

## CURRICULUM VITAE

**Ya-Jen Chang, Ph.D.**

*IBMS, Academia Sinica*

*128 Academia Rd. Sec.2, N527, Taipei, 115, Taiwan*

*Work: (02) 2652-3003*

*Email: [yajchang@ibms.sinica.edu.tw](mailto:yajchang@ibms.sinica.edu.tw)*

### Professional Experience

#### Education

Sep, 2001 – Jan, 2005 Ph.D., Pharmacology, National Taiwan University, Taiwan.

Sep, 1999 – Jun, 2001 M.S., Pharmacology, National Taiwan University, Taiwan.

Sep, 1995 – Jun, 1999 B.S., Pharmacy, National Taiwan University, Taiwan.

#### Postdoctoral Training

(May, 2008 – Feb, 2011) Postdoctoral Researcher, Children's Hospital Boston, Harvard Medical School, USA

(Aug, 2005 – Apr, 2008) Postdoctoral Researcher/ Genomics Research Center, Academia Sinica, Taiwan

(Feb, 2005 – July, 2005) Postdoctoral Researcher/ Department of Pharmacology, College of Medicine, National Taiwan University, Taiwan

#### Faculty Academic Appointments

(Oct, 2021-present) Adjunct Associate Professor, Institute of New Drug Development, China Medical University, Taichung, Taiwan

(Oct, 2019- present) Associate Research Fellow (tenured), Institute of Biomedical Sciences, Academia Sinica, Taiwan

(Mar, 2013- Oct, 2019) Assistant Research Fellow, Institute of Biomedical Sciences, Academia Sinica, Taiwan

(Feb, 2011-Jan, 2013) Instructor in Pediatrics, Harvard Medical School, USA

(Mar, 2011- Jan, 2013) Research Associate in Immunology, Boston Children's Hospital, Harvard Medical School, USA

#### Professional Societies

2013-present/American Association of Immunologists (AAI)/Regular Member

2015-present/Taiwanese Society for Investigative Dermatology (TSID)/Regular Member

2015-present/The Chinese Society of Immunology/Regular Member

2006-2013/American Association for Cancer Research (AACR)/Associate Member

2011-present/The Society for Mucosal Immunology (SMI)/Member

2001-2008/The Pharmacological Society in Taiwan /Member

#### Professional Activities

##### **1. Journal Editor:**

Associate Editor for "Frontiers in Immunology" (2021-present) (**IF=7.561, JIF Percentile=85.49, Ranked #24 in the subject of Immunology**)

Guest Editor for "Pathogens" (2020-present)

Review Editor for "Frontiers in Immunology" (2020-present)

##### **2. Journal reviewer:**

Journal of Allergy and Clinical Immunology (2019-present)

Allergy (2018-present)

Frontiers in Immunology (2016-present)

Glycobiology (2013-present)  
Journal of Biomedical Science (2013-present)  
Scandinavian Journal of Immunology (2014)  
Allergologia et Immunopathologia (2016)

### **3. Grant reviewer:**

#### **International grant**

FAPESP Portuguese the Young Researcher Grant (2021)  
FWF Austrian Science Fund (2019)

#### **National grant**

Ministry of Science and Technology (2013-present)  
National Taiwan University (2019)  
Taichung Veterans General Hospital (2016)

### **4. Conference organizer and section chair**

1. Cell biology in innate immunity Mini-symposium, ICCB & APOCB Joint Meeting (*the 14th International Congress of Cell Biology and the 9th Asian Pacific Organization for Cell Biology*) (organizer, section chair) (2022)
2. Service in the Chinese Society of Immunology (organizing conference, reviewer committee) (2017, 2020)
3. NHRI/IBMS Joint International Conference on Inflammation & Disease (organizer, section chair) (2019)

