

科技部生命科學研究推動中心

研討(習)會 結案報告

中文名稱：2022 演化基因體學與生物資訊學國際研討會

英文名稱：International Symposium on Evolutionary Genomics and Bioinformatics 2022

中文摘要報告：

為了培育國內演化基因體學與生物資訊學方面的人才，並提升研究人員的國際競爭力，國立陽明交通大學生物醫學資訊研究所協同日本大阪大學蛋白質研究所及台灣演化與計算生物學會，於民國 111 年 3 月 12 日至 3 月 13 日在國立陽明交通大學陽明校區膺才廳舉辦「2022 演化基因體學與生物資訊學國際研討會」。因考量嚴重特殊傳染性肺炎（COVID-19）疫情發展的不確定性，基於防疫安全考量，學術研討會結合遠距視訊與實體參與，活動期間參與人數共計 130 人。為期兩天的議程安排涵蓋 Evolutionary Physiology、Computational Biology 以及 Genomics 等研究領域主題，特別邀請國內外相關領域頂尖學者就其專長發表關於各領域新知，期盼藉由學者們分享寶貴研究經驗共同激盪出創新的研究能量。此次學術研討會也有安排論文發表競賽，提供獎狀及獎金鼓勵學生、研究生及博士後研究員以英語口頭論述或英語海報方式發表研究成果，評審委員從參賽作品中遴選入圍論文參與競賽，總共有 8 位口頭論述報告以及 30 篇海報論文發表，期望透過此方式有助於培養年輕學術菁英人才。此外，實體會場提供廠商擺設攤位以介紹其最新產品與技術，相信透過這樣的交流平台有助於提升國內學者相關領域的學術研究能力。

英文摘要報告：

To incubate young talents in Evolutionary Genomics and Bioinformatics, and enhance the international competitiveness of researchers. The “International Symposium on Evolutionary Genomics and Bioinformatics 2022” was held by the Institute of Biomedical Informatics, National Yang Ming Chiao Tung University at the Shou-Ren Building, National Yang Ming Chiao Tung University - Yang Ming campus on March 12-13, 2022. Due to the special circumstances caused by epidemic prevention, the conference is a hybrid meeting in which the physical and virtual spaces merge. A total of

130 people participated in the event. The two-day agenda covers research topics associated with Evolutionary Physiology, Computational Biology, and Genomics. Top scholars in the related field were invited to share their authoritative reviews or updated progress at this conference. Besides, domestic students are invited to submit an abstract to make an oral or poster presentation. To train young talents with poster presentation contests and oral presentations in English. A total of 8 oral presentations and 30 posters were published. In addition, the physical venue provides manufacturers with booths to introduce their new products and technologies. It is expected that such an international exchange will help improve the research capabilities of academics for domestic scholars in related fields.

講員：

國別	職稱	姓名
國內	教授	黃耀廷 (Yao-Ting Huang)
國內	副教授	林盈仲 (Ying-Chung Jimmy Lin)
國內	助理教授	林峻宇 (Chun-Yu Lin)
國內	助理教授	林梅芳 (Mei-Fang Lin)
國內	助理教授	張筱涵 (Hsiao-Han Chang)
國內	助理教授	陳卓逸 (Cho-Yi Chen)
國內	助理研究員	黃仁磐 (Jen-Pan Huang)
國內	助理研究員	陳昇宏 (Sheng-hong Chen)
國外	教授	Mariko Okada
國外	教授	Yoko Satta
國外	教授	Nicholas M Luscombe
國外	副教授	Koichi Fujimoto

國外	副教授	Ayako Suzuki
國外	助理教授	Fumiko Matsuzaki
國外	主任研究員	Yasushi Sako

研討(習)會目的、預期效益:

