

國科會生命科學研究推動中心
研討(習)會 結案報告

一、基本資料

中文名稱	跨領域尖端生物科技研討會
英文名稱	Interdisciplinary Advanced Biotechnology Symposium
中文摘要報告	<p>生物科技的迅速發展和不斷革新，已經改變了我們對健康、醫學和生活的理解，研究學者正在不斷突破技術和理論的界限，為人類健康和生活品質帶來巨大的轉變。而在這個蓬勃發展的領域中，跨領域尖端生物科技研究就變得尤為重要。基礎研究在生物科技領域中扮演著關鍵的角色，通過對基因、細胞、生物化學等基礎生物學知識的研究，可以深入了解生命的本質和機理，並從中發現新的治療方法和醫學應用。除了基礎研究，臨床應用也是生物科技領域不可或缺的一部分，將基礎研究成果轉化為臨床應用，可以將科學的成果真正地惠及到人類健康，促進生物科技領域的臨床應用研究對於改善醫療水平和治療效果有著巨大的潛力。此外，生物工程也是生物科技領域中的一個重要方向，通過改造生物體內外的系統和結構，來實現特定的目標和應用，對於推動生物科技的應用和創新具有重要意義。</p> <p>生物科技領域的發展不僅需要基礎研究、臨床應用和生物工程等各方面的支持，還需要跨領域的合作和交流。在這個充滿前瞻性和影響力的生物科技領域中，跨領域尖端生物科技研討會的舉辦具有重要的意義和影響力。首先，研討會為國內外的專家學者提供了一個交流和合作的平台。通過分享最新的研究成果和科技創新，研討會有助於促進各個領域之間的合作和交流，從而推動整個生物科技領域的發展。其次，研討會還可以促進青年學者和研究人員的成長和發展。通過參與研討會，他們可以學習到最新的研究方法和技術，拓寬自己的學術視野，並與國內外的優秀學者建立聯繫和合作關係。最後，研討會的舉辦還可以提升國內生物科技領域的國際影響力和競爭力。通過與國際頂尖學府和研究機構的交流和合作，我們可以吸取他們的經驗和教訓，提高自己的研究水平和創新能力，從而在國際上占有一席之地。</p> <p>國立中興大學是一所具有前瞻性和領導性的研究型綜合大學，積極邁向國際化；近年設立了醫學院，並與多家教學醫院合作，充分結合校內外研究和臨床優勢，力求更多元化的發展。為了推動中興大學與周邊研究機構在生物科技領域獲得突破性進展，國立中興大學生物科技發展中心將於今年主辦「跨領域尖端生物科技研討會」以促進國內生物科技領域邁向國際化。國立中興大學生物科技發展中心屬國立中興大學一級單位，協調整合全校性的生物科技教學與研究、相關研究型核心研究實驗室、推動跨校策略聯盟，並執行整合型研究計畫，基於生物科技發展中心之角色，將透過舉辦「跨領域尖端生物科技研討會」整合跨領域之創新研究議題，推動促進國內生物科技領域關鍵性技術發展。</p>

在本次跨領域尖端生物科技研討會上，參與者將有機會聆聽到來自國內外專家學者的專題演講和研究成果發表，他們的研究領域廣泛，透過這些精彩的演講和交流，與會者將獲得豐富的學術啟發，拓展自己的學術視野，並有機會與國內外優秀學者建立聯繫和合作關係，推動台灣生物科技領域的國際化和全球影響力。「跨領域尖端生物科技研討會」活動將推廣至全台相關院所參與，包含：中央研究院、國立臺灣大學、國立成功大學、國立清華大學、國立陽明交通大學等，將有助於提升台灣相關研究水準。

英文摘要報告

The rapid development and continuous innovation in biotechnology have transformed our understanding of health, medicine, and life. Researchers are constantly pushing the boundaries of technology and theory, leading to significant changes in human health and quality of life. In this thriving field, interdisciplinary cutting-edge biotechnology research is particularly important. Basic research plays a crucial role in biotechnology; by studying fundamental biological concepts such as genes, cells, and biochemistry, we can gain deeper insights into the nature and mechanisms of life, discovering new therapeutic methods and medical applications.