## **Honors**

- Selected as "Academia Sinica President's Scholar" (2021) 中研院特優研究績效獎
- Youth Award (Erudite category) from The China Youth Corps, Taiwan (2021) 中國青年救國團青年獎章-博學類
- Academia Sinica Investigator Award (2021) 中研院深耕計畫獎
- Academia Sinica Research Award for Junior Research Investigators (2020) 中研院年輕學者研究著作獎
- Excellent Young Scholar Grant, Ministry of Science and Technology, Taiwan (2019-2022) 科技部優秀年輕學者研究計畫
- Outstanding Research Award (Allergy) from the Chinese Society of Immunology (2018) 中華民國免疫學會劉文章教授紀念學術獎
- Excellent Young Scholar Grant, Ministry of Science and Technology, Taiwan (2016-2019) 科技部優秀年輕學者研究計畫
- Young Scientists 2015, InterAcademy Partnership (IAP)/Global Young Academy (GYA) (2015) 全球年輕學者
- The 3rd Annual Excellence in Creativity Award for Young Scholar, The Foundation for the Advancement of Outstanding Scholarship (2015) 傑出人才基金會年輕學者創新獎
- 23rd Annual Top Ten Distinguished Young Woman, Taiwan (2015) 中華民國十大傑出女青年獎
- Academia Sinica Career Development Award (2015) 中研院前瞻計畫獎
- Special outstanding talent award from Ministry of Science and Technology (2013-2016)
- Investigator Fellowship from Academia Sinica (2013-2015)
- Li Foundation Heritage Prize for "Excellence in Creativity" (2013) 美國李氏傳統基金會創新研究傑出獎
- Annual Young Scholar Award of Pharmacology Society of Taiwan (2008) 台灣藥理學會年輕學者獎
- 15th Outstanding Research Award, Wang Ming-Ning Memorial Foundation (2005) 王民寧獎
- Distinguished Poster Award, The 5th Western Pacific Helicobacter Congress, Kobe, Japan (2004)
- Outstanding Research Award, College of Medicine, National Taiwan University (2001, 2005, 2006)
- Presidential Award, National Taiwan University (1997)

## Invited Speeches

### International conference

- 2022 The role of innate lymphocytes in asthma and their therapeutic applications. *Meeting: Seminars at Department of Pharmacology and Physiology, Université de Montréal (Canada)*
- 2021 Regulation of group 2 innate lymphoid cells by microbial-derived products in asthma. *Meeting: 2021 AAI Annual Meeting (virtual)*
- 2019 Focus on the inbetweeners: Regulation of group 2 innate lymphoid cells in asthma. *Meeting: Formosa Immunology Spring School & International Symposium (FISS; Chang-Gung University, Taiwan)*
- 2019 The microbial metabolite butyrate regulates type 2 innate lymphoid cell-dependent airway hyperreactivity. *Meeting: Keystone symposium on Molecular and Cellular Biology (Innate Immune Receptors: Roles in immunology and Beyond) (Taipei, Taiwan)*
- 2017 Immunomodulatory microparticle prevents innate lymphoid cells-mediated asthma through the induction of Interferons *Meeting: 6<sup>th</sup> Cross Strait Immunology Conference (National Taiwan University, Taiwan)*
- 2016 Prevention of acute asthma by modulating type 2 innate lymphoid cells. *Meeting: Academia Sinica IBMS - RIKEN IMS Joint Workshop, (Yokohama, Japan)*
- 2015 Scoping the future: views and ideas of young scientists to tackle global challenges. *Meeting: World Science Forum (WSF), (Budapest, Hungary)*
- 2014 Focus on the inbetweeners: Innate-like Lymphocytes in Asthma. *Meeting: 4<sup>th</sup> Cross Strait Immunology Conference (National Yang-Ming University, Taiwan)*
- 2013 Microbial glycolipids shape lung immunity in asthma. *Meeting: Joint Symposium of UC Davis and Academia Sinica Taiwan on Chemical Biology (Davis, USA)*
- 2013 Respiratory pathogens activate innate lymphocytes that regulate asthma. *Meeting: NHRI & IBMS Joint International Conference on Inflammation, Cancer and Metabolic Diseases (NHRI, Taiwan)*

