


## Curriculum Vitae

	NAME	POSITION TITLE
	Pei-Jane Tsai, PhD	Professor, Department of Medical Laboratory Science and Biotechnology, National Cheng Kung University.

### EDUCATION/TRAINING

INSTITUTE AND LOCATION	DEGREE (if applicable)	YEAR(S)	FIELD OF STUDY
National Cheng Kung University, Taiwan	B.S.	1994	Medical Technology
National Cheng Kung University, Taiwan	Ph.D.	1999	Basic Medical Sciences

### POSTGRADUATE TRAINING AND QUALIFICATION

YEAR(S)	ACTIVITY
1994	Certificaion in Medical Technologist (Taiwan)
2005	Certification in Manipulation of Radiation Material (Taiwan)

### PROFESSIONAL EXPERIENCES AND POSITION HELD

1999~2000	Assistant Professor, Department of Pharmacology, Chia Nan University, Taiwan
2000~2006	Assistant Professor, Department of Medical Laboratory Science and Biotechnology, Tzu-Chi University, Taiwan
2006~2007	Associate Professor, Department of Medical Laboratory Science and Biotechnology, Tzu-Chi University, Taiwan
2007~2009	Associate Researcher, R&D division, National Laboratory Animal Center, Taiwan
2007~2009	Adjunct Associate Professor, Department of Medical Laboratory Science and Biotechnology, Tzu-Chi University, Taiwan
2007~2011	Adjunct Associate Professor, Institute of Microbiology and Immunology, National Cheng Kung University
2009~2011	Assistant Professor, Department of Medical Laboratory Science and Biotechnology, National Cheng Kung University
2011~2019	Associate Professor, Department of Medical Laboratory Science and Biotechnology, National Cheng Kung University
2019~present	Professor, Department of Medical Laboratory Science and Biotechnology, National Cheng Kung University
2018~present	Consultant & Adjunct Medical Technologist, Department of Pathology, National Cheng Kung University Hospital

### ACADEMIC AND PROFESSIONAL HONORS

2011	Education Award in Innovative Teaching 2011 from College of Medicine, NCKU
2016	Research Award in Clinical Medicine 2016 from the CHENG-HSING Medical Foundation
2017	Student Consulting Award 2016 from College of Medicine, NCKU
2018	Education Award in Innovative Teaching 2017 from College of Medicine, NCKU
2020-2021	Fulbrighter, Fulbright-Formosa Plastics Group Scholarship

### RESEARCH INTERESTS

Clinical microbiology	Bacterial infection	Infectious diseases	Mitochondrial quality control
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## **Bibliography**

My long term research goal is to study the host defending system, particularly focused on the innate immune system with an emphasis on solving the pathogenesis using mouse genetics as a tool. In the past few years, I have applied various gene deficient animals, including toll-like receptor (TLR)-, NLRP3-, iNOS-, and cystatin C-deficient mice, to study how host deficient in certain defending system during inflammation. I believe a combined basic and applied approach, with the focus on the host metabolism and inflammatory responses in human disease, is worth of such an investment in time and effort to better understand the innate immune system in host defending mechanisms.

