出國報告(出國類別:參加國際會議)

## 第十四屆國際樹突狀細胞研討會

服務機關:國立中正大學生科系

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派赴國家:中國

出國期間: 105年10月14日10月19日

報告日期:105年11月8日

#### 摘要:

本次出國主要參加兩年一次之國際學術會議,原本經費是科技部補助之計畫經費,但因這個會議兩年才舉辦一次,而計畫於7月底到期時忘記展延,故轉為學校經費之後仍使用於參加此次會議,致使產生此一插曲。此會議日期為今年10月14日至18日,本次會議的主題為樹突狀細胞的各個最新研究領域之成果發表,其中有許多新的技術帶領我們更多了解這個細胞的功能與其他組織和細胞的交互作用,使我們更多了解樹突狀細胞的分化與發育與疾病的關係,如自體免疫疾病以及敗血症的致病機轉至今仍不是很清楚,透過更多基礎研究,對於形成疾病的原因的探究,期望能夠對與疾病的治療有更多的幫助。

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#### 一、 目的:

本次出國主要參加國際學術會議,會議名稱: The 14th International symposium on dendritic cells (第十四屆國際樹突狀細胞研討會)。我也有一海報發表最近實驗室的成果, 題目是: Dendritic Cells modulated by 5-Aza-2'-Deoxycytidine in Experimental Autoimmune Encephalomyelitis(去甲基化藥劑(5-AZA-2-deoxycytidine) 經由調節樹突狀細胞抑制實驗性自體免疫腦脊髓膜炎疾病)。

#### 二、 參加會議經過:

會議日期為今年 10 月 14 日至 18 日 , 14 日議程邀請 1980 年諾貝爾獎得主 Ronald N. Germain 演講,主題為: Imaging Immunity (免疫影像):介紹他們利用 multiphoton microscope(多光子顯微鏡) 觀察小鼠體內淋巴細胞之移動、細胞與細 胞之互動以及與淋巴組織間的關係,開啟一個所謂"Histo-cytometry" (組織細胞 儀) 的領域。利用多達 14 種不同顏色可觀察細胞表面分子、細胞激素或是磷酸 化分子等各式細胞活動的標記。因著科技的進步,新的方法可以幫助我們更多了 解免疫細胞間的互動與其聿件抗原後細胞與細胞間之活動。講者除演講外在會議 期間也多有發問與提供其意見,特別印象深刻的是在與各雜誌之編輯的座談上, 講者問這些編輯,對於這些母語非英語國家的投稿者有什麼建議或幫助,並且也 問這些 NATURE 和 SCIENCE 雜誌的編輯,如何回覆這些動輒 20 至 30 個需回覆 的意見,以及如何鼓勵這些年輕的學者投稿。科技的進步帶動整個科學的發展使 我們更多了解上帝創造的奧秘。而這些大師除關注在研究的領域也不忘提攜後輩 給予指導,令人印象深刻!

15 至 18 日議題則為本次會議的主題:樹突狀細胞的各個最新研究成果: 15 日的主題是樹突狀細胞的發育與訊息傳遞。樹突狀細胞的發育與分化一直是很多變的,因此這一天許多學者報告他們最新的一些成果已解釋所觀察到的現象,也使

我們更多了解樹突狀細胞的分化與發育。Columbia University Medical Center 的 Kang Liu 發表了他們利用單一細胞分化的結果分析人類血球細胞的分化與發 育,分析 2247 個血球前驅細胞的發育,並利用數學模式分析這些龐大的數據, 進而得到血球細胞分化的上下游路徑與細胞間的關連。16日的議題與抗原的呈 現以及與 T 細胞的互動。抗原的呈現影響 T 細胞的分化發育以及其功能,對於 許多 T 細胞的功能異常及走向有很大影響。許多分子機制如何影響 T 細胞的分 化是重要課題。是 17 日則是樹突狀細胞與許多與傳染性疾病的議題。許多傳染 病像是愛滋病毒人未能有效控制,對於免疫系統的影響巨大,而這些病毒分子如 何與抗原呈現細胞互動進而影響免疫細胞的功能則是探討的重點。18日則是腫 瘤與自體免疫疾病與樹突狀細胞的關係。腫瘤細胞的免疫治療是這幾年研究的熱 門重點,而樹突狀細胞疫苗則是另一種思考的方向,可以作為對抗腫瘤發生的疫 苗或治療方式。而自體免疫疾病則是一個許多原因引起的面性疾病,歷時時間長 而致病因子複雜,然而隨著這些知識的累積也越來越多了解這其中的致病機轉, 以及如何治療。在 University of Texas Southwestern Medical Center 的 Zhijan Chen, 他們發現細胞內的 DNA Sensor(去氧核醣核酸偵測)可以引起細胞的發炎現象,此 一發現可以解釋許多紅斑性狼瘡自體免疫的發炎現象;以及敗血症的許多現象; 例如細胞內的 DNA Sensor(去氧核醣核酸偵測)可以引起細胞的發炎現象,與紅斑 性狼瘡的致病機轉有關,是否應用這些可以抑制這些分子的藥物以改善目前仍無 法控制的自體免疫疾病?也開啟一個新的治療的研究方向和領域。除此之外,對

