian Cell lines

時　間：106 年 3 月 25 日（六）12:30-13:30
地　點：三樓，第 31 教室
單　位：北極光生物科技股份有限公司

Speaker：

1.

TJ Jing

PhD, president of Biosensing Instrutment Inc.

Dr. Jing has authored more than 40 scientific publications and holds more than 25 patents. In 2004, Dr. Jing founded Biosensing Instrument in Tempe, Arizona, which provides biosensing technology with wide range of applications to researchers in universities and institutions, as well as R&D laboratories. He is also three-time recipient of the "R&D 100 Award" from R&D magazine for the products he developed, which were selected as one of the 100 most technologically significant products introduced into marketplace worldwide.

2.

George Hutchinson

Head of Asia-Pacific Business, Solentim Ltd.

George Hutchinson has more than 30 years' experience working in the life science instrumentation industry. His experience includes the commercial development of bacterial colony pickers for use in high throughput sequencing applications into post genomic applications such as Phage Display, Directed Evolution and automated cloning.

Moderator：

Bin-yi Chuang

PhD, specialist of aurora biotech

1

●The principle behind surface plasmon resonance (SPR)

●How SPR is used for obtaining binding affinity and binding kinetics of biological reactions.

●The diverse and powerful applications of SPR: particularly for studies of biomolecular interactions in proteomics research, determination of toxins in food analysis, environmental monitoring analysis, and rapid and regenerable screening of potential drugs.

2

●The regulatory perspective on the use of imaging tools

●What needs to be considered when validating an image based strategy

●Impact on workflow and product development time

T7

演講題目\

Pathway Studio 資料庫 —

巨量資料時代生醫研究不可或缺的工具

時　間：106 年 3 月 25 日（六）12:30-13:30
地　點：三樓，第 32 教室
單　位：Elsevier

Speaker：

梁成芝

Elsevier 生命科學解決方案經理與客戶顧問

台灣大學微生物與生化學研究所畢業

主要工作內容為協助研 究人員依據自己的領域，如分子生物學、系統生物學、化學、 材料科學、實證醫學、等，快速了解與應用各種解決方案。服務對象包含上市櫃藥廠、石化公司、全國大專院校及政府研究單位。

Moderator：

鄭薇薇

Elsevier 行銷經理

您有大量基因表現資料等待分析嗎？您想要快速整合散落在各種期刊的 Pathway 嗎？

Pathway Studio 資料庫整合了巨量生物相關性資料及視覺化分析 工具，能協助您搜尋基因、蛋白質、小分子藥物、疾病間的交互 作用及代謝路徑。這樣的功能可以幫助您快速了解發育、疾病過 程、藥物反應背後的原理，找出有潛力的研究標的。除此之外， 您也可匯入基因、蛋白質列表，或各種基因表現數據，如 Microarray, qPCR, RNA-Seq, immunoblot 或 MASS 等，與現有 期刊資料或未發表資料的代謝路徑比對，並以圖形呈現最終分析結果。

Pathway Studio 優勢：

- 資料涵蓋超過 350 萬篇全文，約為同類型資料庫 10 倍
- 獨家 MedScan 電腦自動索引技術搭配人工審閱，更新速度更快且品質值得信賴，效果更勝純人工索引
- 可針對您的需求匯入內部研究資訊或訂做指定物種 (專業版)
- 可透過 API 與自動化流程整合，或現有資料庫整合 (專業版)。

備註：

Elsevier 出版社為全球學術出版業及資訊解決方案龍頭。為了協 助各領域的研究者更快更好的做出決策，Elsevier 從研究者的角 度出發，提出多項研究解決方案，整合巨量資訊，並以直觀簡潔 的網頁介面呈現。Elsevier 生命科學解決方案包括：Reaxys 化 學與藥物化學資料庫、Pathway Studio 系統生物學資料 庫、Embase 生醫文獻資料庫、Pharmapendium 藥品註冊文獻資料庫、Quosa 文獻管理平台。

T8

演講題目\

臺灣人體生物資料庫資料釋出簡介

時　間：106 年 3 月 26 日（日）12:30-13:30
地　點：二樓，第 20 教室
單　位：中央研究院－台灣人體資料庫

Speaker：

褚候維 Hou-Wei Chu
中央研究院臺灣人體生物資料庫博士後研究員
Postdoctoral fellow, Taiwan Biobank, Academia Sinica

臺灣人體生物資料庫 Taiwan Biobank（http://www.twbiobank.org.tw/new_web/index.php）

臺灣人體生物資料庫成立目的是結合生活習慣、環境因子與生物標誌等資訊，建立屬於臺灣本土的人體生物資料庫，為生物醫學研究蒐集龐大的生物檢體與健康資訊，提供國內生物醫學的研究學者申請使用。

本資料庫世代研究（cohort study）預計招募 20 萬名一般社區民眾自願參與，並於每二到四年長期追蹤。主要收案對象為年齡在 30 至 70 歲之間，具行為能力不限性別的民眾（排除條件：不具本國籍、具外國血統或經醫生確診罹患癌症者）。收集參與者的健康情形、疾病史、生活型態、生活環境等資料、資訊以及檢體採集。目前一般社區民眾累積收案數已達 7 萬 6 千人，累積追蹤人數已達 7 千人。

病例對照研究（case-control study）預計邀請 10 萬名臺灣常見的十 至十五種疾病患者加入（如肺癌、乳癌、大腸直腸癌、氣喘等），並且 進行長期追蹤。收集該患者的健康情形、疾病史、生活型態、生活環 境、藥物使用、治療紀錄等臨床資料、資訊以及生物檢體與組織。目前疾病個案已從 2016 年開始收案。

資料釋出（申請相關規定請洽官網）。目前申請件數已達 70 例，通過審查案件已達 60 例。

臺灣人體生物資料庫倫理委員會（簡稱 EGC）於 2013 年 8 月 26 日決議本資料庫進行資料釋出試行使用申請。於 2014 年 9 月 1 日正式進行社區群體參與者的資料釋出（疾病患者部分尚未開始釋出），目前規劃釋出共有五大類：

1. 問卷資料
2. 身體檢測
3. 血液與尿液檢驗資料
4. 生物檢體：DNA、血漿、尿液
5. 實驗資訊：■基因型鑑定晶片（Whole-genome genotyping）：20450 筆■全基因體定序（Whole-genome sequence）：1500 筆 ■甲基化晶片（Methylation）：575 筆

在實驗資訊方面（基因型鑑定資料、全基因體定序資料），本資料庫亦設置 Taiwan View 網頁（https://taiwanview.twbiobank.org.tw/index），內容包括 65.3 萬點單一核■酸基因型鑑定的序列頻率，以及本土全基因體序列之多型性。此網站可供瀏覽及查詢以利了解臺灣民眾基因體的相關資訊。此外，經由註冊後亦可藉由此網頁將資料下載分析使用。

T9

演講題目\

台灣的驕傲—

高性能高解析 micro CT

時　間：106 年 3 月 26 日（日）12:30-13:30
地　點：二樓，第 29 教室
單　位：DELPet

Speaker：

周郁崴

•Delta Electronic Inc., Taiwan, R.O.C. 台達電子工業股份有限公司
ales Manager/ Medical Image LOB/ Merchant Power Solutions Business Group,
•Microlife Corporation, Taiwan, R.O.C. 百略醫學科技股份有限公司
Director of Asia Pacific / CEO Office
Director of Outsourcing Department

Moderator：

陳思妤

Product Marketing and Management Senior Engineer
•Delta Electronic Inc., Taiwan, R.O.C 台達電子工業股份有限公司
Product Marketing and Management Senior Engineer/ Medical Image LOB/ Merchant Power Solutions Business Group
•National Health Research Institutes, Taiwan, R.O.C 國家衛生研究院
Research Assistant/Institute of Biomedical Engineering and Nanomedicine

產品發表—微型電腦斷層掃描儀

產品簡介

發表高智能、高掃描速度、高解析，台灣自行研發之微型電腦斷層掃描儀。

適用於臨床前小動物研究、生技醫藥、電子工業、農業、昆蟲學…等等相關領域。

產品特色

- 高解析度
- 快速掃描
- 高智能模式
- 自我屏蔽

無醫學影像背景之操作者，可輕鬆上手，快速取得高品質電腦斷層影像。

機體小且自我屏蔽設計可置於一般實驗室，節省空間及輻射防護裝修費。

T10

演講題目 \

生物資訊分析應用於癌症基因體學之研究—

探討新穎環狀核醣核酸（circRNA）在大腸直腸癌的進程與轉移上的角色

時　間：106 年 3 月 26 日（日）12:30-13:30
地　點：三樓，第 30 教室
單　位：轉譯醫學暨生技研發之生物資訊核心設施

Speaker：
孫孝芳
國立成功大學分子醫學研究所　所長 / 教授
國立成功大學基因體醫學中心　主任

Moderator：
熊昭
國家衛生研究院 群體健康科學研究所 所長 / 特聘研究員

本核心設施整合國家衛生研究院、國立交通大學、國立清華大學、國立成功大學以及中央研究院等五所機構的生物資訊團隊，北中南均設有服務據點，專業領域涵蓋功能基因體及轉譯醫學、轉錄體學及宏觀基因體學、癌症基因體學及臨床研究、應用基因體醫學、結構蛋白質體學及藥物應用、生醫文獻探勘及生物標記探索等，能滿足多樣的生物資訊需求。有鑑於高通量技術發展快速且應用日廣，讓生技醫藥研究對生物資訊技術的需求日增，本核心特以前瞻技術及資源分工的架構，配合政府「亞太生技醫藥研發產業中心」之整體規劃，加強生技醫藥、轉譯醫學創新研發、厚實臨床加值能量，提供全國產官學研生物資訊服務，並加速相關產業應用與投資。其中之高通量定序（Next-Generation Sequencing, NGS）研究服務，即是包含目標樣品序列重新定序 (targeted re-sequencing)、核醣核酸定序（RNA-Seq）、微小及長鏈非編碼核糖核酸定序 (small and long non-coding RNA sequencing) 、染色質免疫沉澱 DNA 定序（ChIP-Seq）等。此外本核心也與多家定序公司簽訂合約成為合作夥伴，進行實驗轉介，提供以客戶為中心從研究設計、實驗轉介到資料分析整合上中下游的完整服務。在這次會議中我們將以與國立成功大學生理所蕭貴陽博士合作，進行大腸直腸癌樣品中新穎環狀核醣核酸（circRNA，一種長鏈非編碼核糖核酸）之研究為例子說明本核心的研發服務成果。在成功大學基因體醫學中心完成大腸直腸癌樣品的高通量核醣核酸定序後，本核心利用自行發展的分析平台，成功的找到一群在大腸直腸癌細胞中表現量上升的環狀核醣核酸。接續的分子機制實驗證實了新穎環狀核醣核酸 CCDC66 不但在大腸直腸癌細胞中表現量上升，也在大腸直腸癌的進程、甚至轉移上扮演重要的角色。此研究結果證實了本核心發展之分析平台的準確性，未來可應用在其他相關的研究上，相信對國內探討環狀核醣核酸在癌症的研究上有更深層的應用與幫助。

T11

演講題目 \

Cancer Research Hot Areas and Key Signaling Proteins

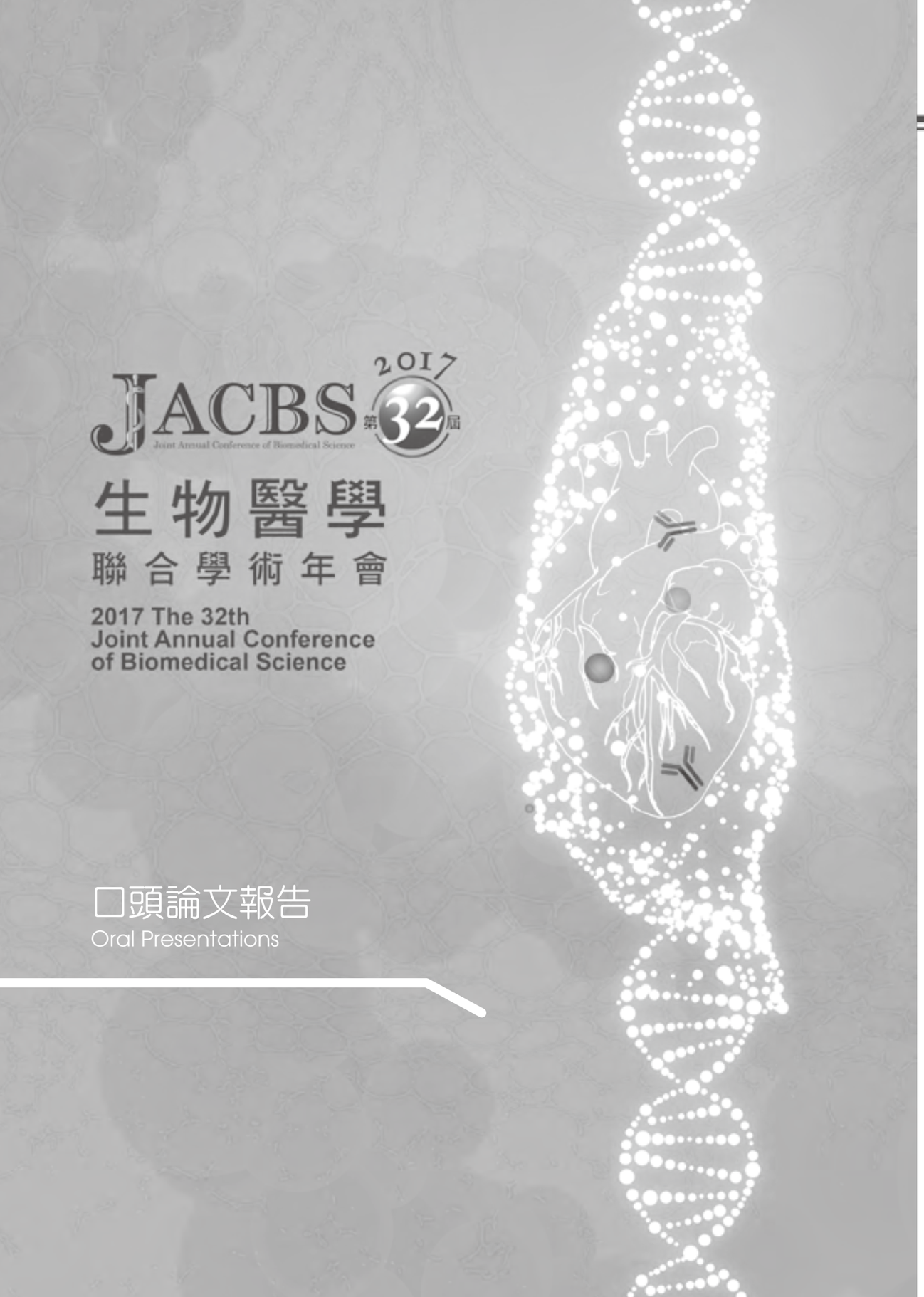
時　間：106 年 3 月 26 日（日）12:30-13:30
地　點：三樓，第 32 教室
單　位：諾貝爾生物有限公司

Speaker：
Andy Zou
Ph.D., Application Specialist, Cell Signaling Technology-Asia Pacific

Dr. Zou is an application specialist at CST in Asia Pacific region. He received his Ph.D. from the University of Kansas Medical Center in the US, where he investigated the role and regulatory mechanism of GPCR signaling in breast tumor microenvironment. During his postdoctoral training at NCI-Designated KU Cancer Center, he comprehensively studied mechanisms of metabolic adaption in liver cancer and other metabolic diseases. As a translational cancer research specialist, Dr. Zou has diverse expertise in therapeutic targets identification and signaling pathway research.