### **Publications in Recent 5 years**

1. PL Chen, **PJ Tsai**, CS Chen, YC Lu, HM Chen, CC Lee, CW Li, MC Li, CJ Wu, and WC Ko. *Aeromonas* stool isolates from individuals with or without diarrhea in southern Taiwan: Predominance of *Aeromonas veronii*. *J. Microbiol. Immunol. Infect.* 2015. 48:618-24.
2. HJ Lin, YP Hung, HC Liu, JC Lee, CI Lee, YH Wu, **PJ Tsai\***, and WC Ko\*. Risk factors for *Clostridium difficile*-associated diarrhea among hospitalized adults with fecal toxigenic *C. difficile* colonization. *J. Microbiol. Immunol. Infect.* 2015. 48:183-9.
3. YP Hung, JC Lee, HJ Lin, HC Liu, YH Wu, **PJ Tsai\***, and WC Ko\*. Clinical impact of *Clostridium difficile* colonization. *J. Microbiol. Immunol. Infect.* 2015. 48:241-8.
4. TL Chang\*, HY Chiang, JY Shen, SW Lin, and **PJ Tsai**. Phenolic compounds stage an interplay between the ubiquitin–proteasome system and ubiquitin signal autophagic degradation for the ubiquitin-based cancer chemoprevention. *J. Funct. Foods* 2015. 17:857–71.
5. MW Cheong, LH Kuo, YN Cheng, **PJ Tsai**, LC Ho, HC Tai, WT Chiu, SH Chen, PJ Lu, YS Shan, LM Chuang, and YS Tsai\*. Loss of Egr-1 sensitizes pancreatic  $\beta$ -cells to palmitate-induced ER stress and apoptosis. *J Mol Med.* 2015. 93:807-18.
6. CJ Wu, PL Chen, PR Hsueh, MC Chang, **PJ Tsai**, HI Shih, HC Wang, PH Chou, and WC Ko\*. Clinical implications of species identification in monomicrobial *Aeromonas* bacteremia. *PLoS One* 2015. 10:e0117821.
7. PX Zheng, YC Chan, CS Chiou, C Chiang-Ni, SY Wang, **PJ Tsai**, WJ Chuang, YS Lin, CC Liu, JJ Wu\*. Clustered regularly interspaced short palindromic repeats are emm type-specific in highly prevalent group A streptococci. *PLoS One.* 2015 10:e0145223.
8. YP Hung, WC Ko, PH Chou, YH Chen, HJ Lin, YH Liu, HW Tsai, JC Lee, and **PJ Tsai\***. Proton pump inhibitor exposure aggravates *Clostridium difficile* colitis: evidences from a mouse model. *J. Infet. Dis.* 2015. 212:654-63. (Cover Page)
9. YP Hung, JC Lee, HJ Lin, HC Liu, YH Wu, **PJ Tsai**, and WC Ko\*. Doxycycline and tigecycline—two friendly drugs: less association with *Clostridium difficile* infection. *Antibiotics* 2015. 4:216-29.
10. HF Jheng, **PJ Tsai**, YL Chuang, YT Sheng, TA Tai, WC Chen, CK Chou, LC Ho, MJ Tang, KT Lai, JM Sung\*, and YS Tsai\*. Albumin stimulates renal tubular inflammation through a HSP70-TLR4 axis in early diabetic nephropathy. *Dis. Model. Mech.* 2015. 8:1311-21.
11. C Chiang-Ni, PX Zheng, SY Wang, **PJ Tsai**, WJ Chuang, YS Lin, CC Liu, and JJ Wu\*. Epidemiology analysis of *Streptococcus pyogenes* in a hospital in southern Taiwan by use of the updated emm cluster typing system. *J. Clin. Microbiol.* 2016. 54:157-62.
12. YC Wu, JJ Lee, BY Tsai, YF Liu, CM Chen, **PJ Tsai\***, and TH Chen\*. Potentially hypervirulent *Clostridium difficile* PCR Ribotype 078 Lineage isolates in pigs and possible implications for humans in Taiwan. *Intern. J. Med. Microbiol.* 2016. 306:115-22.
13. HC Tai, **PJ Tsai**, JY Chen, CH Lai, KC Wang, SH Teng, SC Lin, AYW Chang, MJ Jiang, YH Li, HL Wu, N Maeda, and YS Tsai\*. PPAR $\gamma$  level contributes to structural integrity and component production of elastic fibers in the aorta. *Hypertension* 2016. 67:1298-308.
14. CL Chen, YY Wu, CF Lin, CF Kuo, CL Han, S Wang, WJ Chuang, CY Chen, JJ Wu, **PJ Tsai**, CC Liu, and YS Lin. Streptococcal pyrogenic exotoxin B inhibits apoptotic cell clearance by macrophages through protein S cleavage. *Sci. Rep.* 2016. 6:26026.
15. YH Liu, YS Tsai\*, SC Lin, NS Liao, MS Jan, CT Liang, SW Hsu, WC Chen, JM Sung, N Maeda, and **PJ Tsai\***. Quantitative PPAR $\gamma$  expression affects the balance between tolerance and immunity. *Sci.*