與敗血症的許多現象也有一些可以解釋所觀察到的現象,這些對於疾病機制的研究的進步可以對許多尚未知道原因的自體免疫疾病提供一些解答,也因著這些基礎科學的研究對致病機轉能有更多的解析,以至於對疾病的治療能有更多的助益!

#### 三、 與會心得:

15 日的主題是樹突狀細胞的發育與訊息傳遞。在 Columbia University Medical Center 的 Kang Liu 發表了他們利用單一細胞分化的結果分析人類血球細胞的分化與發育,分析 2247 個血球前驅細胞的發育,並利用數學模式分析這些龐大的數據,進而得到血球細胞分化的上下游路徑與細胞間的關連。看到這些學者的研究結果,科學研究的進步需要整合各個不同領域以解決複雜的生命現象。此外還有一個令我印象深刻的演講則是在 University of Texas Southwestern Medical Center 的 Zhijan Chen,他們發現細胞內的 DNA Sensor(去氧核醣核酸偵測)可以引起細胞的發炎現象,此一發現可以解釋許多紅斑性狼瘡自體免疫的發炎現象;以及敗血症的許多現象。看起來這些進步可以對許多尚未知道原因的自體免疫疾病提供一些解答,並且不久的將來應該會提供一些治療的方法。兩位都是中國人在美國的研究,使他們的研究在科學領域發光發熱。看起來一個好的環境能使認真打拼的中國人有好的成果!

#### 四、 建議:

生物醫學人才之培育需要長時間累積,才能有好的經驗以及成果,也端賴充 沛的資源以及好的環境,但反觀台灣目前的狀況,似乎諸多不利,但大環境的惡 化是一個明顯的趨勢,如何改善需要更多智慧!但教育確實無法一蹴可幾,看到 立即的成果!科學的研究也是需要許多經驗的累積,如何借助已有經驗的成果以 及傳承這些經驗,或可有些幫助。

#### 五、 攜回資料名稱及內容

名稱: DC2016 The14th International Symposium on Dendritic Cells "Program Book"

內容: 大會議程、及海報摘要

#### 六、附件:

#### 參加會議摘要:

Autoimmune diseases are due to the failure of immune tolerance triggered by environmental factors in genetically susceptible individuals. Environmental factors through epigenetic mechanism can modify immune expression without change the genetic code. In our recent data we using low dose of 5-aza-2'-deoxycytidine (5-Aza), an inhibitor of DNMT, we found that 5-Aza applied peripherally could suppress the CNS inflammation in experimental autoimmune encephalomyelitis (EAE) mice and totally inhibited the disease onset. However, 5-Aza treatment did not enhance per-cell inhibitory function of regulatory T cells, but did maintain effector cells at a lower activity in EAE mice. Dendritic cells (DCs) have been well known as the most efficient antigen-presenting cells and play a crucial role in controlling immune responses. We wonder whether DCs can modulate the effector T cell functions in the treatment of demethylation agents under autoimmune conditions. Surface marker showed PD-L1 percentage was upregulated both at CD11c and

CD11b cells after 5-Aza treatment in EAE mice. For the functional assay of DCs in 5-Aza treatment, we used mice DC cell line JAWSII and co-cultured it with CD4<sup>+</sup>CD25<sup>-</sup> T cell from EAE onset mice. *In vitro* proliferation assay indicated 5-Aza pretreated JAWSII caused lower division ratio of CD4 T cells. It indicated that epigenetic modification of antigen presenting cells could play a part of mechanisms to inhibit autoimmune diseases.