因著次世代高通量定序技術(Next Generation Sequencing, NGS)的蓬勃發展與定序成本降低，產生大數據的基因體序列資料庫，相關的統計分析、序列組裝、研究課題等方面有了新的發展與開拓。近幾年，台灣已陸續有相當多的研究人員與研究生利用相關的技術平台從事研發或改進其演算方法。已有許多的跨領域學生投入演化基因體學與生物資訊學等相關研究。為串聯年輕學者的研究動能，在貴會的補助下，本研討會已在北中南等大專院校多次巡迴舉辦，每屆皆有 150-250 位生物醫學、生物資訊、生態演化及胚胎發育等相關研究人員參與。本活動已與日本遺傳學會建立國際學生互訪交流計畫，依經費狀況，每年至少邀請兩位優秀的日本研究生來台參加 ISEGB 研討會及短期交流訪問。

本研討會可達到的效益如下: (1)透過邀請國外傑出學者的訪問交流，提升國內植物、模式動物、微生物及生物醫學等研究領域的創新發展，建立分析技術的開發平台。(2)凝聚國內研究演化生物學與生物資訊等跨領域之人才，促進相關技術之交流與研討。(3)安排受邀國內、外研究學者進行論文發表，參與研究生壁報論文討論、座談與交換研究心得;將實質激發創新研究點子與思路。(4)經由研習營，介紹應用軟體分析基因體和轉錄體等大數據資料，帶領有興趣者進入體學研究等新興領域。(5)提昇國內體學研究的合作交流。

參加對象:

大學生、研究生、研究助理、博士後研究員、教師、對演化基因體學與生物資訊學相關領域有興趣之人士、業界相關技術部門以及來自日本的學者和學生們。

邀請主講人姓名及學經歷：

姓名	學歷	經歷	現任
黃耀廷 (Yao-Ting Huang)	Ph.D. in Computer science and Information Engineering from National Taiwan University	2018/8 ~ Professor, Department of Computer Science and Information Engineering, National Chung Cheng University. Head, Division of Information Education, Office of Information Technology, National Chung Cheng University.	Professor, Department of Computer Science and Information Engineering, National Chung Cheng University
林盈仲 (Ying-Chung Jimmy Lin)	Ph.D. from North Carolina State University	2020/8 ~present Associate Professor of Department of Life Science and Institute of Plant Biology, National Taiwan University, Taiwan. 2016/8 ~2020/7 Assistant Professor of Department of Life Science and Institute of Plant Biology, National Taiwan University, Taiwan. 2014/8 ~2016/7 (3 month/year) Associate Professor of State Key Laboratory of Tree Genetics and Breeding, Northeast Forestry University, China. 2014/8 ~2016/7 (9 month/year) Postdoctoral research scholar of	Associate Professor of Department of Life Science and Institute of Plant Biology, National Taiwan University, Taiwan

		Department of Forestry and Environmental Resources, North Carolina State University, USA.	
林峻宇 (Chun-Yu Lin)	Ph.D. in Bioinformatics and Systems Biology from National Chiao-Tung University	<p>2019/8 ~ Assistant Professor, Institute of Bioinformatics and Systems Biology, National Yang Ming Chiao Tung University</p> <p>2017/10 ~2019/7 JSPS Postdoctoral Research Fellow/Guest Research Associate, Bioinformatics Center, Institute for Chemical Research, Kyoto University</p> <p>2016/2 ~2017/9 Assistant Research Fellow, Center for Bioinformatics Research, National Chiao Tung University</p> <p>2014/9 ~2016/1 Postdoctoral Research Fellow, Institute of Bioinformatics and Systems Biology, National Chiao Tung University, Taiwan</p>	Assistant Professor, Institute of Bioinformatics and Systems Biology, National Yang Ming Chiao Tung University
林梅芳 (Mei-Fang Lin)	Ph.D. in biochemistry from James Cook University	2020/8 ~ Assistant Professor, Doctoral Degree Program in Marine Biotechnology, National Sun Yat-sen University, Taiwan	Assistant Professor, Doctoral Degree Program in Marine Biotechnology, National Sun Yat-sen