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17. JC Lee, YP Hung, HJ Lin, **PJ Tsai\***, and WC Ko\*. *Clostridium difficile* infections in medical intensive care units of a medical center in southern Taiwan: variable seasonality and disease severity. *PLoS One*. 2016. 11: e0160760.
18. Ho LC, Sung JM, Shen YT, Jheng HF, Chen SH, **Tsai PJ**, Tsai YS\*. Egr-1 deficiency protects from renal inflammation and fibrosis. *J Mol Med (Berl)*. 2016. 94:933-42.
19. WJ Cheng, YL Wei, JCC Wei, CW Lin, HY Lu, YP Hsia, **PJ Tsai**, YC Lai, YL Kuo, and MS Jan. Effects of *Klebsiella pneumoniae* on Toll-like receptor-dependent endoplasmic reticulum stress-related signaling pathways and gene expression and promotes HLA-B27 misfolding. *J. Pharm. and Pharmacol.* 2016. 4: 667-678.
20. YP Hung, IH Huang, HJ Lin, BY Tsai, HC Liu, HC Liu, JC Lee, YH Wu, **PJ Tsai\***, and WC Ko\*. Predominance of *Clostridium difficile* Ribotypes 017 and 078 among toxigenic clinical isolates in southern Taiwan. *PLoS One*. 2016. 11: e0166159.
21. M Cairns, M Preston, D Gerding, P Hawkey, H Kato, H Kim, E Kuijper, T Lawley, H Pituch, S Reid, B Kullin, T Riley, K Solomon, **PJ Tsai**, J Weese, R Stabler, B Wren, and C Hall\*. Comparative genome analysis and global phylogeny of the toxin variant *Clostridium difficile* PCR Ribotype 017 reveals the evolution of two independent sub-lineages. *J. Clin. Microbiol.* 2017. 55:865-876.
22. YW Liu, YH Chen, JW Chen, **PJ Tsai**, and IH Huang\*. Immunization with recombinant TcdB-encapsulated nanocomplex induces protection against *Clostridium difficile* challenge in a mouse model. *Front. in Microbiol.* 2017. 8:1411.
23. WT Lee, YN Wu, YH Chen, SR Wu, TM Shih, TJ Li, LX Yang, CS Yeh, **PJ Tsai\***, DB Shieh\*. Octahedron iron oxide nanocrystal embedded on *Clostridium difficile* spore and prohibited its germination. *Sci. Rep.* 2017. 7:8124.
24. YP Hung, JC Lee, HJ Lin, CW Chiu, JL Wu, HC Liu, IH Huang, **PJ Tsai**, and WC Ko\*. Perceptions of *Clostridium difficile* infections among infection control professionals in Taiwan. *J. Microbiol. Immunol. Infect.* 2017. 50:521-526.
25. H Suzuki, M Tomita, **PJ Tsai**, WC Ko, YP Hung, IH Huang, and JW Chen. Comparative genomic analysis of *Clostridium difficile* ribotype 027 strains including the newly sequenced strain NCKUH-21 isolated from a patient in Taiwan. *Gut Pathog.* 2017. 9:70.
26. YH Liu, YC Chang, LK Chen, PA Su, WC Ko, YS Tsai, YH Chen, HC Lai, CY Wu, YP Hung, and **PJ Tsai\***. The ATP-P2X<sub>7</sub> signaling axis is an essential sentinel for intracellular *Clostridium difficile* pathogen-induced inflammasome activation. *Front. Cell & Infect. Microbiol.* 2018. 8:84.
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30. CL Hsieh, HM Huang, SY Hsieh, PX Zheng, YS Lin, C Chiang-Ni, **PJ Tsai**, SY Wang, CC Liu, and JJ Wu\*. NAD-Glycohydrolase depletes intracellular NAD<sup>+</sup> and inhibits acidification of autophagosomes to enhance multiplication of group A streptococcus in endothelial cells. *Front Microbiol.* 2018. 9:1733.
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32. WE Hong, IL Hsu, SY Huang, CW Lee, H Ko, **PJ Tsai**, DB Shieh, and CC Huang\*. Assembled