In addition to basic research, clinical applications are an indispensable part of biotechnology. Translating basic research findings into clinical practice allows scientific advancements to truly benefit human health, with significant potential for improving medical standards and treatment outcomes. Furthermore, bioengineering is an important direction within biotechnology, aimed at modifying systems and structures within and outside organisms to achieve specific goals and applications, which is vital for promoting innovation and application in the field.

The development of biotechnology requires support from various aspects, including basic research, clinical applications, and bioengineering, as well as interdisciplinary collaboration and communication. In this forward-looking and influential field, organizing interdisciplinary cutting-edge biotechnology seminars is of great significance and impact. First, these seminars provide a platform for experts and scholars from both domestic and international backgrounds to exchange ideas and collaborate. By sharing the latest research findings and technological innovations, the seminars facilitate cooperation and communication among different fields, thereby promoting the overall development of biotechnology.

Second, the seminars can also foster the growth and development of young scholars and researchers. By participating, they can learn the latest research methods and techniques, broaden their academic perspectives, and establish connections and collaborations with outstanding scholars

worldwide. Lastly, organizing these seminars can enhance the international influence and competitiveness of the domestic biotechnology sector. Through exchanges and collaborations with top international universities and research institutions, we can learn from their experiences and lessons, improve our research standards and innovative capabilities, and secure a place on the global stage.

National Chung Hsing University is a forward-thinking and leading research-oriented comprehensive university, actively pursuing internationalization. In recent years, it has established a medical school and collaborated with several teaching hospitals, fully integrating research and clinical advantages both on and off campus for more diverse development. To promote breakthrough progress in biotechnology between Chung Hsing University and surrounding research institutions, the National Chung Hsing University Biotechnology Development Center will host the "Interdisciplinary Cutting-Edge Biotechnology Seminar" this year to facilitate the internationalization of the domestic biotechnology sector. The Biotechnology Development Center, as a first-level unit of National Chung Hsing University, coordinates and integrates university-wide biotechnology teaching and research, related core research laboratories, promotes inter-institutional strategic alliances, and executes integrated research projects. Based on its role, the center will host the "Interdisciplinary Cutting-Edge Biotechnology Seminar" to integrate innovative research topics across disciplines, advancing key technological development in the domestic biotechnology field.

At this seminar, participants will have the opportunity to hear keynote presentations and research findings from experts and scholars both domestically and internationally. Their research spans a wide range of fields, and through these exciting talks and exchanges, attendees will gain rich academic insights, expand their academic horizons, and have the chance to establish connections and collaborations with outstanding scholars worldwide, thereby promoting the internationalization and global impact of Taiwan's biotechnology sector. The "Interdisciplinary Cutting-Edge Biotechnology Seminar" will extend to relevant institutions across Taiwan, including the Academia Sinica, National Taiwan University, National Cheng Kung University, National Tsing Hua University, and National Yang Ming Chiao Tung University, contributing to the enhancement of research standards in Taiwan.

研討(習)會目的

本次研討會於7月30日至7月31日隆重舉行，匯聚了來自國內外的頂尖學者，並以腫瘤醫學、奈米醫學、功能性體學、宿主與病毒間的交互作用、胸腔疾病機制、核糖核酸(RNA)編輯、結構生物學等多元主題為核心，探討生物科技領域的最新研究成果與前沿發展趨勢。大會特別邀請到加州大學戴維斯分校(University of

California, Davis, UCD) 在這些領域的傑出學者，來台進行學術交流與專題分享。這些學者在學術界具有深遠影響力，其研究不僅促進了科學知識的進步，也在臨床應用與產業化方面展現出極大的潛力，為生物科技的創新與發展開啟了新的契機，對應對和解決重大疾病挑戰具有重要意義。

與此同時，研討會也廣邀國內在分子生物學、免疫學、幹細胞生物學、微生物學、神經科學以及癌症生物學等領域的專家學者，共同參與這場跨領域的尖端生物科技研討會。這些領域的專家不僅為台灣的生物科技研究做出卓越貢獻，他們的學術成果也對全球範圍內的科學與技術發展帶來了嶄新的視野和突破性發展，進一步推動了生物科技在各應用領域的實際運用與未來發展潛力。