Brief: The presentation will focus on current hot areas and relevant key signaling proteins in cancer research field. CST scientist will introduce the research strategies and available tools to facilitate scientists achieving their specific aims.

Abstract: The diversity of signaling mechanisms exploited during cancer initiation and progression is immense. Due to the complexity of the disease-state, research projects often branch out from the original hypothesis. Appreciation of cancer signaling has progressed beyond the role of cell cycle checkpoints and transcriptional regulation and broadened to include environmental cues, angiogenic signaling, metabolic coercion, epigenetic regulation, cell survival, immune suppression, and more. As a company that is passionate about cancer research, Cell Signaling Technology (CST) development and production scientists approach cancer signaling from various angles of the disease in order to provide you with a comprehensive portfolio of antibodies aligned with prevailing research aims. The most updated knowledge of tumor initiation, growth and migration will be comprehensively reviewed in with emphasis on key signaling pathways and proteins. This includes but not restricts to signaling pathways such as PI3K/AKT, MAPK, AMPK, mTOR, JAK-STAT, NF-kB, Notch, Hedgehog, Wnt, TGF-β and Hippo signaling pathways. Additionally, hot cancer research areas and emerging research strategies involving tumor immunology, stress and/or metabolic shift of cancer, epigenetic and novel programmed cell death are broadly discussed.



口頭論文分類、時間、地點

106 年 3 月 25 日（六）

大會競賽	地點	時間	編號
大會主題競賽決選 I Translational Medicine	三樓，第 33 教室	09:20-10:20	O01-O04
大會主題競賽決選 II Translational Medicine		12:30-13:30	O05-O08

大會聯合報告	地點	時間	編號
大會聯合口頭報告 I Obesity & Metabolism	三樓，第 31 教室	16:45-17:45	O09-O12
大會聯合口頭報告 II Infectious / Inflammatory Disease	三樓，第 32 教室	16:45-17:45	O13-O16

學會別	地點	時間	編號
台灣毒物學學會	二樓，第 29 教室	08:50-10:35	O17-O24
台灣藥理學會	一樓，第 1 教室	09:00-10:20	O25-O29
中華民國免疫學會	二樓，第 20 教室	16:45-17:45	O30-O33

106 年 3 月 26 日（日）

大會聯合報告	地點	時間	編號
大會聯合口頭報告 III Disease Biomarkers	三樓，第 30 教室	09:00-10:00	O34-O37
大會聯合口頭報告 IV Neurobiology & Technology	三樓，第 31 教室	09:00-10:00	O38-O41

學會別	地點	時間	編號
台灣生物化學及分子生物學學會	三樓，第 33 教室	09:00-10:00	O42-O46
		12:30-13:30	O47-O51
中華民國細胞及分子生物學學會	三樓，第 30 教室	14:30-16:30	O52-O60
中華民國臨床生化學會	三樓，第 31 教室	14:30-16:30	O61-O65
台灣毒物學學會	二樓，第 29 教室	08:30-10:15	O66-O73
中國生理學會	一樓，第 2 教室	08:30-10:00	O74-O79
中華民國解剖學學會	三樓，第 32 教室	09:00-10:00	O80-O85
中華民國免疫學會	二樓，第 20 教室	09:00-10:00	O86-O89
台灣分子生物影像學會	二樓，第 28 教室	09:00-10:00	O90-O94

大會主題競賽決選 I

Translational Medicine

時　間：106 年 3 月 25 日 (六) 09:20-10:20
地　點：三樓，第 33 教室
主 持 人：楊雅倩

編號	時段	演講者 & 講題
O01	09:20-09:35	EpEX/EpCAM and Oct4 or Klf4 Alone Are Sufficient to Generate Induced Pluripotent Stem Cells through STAT3 and HIF2-alpha 管奕奕 , 梁剛豪 , 王逸平 , 楊上知 , 呂仁 , 吳漢忠 * I-I Kuan, Kang-Hao Liang, Yi-Ping Wang, Shang-Chih Yang, Jean Lu and Han-Chung Wu* Institute of Cellular and Organismic Biology, Academia Sinica, Taipei, Taiwan
O02	09:35-09:50	Elucidation of Stem Cell Marker CD24-Wnt Pathway in Regulation of Prostate Cancer Bone Metastasis Using the KrasG12D/P53loxp/loxp Prostate Cancer Mouse Model 翁靖傑 , 丁珮雅 , Steven A. Johnsen, Malayannan Subramaniam, 洪文俊 , 陳立宗 , 鄭光宏 * Ching-Chieh Weng, Pei-Ya Ting, Steven A. Johnsen, Malayannan Subramaniam, Wen-Chun Hung, Li-Tzong Chen, Kuang-Hung Cheng* Institute of Biomedical Sciences, National Sun Yat-Sen University, Kaohsiung, Taiwan
O03	09:50-10:05	Phosphorylation of Rab37 by Protein Kinase C Alpha Inhibits the Exocytosis Function and Metastasis Suppression Activity 曾鴻泰 [1], 李宗信 [1], 湯硯安 [2], 蔡宗翰 [2], 呂佩融 [3], 賴吾為 [4], 蔣輯武 [2,5], 王憶卿 [1,2*] Hong-Tai Tzeng[1], Tsung-Hsin Li[1], Yen-An Tang[2], Chung-Han Tsai[2], Pei-Jung Frank Lu[3], Wu-Wei Lai[4], Chi-Wu Chiang[2,5], Yi-Ching Wang[1,2*] [1]Department of Pharmacology [2]Institute of Basic Medical Sciences [3]Institute of Clinical Medicine [4]Department of Surgery, National Cheng Kung University Hospital [5]Institute of Molecular Medicine, National Cheng KungUniversity, Tainan, Taiwan
O04	10:05-10:20	GATA3 Interacts with and Stabilizes HIF-1α to Enhance Cancer Cell Invasiveness 林玫君 [1,2], 林敬哲 [3], 許家郎 [4], 阮雪芬 [4], 婁培人 [2,5*], 黃敏銓 [2*] Mei-Chun Lin[1,2], Jing-Jer Lin[3], Chia-Lang Hsu[4], Hsueh-Fen Juan[4], Pei-Jen Lou[2,5 *], Min-Chuan Huang[2*] [1]Department of Otolaryngology, National Taiwan University Hospital, Hsin-Chu Branch, Hsinchu, Taiwan [2]Graduate Institute of Anatomy and Cell Biology, National Taiwan University College of Medicine, Taipei, Taiwan [3]Institute of Biochemistry and Molecular Biology, National Taiwan University College of Medicine, Taipei, Taiwan [4]Department of Life Science, National Taiwan University, Taipei, Taiwan [5]Department of Otolaryngology, National Taiwan University Hospital and College of Medicine, Taipei, Taiwan

大會主題競賽決選 II

Translational Medicine

時　間：106 年 3 月 25 日 (六) 12:30-13:30
地　點：三樓，第 33 教室
主 持 人：李怡萱

編號	時段	演講者 & 講題
O05	12:30-12:45	The Functional Roles of CCDC66 Circular RNA in Colon Cancer Tumorigenesis 蕭貴陽 [1], 林雅琪 [2], Sachin Kumar Gupta[3], 張 寧 [1], 嚴來興 [3], 孫孝芳 [2*], 蔡少正 [1*] Kuei-Yang Hsiao[1], Ya-Chi Lin[2], Sachin Kumar Gupta[3], Ning Chang[1], Laising Yen[3], H. Sunny Sun[2*], Shaw-Jenq Tsai[1*] [1]Department of Physiology [2]Institute of Molecular Medicine, College of Medicine, National Cheng Kung University, Tainan, Taiwan [3]Department of Molecular & Cellular Biology, Baylor College of Medicine, Houston, TX, USA
O06	12:45-13:00	Target Identification by Specific Tagging and Antibody Detection (TISTA) Reveals the Action Mechanism of Afatinib on Cell Cycle 余承翰 , 周繼祺 , 黃偉杰 , 何雅燁 , 呂欣頻 , 邱繼輝 , 張震東 Cheng-Han Yu, Chi-Chi Chou, Wei-Chieh Huang, Ya-Yeh Ho, Hsin-Pin Lu, Kay-Hooi Khoo, Geen-Dong Chang Graduate Institute of Biochemical Sciences, College of Life Science, National Taiwan University
O07	13:00-13:15	Intestine-Specific Homeobox Gene, ISX, Integrates IL-6 Signaling, Tryptophan Metabolism and Immune Suppression 王麗婷 [1], 王森稔 [1], 黃嘯谷 [2,3], 許世賢 [1,2*] Li-Ting Wang[1], Shen-Nien Wang [1], Shau-Ku Huang[2,3*], Shih-Hsien Hsu[1,2*] [1]Graduate Institute of Medicine [2]Research Center for Environmental Medicine, Kaohsiung Medical University [3]National Institute of Environmental Health Sciences, National Health Research Institutes, Miaoli County, Taiwan
O08	13:15-13:30	TDP-43 Forms Toxic Amyloid Oligomers in Frontotemporal Lobar Dementia-TDP Patients and Hyperphosphorylation Induces Amyloid Fibril Formation 方裕勝 , 陳韻如 Yu-Sheng Fang, Yun-Ru (Ruby) Chen Genomics Research Center, Academia Sinica

大會聯合口頭報告 I ：Obesity & Metabolism

時　間：1106 年 3 月 25 日 (六)16:45-17:45
地　點：三樓，第 31 教室
主 持 人：洪麗滿

編號	時段	演講者 & 講題
O09	16:45-17:00	Resveratrol Supplement Promotes Exercise Training Attenuation Age-related Cell Apoptosis/Hypertrophy in the Senescence-Accelerated Mice SAMP8 Liver. 吳嘉平 Jia-Ping Wu Granduate Institute of Biomedical Science, China Medical University.
O10	17:00-17:15	Macrophage LOX in Adipose Tissue Stiffening and Function 黃安 [1]、邱昱瑋 [1]、林錫慧 [1]、湯銘哲 [1]、蔡曜聲 [1,2] An Huang[1], Yu-Wei Chiou[1], Hsi-Hui Lin[1], Ming-Jer Tang[1], Yau-Sheng Tsai[1,2] [1]Department of Physiology [2]Institute of Clinical Medicine, National Cheng Kung University
O11	17:15-17:30	Long-term Administration of Rapamycin Exacerbates Glucose Intolerance in Obesity KK/HIJ Mice 張耿瑞 Geng-Ruei Chang Department of Veterinary Medicine, National Chiayi University, Chiayi, Taiwan
O12	17:30-17:45	Adipose Tissue Dysfunction in Nonobese Metabolic Syndrome 黃君邦 [1], 謝博軒 [2], 洪麗滿 [1*] Jiung-Pang Huang[1], Po-Shiuan Hsieh[2], Li-Man Hung[1*] [1]Department of Biomedical Sciences, College of Medicine, Chang Gung University, Taoyuan, Taiwan [2]Department of Physiology and Biophysics, National Defense Medical Center, Taipei , Taiwan