		2017/5 ~2020/7	Postdoctoral Researcher, Evolutionary Neural Biology Unit, Okinawa Institute of Science and Technology, Japan	University, Taiwan
張筱涵 (Hsiao- Han Chang)	Ph.D. in Organismic and Evolutionary Biology from Harvard University	2019/08 ~	Assistant Professor, Institute of Bioinformatics and Structural Biology, National Tsing Hua University	Assistant Professor, Institute of Bioinformatics and Structural Biology, National Tsing Hua University
陳卓逸 (Cho-Yi Chen)	Ph.D. from the National Taiwan University and Academia Sinica	2017/8 ~ 2015/2 ~2017/5	Assistant Professor, Institute of Biomedical Informatics, National Yang Ming Chiao Tung University Postdoctoral Fellow, Dana- Farber Cancer Institute, Harvard University	Assistant Professor, Institute of Biomedical Informatics, National Yang Ming Chiao Tung University
黃仁磐 (Jen-Pan Huang)	Ph.D. from the Department of Ecology and Evolutionary Biology, University of Michigan	2019/1 ~ 2016/7 ~2018/12	Assistant Research Fellow, Biodiversity Research Center, Academia Sinica Postdoctoral Research Scientist, The Field Museum of Natural History	Assistant Research Fellow, Biodiversity Research Center, Academia Sinica
陳昇宏 (Sheng- hong Chen)	Ph.D. from University of California, San Diego & Ludwig Institute for Cancer	2018/Sep ~	Adjunct Assistant Professor, Department of Life Science, National Taiwan University,	Assistant Research Fellow, Institute of Molecular Biology, Academia

	Research	Taiwan 2016/Sep ~ Assistant Research Fellow, Institute of Molecular Biology, Academia Sinica, Taiwan	Sinica, Taiwan
Mariko Okada	Ph.D. from the Tokyo University of Agriculture and Technology	2016 ~Present Professor, Institute for Protein Research, Osaka University, Japan 2005 ~2016 Team Leader, RIKEN Institute, Japan 2000 ~2005 Senior Research Scientist, RIKEN Institute, Japan 1996 ~1999 Visiting researcher, Institute of Toxicology and Environmental Health, University of California, Davis, USA 1988 ~1996 Group leader and Research scientist, Novo Nordisk Bioindustry, Ltd., Japan	Professor, Institute for Protein Research, Osaka University, Japan
Yoko Satta	Ph.D. in genetics from Kyusyu University	2006/4 ~ Professor, School of Advanced Sciences, Department of Evolutionary Studies of Biosystems, SOKENDAI 2015/4 ~ Adjunct Lecturer, Kitasato University 1999/4 ~2006/3 Associate Professor, School	Professor, School of Advanced Sciences, Department of Evolutionary Studies of Biosystems, SOKENDAI

		<p>of Advanced Sciences, Department of Evolutionary Studies of Biosystems, SOKENDAI</p> <p>1996/6 ~1999/3 Associate Professor, Coordination Center for Research and Education</p>	
Nicholas M Luscombe	Ph.D. from the University College London	<p>2021/4 ~ Professor, Okinawa Institute of Science & Technology, Japan</p> <p>2012/3 ~2021/3 Professor, University College London, UK (joint appointment)</p> <p>2012/3 ~2021/3 Senior Group Leader, Francis Crick Institute, UK (joint appointment)</p> <p>2005/1 ~2012/3 Group Leader, EMBL-European Bioinformatics Institute, UK</p> <p>2000/5 ~2004/8 Anna Fuller Postdoctoral Fellow, Yale University, USA</p> <p>1996/9 ~2000/5 PhD, University College London, UK</p> <p>1993/9 ~1996/6 BA, University of Cambridge, UK</p>	Professor, Okinawa Institute of Science & Technology, Japan
Koichi Fujimoto	Ph.D. in physics of complex systems from the University of Tokyo	<p>2013/4 ~ Associate Professor, Department of Biological Sciences, Osaka University</p>	Associate Professor, Department of Biological Sciences, Osaka