- growth of 3D Fe<sub>3</sub>O<sub>4</sub>@Au nanoparticles for efficient photothermal ablation and SERS detection of microorganisms. *J. Mater. Chem. B*. 2018. 6:5689-97. (Cover Page)
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  39. KY Chen, J Rathod, YC Chiu, JW Chen, **PJ Tsai**, and Huang IH\*. The transcriptional regulator Lrp contributes to toxin expression, sporulation, and swimming motility in *Clostridium difficile*. *Front. Cell Infect. Microbiol.* 2019. 9:356
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  46. WC Tsai, CF Shen, YL Lin, FC Shen, **PJ Tsai**, SY Wang, YS Lin, JJ Wu, CY Chi\*, and CC Liu\*. Emergence of macrolide-resistant *Streptococcus pyogenes* emm12 in southern Taiwan from 2000 to 2019. *J Microbiol Immunol Infect.* 2020. S1684-1182(20)30217-6.
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  48. CC Yang, CH Wu, TC Lin, YN Cheng, CS Chang, KT Lee, **PJ Tsai**, and YS Tsai\*. Inhibitory effect of PPAR $\gamma$  on NLRP3 inflammasome activation. *Theranostics*. 2021. 11(5):2424-2441.
  49. KY Yang, CY Kao, MSW Su, SY Wang, YL Chen, ST Hu, JW Chen, CH Teng, **PJ Tsai**, and JJ Wu\*.

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50. YP Hung, CS Tsai, BY Tsai, **PJ Tsai**, YT Lee, JC Lee, HC Liu, PR Hsueh, CC Lee\*, WC Ko\*. *Clostridioides difficile* infection in patients with hematological malignancy: a multicenter study in Taiwan. *J Microbiol Immunol Infect*. 2021. S1684-1182(21)00045-1.
  51. JY Chen, YP Wu, CY Li, HF Jheng, LZ Kao, CC Yang, SY Leu, IC Lien, WT Weng, HC Tai, YW Chiou, MJ Tang, **PJ Tsai**, and Tsai YS\*. PPAR $\gamma$  activation improves the microenvironment of perivascular adipose tissue and attenuates aortic stiffening in obesity. *J Biomed Sci*. 2021 Mar 29;28(1):22.
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  53. YH Shih, **PJ Tsai**, YL Chen, R Pranata, and RJ Chen\*. Assessment of the antibacterial mechanism of pterostilbene against *Bacillus cereus* through apoptosis-like cell death and evaluation of its beneficial effects on the gut microbiota. *J Agric Food Chem*. 2021. 69(41):12219-12229.
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  57. CW Chiu, **PJ Tsai**, CC Lee, WC Ko, and YP Hung\*. Inhibition of spores to prevent the recurrence of *Clostridioides difficile* infection—a possibility or an improbability? *J Microbiol Immunol Infect*. 2021. 26:S1684-1182(21)00132-8.
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  64. YP Hung, CC Lee, JC Lee, **PJ Tsai**, and WC Ko\*. Gut Dysbiosis during COVID-19 and Potential Effect of Probiotics. *Microorganisms*. 2021. 9: 1605.

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