大會聯合口頭報告 II ：Infectious / Inflammatory Disease

時　間：106 年 3 月 25 日 (六) 16:45-17:45
地　點：三樓，第 32 教室
主 持 人：花國鋒

編號	時段	演講者 & 講題
O13	16:45-17:00	Acute Phase Th1 Response Nurtures Th17 Deviation of Responding Naïve CD4+ T Cells which Attenuates the Inflammation of Influenza Virus Infection 黃景泰 [1,*], Avijit Dutta[1], 陳澤卿 [2], 林俊彥 [3], 林永昌 [4], 張家祥 [1], 何玥家 [1], 黃昱霖 [1] Ching-Tai Huang[1,*], Avijit Dutta[1], Tse-Ching Chen[2], Chun-Yen Lin[3], Yung-Chang Lin[4], Chia-Shiang Chang[1], Yueh-Chia He[1], Yu-Lin Huang[1] [1]Division of Infectious Diseases, Department of Medicine, [2]Department of Pathology, [3]Division of Hepatogastroenterology, [4]Division of Hematology and Oncology, Department of Medicine, Chang Gung Memorial Hospital and Chang Gung University, Taoyuan, Taiwan.
O14	17:00-17:15	Hepatic Macrophage Plays a Critical Role in Determining the Age-dependent Outcome of Hepatitis B Virus Infection. 吳莉玲 [1], 林敬珊 [1], 廖珮瑄 [1], 彭偉豪 [2], 林友瑜 [1], 王弘毅 [*1], 陳培哲 [1,3,4,5], 陳定信 [1,3,4,5] Li-Ling Wu[1], Jing Shan Lin[1], Pei-Hsuan Liao[1], Wei-Hao Peng[2], You-Yu Lin1, Hurng-Yi Wang [*1], Pei-Jer Chen[1,3,4,5] and Ding-Shinn Chen[1,3,4,5] [1]Graduate Institute of Clinical Medicine [2]Anatomy and Cell Biology [3]Department of Internal Medicine [4]Hepatitis Research Center [5]Department of Medical Research, National Taiwan University College of Medicine and National Taiwan University Hospital, Taipei
O15	17:15-17:30	No Alteration of Intrinsic Allergen after Genetic Modification in Soybean 張錦雲 [1], 廖恩慈 [4], 蔡肇基 [1,2,3*] Ching-Yun Chang[1], En-Chih Liao[4], Jaw-Ji Tsai [1,2,3*] [1]Division of Allergy, Immunology & Rheumatology, Department of Internal Medicine, Taichung Veterans General Hospital, Taichung, Taiwan [2]College of Life Sciences, National Chung Hsing University, Taichung, Taiwan [3]Institute of Clinical Medicine, National Yang Ming University, Taipei, Taiwan [4]Department of Medicine, Mackay Medical College, New Taipei City, Taiwan
O16	17:30-17:45	The Herbal Medicine Extract DF-30 Inhibits NLRP3 Inflammasome and Ameliorates NLRP3-associated Inflammatory Diseases 莫鈞閔 [1], 花國鋒 [1,2] Chun-Min Mo [1], Kuo-Feng Hua [1,2] [1]Department of Biotechnology and Animal Science, National Ilan University, Ilan, Taiwan [2]Department of Pathology, Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan

台灣毒物學學會

時　間：106 年 3 月 25 日 (六) 08:50-10:35
地　點：二樓，第 29 教室
主 持 人：姜至剛

編號	時段	演講者 & 講題
O17	08:50-09:03	Tanshinone I targets STAT3-mediated Survival Signaling for Inhibition to Elicit Colorectal Cancer Cell Apoptosis 林韋丞 , 陳冠君 , 許子文 , 張嘉哲 * Wei-Cheng Lin, Guan-Jun Chen, Tzu-Wen Hsu, Chia-Che Chang* Institute of Biomedical Sciences, National Chung Hsing University
O18	09:03-09:16	Ambient Particulate Matter Induces Mouse Pulmonary Vascular Remodeling and Vascular Smooth Muscle Cell Dysfunctions 何佳琪 [1], 何彥君 [2], 陳裕政 [1], 蔡明憲 [1], 蔡卉蒂 [1], 林秀芳 [2*], 林嬪嬪 [1*] Chia-Chi Ho[1], Yen-Chun Ho[2], Yu-Cheng Chen[1], Ming-Hsien Tsai[1], Hui-Ti Tsai[1], Shaw-Fang Yet[2#], Pinpin Lin[1#] [1]National Institute of Environmental Health Sciences, National Health Research Institutes, Zhunan, Taiwan [2]Institute of Cellular and System Medicine, National Health Research Institutes, Zhunan, Taiwan
O19	09:16-09:29	Consecutive Evaluation Of Graphene Oxide And Reduced Graphene Oxide Nanoplatelets Immunotoxicity On Monocytes 蘇伊寧 , 林雨靜 , 閆俊艷 , 王聖翔 , 林家驊 Saranta Sawettanun,Yu-jing Lin, Jun-yan Yan,Sheng-xiang Wang,Chia-Hua Lin Department of Biotechnology, National Formosa University
O20	09:29-09:42	Indoxyl Sulfate Enhanced Uremic Sarcopenia through ROS-dependent Myogenesis Suppression 鄭佳容 , 姜至剛 Jia-Rong Jheng, Chih-Kang Chiang Graduate Institute of Toxicology

台灣毒物學學會

編號	時段	演講者 & 講題
O21	09:42-09:55	Mercury Exposure and Diabetes in the General Population in Taiwan 蔡宗霖 , 郭錦輯 , 潘文涵 , 吳聰能 , 王淑麗 Tsung-Lin Tsai, Chin-Chi Kuo, Wen-Harn Pan, Trong-Neng Wu, Shu-Li Wang College of Public Health, Department of Public Health, China Medical University; National Institute of Environmental Health Sciences, National Health Research Institutes
O22	09:55-10:08	Novel Use for Osteoporosis Drug Alendronate in Skeletal Muscle Atrophy and Dysfunction Treatment 邱憲君 [1], 邱振源 [2], 姜至剛 [1], 楊榮森 [3], 劉興華 [1] Hsien-Chun Chiu [a], Chen-Yuan Chiu [b], Chih-Kang Chiang [b], Rong-Sen Yang [c], Shing-Hwa Liu [a] [1]Institute of Toxicology [2]Department of Cell and Tissue Engineering, Changhua Christian Hospital, Changhua, Taiwan [3]Departments of Orthopaedics, College of Medicine, National Taiwan University, Taipei, Taiwan
O23	10:08-10:21	Gossypetin Inhibit the Proliferation of Breast Cancer Cells via Induction of Apoptosis and Inhibition of Autophagy 劉又誠 , 吳珮慈 , 楊薇楨 , 吳映璇 , 陳璟賢 , 林慧萱 Yu-Cheng Liu, Pei-Tzu Wu, Wei-Chen, Yang, Ying-Hsuan Wu, Jing-Hsien Chen, Hui-Hsuan Lin Department of Medical Laboratory and Biotechnology, Chung Shan Medical University Department of Nutrition, Chung Shan Medical University
O24	10:21-10:34	Iron Oxide Nanoparticles Aggravate Neuroinflammation Associated with Experimental Autoimmune Encephalomyelitis in Mice 蕭雅萍 , 詹東榮 Yai-Ping Hsiao, Tong-Rong Jan Institute of Veterinary Medicine, School of Veterinary Medicine, National Taiwan University

台灣藥理學會

時　間：106 年 3 月 25 日 (六) 09:00-10:20
地　點：一樓，第 1 教室
主 持 人：張文昌

編號	時段	演講者 & 講題
O25	09:00-10:16	Epidermal Growth Factor-induced ANGPTL4 Enhances Anoikis Resistance and Tumor Metastasis in Head and Neck Squamous Cell Carcinoma 廖禹涵 *, 江國華 , 謝俊民 , 黃啟瑞 , 沈志傑 , 黃婉媜 , 陳炳焜 Y-H Liao, K-H Chiang, J-M Shieh, C-R Huang, C-J Shen, W-C Huang, B-K Chen Institute of Bioinformatics and Biosignal Transduction, College of Bioscience and Biotechnology, National Cheng Kung University, Tainan, Taiwan
O26	09:16-09:32	Paricalcitol Attenuates Cardiac Fibrosis and Expression of Endothelial Cell Transition Markers in Isoproterenol-induced Cardiomyopathic Rats 賴奇正 *, 鄭珮妏 , 劉昭成 , 呂佩融 , 蕭宏昇 , 曾清俊 Chi-Cheng Lai, Pei-Wen Cheng, Jau-Cheng Liou, Pei-jung Lu, Michael Hsiao, Ching-Jiunn Tseng Cardiovascular Center, Veterans General Hospital; and Department of Biological Sciences, National Sun Yat-Sen University, Kaohsiung, Taiwan
O27	09:32-09:48	Leptin Promotes VEGF-C Production and Induces Lymphangiogenesis by Suppressing miR-27b in Human Chondrosarcoma Cells 楊維宏 , 張安辰 *, 王士維 , 王守吉 , 張永森 , 張子明 , 徐少克 , 馮逸卿 , 湯智昕 Wei-Hung Yang, An-Chen Chang, Shih-Wei Wang, Shoou-Jyi Wang, Yung-Sen Chang, Tzu-Ming Chang, Shao-Keh Hsu, Yi-Chin Fong, Chih-Hsin Tang Institute of Biomedical Sciences, China Medical University, Taichung, Taiwan
O28	09:48-10:04	The Natural Retinoprotectant Chrysophanol Attenuated Photoreceptor Cell Apoptosis in an N-methyl-N-nitrosourea-induced Mouse Model of Retinal Degenaration 林凡立 , 林承輝 , 何昭德 , 顏敬倫 , 張宏名 , 邱春億 , 鄭幼文 , 蕭哲志 Fan-Li Lin, Cheng-Hui Lin, Jau-Der Ho, Jing-Lun Yen, Hung-Ming Chang, George C.Y. Chiou, Yu-Wen Cheng, George Hsiao Graduate Institute of Medical Sciences and Department of Pharmacology, School of Medicine, College of Medicine, Taipei Medical University, Taipe
O29	10:04-10:20	HnRNP Q1 Promotes Colorectal Tumor Proliferation through the Enhancement of Aurora-A mRNA Translation 賴謙賢 *, 黃鈺琄 , 張孔昭 , 陳彥如 , 丁乃筑 , 林博文 , 李政昌 , 陳若瑜 , 王瑀筑 , 賴怡蒨 , 曾大千 , 洪良宜 Chien-Hsien Lai, Yu-Chuan Huang, Kung-Chao Chang, Yen-Ju Chen, Nai-Jhu Ding, Bo-Wen Lin, Jenq-Chang Lee, Ruo-Yu Chen, Yu-Chu Wang, Yi-Chien Lai, Joseph T Tseng, Liang-Yi Hung Institute of Bioinformatics and Biosignal Transduction, National Cheng Kung University, Tainan, Taiwan

中華民國免疫學會

時　間：106 年 3 月 25 日 (六) 16:45-17:45
地　點：二樓，第 20 教室
主 持 人：陳念榮

編號	時段	演講者 & 講題
O30	16:45-17:00	Triggering Receptor Expressed on Myeloid Cells-1 Plays a Crucial Role in Regulating Intestinal Barrier in an Experimental Colitis Model 楊馥蓁 [1], 陳念榮 [1 *] Fu-Chen Yang[1] and Nien-Jung Chen[1 *] Institute of Microbiology and Immunology, School of Life Sciences, National Yang-Ming University
O31	17:00-17:15	Interleukin-4 Deficiency Deteriorates the Suppressive Immune Responses via Multiple Effects on Regulatory T Cells 楊維正 [1,2], 陳盈諭 [1,#], 黃奕修 [3,4,#], 劉昭麟 [5,#], 洪薇馨 [1,6], 羅聖旻 [1,2], 沈家寧 [6], 沈家瑞 [1,2,4,*] Wei-Cheng Yang[1,2], Ying-Yu Chen[1,#], Yih-Shiou Hwang[3,4,#], Chao-Lin Liu[5,#], Wei-Hsin Hong[1,6], Sheng-Min Lo[1,2], Chia-Ning Shen[6], Chia-Rui Shen[1,2,4,#] [1]Department and Graduate Institute of Medical Biotechnology and Laboratory Science, College of Medicine, Chang Gung University, Taoyuan, Taiwan [2]Graduate Institute of Biomedical Sciences, College of Medicine, Chang Gung University, Taoyuan, Taiwan [3]Department of Medicine, College of Medicine, Chang Gung University, Taoyuan, Taiwan [4]Department of Ophthalmology, Chang Gung Memorial Hospital, Taoyuan, Taiwan [5]Department of Chemical Engineering, Ming Chi University of Technology, New Taipei City, Taiwan [6]Genomic Research Center, Academia Sinica, Taipei, Taiwan # Contributed equally
O32	17:15-17:30	Heme Oxygenase-1-Expressing Dendritic Cells Promote Foxp3+ Regulatory T Cell Differentiation and Induce Less Severe Airway Inflammation in Murine Models 翁子軒 [1]、陳宏安 [2]、高榮駿 [3]、顏正賢 [1,4]、孫昭玲 [1,5,6] Tzu-Hsuan Wong[1], Hung-An Chen[2], Rung-Jiun Gau[3], Jeng-Hsien Yen[1,4], and Jau-Ling Suen[1,5,6*] [1]Graduate Institute of Medicine, College of Medicine, Kaohsiung Medical University, Kaohsiung, Taiwan [2]Department of Allergy-Immunology-Rheumatology, Chi-Mei Medical Center, Tainan, Taiwan [3]Center of Excellence for Drug Development, Industrial Technology Research Institute, Tainan, Taiwan [4]Division of Rheumatology, Department of Internal Medicine, Kaohsiung Medical University Hospital, Kaohsiung, Taiwan [5]Research Center for Environmental Medicine, Kaohsiung Medical University, Kaohsiung, Taiwan [6]Center for Research Resources and Development, Kaohsiung Medical University, Kaohsiung, Taiwan
O33	17:30-17:45	Galectin-9 is Essential for Lgr5 Stem Cell-Paneth Cell Homeostatic Niche which Regulates Intestinal Inflammation 呂學翰 , Janaki Sudhakar, 劉明哲 , 劉扶東 , 徐志文 * Hsueh Han Lu, Janaki Sudhakar, Ming Che Liu, Fu-Tong Liu, Jr-Wen Shui* Institute of Biomedical Sciences, Academia Sinica, Taipei, Taiwan