# The 14 international Symposium on Dendritic Cells

OCTOBER 14-18, 2016 SHANGHAI, CHINA

**Programme** 



# **Scientific Program of DC2016**

( October 14-18, 2016 )

FRI, October 14, Auditorium (Main Venue)		
16:30-17:00	Opening Ceremony Welcome remarks: Co-Chairs of DC2016 Jacques Banchereau, Xuetao Cao, Yongjun Liu, Federica Sallusto	
17:00-18:00	Chairperson: Xuetao Cao  Keynote lecture: Ronald Germain (NIH, USA)  Imaging immunity	
18:00-21:00	Welcome reception	
	SAT, October 15 Auditorium (Main Venue)	
8:00-8:50	Chairperson: Yongjun Liu Keynote lecture: Michel Nussenzweig (The Rockefeller University, USA)	
	Human immune responses to HIV	
8:50-9:00	Human immune responses to HIV  Break	
8:50-9:00 9:00-12:20		
	Break  Symposium 1: DC development and transcriptional regulation	

10:00-10:15	Charlotte L. Scott (VIB/UGent, Belgium) The transcription factor Zeb2 regulates development of conventional and plasmacytoid DCs by repressing Id2
10:15-10:30	Elodie Segura (Institut Curie, France) Aryl hydrocarbon receptor controls monocyte differentiation into macrophages or dendritic cells
10:30-10:50	Coffee break
10:50-11:20	Florent Ginhoux (Immunology Network, Singapore) Dendritic cell ontogeny
11:20-11:50	Kang Liu (Columbia University, USA)  Tracking human dendritic cell progenitor: quantitative clonal analysis reveals early and sustained cell type bias from HSC throughout hematopoiesis
11:50-12:05	Herbert Schwarz (National University of Singapore, Singapore) Transcriptional and functional characterization of CD137L-dendritic cells identifies a novel dendritic cell phenotype
12:05-12:20	Andreas Schlitzer (University of Bonn, Germany) Cellular programing of human monocytes by IL-4 is defined in a time-dependent manner and is regulated by NCOR2
12:20-14:20	Lunch and Poster session
13:00-14:00	Meeting Editors Chairperson: Xuetao Cao Ursula Weiss, Senior Editor, Nature Peter Lee, Editor-in-Chief, Immunity Angela Colmone, Editor, Science Immunology Lucy Bird, Senior Editor, Nature Reviews Immunology Ioana Visan, Senior Editor, Nature Immunology
14:00-14:30	Break
14:30-18:05	Symposium 2: DC PRRs signaling and epigenetic regulation Co-Chairpersons: Shizuo Akira, Guido Kroemer
14:30-15:00	Zhijian James Chen (University of Texas Southwestern Medical Center, USA) The cGAS pathway of cytosolic DNA sensing and its role in health and disease



15:00-15:30	Caetano Reis e Sousa (The Francis Crick Institute, UK)  Detection of dead cells and pathogen by dendritic cells	
15:30-15:45	Connie Krawczyk (McGill University, Canada) The transcriptional regulators polycomb group factor 6 (PCGF6) and JARID1c negatively regulate dendritic cell activation and promote quiescence	
15:45-16:00	Christophe Macri (Monash University, Australia) Interferon lambda and dendritic cells	
16:00-16:20	Coffee break	
16:20-16:50	Xuetao Cao (Chinese Academy of Medical Sciences, China)  Epigenetic regulation of dendritic cell differentiation and function	
16:50-17:20	Mark Chong (St Vincents Institute of Medical Research, Australia)  Drosha controls dendritic cell development by cleaving messenger RNAs encoding inhibitors of myelopoiesis	
17:20-17:35	<b>Toby Lawrence</b> (Centre Dimmunologie Marseille-Luminy, France) Differential roles for IKKalpha and IKKbeta in DC activation: implications in immunity and tolerance	
17:35-17:50	Rui Jún Eveline Li (VU University Medical Center, The Netherlands) Exploration of crosstalk between CLRs and TLRs using single molecule vaccine modalities	
17:50-18:05	Lucia Minarrieta (TWINCORE, Centre for Experimental and Clinical Infection Research GmbH, Germany) MyD88 signaling contributes to TLR-driven metabolic reprogramming in dendritic cells	
SUN, October 16, Auditorium (Main Venue)		
8:00-11:50	Symposium 3: Antigen processing and presentation Co-Chairpersons: Bernard Malissen, Ken Murphy	
8:00-8:30	Sebastian Amigorena (Institute Curie, France) Antigen cross presentation and T cell activation by dendritic cells	