此次跨領域研討會的核心特色之一，是專家們的專題演講和深入的研究成果展示，將為與會者帶來豐富的學術啟發與知識交流機會，促進國內外學術社群在生物科技領域的進一步發展與創新。這些演講與討論涵蓋了從基礎研究到臨床應用，乃至生物工程領域的最新進展，對於促進各領域間的合作與交流具有深遠意義，並預期將引領未來的研究方向。

此外，研討會還將舉辦壁報論文競賽，提供年輕學者和學生一個展示研究成果和進行學術交流的平台。這不僅是提升他們研究能力與學術視野的絕佳機會，也為台灣在國際學術競爭中的地位和研發人才的培育提供了強大的動力。此次壁報論文競賽吸引了百位以上相關領域的學者和學生參加，預計將展示數十篇具有高水準的壁報論文，為學術交流創造豐富的機會，促進不同學術領域間的知識交流。

研討會結束後，與會者將於 8 月 2 日參訪國立中興大學南投校區的循環經濟學院，此次參訪預期將促成台灣各大學相關系所教師與國際頂尖學府學者之間的合作，並且進一步探索共同組建跨國研究團隊的可能性，從而達成追求學術卓越與履行社會責任的雙重目標。

此次跨領域尖端生物科技研討會不僅為生物科技的發展注入了新的活力，還通過促進基礎研究、臨床應用與生物工程之間的協同發展，帶動了生物科技領域的創新與應用，這對於提升人類健康福祉及改善生活品質將產生深遠影響，並為未來科技與醫學的發展帶來更多希望與可能性。

參加對象(含人數)

本跨領域尖端生物科技研討會將邀請 UCD 相關領域傑出學者 7 人擔任特邀講員，國立中興大學及國立成功大學相關領域學者 6 人擔任講員，參加對象含國內外生物科技領域的教師、研究人員以及碩博士研究生，二日研討會參加人數總計 233 人次。

預期效益達成狀況

透過本次研討會，來自 UCD、中興大學、成功大學等國內外知名學府的學者、教師、研究人員及碩博士生得以進行深入且實質的學術交流。研討會為國內學者與學生帶來了嶄新且創新的思維，不僅啟發了與會者的學術視野，亦為國內的學術及科技領域的進一步發展

帶來實質的助力。藉由研討會的持續舉辦，期望能促成國內外學術界更穩定且長期的合作，特別是與 UCD 等國際學術機構建立合作的研究團隊。這將有助於共享學術資源及研究成果，並透過合作共同培育新世代的研究學者，提升整體學術研究的競爭力與國際影響力。此外，本次研討會特別設有壁報論文競賽，吸引了來自不同院校的 42 位學生積極參與，展現了豐富多元的研究成果。經過評審團的專業評選，共有 12 名學生脫穎而出，獲得獎項。UCD 的學者們對參賽學生的學術表現給予了高度的肯定，學生們的研究能力及創新思維獲得了廣泛的認可。這不僅彰顯了國內學術界新生力量的潛力，更為未來的國際學術合作奠定了堅實的基礎。