大會聯合口頭報告 III ： Disease Biomarkers

時　間 ： 106 年 3 月 26 日 (日) 09:00-10:00
地　點 ： 三樓，第 30 教室
主 持 人：游佳融

編號	時段	演講者 & 講題
O34	09:00-09:15	Bio-Competition Based NanoVelcro Platform: Detection of Disease-Related RNA Signatures in Prostate Cancer Circulating Tumor Cells 沈模沅 , 陳介甫 , 羅羣皓 , 李商俊 , 李承軒 , 楊詠麟 , 蔡宇瀚 , 何柏成 , 包莉瓏 , 李典融 , 朱亞珍 , 鄭雪莉 , Felix Feng , 陳培菱 , 侯雙 * , Vatche Agopian *, 蕭裕生 * , Edwin. M. Posadas *, 曾憲榮 *, 尤嘯華 * Mo-Yuan Shen, Jie-Fu Chen, Chun-Hao Luo, Sangjun Lee, Cheng-Hsuan Li, Yung-Ling Yang,Yu-Han Tsai, Bo-Cheng Ho, Li-Rong Bao, Tien-Jung Lee, Ya-Zhen Zhu, Shirley Cheng, Felix Feng, Peilin Chen, Shuang Hou*, Vatche Agopian*, Yu-Sheng Hsiao*, Edwin. M. Posadas*, Hsian-Rong Tseng*, Hsiao-Hua Yu* Institute of Chemisrty, Academia SInica, Ming Chi University of Technology, Samule Oschin Comprehensive Cancer Institute, University of California, San Francisco, California NanoSystems Institute, University of California, Los Angeles Liver Transplantation and Hepatobiliary Surgery, Department of Surgery, Research Center for Applied Sciences , Academia Sinica
O35	09:15-09:30	Prediction of Nongenotoxic Hepatocarcinogens Using Consensus Biomarkers 黃聖翰 , 童俊維 Shan-Han Huang, Chun-Wei Tung Ph.D. Program in Toxicology, Kaohsiung Medical University, Kaohsiung, Taiwan; School of Pharmacy, College of Pharmacy, Kaohsiung Medical University, Kaohsiung, Taiwan
O36	09:30-09:45	Using Use of High-Throughput Sequencing Combining Linkage Analysis to Positionally Clone the Causative Mutation for a Taiwanese X linked Recessive Retinitis Pigmentosa Family 靖永皓 [1*] , 林雯英 [1] , 胡亮萱 [1] , 范文郎 [2] , 鍾仁華 [3] , 江佳玲 [4] , 黃舜平 [1] Yung-Hao Ching[1*], Wun-Ying Lin[1], Lian-Hsuan Hu[1], Wen-Lang Fan[2], Ren-Hua Chung[3], Jia-ling Jiang[4], Shun-Ping Huang[1] [1]Molecular Biology and Human Genetics, Tzu Chi University [2]Whole-Genome Research Core Laboratory of Human Diseases, Keelung Chang Gung Memorial Hospital [3]Institute of Population Health Sciences, National Health Research Institute [4]Department of Ophthalmology, Hualien Tzu Chi Medical Center
O37	09:45-10:00	Identification and Characterization of Potential Biomarkers by Quantitative Tissue Proteomics of Primary Lung Adenocarcinoma 許瓊鴻 [1], 徐嘉偉 [5], 薛純 [5,6], 王智亮 [2,7], 吳怡成 [8], 吳治慶 [3,5], 劉振霽 [1], 余兆松 [1,4,5], 張玉生 [1,5] 與游佳融 [1,4,5,7*] Chiung-Hung Hsu[1], Chia-Wei Hsu[5], Chuen Hsueh[5,6], Chih-Liang Wang[2,7], Yi-Cheng Wu[8], Chih-Ching Wu[3,5], Chin-Ching Liu[1], Jau-Song Yu[1,4,5], Yu-Sun Chang[1,5] and Chia-Jung Yu[1,4,5,7*] [1]Graduate Institute of Biomedical Sciences [2]School of Medicine, College of Medicine [3]Department of Medical Biotechnology and Laboratory Science [4]Department of Cell and Molecular Biology, Chang Gung University, TaoYuan, Taiwan [5]Molecular Medicine Research Center, Chang Gung University, TaoYuan, Taiwan [6]Department of Pathology [7]Division of Pulmonary Oncology and Interventional Bronchoscopy, Department of Thoracic Medicine [8]Department of Thoracic Surgery, Chang Gung Memorial Hospital, Linkou, TaoYuan, Taiwan

大會聯合口頭報告 IV ： Neurobiology & Technology

時　間 ： 106 年 3 月 26 日 (日)09:00-10:00
地　點 ： 三樓，第 31 教室
主 持 人：彭賢祐

編號	時段	演講者 & 講題
O38	09:00-09:15	NSC-745887, a Novel Small Molecule Compound against Brain Cancer by Modulating DNA Damage Response and Decoy Receptor 3 in vitro and in vivo 范立筠 [1,2], 璩大成 [3], 馬國興 [4*] L.Y. Fann[1,2], D.C. Chu[3], K.H. Ma[4*] [1]Taipei City Hospital, Department of Nursing, Taipei, Taiwan [2]National Defense Medical Center, Graduate Institute of Medicine Science, Taipei, Taiwan [3]Taipei City Hospital, Department of Neural Surgery, Taipei, Taiwan 4National Defense Medical Center, Department of Biology and Anatomy, Taipei, Taiwan
O39	09:15-09:30	Spinal Fbxo3-Dependent Fbxl2 Ubiquitination of Active Zone Protein RIM1a Mediates Neuropathic Allodynia through Cav2.2 Activation 賴政遠 , 何昱征 , 謝明君 , 王學孝 , 鄭仁坤 , 周逸鵬 , 彭賢祐 * Cheng-Yuan Lai, Yu-Cheng Ho, Ming-Chun Hsieh, Hsueh-Hsiao Wang, Jen-Kun Cheng, Yat-Pang Chau, Hsien-Yu Peng* Department of Veterinary Medicine, College of Veterinary Medicine, National Chung-Hsing University, Taichung, Taiwan
O40	09:30-09:45	Degradation of Amyloid-β Using Intramolecular Irradiation and Photodynamic Induction of Singlet Oxygen on 3D Human Neural Cell Culture Model 陳怡安 [1], 柯建志 [2,3], 劉仁賢 [2,3] Yi-An Chen[1], Chien-Chih Ke[2,3] and Ren-Shyan Liu[2,3] [1]Institute of Clinical Medicine, National Yang-Ming University, Taiwan [2]Department of Biomedical Imaging and Radiological Sciences, National Yang-Ming University, Taiwan [3]Department of Nuclear Medicine and National PET/Cyclotron Center, Taipei Veterans General Hospital
O41	09:45-10:00	Higher Conformational Homogeneity of Fatty Acid Binding Protein Unravels Residue-based Functional Study 鄭伊芸 [1,2], 余慈顏 [3], 黃韻芳 [1], 林欣慧 [1], 張文祥 [2], 呂平江 [1,4,*] Yi-Yun Cheng[1,2], Tsyr-Yan Dharma Yu[3], Yun-Fang Huang[1], Hsin-Hui Lin[1], Wun-Shaing Wayne Chang[2,*], Ping-Chiang Lyu [1,4,*] [1]Institute of Bioinformatics and Structural Biology, National Tsing Hua University, Hsinchu, Taiwan [2]National Institute of Cancer Research, National Health Research Institutes, Zhunan, Taiwan [3]Institute of Atomic and Molecular Sciences, Academia Sinica, Taiwan [4]Department of Medical Sciences, National Tsing Hua University, Hsinchu, Taiwan

台灣生物化學及分子生物學學會

時　間：106 年 3 月 26 日 (日) 09:00-10:00
地　點：三樓，第 33 教室
主 持 人：李新城、徐欣伶、陳永恩

編號	時段	演講者 & 講題
O42	09:00-09:12	Reverse EMT Contributes to the Decrease of TKI Resistance in Gefitinib Resistant Lung Cancer Cell Lines after a Long-term Withdraw of TKI Treatment 李安富[1], 陳曼菁[2], 王珮憓[2], 黃明賢[2], 劉于鵬[3,4*] An-Fu Lee[1], Man-Chin Chen[2], Pei-Hui Wang[2], Ming-Shyan Huang[2], Yu-Peng Liu[3,4*] [1]School of Medicine, College of Medicine, Kaohsiung Medical University, Taiwan [2]Division of Pulmonary and Critical Care Medicine, Department of Internal Medicine, Kaohsiung Medical University Hospital, Taiwan [3]Graduate institute of clinical Medicine, Kaohsiung Medical University, Taiwan [4]Center for infectious disease and Cancer Research, Kaohsiung Medical University, Taiwan.
O43	09:12-09:24	EpCAM/EpEX Regulate Tumor Progression through EGFR Signaling in Colon Cancer Cells 梁剛豪 , 賴俊凱 , 管奕奕 , 左先正 , 吳漢忠 * Kang-Hao Liang, Jun-Kai Lai, I-I Kuan, Hsien-Cheng Tso and Han-Chung Wu* Institute of Cellular and Organismic Biology, Academia Sinica, Taipei , Taiwan
O44	09:24-09:36	EGFR/AKT Signaling Axis Promotes Protein Stability and Transcriptional Activity of ZNF322A Oncoprotein in Lung Cancer 陳玉婷[1], 廖昇佑[2], 王憶卿[1,2*] Yu-Ting Chen[1], Sheng-You Liao[2], and Yi-Ching Wang[1.2*] [1]Department of Pharmacology [2]Institute of Basic Medical Sciences, National Cheng Kung University, Tainan, Taiwan
O45	09:36-09:48	Upregulation of HDAC2 and HDAC5 Confers Resistance to Hormone Therapy in Estrogen Receptor Positive Breast Cancer Cells 蔡于萱 , 張雋曦 Yu-Hsuan Tsai and Chun Hei Antonio Cheung Department of Pharmacology, National Cheng Kung University, Tainan, Taiwan
O46	09:48-10:00	Aurora A and NF-κB Survival Pathway Drive Chemoresistance in Acute Myeloid Leukemia via the TRAF-interacting Protein TIFA 魏同佑[1,3], 吳沛宇[1], 吳庭榕[4], 侯信安[5], 周文堅[6], 滕傑林[7], 林芷如[1,3], 陳若梅[7], 林庭揚[1,3], 蘇香君[1,3], 黃家琦[1], 余長澤[7], 徐士蘭[9], 田蕙芬[5], 蔡明道[1,2,3*] Tong-You Wade Wei[1,3], Pei-Yu Wu[1], Ting-Jung Wu[4], Hsin-An Hou[5], Wen-Chien Chou[6], Chieh-Lin Jerry Teng[7], Chih-Ru Lin[1,3], Jo-Mei Maureen Chen[7], Ting-Yang Lin[1,3], Hsiang-Chun Su[1,3], Chia-Chi Flora Huang[1], Chang-Tze Ricky Yu[7], Shih-Lan Hsu[9], Hwei-Fang Tien[5], Ming-Daw Tsai[1,2,3*] [1]Institute of Biological Chemistry, Academia Sinica, Taipei, Taiwan [2]Genomics Research Center, Academia Sinica, Taipei, Taiwan [3]Institute of Biochemical Sciences, National Taiwan University, Taipei, Taiwan [4]Division of Liver and Transplantation Surgery, Chang Gung Memorial Hospital, Taoyuan, Taiwan [5]Division of Hematology, Department of Internal Medicine, National Taiwan University Hospital, Taipei, Taiwan [6]Departments of Laboratory Medicine, National Taiwan University Hospital, Taipei, Taiwan [7]Division of Hematology/Medical Oncology, Department of Medicine, Taichung Veterans General Hospital, Taichung, Taiwan [8]Department of Applied Chemistry, National Chi Nan University, Nantou, Taiwan [9]Department of Education and Research, Taichung Veterans General Hospital, Taichung, Taiwan

台灣生物化學及分子生物學學會

時　間：106 年 3 月 26 日 (日) 12:30-13:30
地　點：三樓，第 33 教室
主 持 人：李新城、徐欣伶、陳永恩

編號	時段	演講者 & 講題
O47	12:30-12:42	The FERM-containing Protein Tyrosine Phosphatase PTPN3 Interacts with DAAM to Regulates Actin Dynamics and Cell Migration in Lung Cancer 李孟諺[1]，陳光超[1,2*] Meng-Yen Li[1] and Guang-Chao Chen[1,2*] [1]Institute of Biological Chemistry, Academia Sinica, Taipei, Taiwan [2]Institute of Biochemical Sciences, College of Life Science, National Taiwan University, Taipei, Taiwan
O48	12:42-12:54	Exocytosis of Secreted Frizzled-Related Protein 1 by Rab37 in Suppression of Lung Cancer Stemness. 卓書慧 , 曾鴻泰 , 王憶卿 * Shu-Huei Cho , Hong-Tai Tzeng, Yi-Ching Wang* Department of Pharmacology, National Cheng Kung University, Tainan, Taiwan
O49	12:54-13:06	The Mechanistic Role of Polyamines in DNA Double-Strand Break Repair 李致瑩[1], 蘇綸勤[1], 柯旻佑[1], 黃文彥[2], 張震東[1], 林頌然[2], 冀宏源[1,3*] Chih-Ying Lee1, Guan-Chin Su1, Min-Yu Ko1, Wen-Yen Huang2, Geen-Dong Chang1, Sung-Jan Lin[2] and Peter Chi[1,3*] [1]Institute of Biochemical Sciences, National Taiwan University, Taipei, Taiwan [2]Institute of Biomedical Engineering, National Taiwan University, Taipei, Taiwan [3]Institute of Biological Chemistry, Academia Sinica, Taipei, Taiwan
O50	13:06-13:18	A Peptide Drug Reduces the Cognitive Decline in the Alzheimer Disease's Transgenic Mice via Intranasal Administration 沈志豪 , 鄭育松 , 陳子騰 , 廖苔言 , 林辰 , 王雅涵 , 王信二 , 劉仁賢 , 杜邦憲 , 陳佩燁 * Howard C.-H. Shen, Yu-Sung Cheng, Zih-ten Chen, Tai-Yan Liao, Chen Lin, Y.-H. Wang, Chi-Wei Chang, Ren-Shyan Liu, Pang-hsien Tu and Rita P.-Y. Chen* Institute of Biological Chemistry, Academia Sinica, Taipei, Taiwan
O51	13:18-13:30	The Characterization of TDP-43 Oligomer Specific Monoclonal Antibodies and the Neutralization of TDP-43 Oligomers Induced Toxicity 章微微 , 施耀翔 , 方裕勝 , 翁子玉 , 黃詩涵 , 陳韻如 * Wei-Wei Chang, Yao-Hsiang Shih, Yu-Sheng Fang, Tzu-Yu Weng, Shih-Han Huang and Yun-Ru (Ruby) Chen* Genomics Research Center, Academia Sinica, Taipei, Taiwan