### Peer reviewed publications (year-month)

1. Chung EJ, Luo CH, Thio CL, (**Chang YJ\***) Immunomodulatory Role of Staphylococcus aureus in Atopic Dermatitis. *Pathogens* 11, 422-432 (2022-03) ([\\*correspondence](#))
2. Li LC, Chen WY, Chen JB, Lee WC, Chang CC, Tzeng HT, Huang CC, (Chang YJ), Yang JL The AST-120 Recovers Uremic Toxin-Induced Cognitive Deficit via NLRP3 Inflammasome Pathway in Astrocytes and Microglia. *Biomedicines* 9, 1252 (2021-09)
3. He YH, Yeh MH, Chen HF, Wang TS, Wong RH, Wei YL, Huynh TK, Hu DW, Cheng FJ, Chen JY, Hu SW, Huang CC, Chen Y, Yu J, Cheng WC, Shen PC, Liu LC, Huang CH, (Chang YJ), Huang WC. ER $\alpha$  determines the chemoresistant function of mutant p53 involving the switch between lincRNA-p21 and DDB2 expressions. *Molecular Therapy-Nucleic Acids* 25, 536-553 (2021-08)
4. Chen WY\*, Wu YH, Tsai TH, Li RF, Lai AC, Li LC, Yang JL, (**Chang YJ\***) Group 2 innate lymphoid cells contribute to IL-33-mediated alleviation of cardiac fibrosis. *Theranostics* 11(6): 2594-2611 (2021-01) ([\\*correspondence](#))
5. Hsu TS, Lin YL, Wang YA, Mo ST, Chi PY, Lai AC, Pan HY, (**Chang YJ**), Lai MZ. HIF-2 $\alpha$  is indispensable for regulatory T cell function. *Nat Commun.* 11:5005 (2020-10)
6. Tsai CH, Wu AC, Chiang BL, Yang YH, Hung SP, Su MW, (**Chang YJ**), Lee YL. CEACAM3 decreases asthma exacerbations and modulates respiratory syncytial virus latent infection in children. *Thorax* 75(9),725-734 (2020-09)
7. Lai YT, Chao HW, Lai AC, Lin SH, (**Chang YJ\***) Huang YS\*. CPEB2-activated PDGFR $\alpha$  mRNA translation contributes to myofibroblast proliferation and pulmonary alveologenesis. *J Biomed Sci.* 27:52 (2020-04) ([\\*correspondence](#))