Revisiting the importance of CD1a on Langerhans cells		
Intestinal CD103-SIPRa cross presenting dendritic cells are absent in human fetal gut  Marion Draheim (Centre de Physiopathologie de Toulouse Purpan, France ) MHC II peptidome and antigen presentation by dendritic cells during blood stage malaria infection  Shira Tabachnick-Cherny (Weizmann Institute of Science, Israel) Protein aggregation captures the stable cellular proteome permissive for MHC class I cross presentation  9:45-10:05  Coffee break  10:05-10:35  Jose Villadangos (The University of Melbourne, Australia) Regulation of antigen presentation in dendritic cells  Sanne Duinkerken (VU Medical Center, The Netherlands) Dissecting human skin DC CLR mediated uptake and cross-presentation of tumor specific glyco-conjugates  10:50-11:05  Derek Hart (ANZAC Research Institute, Australia) CD16- dendritic cells are a unique myeloid antigen presenting cell population  Philippe Pierre (CNRS-INSERM-AMU, France) BAD-LAMP controls TLR9 endosomal trafficking and signaling in human plasmacytoid dendritic cells  Hiroaki Suzuki (Kirin Company, Japan) Plasmacytoid DC-stimulative lactic acid bacteria strain enhances antigen-specific immune responses  Caterina Curato (The Weizmann Institute of Science, Israel) Unbiased study of the DC – T cell interactome in the antigen challenged lymph node	8:30-9:00	
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12:00-14:30 Lunch and Poster session	11:35-11:50	Unbiased study of the DC – T cell interactome in the antigen challenged lymph
	12:00-14:30	Lunch and Poster session



13:00-14:00	Lunch workshop: Clinical trial and translational science Co-Chairpersons: Jacques Banchereau, Yongjun Liu
13:00-13:15	James W. Young (Memorial Sloan Kettering Cancer Center, USA) Human langerhans-type dendritic cells electroporated with murine TRP-2 mRNA stimulate tumor Ag-specific immunity: results of a phase I vaccine trial in melano- ma
13:15-13:30	Aurélie Moreau (Center for Research in Transplantation and Immunology, France) Characterization of human clinical grade tolerogenic dendritic cells used in the one study clinical trial
13:30-13:45	Emiliano Melandri (Miltenyi Biotec, Germany) Blood DCs manufactured with the automated CliniMACS Prodigy® CD1c/CD304 enrichment and activation system induce activation and proliferation of antigen-specific CD8+T cells
13:45-14:00	Ezra Lee (Sungkyunkwan University, Korea) DC-mediated life-long immunity of poliovirus vector-based oral CTL vaccine
13:00-14:00	New techniques introduction (3rd Floor, Room 3E) Miltenyi Biotec Natural circulating dendritic cells: key for antitumor immunity Jolanda M. de Vries (Radboud Institute for Molecular Life Sciences, The Netherlands)
14:00-14:30	Break
14:30-18:05	Symposium 4: DC and T cell subsets Co-Chairpersons: Florian Winau, Bali Pulendran
14:30-15:00	Federica Sallusto (Institute for Research in Biomedicine, Switzerland) Human T cell repertoires in immunity, autoimmunity and allergy
15:00-15:30	Bali Pulendran (Emory University, USA) Systems-based approaches to vaccine development
15:30-15:45	<b>Tomer Granot</b> (Columbia University Medical Center, USA) Tissue profiling reveals life long specialization of dendritic cell subsets in humans
15:45-16:00	Vânia Nieto Brito de Souza (Lauro de Souza Lima Institute, Brazil)  Dendritic cells pulsed with viable <i>Mycobacterium leprae</i> are not efficient inducers for primed T cell proliferation

16:00-16:15	Jianhua Li (Fudan University, Shanghai, China) EBI2 augments Tfh cell fate by promoting interaction with IL-2-quenching dendritic cells	
16:15-16:35	Coffee break	
16:35-17:05	Shizuo Akira (Osaka University, Japan) Functional diversity of macrophage/monocyte subsets	
17:05-17:35	Susanne Heinzel (Walter and Eliza Hall Institute for Medical Research, Australia) Integration of co-stimulatory signals by T cells	
17:35-17:50	Katarzyna M. Luda (Lund University, Sweden) IRF8-dependent migratory CD103₊CD11b-dendritic cells are required for intestinal intraepithelial lymphocyte homeostasis	
17:50-18:05	Kirstie Bertram (The Westmead Institute for Medical Research, Australia) Identification of novel human epidermal dendritic cell populations	
MON, October 17 Auditorium (Main Venue)		
8:00-8:50	Chairperson: Zhijian James Chen  Keynote lecture: Tak Mak (Princess Margaret Cancer Centre, Canada)  Beyond immune checkpoint blockade: emerging strategies	
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10:00-10:15	Andrew Harman (The Westmead Institute for Medical Research, Australia) Examining the role of human dendritic cells in mediating sexual transmission of HIV
10:15-10:35	Coffee break
10:35-11:05	Yan Shi (Tsinghua University, China) Gut microbiota and peripheral immune system development
11:05-11:20	Jessica R. Loughland (Menzies School of Health Research and Charles Darwin University, Australia) Unique impairment of CD1c+ myeloid DC in primary human blood-stage <i>P. falci-parum</i> infection
11:20-11:35	Laurissa Ouaguia (EFS- Service Recherche et Développement INSERM U823, France) Mechanisms of modulation of DC subsets involved in the anti-viral response against HBV infection
11:35-11:50	Stephane Isnard (INSERM U1016 - Institut Cochin, France) HIV-1 and HIV-2 induce IFN lambda production by human plasmacytoid and BDCA3+DC
11:50-13:00	Lunch
13:00	Tours Line 1: Water Towns——Xitang
TUE, October 18, Auditorium	