中華民國細胞及分子生物學學會

時　間：106 年 3 月 26 日 (日) 14:30-16:30
地　點：三樓，第 30 教室
主 持 人：施修明

編號	時段	演講者 & 講題
O52	14:30-14:43	Knockdown of MTA2 Induces MicroRNA-7 Suppresses Metastasis of Cervical Cancer by Targeting Sp1 and Regulation of KLK10 Expression 林佳良[1], 邱慧玲[2], 謝逸憲[1,3*] Chia-Liang Lin[1], Hui-Ling Chiou[2], Yi-Hsien Hsieh[1, 3] [1]Institute of Biochemistry, Microbiology and Immunology, Chung Shan Medical University, Taichung, Taiwan [2]Department of Medical Laboratory and Biotechnology, Chung Shan Medical University, Taichung, Taiwan [3]Department of Biochemistry, School of Medicine, Chung Shan Medical University, Taichung, Taiwan
O53	14:43-14:56	Positive Regulation of HIF-1A Expression by EBV Oncoprotein LMP1 in Nasopharyngeal Carcinoma Cells 宋維文．朱益智．陳培榕．廖明輝．李政偉 Wei-Wen Sung, Yi-Chih Chu, Peir-Rong Chen, Ming-Hui Liao, Jeng-Woei Lee Department of Life Sciences, Tzu-Chi University, Hualien, Taiwan
O54	14:56-15:09	Evaluating the Musical Stimulation Toward the Brain Functional Networks by Electroencephalography and Eye-Tracking System 許皓庭[1], 江明璋[1,2*] Hao-Ting Syu[1] and Ming-Chang Chiang[1,2*] [1]Department of Life Science, College of Science and Engineering, Fu Jen Catholic University, New Taipei City, Taiwan [2]Terry Whole Brain & Potential Development Center, New Taipei City, Taiwan
O55	15:09-15:22	Lysyl Oxidase Is Associated with Prognosis and Response to Therapy of Patients with Lower Grade Gliomas 黃尚本，冉毅驊，賴宗慶，陳志榮，林源峰 Shang-Pen Huang, Yi-Hua Jan, Tsung-Ching Lai, Chi-Long Chen, Yuan-Feng Lin Graduate Institute of Clinical Medicine, College of Medicine, Taipei Medical University, Taipei, Taiwan
O56	15:22-15:35	Trabid and Mib Regulate the Ryk-mediated Non-canonical Wnt Signaling Pathway During Zebrafish Convergent Extension 曾莉琄，游美淑，鄭春梅，蔡贏萩，江運金 * Li-Chuan Tseng, May-Su You, Chun-Mei Cheng, Ying-Chiu Tsai and Yun-Jin Jiang* Institute of Molecular and Genomic Medicine, National Health Research Institutes, Miaoli County, Taiwan
O57	15:35-15:48	Galectin-9 is Essential for Lgr5 Stem Cell-Paneth Cell Homeostatic Niche Which Regulates Intestinal Inflammation Sudhakar Janaki, 呂學翰，劉明哲，劉扶東，徐志文 Janaki N. Sudhakar, Hsueh-Han Lu, Ming-Che Liu, Fu-Tong Liu, Jr-Wen Shui Institute of Biomedical Sciences, Academia Sinica, Taipei, Taiwan
O58	15:48-16:01	GNB4 Function and Its Implications for Charcot-Marie-Tooth Disease 張資敏[1], 李宜中[2], 范明基[1*] Tzu-Min Chang[1], Yi-Chung Lee[2], Ming-Ji Fann[1*] [1]Department of Life Sciences and Institute of Genome Sciences, National Yang-Ming University, Taipei, Taiwan, Republic of China [2]Department of Neurology, Taipei Veterans General Hospital, Taipei, Taiwan
O59	16:01-16:14	Activation of EP4/PPARγ Pathway Improves Monocrotaline-induced Pulmonary Arterial Hypertension 陳以真[1], 李欣烜[2], 賴盈如[2] Yi-Chen Chen[1], Hsin-Hsien Li, MS[2], Ying-Ju Lai, Ph.D[2] [1]Graduate Institute of Clinical Medical Sciences [2]Department of Respiratory Therapy, Chang Gung University College of Medicine, Taoyuan, Taiwan
O60	16:14-16:27	The Treatment of Pseudomonas Aeruginosa with Meropenem Caused the Bacterial Death and Changes in MALDI-TOF MS 黃文顯[1,2,3]、俞孟均[3]、簡春治[1]、孫郁竣[3]、黃小萍[3] Wen-Hsien Huang[1,2,3],Meng-Chun Yu[3],Chun-Chih Chien[1], Yu-Chun Sun[3], Shiao-ping Huang[3] [1]Department of Laboratory Medicine, Kaohsiung Chang Gung Memorial Hospital [2]Department of Laboratory Medicine, Kaohsiung Municipal Feng-Shan Hospital [3]Department of Medical Laboratory Science and Biotechnology, Fooyin University, Kaohsiung, Taiwan

中華民國臨床生化學會

時　間：106 年 3 月 26 日 (日) 14:30-16:30
地　點：三樓，第 31 教室
主 持 人：吳瑞菁

編號	時段	演講者 & 講題
O61	14:30-14:45	Isolation and Characterization of Human Epiphysis Mesenchymal Stem Cells: The microRNA-29a Act as an Osteogenic Regulator 連韋雄 , 郭繼陽 , 王逢興 Wei-Shiung Lian, Jih-Yang Ko, Yi-Chih Sun, Feng-Sheng Wang [1]Core Lab. for Phenomics and Diagnostics, Kaohsiung Chang Gung Mem. Hosp., Kaohsiung, Taiwan [2]Dept. of Orthopedic Surgery, Kaohsiung Chang Gung Mem. Hosp., Kaohsiung, Kaohsiung, Taiwan [3]Ctr. for Translational Res. in BioMed. Sci., Kaohsiung Chang Gung Mem. Hosp., Kaohsiung, Taiwan
O62	14:45-15:00	Checkpoint Regulation of Chromosome Segregation in C. elegans Spermatogenesis 陳尚暘 [1] , 吳瑞菁 [1,2*] Shang-Yang Chen[1] and Jui-Ching Wu[1,2*] [1]Department of Laboratory Medicine, National Taiwan University Hospital, Taipei, Taiwan [2]Department of Clinical Laboratory Science and Medical Biotechnology, National Taiwan University, Taipei, Taiwan
O63	15:00-15:15	Contactin 4 Suppresses Tumor Growth through Inhibition of Angiogenesis Pathway in Colorectal Cancer 蕭聿昕 , 邱士齊 , 饒梓明 , 江紹瑜 , 李景行 , 黃晨烜 , 蔡明宏 , 楊雅倩 Yu-Xin Xiao, Shih-Ci Ciou, Tzu-Ming Jao, Shao-Yu Chiang, Jing-Xing Lee, Chen-Syuan Huang, Ming-Hong Tsai, Ya-Chien Yang Department of Clinical Laboratory Sciences and Medical Biotechnology, National Taiwan University College of Medicine, Taipei, Taiwan
O64	15:15-15:30	Tumor-Infiltrated T Cells Profiles during Lung Adenocarcinoma Progression on Mice Model 謝昀庭 [1] , 蘇剛毅 [1,2] Yun-Ting Hsieh[1] , Kang-Yi Su[1,2] [1]NTU Center for Genomic Medicine, National Taiwan University, Taipei, Taiwan [2]Department of Clinical Laboratory Sciences and Medical Biotechnology, National Taiwan University, Taipei, Taiwan
O65	15:30-15:45	Novel Potential Drugs Identification for Liver Lipid Metabolism Modulation by High Content Screening 廖耿楙 [1,*], 鄭婷羽 [3,*], 洪孝儀 [3], 蘇剛毅 [1,3] Keng-Mao Laio[1], Ting-Yu Cheng[3], Hsiao-Yi Hong[3], Sung-Liang Yu[3], Kang-Yi Su[1,3] [1]Genome and System Biology Degree Program, National Taiwan University, Taipei, Taiwan [2]National Taiwan University Center for Genomic Medicine, National Taiwan University, Taipei, Taiwan [3]Department of Clinical Laboratory Sciences and Medical Biotechnology, National Taiwan University, Taipei, Taiwan *Equal contribution

台灣毒物學學會

時　間：106 年 3 月 26 日 (日) 08:30-10:15
地　點：二樓，第 29 教室
主 持 人：姜至剛

編號	時段	演講者 & 講題
O66	08:30-08:43	Therapeutic Potential of Tpl2 Inhibitor Blocks the Inflammasome Pathway in Diabetic Retinopathy 賴德偉 , 許美鈴 De-Wei Lai1, Meei-Ling Sheu Institute of Biomedical Sciences, National Chung Hsing University, Taichung, Taiwan
O67	08:43-08:56	Periodic Exposure to Smartphone-mimic Low-luminance Blue Light Induces Retina Damage through Bcl-2/BAX-dependent Apoptosis 林承輝 , 吳曼如 , 李青澔 , 鄭慧文 , 黃士軒 , 蔡季濠 , 林凡立 , 何昭德 , 康照洲 , 蕭哲志 , 鄭幼文 Cheng-Hui Lin, Man-Ru Wu, Ching-Hao Li, Hui-Wen Cheng, Shih-Hsuan Huang, Chi-Hao Tsai, Fan-Li Lin, Jau-Der Ho, Jaw-Jou Kang, George Hsiao & Yu-Wen Cheng School of Pharmacy, College of Pharmacy, Taipei Medical University, Taipei, Taiwan; Department of Pharmacology, School of Medicine, College of Medicine, Taipei Medical University, Taipei, Taiwan
O68	08:56-09:09	Anticancer Effects and The Underlying Mechanisms of the Novel Tangeretin Derivative 5-Acetyl-6,7,8,4'-Tetramethy lnortangeretin on Glioblatoma Cell Lines 陳冠君 , 程彥博 , 林韋丞 , 張嘉哲 Guan-Chun Chen, Yen-Po Cheng, Wei-Cheng Lin, Chia-Che Chang Institute of Biomedical Sciences, National Chung Hsing University, Taichung, Taiwan
O69	09:09-09:22	Effect of Fine Particulate Matter on Mouse Embryonic Development in Vitro 余佳語 , 詹文雄 , 曾嘉儀 , 招名威 Jia-Yu Yu, Wen-Hsiung Chan, Chia-Yi Tseng, Ming-Wei Chao Department of BioScience Technology, Chung Yuan Christian University, Zhongli district, Taoyaun, Taiwan

台灣毒物學學會

時　間：106 年 3 月 26 日 (日) 08:30-10:15
地　點：二樓，第 29 教室
主 持 人：姜至剛

編號	時段	演講者 & 講題
O70	09:22-09:35	Mutagenesis and Carcinogenesis of Chronic Exposure to Low-Dose DEHP and Its Metabolite MEHP in Mammalian CHO Cells 林佩穎 , 張祐容 , 曾嘉儀 , 招名威 Pei-Ying Lin, Yu-Jung Chang, Chia-Yi Tseng, Ming-Wei Chao Bioscience Technology, Chung Yuan Christian University, Taoyuan, Taiwan
O71	09:35-09:48	The Effect of DEHP on Placenta and Fetal Brain Development 莊妤甄 , 招名威 , 曾嘉儀 Yu-Chen Chuang, Ming-Wei Chao, Chia-Yi Tseng Department of Biomedical Engineering
O72	09:48-10:01	Lossing X-box Binding Protein 1 in Renal Tubular Epithelial Cells Leads to Cell Cycle Arrest in G2/M and Contributes to Chronic Kidney Disease after Acute Kidney Injury 吳家賢 [1], 姜至剛 [1,2] Chia-Hsien Wu[1], Chih-Kang Chiang[1,2] Graduate Institute of Toxicology, College of Medicine, National Taiwan University
O73	10:01-10:14	Efficient Generation of Chemically Induced Mesenchymal Stem Cells from Human Dermal Fibroblasts 陳尚甫 [1,2], 賴培倫 [2,3], 林軒 [2,4], 黃筱鈞 [1,3*], 呂仁 [2,3*] Shang-Fu Chen[1,2], Pei-Lun Lai[2,3], Hsuan Lin[2,4], Hsiao-Chun Huang[1,3*], Jean Lu[2,3*] [1]Institute of Molecular and Cellular Biology, National Taiwan University [2]Genomics Research Center, Academia Sinica, Taipei, Taiwan [3]Genome and Systems Biology Degree Program, National Taiwan University, Taipei, Taiwan [4]Department of Pediatrics, National Taiwan University Hospital and National Taiwan