二、邀請主講人姓名及學經歷

姓名	學經資歷	
Andrew J. Fisher	現任	Department of Molecular and Cellular Biology Professor
	學歷	<ul style="list-style-type: none"> • Purdue University, West Lafayette, Indiana Bachelor of Sciences in Biochemistry; • Purdue University, West Lafayette, Indiana Doctor of Philosophy in Biophysics • University of Wisconsin, Madison, Wisconsin Postdoctoral Fellow at Enzyme Institute.
	經歷	Purdue University, West Lafayette, Indiana Undergraduate Research, Protein Chemistry Research Director: W. Cramer E.I. Du Pont de Nemours & Co., Wilmington, Delaware Resident Researcher, Molecular Biology Research Director: E.Knight <ul style="list-style-type: none"> • Purdue University, West Lafayette, Indiana Graduate Research, Virus Crystallography Research Director: J. E. Johnson • University Of Wisconsin, Madison, Wisconsin Postdoctoral Research Fellow, Protein Crystallography Research Director: I. Rayment • University Of California, Davis, California Assistant Professor of Chemistry and Molecular and Cellular Biology • University Of California, Davis, California Associate Professor of Chemistry and Molecular and Cellular Biology • University Of California, Davis, California Professor of Chemistry and Molecular and Cellular Biology
Kent Pinkerton	現任	Pediatrics in the School of Medicine and Anatomy, Physiology and Cell Biology in the School of Veterinary Medicine Professor
	學歷	PhD, Pathology, Duke University, Durham, North Carolina, 1982 MS, Pathology, Duke University, Durham, North Carolina, 1978 BS, Microbiology, Brigham Young University, Provo, Utah, 1974
	經歷	<ul style="list-style-type: none"> • Director, Center for Health and the Environment • Director, Western Center for Agricultural Health and Safety • Deputy Director, Environmental Health Sciences Center • Professor, Pediatrics, School of Medicine • Professor, Anatomy, Physiology and Cell Biology, School of Veterinary Medicine
Kit S. Lam	現任	Distinguished Professor & Chairman Emeritus Department of Biochemistry & Molecular Medicine

		<p>Professor of Hematology & Oncology Sue Jane Leung Presidential Chair in Cancer Research UC Davis NCI-Designated Comprehensive Cancer Center University of California Davis</p>
	學歷	<p>1975 The University of Texas at Austin Bachelor of Microbiology 1980 McArdle Laboratory for Cancer Research, University of Wisconsin, Doctorate in Oncology 1984 Stanford University, School of Medicine, Doctor of Medicine degree</p>
	經歷	<p>Served as co-director of the Cancer Therapeutic Program at the UC Davis NCI-designated Comprehensive Cancer Center for the past 20 years. Member of the NCI Board of Scientific Counselor – Basic Sciences from November 2016 to July 2022. Council member of the American Peptide Society from 2003 to 2009.</p>
Somen Nandi	現任	Chemical Engineering Adjunct Faculty
	學歷	Doctorate Bose Institute, University of Calcutta, India
	經歷	<p>GHS Managing Director Ventria Bioscience as Senior Scientist & Director. Dr. Nandi worked as a Research Fellow and Consultant at International Rice Research Institute</p>
Xinbin Chen	現任	Distinguished Professor, School of Veterinary Medicine, University of California Davis
	學歷	<p>1982, BS (DVM), Anhui Agricultural University, China 1985, MS, Nanjing Agricultural University, China 1987, MS, Michigan State University, Michigan 1991, PhD, Michigan State University, Michigan</p>
	經歷	<p>Principal Investigator, The role of the p63-RBM38 loop in tumor suppression, National Institutes of Health Principal Investigator, The feedback loop between FDXR and the p53 family in tumor suppression, National Institutes of Health/National Cancer Institute Principal Investigator, Mechanism of p73-dependent tumor suppression, National Institutes of Health Principal Investigator, The Role of the p53-Ninj2 loop in Tumor Progression and Metastasis, California Tobacco-Related Disease Research Program</p>
Yoshihiro Izumiya	現任	<p>Professor, Department of Biochemistry and Molecular Medicine, Department of Dermatology, UC Davis School of Medicine CEO, VGN Bio, Inc</p>
	學歷	<p>DVM, Kitasato University, 1997 Ph.D.in Veterinary Microbiology, The University of Tokyo, 2001</p>
	經歷	<p>2023-Present Visiting Professor, Dept. of Pediatric, Fujita Health Medical School, Japan 2019-Present Professor, Dept. of Dermatology, UC Davis School of Medicine 2018-2021 Director, UCD Comprehensive Cancer Center, Viral and Pathogens Mediated Malignancies Initiative</p>
Ching-Hsien	現任	Associate Professor, Department of Internal Medicine; Chancellor's Fellow, UC Davis
	學歷	B.S., China Medical University, Taichung, Taiwan 2000