8. Wu YH, Lai AC, Chi PY, Thio CL, Tsai CH, Chen WY, Lee YL, Lukacs NW, (**Chang YJ\***). Pulmonary IL-33 orchestrates innate immune cells to mediate RSV-evoked airway hyperreactivity and eosinophilia. *Allergy*. 75:818–830 (2020-04) (*\*correspondence*)
9. Lai AC, Chi PY, Thio CL, Han YH, Kao HN, Hsieh HW, Gervay-Hague J\*, (**Chang YJ\***).  $\alpha$ -Lactosylceramide protects against iNKT-mediated murine airway hyperreactivity and liver injury through competitive inhibition of CD1d binding. *Front Chem*. 7:811 (2019-11) (*\*correspondence*)
10. Thio CL, Lai AC, Chi PY, Webster G, (**Chang YJ\***). TLR9-dependent interferon production prevents group 2 innate lymphoid cell-driven airway hyperreactivity. *J Allergy Clin Immunol*. 144(3):682-97 (2019-09) (*\*correspondence*) *This paper was highlighted in “the Editors’ Choice” in the Journal of Allergy and Clinical Immunology (Zuhair K. Ballas, vol.144, 2019)*
11. Chuang YT, Leung K, (**Chang YJ**), DeKruyff RH, Savage PB, Cruse R, Benoit C, Elewaut D, Baumgarth N, Umetsu DT. A natural killer T cell subset that protects against airway hyperreactivity. *J Allergy Clin Immunol*. 143(2):565-76 (2019-02)
12. Thio CL, Chi PY, Lai AC, (**Chang YJ\***). Regulation of type 2 innate lymphoid cell-dependent airway hyperreactivity by butyrate. *J Allergy Clin Immunol*. 142(6):1867-83 (2018-12) (*\*correspondence*) *This paper was highlighted in “the Editors’ Choice” in the Journal of Allergy and Clinical Immunology (Zuhair K. Ballas, vol.142, 2018)*
13. Chen WY\*, Yang JL, Wu YH, Li LC, Li RF, Chang YT, Dai LH, Wang WC, (**Chang YJ\***). IL-33/ST2 axis mediates the hyperplasia of intrarenal urothelium in obstructive renal injury. *Exp Mol Med*. 50(4):36 (2018-04) (*\*correspondence*)
14. Hsieh WC, Hsu TS, (**Chang YJ**), Lai MZ. IL-6 receptor blockade corrects defects of XIAP-deficient regulatory T cells. *Nat Commun*. 9(1):463 (2018-01)
15. Chen LY, Yang-Yen HF, Tsai CC, Thio CL, Chuang HL, Yang LT, Shen LF, Song IW, Liu KM, Huang YT, Liu FT, (**Chang YJ**), Chen YT, Yen JJ. Protein Palmitoylation by ZDHHC13 Protects Skin against Microbial-Driven Dermatitis. *J Invest Dermatol*. 137(4):894-904. (2017-04)
16. Lai YT, Su CK, Jiang ST, (**Chang YJ**), Lai AC, Huang YS. Deficiency of CPEB2-confined choline acetyltransferase expression in the dorsal motor nucleus of vagus causes hyperactivated parasympathetic signaling-associated bronchoconstriction. *J Neurosci*. 36(50):12661-12676. (2016-12)
17. Chen WY, (**Chang YJ**), Su CH, Tsai TH, Chen SD, Hsing CH, Yang JL. Upregulation of Interleukin-33 in obstructive renal injury. *Biochem Biophys Res Commun*. 13;473(4):1026-32. (2016-05)
18. (**Chang YJ\***), Hsuan YC, Lai AC, Han YC, Hou DR\*. Synthesis of  $\alpha$ -C-Galactosylceramide via Diastereoselective Aziridination: The New Immunostimulant 4'-epi-C-Glycoside of KRN7000. *Org Lett*. 18(4):808-11. (2016-02) (*\*correspondence*)
19. Ho KC, Chiang YJ, Lai AC, Liao NS, (**Chang YJ**), Yang-Yen HF, Yen JJ. CBAP promotes thymocyte negative selection by facilitating T-cell receptor proximal signaling. *Cell Death Dis*. 5(11):e1518. (2014-11)
20. Lin J, (**Chang YJ**), Yang WB, Yu AL, Wong CH. The Multifaceted Effects of Polysaccharides Isolated from *Dendrobium huoshanense* on Immune Functions with the Induction of Interleukin-1 Receptor Antagonist (IL-1ra) in Monocytes *PLoS One*. 9(4):e94040. (2014-04)
21. Yu S, Kim HY, (**Chang YJ**), DeKruyff RH, Umetsu DT. Innate Lymphoid Cells and Asthma. *J Allergy Clin Immunol*. 133(4):943-50. (2014-04)
22. Huang JR, Tsai YC, (**Chang YJ**), Wu JC, Hung JT, Lin KH, Wong CH, Yu AL.  $\alpha$ -Galactosylceramide but not phenyl-glycolipids induced NKT cell anergy and IL-33-mediated myeloid-derived suppressor cell accumulation via upregulation of egr2/3. *J Immunol*. 192(4):1972-81. (2014-02)
23. Kim HY, Lee HJ, (**Chang YJ**), Pichavant M, Shore SA, Fitzgerald KA, Iwakura Y, Israel E, Bolger K, Faul J, DeKruyff RH, Umetsu DT. Interleukin-17-producing innate lymphoid cells and the NLRP3