中國生理學會

時　間：106 年 3 月 26 日 (日) 08:30-10:00
地　點：一樓，第 2 教室
主 持 人：蔡美玲

編號	時段	演講者 & 講題
O74	08:30-08:45	Downregulation of Senescence Marker Protein-30 (SMP30) in Male Rats with High Urinary Calcium Excretion by Testosterone Deficiency 林伯涵 , 簡彩雲 , 陳建瑋 , 陳智傑 , 王錫崗 Po-Han Lin, Cai-Yun Jian, Chien-Wei Chen, Chih-Chieh Chen and Paulus S. Wang Institute of Physiology, School of Medicine, National Yang-Ming University
O75	08:45-09:00	Intermittent Hypoxia Release Intracellular Zinc by Mild ROS Generation to Attenuate Ischemia/Reperfusion Injury in Adult Rat Cardiomyocyte 連志峯 , 楊昆達 Chih-Feng Lien, Kun-Ta Yang Institute of Medical Sciences, Tzu Chi University Department of Physiology, School of Medicine, Tzu Chi University
O76	09:00-09:15	MiR-596 Modulates Melanoma Growth through Regulating Cell Survival and Death 劉思蘧 , 林禎桓 , 蔡仁傑 , 蔡牧勳 , 陳明宏 , 馬念涵 Szu-Mam Liu, Chen-Huan Lin, Mu-shiun Tsai, Ming-Hong Chen, Jen-chieh Tsai, and Nianhan Ma Department of Biomedical Sciences and Engineering, College of Health Sciences and Technology, National Central University, Taoyuan, Taiwan
O77	09:15-09:30	Control of Hilar Mossy Cell Excitability Regulates Emotional Behaviors and Pattern Separation 王凱誼 , 連正章 Kai-Yi Wang and Cheng-Chang Lien Institute of Neuroscience
O78	09:30-09:45	Activation of NPFFR2 Leads to Hyperalgesia Through the Spinal Inflammatory Mediator CGRP in Mice 林雅婷 , 劉鶴齡 , 戴元基 , 張哲健 , 許博泓 , 陳景宗 Ya-Tin Lin, Ho-Ling Liu, Yuan-Ji Day, Che-Chien Chang, Po-Hung Hsu, Jin-Chung Chen　Graduate Institute of Biomedical Sciences, Department of Physiology and Pharmacology, Chang Gung University, Taoyuan, Taiwan
O79	09:45-10:00	Identification of GATA-binding Sites on Human HSD3B1 Promoter in Placenta 賴財春 [1#]、李曉芳 [1]、李育賢 [1] 洪珮瑜 [1]、徐明洸 [2]、胡孟君 [1*] Tsai-Chun Lai[1#], Hsiao-Fang Li[1], Yu-Shian Li[1], Pei-Yu Hun[1], Ming-Kwang Shyu[2], and Meng-Chun Hu[1] [1]Graduate Institute of Physiology, National Taiwan University College of Medicine [2]Department of Obstetrics and Gynecology, National Taiwan University Hospital

中華民國解剖學學會

時　間：106 年 3 月 26 日 (日) 09:00-10:00
地　點：三樓，第 32 教室
主 持 人：林谷峻

編號	時段	演講者 & 講題
O80	09:00-09:10	The Roles of Notch1-upregulated Gene TRPA1 in Human Erythroleukemia Cells 陳紀琳 , 兵岳忻 , 葉添順 Ji-Lin Chen, Yueh-Hsin Ping, Tien-Shun Yeh Institute of Anatomy and Cell Biology, School of Medicine, National Yang-Ming University
O81	09:10-09:20	Silencing of MUC20 with siRNA Inhibits the Malignant Character of Pancreatic Ductal Adenocarcinoma Cells Induced by Pancreatic Stellate Cells 陳學亭 [1], 田郁文 [2*], 黃敏銓 [1*] Syue-Ting Chen[1], Yu-Wen Tien[2*], Ming-Chuan Huang[1*] [1]Graduate Institute of Anatomy and Cell Biology, College of Medicine, National Taiwan University, Taipei, Taiwan [2]Department of Surgery, National Taiwan University Hospital, Taipei, Taiwan
O82	09:20-09:30	Olfactory Ensheathing Cells Improve the Survival of Porcine Neural Xenografts in a Parkinsonian Rat Model 翁紹儒 [1], 趙韻婷 [1], 吳信志 [2], 朱有田 [2], 林貞穎 [1], 鄭澄意 [3], 馬國興 [1*] Shao-Ju Weng[1], Yun-Ting Jhao[1],Shinn-Chih Wu[2], Yu-Ten Ju[2], Chen-Ying Lin[1], Cheng-Yi Cheng[3], Kuo-Hsing Ma[1*] [1]Department of Biology and Anatomy, National Defense Medical Center, Taipei, Taiwan [2]Department of Biochemistry, National Defense Medical Center, Taipei, Taiwan [3]Department of Nuclear Medicine, Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan
O83	09:30-09:40	Xenograft of Human Umbilical Mesenchymal Stem Cells from Wharton's Jelly Reverses Pulmonary Fibrosis in Rat 王詩瑤 , 朱國安 , 傅毓秀 Shih-Yao Wang, Kuo-An Chu, Yu-Show Fu Institute of Anatomy and Cell Biology, School of Medicine, National Yang-Ming University, Taipei Division of Chest Medicine, Department of Internal Medicine, Kaohsiung Veterans General Hospital, Kaohsiung
O84	09:40-09:50	Septin7 Is a Centrosomal Protein that Regulates Microtubule Nucleation for Pproper Cell Migration and Growth. 林孜謙 [1] , 許志祥 [2] , 陳亭羽 [2] , 王家義 [1,2*] Tzu-Chien Lin[1*] , Jhih-Siang Syu[2] , Ting-Yu Chen[2] , Chia-Yih Wang[1,2] [1]Department of Cell Biology and Anatomy, College of Medicine, National Cheng Kung University [2]Institute of Basic Medical Sciences, College of Medicine, National Cheng Kung University
O85	09:50-10:00	HN242 Protects Pancreatic β-cells from Oxidative Stress through Nrf2/SIRT Signal Pathway in Type Ⅰ Diabetes Mellitus 蘇意婷 , 龔秀妮 Yi-Ting Su, Hsiu-Ni Kung Institute of Anatomy and Cell Biology, School of Medicine, National Taiwan University

中華民國免疫學會

時　間：106 年 3 月 26 日 (日) 09:00-10:00
地　點：二樓，第 20 教室
主 持 人：陳念榮

編號	時段	演講者 & 講題
O86	09:00-09:15	Daxx Maintains Intestinal Homeostasis by Protecting the Epithelium Against Apoptosis 劉明哲 , Sudhakar Janaki, 施修明 , 呂學翰 , 劉妍君 , 徐志文 Ming-Che Liu, Sudhakar Janaki, Hsiu-Ming Shih, Hsueh-Han Lu, Yen-Chun, Liu, Jr-Wen Shui Institute of Biomedical Sciences, Academia Sinica
O87	09:15-09:30	The Effect and Mechanism of Wedelia Chinensis Extract on Human Glioblastoma Multiforme Cells 陳俐礽 [1], 葉沛蓉 [1], 洪啟庭 [1], 徐再靜 [1], 曾博修 [1,2,*] Li-Jeng Chen[1], Pei-Jung Yeh[1], Chi-Ting Horng[1], Tsai-Ching Hsu[1], Bor-Show Tzang[1,2*] [1]Institute of Biochemistry, Microbiology and Immunology [2]Department of Biochemistry, School of Medicine, Chung Shan Medical University, Taichung, Taiwan
O88	09:30-09:45	The flagellin D2/D3 Domain Induces TLR5 and Inflammasoem Independent Antibody Responses 盧俊吉 [1,2] Lopez-Yglesias AH[2], 趙小丹 [2], Chou T[2], VandenBos T[2], Strong RK[2], Kelly D. Smith[2*] Chun-Chi Lu[1,2], Américo Harry López-Yglesias[2], Xiao-Dan Zhao[2], Tiffany Chou[2], VandenBos Tim[2], Roland K Strong[2], Kelly Smith[2*] [1]Tri-Service General Hospital, National Defense Medical Center, Taiwan [2]Department of Pathology, University of Washington. Seattle, WA. USA
O89	09:45-10:00	HS-Ck, a Novel Small Molecule Inhibits NF-kB and STAT-3 Activation for Osteoarthritis 劉峰誠 [1,2] , 李佳駿 [3,4] , 林需比 [5], 林柳池 [5], 賴振宏 [6], 何令君 [7], 陳少祈 [8], 黃旭山 [3,4*] Feng-Cheng Liu[1,2], Chia-Chung Lee[3,4], Shiu-Bii Lien[5], Leou-Chyr Lin[5], Jenn-Haung Lai[6], , Ling-Jun Ho[7], Shao-Chi Chen[8], Hsu-Shan Huang[3,4] [1]Graduate Institute of Medical Science, National Defense Medical Center, Taipei, Taiwan [2]Rheumatology/Immunology/Allergy, Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan [3]Graduate Institute of Cancer Biology and Drug Discovery, College of Medical Science and Technology, Taipei Medical University, Taipei, Taiwan [4]School of Pharmacy, National Defense Medical Center, Taipei, Taiwan [5]Department of Orthopaedics, Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan [6]Division of Allergy, Immunology and Rheumatology, Department of Internal Medicine, Chang Gung Memorial Hospital, Chang Gung University, TaoYuan, Taiwan [7]Institute of Cellular and System Medicine, National Health Research Institute, Zhunan, Taiwan [8]Graduated Institute of Pathology and Parasitology, National Defense Medical Center, Taipei

台灣分子生物影像學會

時　間：106 年 3 月 26 日 (日) 09:00-10:00
地　點：二樓，第 28 教室
主 持 人：楊邦宏

編號	時段	演講者 & 講題
O90	09:00-09:12	Accelerated Blood Clearance Phenomenon Alter the Pharmacokinetics and Therapeutic Efficacy of Pegylated Liposomal Vinorelbine in A CT-26 Tumor Bearing Mouse Model 陳昭政 [1], 黃軍翰 [1], 李佳哲 [1], 林明賢 2, 王信二 1Chao-Cheng Chen1, Chun-Han Huang1, Jia-Je Li1, Ming-Hsien Lin2 , Hsin-Ell Wang1 [1]Department of Biomedical Imaging and Radiological Sciences, National Yang-Ming University, Taipei, Taiwan [2]Taipei City Hospital Zhongxiao Branch, Taipei, Taiwan
O91	09:12-09:24	Biological Characterization and Pharmacokinetic Study of Aminopeptidase N-Targeted Cytosine Deaminase Recombinant Protein in a Tumor-Bearing Mouse Model 游育婷 , 李佳哲 , 黃瑜桓 , 馮冠豫 , 阮偉程 , 劉仁賢 , 張順福 , 張正 , 王信二 Yu-Ting Yu, Jia-Je Li, Yu-Huan Huang, Guan-Yu Feng, Wei-Cheng Juan, Ren-Shyan Liu, Shun-Fu Chang, C. Allen Chang and Hsin-Ell Wang Department of Biomedical Imaging and Radiological Sciences, National Yang-Ming University, Taipei, Taiwan
O92	09:24-09:36	Double Injections of Rhenium-188 liposomal Drug Could Increase Therapeutic Eefficacy through Regulating the Expressions of EMT Related Markers 張淳溦 , 陳亮丞 , 張志賢 , 李易展 Chun-Yuan Chang, Liang-Chen Chen, Chi-Hsian Chang, Yi-Jang Lee [1]Department of Biomedical Imaging and Radiological Sciences, National Yang-Ming University, Taipei, Taiwan [2]Lsotope Application Division, Institute of Nuclear Energy Research, Taoyuan, Taiwan
O93	09:36-09:48	ACSS2 Expression is Essential for the Enhanced Uptake of Radiolabeled Acetate in Hepatocarcinoma 周榮鴻 , 柯建志 , 陳怡安 , 劉仁賢 Rong-Hong Jhou , Chien-Chih Ke, Yi-An Chen and Ren-Shyan Liu [1]Biomedical Imaging Research Center, National Yang-Ming University, Taipei, Taiwan [2]Department of Biomedical Imaging and Radiological Sciences, National Yang-Ming University, Taipei, Taiwan [3]Institute of Clinical Medicine, National Yang-Ming University, Taipei, Taiwan [4]Department of Nuclear Medicine and National PET/Cyclotron Center, Taipei Veterans General Hospital, Taipei, Taiwan
O94	09:48-10:00	NIR Excited LnIII Nanoparticles Loaded with RB for Luminescence Imaging and Photodynamic Therapy for Deep Tissue 林學良 [1], 張正 [1,2,3,4*] Syue-Liang Lin[1], C. Allen Chang[1,2,3,4*] [1]Department of Biotechnology and Laboratory Science in Medicine [2]Department of Biomedical Imaging and Radiological Sciences [3]Biophotonics & Molecular Imaging Research Center (BMIRC) [4]Biomedical Engineering Research and Development Center (BERDC),

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Joint Annual Conference of Biomedical Science

生物醫學
聯合學術年會

2017 The 32th
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各學會相關資訊
Conference Information

THE TAIWAN SOCIETY FOR BIOCHEMISTRY AND MOLECULAR BIOLOGY

台灣生物化學及分子生物學學會

生醫年會開幕式：國防醫學院 致德堂
日期：106 年 3 月 25 日星期六 上午 10:35

生化學會特別演講：國防醫學院 第 33 教室
日期：106 年 3 月 25 日星期六 下午 2:30～3:20
講員：Dr. David Lyden
講題：Tumor exosomes initiate organ-specific metastasis