		<p>2008/12 ~2013/3</p> <p>Specially appointed associate Professor, Department of Biological Sciences, Osaka University</p> <p>2005/1 ~2008/12</p> <p>Group Leader, ERATO Complex Systems Biology Project, Japan Science and Technology</p> <p>2001/4 ~2006/9</p> <p>Assistant Professor, University of Tokyo</p>	University
Ayako Suzuki	Ph.D. in life science from the University of Tokyo	<p>2021/4 ~</p> <p>Associate Professor, Graduate School of Frontier Sciences, the University or Tokyo, Japan</p> <p>2018/4 ~2021/3</p> <p>Specially Appointed Associate Professor, Graduate School of Frontier Sciences, the University or Tokyo, Japan</p> <p>2015/7 ~2018/3</p> <p>Research Staff, EPOC, National Cancer Center, Japan</p> <p>2015/4 ~2015/6</p> <p>Specially Appointed Assistant Professor, Graduate School of Frontier Sciences, the University or</p>	Associate Professor, Graduate School of Frontier Sciences, the University or Tokyo, Japan

		Tokyo, Japan	
Fumiko Matsuzaki	Ph.D. in medical science from Kyushu University	<p>2014/4 ~ Assistant Professor, Medical Institute of Bioregulation, Kyushu University</p> <p>2011/4 ~2014/3 Post-doctoral Fellow, Medical Institute of Bioregulation, Kyushu University</p> <p>2008/4 ~2011/3 JSPS Research Fellow, Medical Institute of Bioregulation, Kyushu University</p>	Assistant Professor, Medical Institute of Bioregulation, Kyushu University
Yasushi Sako	Ph.D. from Kyoto University	<p>2006/4 ~ Chief Scientist, Cellular Informatics Laboratory, RIKEN</p> <p>1998/4 ~2006/3 Associate Professor, Medical School and Graduate School of Frontier Biosciences, Osaka University</p> <p>1997/10 ~1998/3 Assistant Professor, Medical School of Osaka University</p> <p>1997/4 ~1997/10 Assistant Professor, Nagoya University</p> <p>1989/7 ~1997/3 Assistant Professor, Tokyo University</p>	Chief Scientist, Cellular Informatics Laboratory, RIKEN

議程:

日期	時間	講員	議程主題
First Day, Saturday, March 12th, 2022			
3/12	9:00-15:00	Registration	
3/12	9:30-9:40	1. Prof. Hsuang-Cheng Huang (National Yang Ming Chiao Tung University) 2. Prof. Wen-Hsiung Li (Academia Sinica)	Open remark
3/12	9:40-10:30	Prof. Yoko Satta (SOKENDAI, Japan)	Keynote I Independent selective sweeps for lactose tolerance in Europe and South Asia
3/12	10:30-11:20	1. Prof. Jen-Pan Huang (Academia Sinica) 2. Prof. Chun-Yu Lin (National Yang Ming Chiao Tung University)	Session I 1. Genomic data in systematics and natural history 2. Network Medicine: Translate Big Omics Data into Personalized Medicine)
3/12	11:20-12:00	Society annual meeting	
3/12	12:00-13:00	Lunch (科技新知分享)	
3/12	13:00-14:30	Student session & Poster session	
3/12	14:30-15:20	1. Prof. Yasushi Sako (RIKEN Institute, Japan) 2. Prof. Sheng-hong Chen (Academia Sinica)	Session II 1. Information analysis of ERBB-RAS-MAPK system 2. It takes more than two to tango — the dancing partners of the p53 oscillator!
3/12	15:20-15:50	Coffee break	