- inflammasome facilitate obesity-associated airway hyperreactivity. **Nat Med.** 20(1):54-61. (2014-01)  
*This paper was selected to be a paper "Prime" by Faculty of 1000, and was the subjects of the news and views in Nature Med. (Celedon & Kolls, 20, 2014)*
24. (Chang YJ\*), DeKruyff RH, Umetsu DT\*. The role of type 2 innate lymphoid cells in asthma. **J Leukoc Biol.** 94(5):933-40. (2013-11) (\*correspondence)
  25. Albacker LA\*, Chaudhary V\*, (Chang YJ\*), Kim HY\*, Chuang YT, Pichavant M, DeKruyff RH, Savage PB, Umetsu DT. Invariant natural killer T cells recognize a fungal glycosphingolipid that can induce airway hyperreactivity. **Nat Med.** 19(10):1297-304. (2013-10) (\*co-first author)  
*This paper was the subjects of the news and views in Nature Med. (Godfrey, Pellicci & Rossjohn, 19, 2013)*
  26. Kim HY\*, (Chang YJ\*), Chuang YT, Lee HH, Kasahara DI, Martin T, Hsu JT, Savage PB, Shore SA, Freeman GJ, DeKruyff RH, Umetsu DT. T-cell immunoglobulin and mucin domain 1 deficiency eliminates airway hyperreactivity triggered by the recognition of airway cell death. **J Allergy Clin Immunol.** 132(2):414-25. (2013-08) (\*co-first author)
  27. Kim HY\*, (Chang YJ\*), Subramanian V, Lee HH, Albacker LA, Matankasombut P, Savage PB, McKenzie AHJ, Smith DE, Rottman J, DeKruyff RH, Umetsu DT. Innate lymphoid cells responding to IL-33 mediate airway-hyperreactivity independent of adaptive immunity. **J Allergy Clin Immunol.** 129(1):216-27. (2012-01) (\*co-first author)
  28. Wu TN, Lin KH, (Chang YJ), Huang JR, Cheng JY, Yu AL, Wong CH. Avidity of CD1d-ligand-receptor ternary complex contributes to Th1 polarization and anticancer efficacy **Proc Natl Acad Sci U S A.** 108(42):17275-80. (2011-10)
  29. (Chang YJ), Kim HY, Albacker LA, Baumgarth N, McKenzie AHJ, Smith D, DeKruyff RH, Umetsu DT. Innate lymphoid cells mediate influenza-induced asthma independent of adaptive immunity. **Nat Immunol.** 12(7):631-8. (2011-05) *This paper was selected to be a paper "Must Read" by Faculty of 1000 with a score of 8, and was the subjects of the news and views in Nature Immunol. (Cormier & Kolls, 12, 2011) and J Allergy Clin Immunol.*
  30. (Chang YJ), Kim HY, Albacker LA, Lee HH, Baumgarth N, Akira S, Savage PB, Endo S, Yamamura T, Maaskant J, Kitano N, Singh A, Bhatt A, Besra GS, van den Elzen P, Appelmelk B, Franck RW, Chen G, DeKruyff RH, Shimamura M, Illarionov P, Umetsu DT. Influenza infection in suckling mice expands an NKT cell subset that protects against airway hyperreactivity. **J Clin Invest.** 121(1):57-69. (2011-01)
  31. Albacker LA, Karisola P, (Chang YJ), Umetsu SE, Zhou M, Akbari O, Kobayashi N, Baumgarth N, Freeman GJ, Umetsu DT, DeKruyff RH. TIM-4, a receptor for phosphatidylserine, controls adaptive immunity by regulating the removal of antigen-specific T cells. **J Immunol.** 185(11):6839-49. (2010-12)
  32. (Chang YJ), Huang JR, Tsai YC, Hung JT, Wu D, Fujio M, Wong CH, Yu AL. Potent immunomodulating and anticancer effects of NKT cell stimulatory glycolipids. **Proc Natl Acad Sci U S A.** 104(25):10299-304. (2007-06)
  33. Chang YT, Wu MS, (Chang YJ), Chen CC, Lin YS, Hsieh T, Yang PC, Lin JT. Distinct gene expression profiles in gastric epithelial cells induced by different clinical isolates of *Helicobacter pylori*--implication of bacteria and host interaction in gastric carcinogenesis. **Hepatology.** 53(70):484-90. (2006-08)
  34. (Chang YJ), Wu MS, Lin JT, Pestell RG, Blaser MJ, Chen CC. Mechanisms for *Helicobacter pylori* CagA-induced cyclin D1 expression that affect cell cycle. **Cell Microbiol.** 8(11):1740-52. (2006-11)
  35. (Chang YJ), Wu MS, Lin JT, Chen CC. *Helicobacter pylori*-Induced invasion and angiogenesis of gastric cells is mediated by cyclooxygenase-2 induction through TLR2/TLR9 and promoter regulation. **J Immunol.** 175(12):8242-52. (2005-12)
  36. (Chang YJ), Liu CY, Chiang BL, Chao YC, Chen CC. Induction of IL-8 release in lung cells via activator protein-1 by recombinant baculovirus displaying severe acute respiratory syndrome-coronavirus spike proteins: identification of two functional regions. **J Immunol.** 173(12):7602-14. (2004-12)