生化學會研討會：國防醫學院 第 33 教室
Symposium I: Biomarkers 日期：106 年 3 月 25 日星期六 下午 3:30～5:30
Symposium II: Drug development 日期：106 年 3 月 26 日星期日 下午 2:30～4:30

生化學會優秀口頭論文報告：國防醫學院 第 33 教室
I:日期：106 年 3 月 26 日星期日 上午 9:00～10:00
II:日期：106 年 3 月 26 日星期日 中午 12:30～1:30

生化學會優秀口頭論文＆壁報論文頒獎：國防醫學院 第 33 教室
日期：106 年 3 月 26 日星期日 下午 4:30～4:45

入會資格與方式：
- 舉凡生化、分生、及其他生命科學相關研究領域之學者及學生均歡迎入會。

劃撥帳戶：00170375
戶名：台灣生物化學及分子生物學學會
地址:70101 臺南市大學路 1 號 (國立成功大學醫學院藥理學研究所 8 樓 82-0831 室)
電話：(06)2353535 轉 5489
網址：http://www.tsbmb.org.tw/
電子郵件：tsbmb.tw25@gmail.com

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普通會員： 入會費 500 元 常年會費 500 元
學生會員： 入會費 100 元 常年會費 100 元

第 25 屆理監事名錄：
理 事 長：王德卿
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秘 書 長：張雅曉

歡迎踴躍入會

中華民國細胞及分子生物學學會

THE CHINESE SOCIETY OF CELL AND MOLECULAR BIOLOGY

「中華民國細胞及分子生物學學會」於 1989 年，經先進們促成，于行政院國科會生物處的支持下籌畫成立，28 年來在細胞及分子生物學領域之研究推動與學術交流上努力耕耘，對長期推動生命科學教育，及提升學子對生命科學之認知等基礎紮根工作，成果豐碩。

學會每年固定舉辦之主要活動包括 1.「細胞及分子生物新知研討會」，本研討會舉辦至今已有 25 屆歷史，每年會中均邀請細胞及分子生物學相關領域之優秀學者進行專題演講，另舉辦碩、博士班學生口頭以及壁報論文競賽，鼓勵研究生發表研究心得，並對優秀論文予以獎勵。除可提供研究者學術交流機會，也鼓勵青年學子投入相關領域之研究，落實基礎紮根；2.「生物醫學聯合學術年會」，學會每年與其它八個基礎醫學相關學會共同合作舉辦；以及 3.「海峽兩岸細胞生物學學術研討會」由本學會及中國細胞生物學學會輪流辦理，與會者可藉此機會彼此交流與砌磋最新研究成果。

為鼓勵年輕優秀之研究人員踴躍參加學術活動，吸收生物科技新知並拓展視野，學會每年皆辦理兩次學生、助理及博士後研究員出席國際學術會議補助。

經歷任理事長吳成文院士、沈哲鯤院士、張仲明特聘研究員、吳妍華院士、伍焜玉院士、王陸海院士及現任理事長龔行健院士的努力不懈，加上各屆的理事與監事大力支持與指導，本會得以在穩定中成長與茁壯。

《第十三屆理監事名單》(依姓名筆劃順序)
理事長：龔行健
常務理事：閻雲、劉扶東、龔行健
理事：王憶卿、司徒惠康、江安世、吳益群、吳華林、李芳仁、孫以瀚、張俊彥、張智芬、陳瑞華、陳儀莊、陳鴻震、湯銘哲、楊泮池、裘正健、閻雲、劉扶東、蔡少正、賴明德、鍾邦柱、龔行健
常務監事：伍焜玉
監事：王陸海、伍焜玉、吳成文、沈哲鯤、唐堂、張文昌、賴明詔

今年學會已邁入第 28 年，目前所累積的會員人數共計有 7,836 人，其中普通會員為 1,695 位，學生會員為 6,141 位。展望未來除秉持創會宗旨，亦將力圖與世界的細胞生物學界接軌，更上層樓。

中華民國臨床生化學會

本會以聯絡國內外人士共同促進臨床生化之研究、發展及應用，並加強對國際臨床生化組織之交流，增進國民之健康為宗旨。認同本會宗旨者，誠摯邀請入會共圖發展。

會址：台北市常德街一號　國立臺灣大學醫學院醫學檢驗暨生物技術學系
核准立案：內政部台(71)內社字第 92662 號
統一編號：00966410
電話：02-27049977 轉 563
傳真：02-23711574
信箱：office@cacb.org.tw
網址：http://www.cacb.org.tw/

第十一屆理監事名錄

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監事	高照村、林淑萍
秘書長	吳瑞菁
秘書	鐘明義、李承光

郵局劃撥帳號：
戶名：中華民國臨床生化學會
帳號：05664401

ATM 轉帳：
合作金庫銀行：006
帳號：1346 717 034896

常年會費 NT$800，請記得繳納常年會費，您的奉獻推動了中華民國臨床生化學會會務的發展。

歡迎入會

社團法人台灣毒物學學會

Toxicology Society of Taiwan

http://www.twtoxicology.org.tw/

本會宗旨：本會以促進毒物學及相關科學之研究與發展及應用為宗旨。

本會之任務為：

一、促進毒物學之研究與應用。
二、舉辦有關毒物學學術演講及討論會。
三、參加國際有關毒物學各項會議，並經常與國外毒物學會連繫。
四、出版有關毒物學刊物。
五、辦理其他有關毒物學事項。

- **會員大會**
  時間/地點：106 年 3 月 25 日（星期六） 15:30-16:30 /第 29 教室
- **毒物學會特別演講 歡迎踴躍參加**
  時間/地點：106 年 3 月 25 日（星期六） 14:30- 15:30 /第 29 教室
  演講者：林俊良 教授
  主持人：康照洲 理事長
- **Translational Toxicology 研討會 歡迎踴躍參加**
  時間/地點：106 年 3 月 26 日（星期日）14:30- 15:30 /第 29 教室
  演講者：許美鈴 教授、王家琪 助理教授、招名威 助理教授
  主持人：劉興華 常務理事
- **研究生口頭論文競賽 歡迎踴躍參加**
  時間/地點：106 年 3 月 25 日（星期六）08:50- 10:35 /第 29 教室
  106 年 3 月 26 日（星期日）08:30- 10:15 /第 29 教室
  主持人：姜至剛 秘書長
  頒獎時間/地點：106 年 3 月 26 日（星期日）15:30- 16:00 /第 29 教室
- **歡迎申請入會**
  請於毒物學學會網頁(http://www.twtoxicology.org.tw/)註冊登錄個人資料，並至郵局劃撥繳交會費，學會收到個人資料暨匯款後，會寄發入會通知書，如有任何疑問，請洽學會幹事陳元孝先生(聯絡電話：02-23123456 轉 88347、電子郵件：tsta.taiwan@gmail.com)

郵政劃撥帳戶
戶名：中華民國毒物學學會康照洲
帳號：50319182

會費：
一般會員：入會費 200 元，年費 400 元；
永久會員：入會費 200 元，會費 4000 元。
學生會員：免入會費，年費 200 元。

理 事 長 康照洲

中國生理學會

The Chinese Physiological Society

一、 第 24 屆第 2 次會員大會：

日期：2017 年 3 月 25 日（星期六）14:30 - 15:20
地點：國防醫學院 第二教室

二、 32 屆生物醫學聯合年會-中國生理學會講座：

1. **Keynote Speech**
   時間/地點：3 月 25 日 9:30 - 10:20 /可勝廳
   主講者：Prof. Kim Elaine Barrett
2. **GI Physiology：from Gut to Brain**
   時間/地點：3 月 25 日 15:30 - 17:30 /第二教室
   主講者：Prof. Yasuhiko Minokoshi、蔡曜聲、余佳慧
3. **Physiological Seminar**
   時間/地點：3 月 26 日 14:30 - 16:30 /第二教室
   主講者：Prof. 張凱雄、馬文隆、林子晞、何昱征
4. **論文競賽**
   看板論文競賽：3 月 25 日 13:30 - 14:30 /一樓海報區
   口頭論文競賽：3 月 26 日 08:30 - 10:00 /第二教室

三、 歡迎申請入會

請至生理學會網頁(http://www.cps.org.tw)下載入會申請表，填妥後 email 給**余青翰**老師(hanayu1221@gmail.com)或**廖娟妙**秘書長(jmliao@csmu.edu.tw)。

會費：
永久會員：10000 元
一般會員：入會費 400 元；常年會費：600 元
學生會員：入會費 100 元；常年會費：100 元

四、 第 24 屆理監事名錄

理 事 長：蔡少正
常務理事：謝坤叡、曾清俊、謝博軒、華瑜
理　　事：林赫、余佳慧、張雅雯、李怡萱、陳景宗、阮琪昌、蔡美玲、樓迎統、何應瑞、王家儀
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監　　事：李碧雪、童吉士、黃娟娟、顏茂雄

台灣藥理學會

The Pharmacological Society in Taiwan

❖第十屆理監事名單

理	事 長	簡伯武
常 務	監 事	顏茂雄
監	事	李哲夫、張文昌、符文美、鄧哲明
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理	事	吳炳男、吳錦楨、林建煌、林滿玉、許桂森、許準榕、陳文彬、陳青周、楊春茂、蕭哲志
秘	書 長	張雅雯

特別演講-林建煌教授(臺北醫學大學醫學科學研究所)
2017 年 03 月 25 日(六)下午 2:30 第一教室

專題演講-Cardiovascular Pharmacology (心血管藥理)
主持人：曾清俊教授(高榮)、許準榕教授(北醫)
講員：葉竹來教授(高醫)、陳文彬副教授(台大)、許銘仁教授(北醫)、張雅雯教授(成大)
2017 年 03 月 26 日(日)下午 2:30 第一教室

❖本年度舉辦之**“台灣藥理學會之夜”**，歡迎會員踴躍參加!
時間：2017 年 03 月 25 日(六)晚上六時
地點: 台北市中正區仁愛路一段 17 號 B1（上海鄉村餐廳 Y17-青少年育樂中心）

❖本學會將主辦 2020 亞太藥理學會議(Asia Pacific Federation of Pharmacologist)。

❖台灣藥理學會網站：http://www.pharmacology.org.tw/
❖藥理簡訊下載網址：http://www.pharmacology.org.tw/periodical.php
❖入會辦法：請至本會下載入會申請書，填妥後以郵寄或 Email 方式回傳本會。

❖台灣藥理學會：
會址：10051 台北市仁愛路一段 1 號 11 樓
聯絡地址：70101 台南市東區大學路 1 號 國立成功大學藥理所
聯絡電話：0966-528529; 06-2353535 轉 5445 傳真：06-2749296
學會信箱：tpharmacol@gmail.com；學會 Line ID：tpharmacol

加入 Line

入會申請

歡 迎 踴 躍 加 入 會 員

中華民國解剖學學會

The Association of Anatomists of the Republic of China

✧ 特別演講

時間：2017 年 3 月 25 日(星期六) 09:30-10:20
地點：國防醫學院 32 教室
講者：香港大學吳武田教授

✧ 大會開幕式

3 月 25 日(星期六) 10:35 於至德堂舉辦，歡迎參加!

✧ 會員大會

3 月 25 日(星期六) 12:00-12:30 於 32 教室舉辦

✧ 研討會

I ：Cancer Biology
3 月 25 日(星期六) 14:30-16:30 32 教室
II：Disease Models and Pathogenesis
3 月 26 日(星期日) 14:30-16:30 32 教室

✧ 口頭論文得獎者報告

3 月 26 日(星期日) 09:00-10:0 0 32 教室

✧ 第十五屆理監事名錄

理 事 長 馬國興（國防醫學院生物及解剖學研究所教授）
常務理事 郭余民 司君一 陳天華 謝松蒼
理 事 徐佳福 陳玉怜 馮琮涵 王嘉銓 陳 澄
鄭瓊娟 呂俊宏 傅毓秀 鄭授德 王懷詩
常務監事 盧國賢
監 事 錢宗良 周逸鵬 王順德 曾國藩
秘 書 長 林谷峻
總 幹 事 趙韻婷

✧ 歡迎申請入會

個人會員-入會費 500 元，常年會費 500 元。
學生會員-入會費 100 元，常年會費 100 元。

中華民國免疫學會

Chinese Society of Immunology (CSI-Taiwan)

http://www.immunology.org.tw/about/about02.asp

成立背景

中華民國免疫學會於民國六十七年，由楊照雄教授及韓韶華教授等發起成立，英文名稱為 The Chinese Society of Immunology(CSI) 。本會成立後經本會之前輩教授多年努力，終於在民國七十三年九月經國際免疫學會聯盟 (IUIS) 投票通過，成為該聯盟第三十三個正式會員國，每年得以參加 IUIS 世界活動及參與其事務並取得最新之免疫學資訊。本會目前有會員 500 人，學術及服務活動甚為踴躍，每年有盛大之年會及學術討論會，並邀請世界著名學者蒞臨演講，每月有地區性學術討論會及出版本會雜誌。

成立宗旨

本會以聯繫國內外人士交換心得，提高免疫學水準及促進學術研究與發展為宗旨，致力於免疫學之研究與應用之發展與推廣。本會每年皆舉辦國際會議或國際演講、教育講習等，並與海外相關團體機構互相交流聯繫。

組織架構

本會置理事十五人、監事五人，由會員選舉之，分別成立理事會、監事會。

現任理監事

理事長：呂克桓; 秘書長：陳怡行; 常務理事：徐世達、謝世良、顏正賢、羅淑芬
理事： 王志堯、司徒惠康、沈家瑞、徐再靜、郭敏玲、陳力振、葉國偉、劉扶東、蔡肇基、賴振宏
常務監事：洪志興; 監事：余光輝、‧春明、楊崑德、魏正宗