3/12	15:50-17:05	<ol style="list-style-type: none"> 1. Prof. Koichi Fujimoto (Osaka University, Japan) 2. Prof. Koichi Fujimoto, Prof. Ying-Chung Jimmy Lin (National Taiwan University) 3. Prof. Mei-Fang Lin (National Sun Yet-San University) 	<p>Session III</p> <ol style="list-style-type: none"> 1. Quantitative modeling of multicellular mechanics promoting pathogenesis and organogenesis 2. Large-Scale Data Analysis for Robotic Yeast One-Hybrid Platforms and Multi-Disciplinary Studies using GateMultiplex 3. Harnessing genomics to understand coral evolution in the Anthropocene
3/12	17:05-	Banquet (by invitation only)	
Second Day, Sunday, March 13th, 2022			
3/13	9:30-10:40	Post-doc/PhD student Session	
3/13	10:40-11:30	Prof. Nicholas M. Luscombe	<p>Keynote II</p> <p>Statistical and machine-learning models of gene regulation</p>
3/13	11:30-12:20	<ol style="list-style-type: none"> 1. Prof. Hsiao-Han Chang (National Tsing Hua University) 2. Prof. Fumiko Matsuzaki (Kyushu University, Japan) 	<p>Session IV</p> <ol style="list-style-type: none"> 1. Discovering recent selection forces shaping the evolution of dengue viruses based on polymorphism data across geographic scales 2. Trans-omic analysis of insulin response in the liver
3/13	12:20-13:40	Lunch	
3/13	13:40-15:20	<ol style="list-style-type: none"> 1. Prof. Ayako Suzuki (University of Tokyo, Japan) 2. Prof. Yao-Ting Huang (National Chung Cheng 	<p>Session V</p> <ol style="list-style-type: none"> 1. Mutation characterization at a haplotype level in lung cancer genomes by long read sequencing analysis 2. Long-read correction and phasing algorithms for antimicrobial studies

		University) 3. Prof. Mariko Okada (Osaka University, Japan) 4. Prof. Cho-Yi Chen (National Yang Ming Chiao Tung University)	3. Stratification of cancer patients based on the signaling dynamics 4. Phylotranscriptomic patterns of network stochasticity and pathway dynamics during embryogenesis
3/13	15:20-	Closing remark	

活動照片:(至少 10 張，請填寫照片說明)



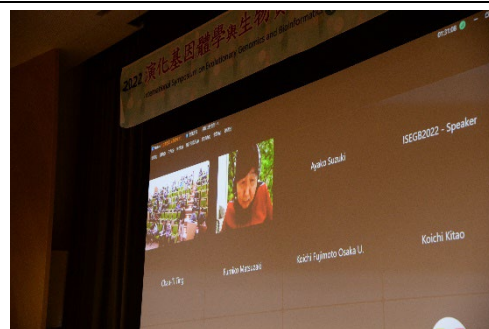
111 年 3 月 12 日 開幕
 主持人:國立陽明交通大學黃宣誠教授



111 年 3 月 12 日 開幕
 邀請中研院李文雄院士進行致詞



111 年 3 月 12 日
 於國立陽明交通大學陽明校區廣才廳開幕式合影



111 年 3 月 12 日 Keynote I
 日本綜合研究大學院大學 Yoko Satta 教授遠距演講



111年3月12日 Session I
中研院黃仁磐助理研究員演講



111年3月12日 Session I
國立陽明交通大學林峻宇助理教授演講



111年3月12日 Session I
林峻宇助理教授和與會者的答問



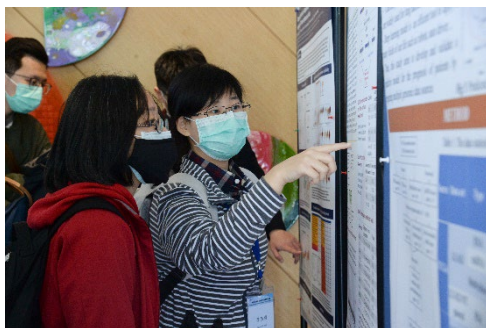
111年3月12日 Student session
國立臺灣大學曾子洋同學口頭論文發表



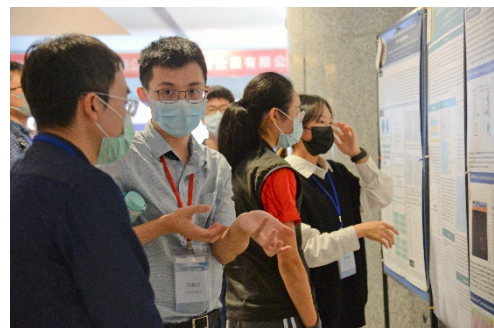
111年3月12日 Student session
國立陽明交通大學朱子羽同學口頭論文發表