(Jean) Chen		M.S., China Medical University, Taichung, Taiwan 2004 Ph.D., National Chung Hsing University, Taichung, Taiwan 2011
	經歷	Assistant Adjunct Professor, University of California, Davis 2016-2020 Postdoctoral Researcher, University of California, Davis 2012-2016 Postdoctoral Researcher, National Taiwan University, Taipei, Taiwan 2011-2012
Andrew J. Fisher	現任	Professor, Department of Chemistry, Department of Molecular and Cellular Biology
	學歷	Purdue University, West Lafayette, Indiana Bachelor of Sciences in Biochemistry Purdue University, West Lafayette, Indiana Doctor of Philosophy in Biophysics University of Wisconsin, Madison, Wisconsin Postdoctoral Fellow at Enzyme Institute
	經歷	Purdue University, West Lafayette, Indiana Undergraduate Research, Protein Chemistry Research Director: W. Cramer E.I. Du Pont de Nemours & Co., Wilmington, Delaware Resident Researcher, Molecular Biology Research Director: E. Knight Purdue University, West Lafayette, Indiana Graduate Research, Virus Crystallography Research Director: J. E. Johnson University Of Wisconsin, Madison, Wisconsin Postdoctoral Research Fellow, Protein Crystallography Research Director: I. Rayment University Of California, Davis, California Assistant Professor of Chemistry and Molecular and Cellular Biology University Of California, Davis, California Associate Professor of Chemistry and Molecular and Cellular Biology University Of California, Davis, California Professor of Chemistry and Molecular and Cellular Biology

三、議程

July 30, 2024 (Tuesday)		
Time	Programs	
08:50-09:20	Registration	
09:20-09:40	Opening Ceremony & Taking Group Photo	
09:40-10:30	Keynote I: Kit S. Lam Chair: Chi-Chung Chou Title: From Combinatorial Chemistry to Cancer Theranostic Agents	
10:30-10:50	Break	
10:50-11:40	Keynote II: XinBin Chen Chair: Meei-Ling Sheu Title: The p53-Mdm2 Loop and Iron Homeostasis	
11:40-12:10	Section I: Tai-Lin Chen Chair: Meei-Ling Sheu Title: Next-Gen Anti-VEGFR Therapy: Synthesis of Dual-Action Small Molecules Targeting Angiogenesis and DNA Interstrand Crosslinks	
	Poster presentation	

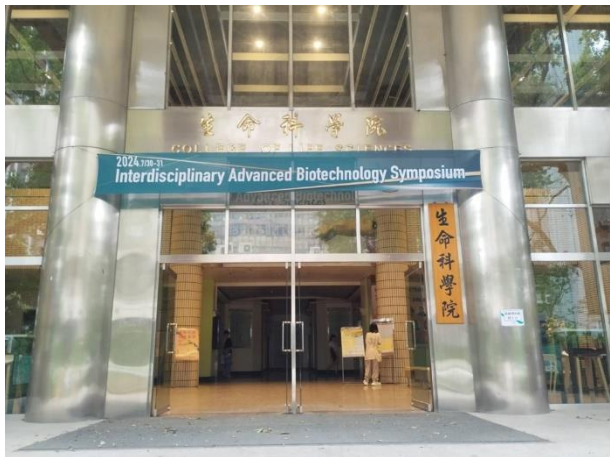
12:10-13:00	Lunch	
13:00-13:30		Grading criteria
13:30-14:20	Keynote III: Ching-Hsien Chen Chair: Long-Yuan Li Title: Targeting Immune Cell Dynamics and MARCKS Signaling in Idiopathic Pulmonary Fibrosis	Poster presentation
14:20-14:50	Section II: Hao-Ping Liu Chair: Long-Yuan Li Title: New Insights of AGR2 in Tumor Progression	
14:50-15:10	Refreshment	
15:10-16:00	Keynote IV: Yoshihiro Izumiya Chair: Hung-Yi Wu Title: Generation of Peptide Drugs from Studies on a Gamma-herpesvirus Latency-Lytic Switch	
16:00-16:30	Section III: Wei-Li Hsu Chair: Hung-Yi Wu Title: The Potent Oncolytic Activity of Attenuated Orf Virus on Nasopharyngeal Carcinoma.	
17:30-	Symposium Banquet	