申請資格

本會會員申請資格如左：

一、普通會員：凡贊同本會宗旨、年滿二十歲、具有下列二款之一資格者

1. 凡在國內外大專以上學校畢業，從事免疫學相關工作或曾發表有關免疫學之論文，經普通會員二人之介紹，並經理事會通過者。
2. 凡在學術機關從事免疫學工作五年以上，由理事二人之介紹，並經理事會通過者。
3. (入會費 1000 元，常年會費 1200 元)

二、學生會員：凡在國內外大專以上學校肄業，且對免疫學有興趣，經普通會員二人之介紹，並經理事會通過者。(入會費 100 元，常年會費 300 元)

三、贊助會員：凡認同本學會宗旨之團體或個人，並贊助本學會工作之團體或個人，經普通會員二人之介紹，並經理事會通過者。(入會費 5000 元，常年會費 5000 元)

申請辦法

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二、至郵局劃撥入會費及年費。收款人帳號為 50025466，戶名為「台灣分子生物影像學會」。

台灣分子生物影像學會

Taiwan Society for Molecular Imaging (TSMI)

成立背景

民國 95 年，為擴大促進台灣分子生物學界專家、學生及分子影像相關領域人士的交流及國際合作，劉仁賢名譽理事長帶領榮總－陽明核醫及醫學放射專業團隊創立本學會，並積極與國外接軌，不但與日、韓兩國分子影像學會（JSMI，KSMI）共同創立亞洲分子影像聯盟(FASMI)，並以 FASMI 之名義與美國 The Society for Molecular Imaging 及 The Academy of Molecular Imaging 及歐洲分子影像學會（ESMI），共同組織世界分子影像大會(WMIC)，成為創會會員國之一。

成立宗旨

本會結合我國分子生物影像科技人員，致力於分子生物影像之研究與應用之發展與推廣，希冀經由教育及研究水準之提升，以及國際合作與學術交流之增進，達成造福國人，貢獻人類福祉之目的。本會每年皆舉辦國際會議或國際演講、教育講習等，並與海外相關團體機構互相交流聯繫。

組織架構

本會置理事十五人、監事三人，由會員選舉之，分別成立理事會、監事會，理事會置常務理事五人，理事長一人，秘書長一人及名譽理事長一人，截至民國 100 年止已有會員 280 人。

現任理監事

理事長：劉仁賢
秘書長：楊邦宏
理事：王信二、王先知、李百祺、李易展、沈立漢、林康平、高潘福、陳志成、黃文盛、黃正仲、張 正、馬國興、楊逢羿、鄧文炳
常務理事：沈立漢、黃文盛、張 正、鄧文炳、劉仁賢
監事：吳東信、陳富都、陳傳霖
常務監事：陳富都

申請資格

本會會員申請資格如左：
一、個人會員：凡贊同本會宗旨、年滿二十歲、具有從事分子生物影像相關工作之資格者。
二、團體會員：凡贊同本會宗旨之公私機構或團體。
三、贊助會員：贊助本會工作之團體或個人。
四、學生會員：凡贊同本會宗旨之公私立大專院校分子生物影像相關科系之在學學生。

申請辦法

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●學生會員：入會費 300 元+常年會費 100 元 = 400 元
●團體會員：入會費 10000 元+常年會費 6000 元 =16000 元

JACBS 2017 第32屆
Joint Annual Conference of Biomedical Science

生物醫學
聯合學術年會

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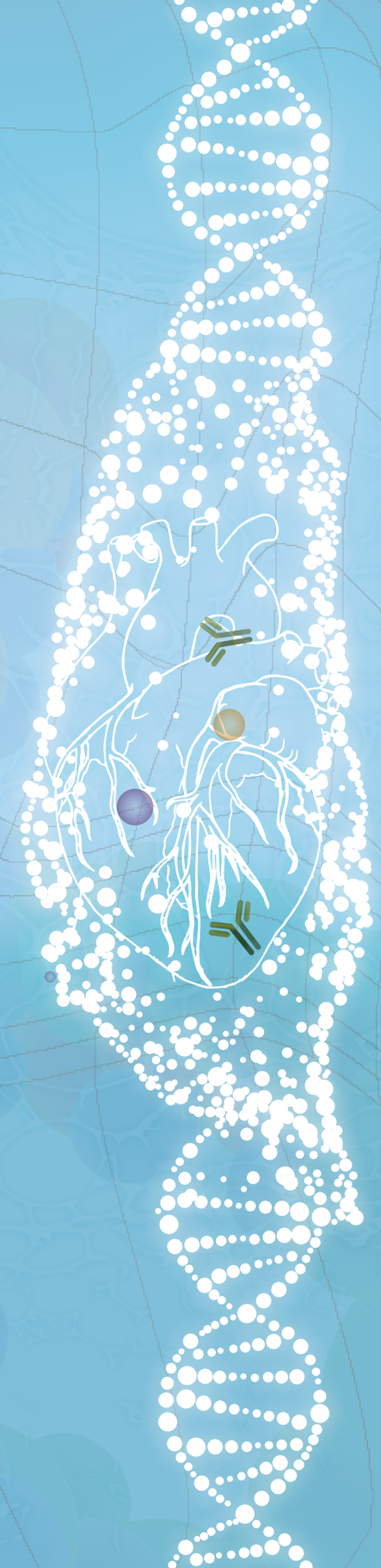

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Postgraduate Educations and Studies Expo

單位

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國防醫學院
（3樓報到處入口旁）

臺北醫學大學

國立清華大學生命科學院

國立成功大學

中央研究院

國立中興大學生命科學院
（2樓近南電梯側）

JACBS 2017 第32屆
生物醫學聯合學術年會

JACBS Joint Annual Conference of Biomedical Science

第32屆 生物醫學聯合學術年會

Translational Medicine　Bench ↔ Bedside

March 25-26, 2017　國防醫學院 (台北市內湖區民權東路六段161號)

生技醫藥產業 學術單位招生 最強生醫人才招募博覽會 (JobFair) 聯合徵才

Job Fair 協辦：國立清華大學生命科學院、國防醫學院、成大醫學院、環球生技月刊

歡迎各領域學者、研究生、產業界　蒞臨

聯合徵才博覽會
時間：3/25、3/26　11:30-14:30
地點：國防醫學院2樓（中華民國免疫學會第20教室外川堂）

企業徵才說明會
時間：3/25、3/26　12:00-13:00
地點：國防醫學院2樓27教室（臺灣分子影像學會旁）

徵才企業說明會場次

各時段確切企業簡報時間，請詳活動現場公告。

3/25　12:00-13:00

財團法人生物技術開發中心　No. 01、02
熱門職缺　藥物化學合成組、轉譯醫學研究室
藥理組、產業服務組...研究員/副研究員

因華生技製藥股份有限公司　No. 03
熱門職缺　三組助理研究員、副研究員、專員...

永昕生物醫藥股份有限公司　No. 04
熱門職缺　PM、QA、法規專員、產程開發
層析分析方法開發、生物分析方法開發...

藥華醫藥股份有限公司　No. 05
熱門職缺　動物細胞培養製程開發、蛋白質重組藥、
單株抗體藥...研究員

台康生技股份有限公司　No. 06
熱門職缺　製造工程師、助理研究員生技產品分析員...

柏樂科研股份有限公司　No. 07
熱門職缺　材料研發工程師、機構工程師
專案管理師、行銷專員...

國立臺灣大學分子與細胞生物學研究所 No. 08

3/26　12:00-13:00

欣揚生醫股份有限公司　No. 16
熱門職缺　專案經理、法規專員、品保工程師...

台灣生物產業發展協會　No. 15
熱門職缺　生技產業深耕學院學員...

免疫功坊股份有限公司　No. 14
熱門職缺　新藥平台開發研究員...

桑迪亞醫藥技術（上海）No. 13
熱門職缺　有機合成研究員...

奎克生技光電股份有限公司　No.12
熱門職缺　產品研發主管/工程師...

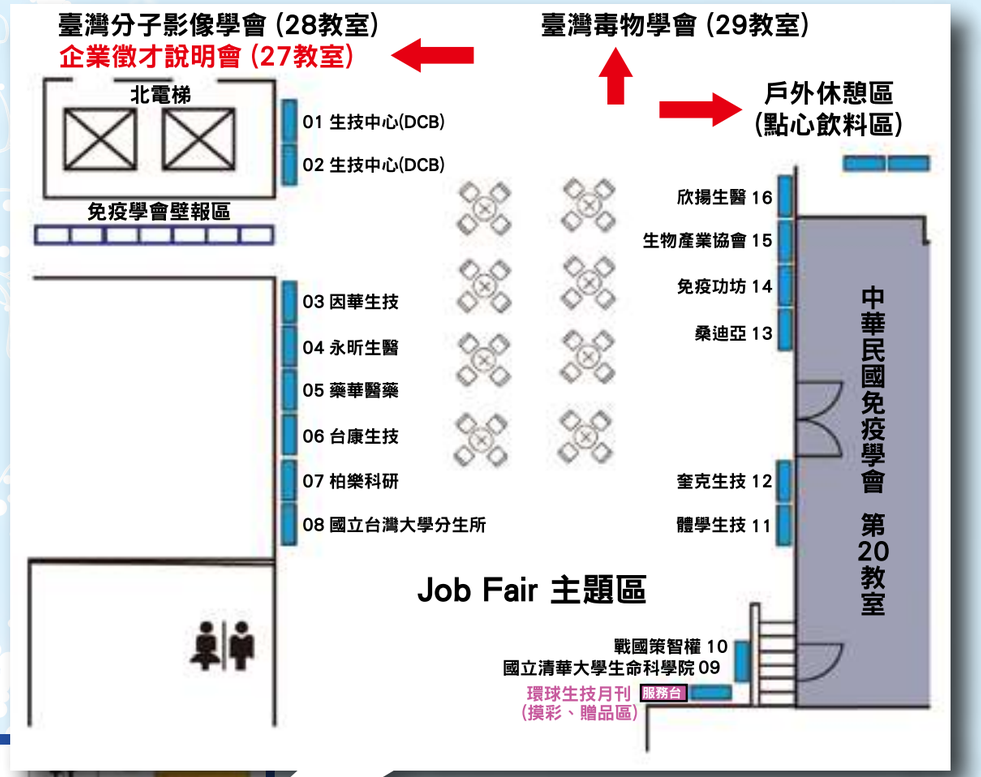
體學生物科技股份有限公司　No. 11
熱門職缺　電路設計主管/工程師...

戰國策智權股份有限公司　No. 10
熱門職缺　專利工程師...

國立清華大學 生命科學院　No. 09

環球生技月刊　(服務台)
熱門職缺　記者、活動企劃、廣告業務

更多職缺請上網　《**環球生技月刊生技徵才**》及《**生醫年會聯合徵才博覽會**》網站



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http://www.gbimonthly.com/jobs/

學術單位徵才
http://www.jacbs.org.tw/_tw/02-job/01-job-list.php

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澳商沃特庫爾股份有限公司台灣分公司
每得科技有限公司
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中央研究院
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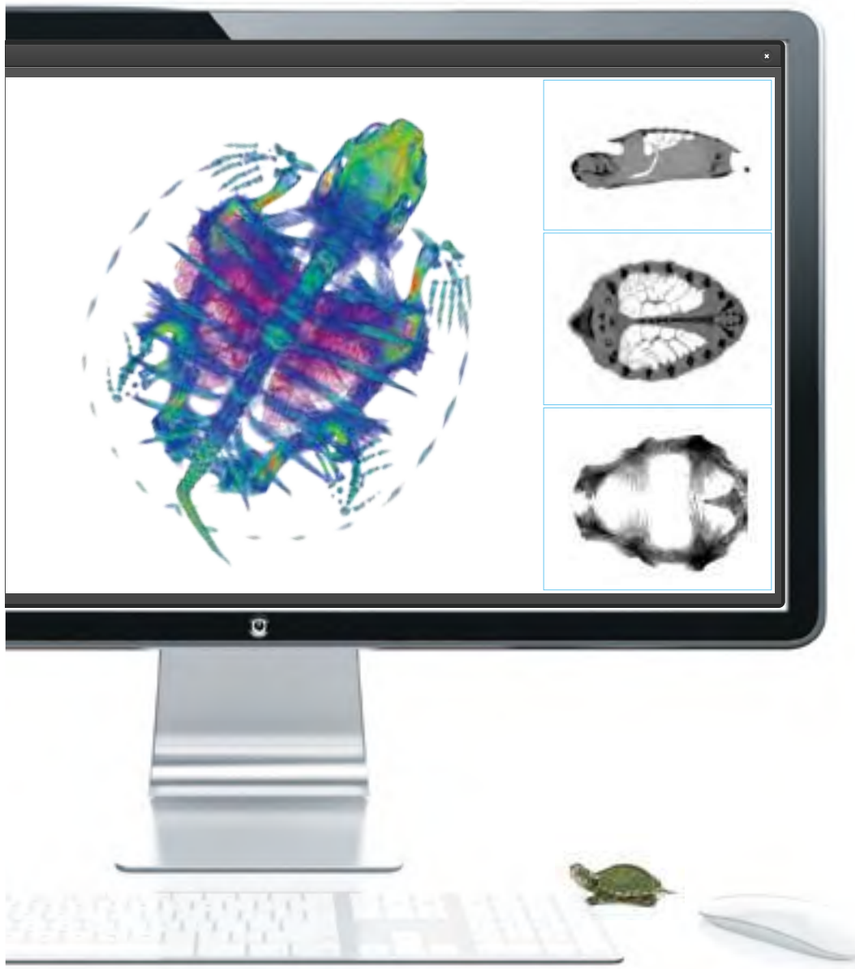

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* 報到領證時須出示證件

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