111年3月12日 Student session
國立臺灣大學王以德同學口頭論文發表



111年3月12日 Poster session
海報論文競賽



111年3月12日 Poster session
海報論文競賽



111年3月12日 Poster session
海報論文競賽



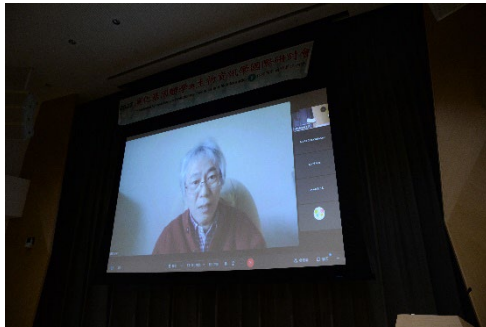
111年3月12日 Poster session
海報論文競賽



111年3月12日 廠商攤位
參展廠商向與會者介紹自家產品



111年3月12日 Session II
中研院陳昇宏助理研究員演講



111年3月12日 Session II
日本理化學研究所 Yasushi Sako 主任研究員遠距演講



111年3月12日 Session III
國立臺灣大學林盈仲副教授演講



111年3月12日 Session III
林盈仲副教授演講結束後與會者進行提問



111年3月12日 Session III
國立中山大學林梅芳助理教授演講



111年3月13日 Post-doc/PhD student Session
臺北醫學大學博士生杜緣口頭論文發表



111年3月13日 Post-doc/PhD student Session
國立政治大學博士後吳致勳口頭論文發表



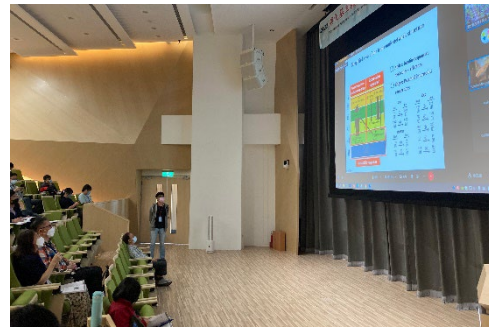
111年3月13日 Post-doc/PhD student Session
中研院博士生杜岳華口頭論文發表



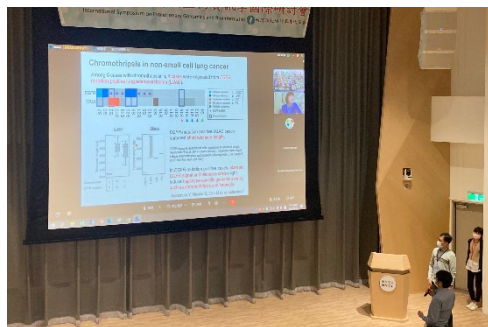
111年3月13日 Keynote II
日本沖繩科學技術大學院大學 Nicholas M Luscombe 教授遠距演講



111年3月13日 Session IV
國立清華大學張筱涵助理教授演講與答問



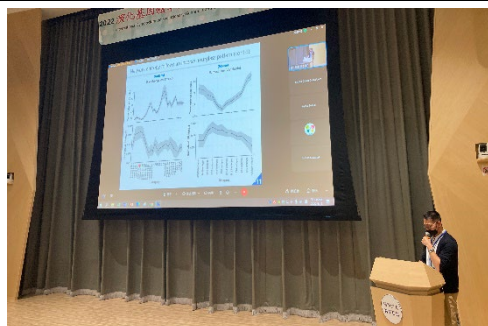
111年3月13日 Session IV
日本九州大學 Fumiko Matsuzaki 助理教授遠距演講與答問



111年3月13日 Session V
日本東京大學 Ayako Suzuki 副教授遠距演講與答問



111年3月13日 Session V
國立中正大學黃耀廷教授演講



111年3月13日 Session V
國立陽明交通大學陳卓逸助理教授演講



111年3月13日
邀請黃宣誠教授進行口頭論文競賽頒獎



111年3月13日
邀請黃宣誠教授進行海報論文競賽頒獎



111年3月13日 閉幕
邀請黃宣誠教授與日本大阪大學 Mariko Okada 教授進行致詞