July 31, 2024 (Wednesday)		
Time	Programs	
09:00-09:50	Keynote V: Andrew J. Fisher Chair: Nien-Jen Hu Title: Structural Basis for RNA editing by ADARs: Helping Advance Tools to Treat Genetic Disorders.	Poster presentation
09:50-10:20	Section IV: Kuei-Yang Hsiao Chair: Nien-Jen Hu Title: Toward a Full Circle: Exploration of the Molecular Functions and Application of Circular RNA	
10:20-10:40	Break	
10:40-11:30	Keynote VI: Somen Nandi Chair: Jyung-Hurng Liu Title: Perspective and Power of Plant Synthetic Biology – Sharing My Personal Experience	Poster presentation
11:30-12:00	Section V: Shu-Ying Wang Chair: Jyung-Hurng Liu Title: Structural insight into the synergistic activities of NADase and SLO in the pathogenesis of Group A Streptococcus infection.	

12:00-12:30	<p style="text-align: center;">Section VI : Chen-Yuan Tseng Chair: Chia-Che Chang Title: The conserved RNA-binding protein Imp regulates spermatogonial stem cell aging and competition via Chinmo</p>
12:30-12:40	Award Presentation& Closing Ceremony
12:40-13:40	Lunch
14:00-15:00	Guided tour of the Museum on the 2nd floor of the College of Life Sciences
15:30-16:00	Networking and Open Time
17:30-	Dinner

四、活動照片和影片

- 照片(至少 10 張，請填寫照片說明)



會場於本校生科系館舉辦



國外邀請學者簽到



群體照



學者間交流



副校長主持開幕式



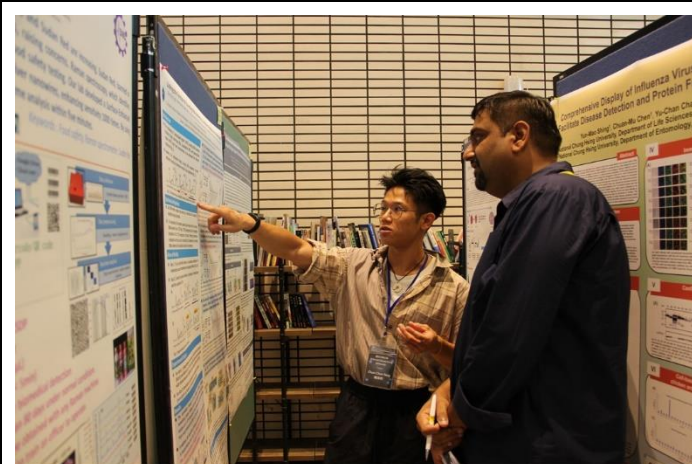
Keynote speaker: Kit S. Lam



XinBin Chen 學者線上演講



本校國際學生提問



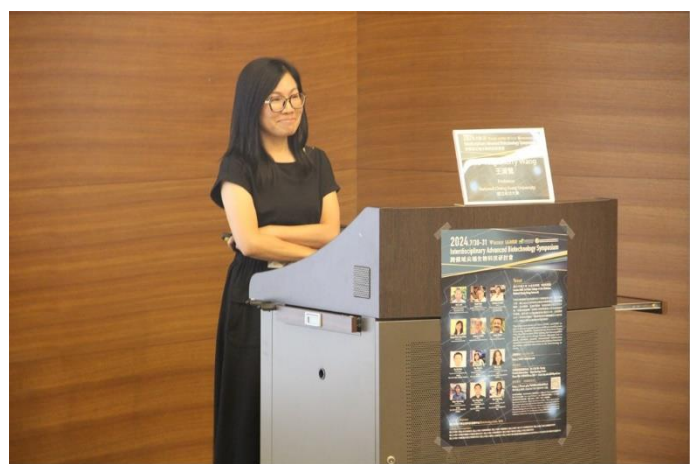
海報競賽



海報競賽



Keynote speaker: Ching-Hsien Chen



Section speaker: Shu-Ying Wang
成大王淑鶯老師

- 影片(1-2分鐘精華短片，請上傳至結案報告專區，並提供檔案名稱)