37. (Chang YJ), Wu MS, Lin JT, Sheu BS, Muta T, Inoue H, Chen CC. Induction of cyclooxygenase-2 overexpression in human gastric epithelial cells by Helicobacter pylori involves TLR2/TLR9 and c-Src-dependent nuclear factor-kappaB activation. *Mol Pharmacol.* 66(6):1465-77. (2004-12)
38. Chen CC, Chow MP, Huang WC, Lin YC, (Chang YJ). Flavonoids inhibit tumor necrosis factor-alpha-induced up-regulation of intercellular adhesion molecule-1 (ICAM-1) in respiratory epithelial cells through activator protein-1 and nuclear factor-kappaB: structure-activity relationships. *Mol Pharmacol.* 66(3):683-93. (2004-09)
39. (Chang YJ), Holtzman MJ, Chen CC. Differential role of Janus family kinases (JAKs) in interferon-gamma-induced lung epithelial ICAM-1 expression: involving protein interactions between JAKs, phospholipase Cgamma, c-Src, and STAT1. *Mol Pharmacol.* 65(3):589-98. (2004-03)
40. (Chang YJ), Holtzman MJ, Chen CC. Interferon-gamma-induced epithelial ICAM-1 expression and monocyte adhesion. Involvement of protein kinase C-dependent c-Src tyrosine kinase activation pathway. *J Biol Chem.* 277(9):7118-26. (2002-03)
41. Chen CC, Sun YT, Chen JJ, (Chang YJ). Tumor necrosis factor-alpha-induced cyclooxygenase-2 expression via sequential activation of ceramide-dependent mitogen-activated protein kinases, and I kappa B kinase 1/2 in human alveolar epithelial cells. *Mol Pharmacol.* 59(3):493-500. (2001-03)

#### [Book Chapter](#)

**Chang YJ**, DeKruyff RH, Umetsu DT. Immune homeostasis of the lung: The role of regulatory NKT cells in asthma. In *Infection, Immune Homeostasis and Immune Privilege*, ed. Stein-Streilein J., New York: Springer. Birkhäuser Advances in Infectious Diseases 2012, pp 107-124.