# TUE, October 18, Auditorium (Main Venue) 8:00-11:50 Symposium 6: DC and inflammation diseases Co-Chairpersons: Florent Ginhoux, Virginia Pascual Virginia Pascual (Baylor Institute for Immunology Research, USA) Novel insights into human SLE pathogenesis

8:30-9:00	Dipyaman Ganguly (CSIR-Indian Institute of Chemical Biology, India)  'Plasmacytoidopathy': from systemic autoimmunity to metabolic syndrome
9:00-9:15	M. Paula Longhi (Queen Mary University of London, UK)  Dendritic cell subsets in the control of visceral adipose tissue homeostasis
9:15-9:30	<b>Tridib Das</b> (Erasmus MC, The Netherlands) CD8+T cell immunity is controlled by A20 levels in conventional DCs possibly driving primary biliary cholangitis
9:30-9:45	Juan Liu (Second Military Medical University, China) Rhbdd3 controls autoimmunity by suppressing the production of IL-6 by dendritic cells via K27-linked ubiquitination of the regulator NEMO
9:45-10:05	Coffee break
10:05-10:35	Li Wu (Tsinghua University, China) MicroRNA-233 regulates he differentiation and function of intestinal dendritic cells and macrophages by targeting C/EBP $\beta$
10:35-11:05	Jacques Banchereau (The Jackson Laboratory, USA)  Next generation transcriptomics reveals a complex isoform repertoire in human immune cells including dendritic cells
11:05-11:20	Hua Tang (Taishan Medical University, China) Interplay among lung dendritic cell subsets during allergic airway inflammation
11:20-11:35	Simone Caielli (Baylor Institute for Immunology Research, USA) Oxidized mitochondrial DNA is a powerful activator of human pDCs and induces a lupus-specific CD4 T cell phenotype
11:35-11:50	<b>Eynav Klechevsky</b> (Washington University School of Medicine, USA) Identification of a novel terminally differentiated human dendritic cell lineage in psoriatic skin
11:50- 14:00	Lunch and poster session
14:00-17:20	Symposium 7: DC and immunotherapy for cancer Co-Chairpersons: Nina Bhardwaj, Yong-Soo Bae



14:00-14:30	Guido Kroemer (University of Paris Descartes, France)  Dendritic cells: decisive for chemotherapy-induced anticancer immune responses
14:30-15:00	Yong-Soo Bae (Sungkyunkwan University, Korea) DC-based adjuvant immunotherapy for patients with hepatocellular carcinoma after primary treatment
15:00-15:15	Manfred B. Lutz (University of Würzburg, Germany) Glycocalix modification by galactose oxidase of fully matured dendritic cells further enhances their potential in T cell priming and anti-tumor therapy
15:15-15:30	Niroshana Anandasabapathy (Harvard Medical School, USA) Homeostatic DC signatures limit anti-tumor immunity
15:30-15:45	Yiwei Chu (Fudan University, China) Phase II vaccine clinical study with dendritic cells primed with glioma stem-like cells antigens against Glioblastoma multiform of different molecular subtypes
15:45-16:00	<b>Wei Xu</b> (Roche Innovation Center, Switzerland) PD-L1 blockade mediates anti-tumor immunity via dendritic cells
16:00-16:20	Coffee break
16:20-16:50	Yongjun Liu (Sanofi, USA) Translating TSLP and dendritic cell biology into medicine
16:50-17:20	Nina Bhardwaj (School of Medicine, Mount Sinai, USA)  Modulation of immunity by dendritic cells in cancer
17:20-18:00	Closing Ceremony Chairperson: Jacques Banchereau Travel awards DC2018 Advertisement Manfred Lutz (University of Wuerzburg, Germany)
18:00-21:00	Gala Dinner