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特聘教授

專長：Molecular Virology, Laboratory Diagnosis

主要教授課程：

大學部：醫用生物化學實習、獸醫公共衛生學

碩士班：高等獸醫公共衛生學、預防醫學、實驗診斷技術、動物病毒學、高等醫學生物化學、基礎微生物學

博士班：傳染病致病機轉特論

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簡要學經歷及重要榮譽

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| 1998-2002 | Ph.D. MRC Virology Unit, University of Glasgow (Scotland, UK) |
| 1995-1997 | M.Sc. Institute of Veterinary Medicine, National Chung-Hsing University (Taiwan) |
| 1991-1995 | D.V.M Department of Veterinary Medicine, National Chung-Hsing University |
| 2014.2-2014.8 | Prof. Peter Palese 實驗室短期研究 (Icahn School of Medicine at Mount Sinai, USA) |
| 2004.8-2005.8 | Dr. Laurence Tiley 實驗室博士後研究員 (University of Cambridge, UK) |
| 2002.6-2004.8 | Dr. James R. Smiley 實驗室博士後研究員 (University of Alberta, Canada) |

獲獎項目

1. Overseas Research Student Award (ORS) : 1998-2001
2. University of Glasgow 研究生全額獎學金 : 1998-2001
3. 中興大學 傑出青年教師 (2010, 2011)
4. 中興大學 特聘教授 (2015-2017, 2017-2020, 2020-2023, 2023~)

研究成果簡述

The major researches in my lab:

1. **流感病毒**: Avian Influenza viruses (AIVs) cause severe diseases in poultry worldwide. We aimed to investigate the impact of the viral NS1 protein on viral infection dynamics. By exchange of the NS segment, the replication of reassortant AIVs was significantly affected, and that reflected the modulatory effect of NS1 on host anti-viral responses and viral RdRp activity. These results indicate that NS1 is a critical factor responsible for the diverse traits of AIVs in Taiwan.
2. **羊 orf 病毒**: Orf virus (ORFV), a parapoxvirus, causes endemic disease in goats. Since 2007, we initiated the ORFV studies, not only in molecular epidemiology but also in the pathogenesis aspect. In particular, we revealed the function and mechanism of OV20.0 protein on counteracting innate immune response and suppressing RNA interference machinery. Extending from the understanding of its distinct immune regulatory effect, we are currently exploring the oncolytic activity of ORFV in several cancer models

代表著作(2020-2025) * corresponding author. #Co-first author

1. Tzeng, H.Y., Y.Y. Chiou, F.Y. Lin, Y. Yamada, R.S. Tsai, J.J. Ho, C.Y. Tseng, M.C. Lai, Y.H. Cheng, H.Y. Chiou, **W.L. Hsu***. (2025, Dec). Genomic characterization and evolutionary analysis of three bovine viral diarrhea virus 1b strains from Taiwan, highlighting genomic evidence of cytopathic evolution. BMC Veterinary Research (2025) 21:680.
2. Chang, Y.C. H. Shimoda, H.W. Wen, K. Maeda, C.Y. Tseng, C.H. Tsai, **W.L. Hsu***. 2025.

Enhanced Detection of Severe Fever with Thrombocytopenia Syndrome Virus (SFTSV) Antibodies in Various Animal Species Using Oligomeric Nucleocapsid Protein-based Diagnostics. *Virology Journal*, 22, 210.

3. Lin, F.Y., H.Y. Tzeng, C.Y. Tseng, R.S. Tsai, M. Oba, T. Mizutani, Y. Yamada, H.Y. Chiou, S.T. Chuang*, and **W.L. Hsu***. 2025. Surveillance and genetic diversity of bovine viral diarrhoea virus in dairy herds across Taiwan. *The Veterinary Journal*, 310 (2025) 106305.
4. Chen, C.#, **W.L. Hsu#**, P.S. J. Tsai, C.F. Lai, M.T. Wu, and Y.J. Lee* 2025 Evaluation of Hypoxia-Inducible Factor-1 α and Urine Non-Transferrin-Bound Iron Concentrations in Cats with Chronic Kidney Disease. *Frontiers in Veterinary Science*, 11:1482998.
5. Wang, C.H., C.Y. Tseng, **W.L. Hsu***, and J.T.C. Tzen*. 2025. Nuezhenide of the fruits of *Nuzhenzi* (*Ligustrum lucidum* Ait.) is a functional analog of ghrelin. *Journal of Ethnopharmacology*. 339: 119108.(通訊作者)
6. Yamada, Y., Y.C. Wang, H.P. Liu, G. R. Gerongano, C.Y. Tseng, S.C. Liu, G.R. Liao, C.C. Chang, J.W. Liao, M.L. Wang, Y.Y. Chang, F.Y. Lin, **W.L. Hsu***. 2025. Development of attenuated Orf virus as a safe oncolytic viral vector for nasopharyngeal carcinoma treatment. *Virology Journal*. (2025) 22:50.
7. Lin, Z.C., Y.T. Lin, C.Y. Tseng, **W.L. Hsu***, G.J. Wang* (2025, Jan). Antibody-free SERS Detection of Severe Fever with Thrombocytopenia Syndrome Virus using Micron Bowl Array PDMS Substrates. *IEEE Sensors Journal*. (99):1-1.
8. Chang, Y.C., H. Shimoda, M.C. Jiang, Y.H. Hsu, K. Maeda, Y. Yamada, and **W.L. Hsu***. 2024, Apr. Gn protein expressed in plants for diagnosis of severe fever with thrombocytopenia syndrome virus. *Applied Microbiology and Biotechnology*, (2024) 108:303.
9. Chen, L.H., Y.W. Chen, F. Lee, **W.L. Hsu***, S.C. Ou*. 2024. Identification and genomic characterization of feline calicivirus from a leopard cat (*Prionailurus bengalensis*) in Taiwan. *The Journal of Veterinary Medical Science*., DOI: 10.1292/jvms.23-0522.
10. Kuan, C.Y., S.C. Ou, C.C. Chang, P.L. Kao, R.S. Tsai, P. Rattanapanadda, T.L. Lin, K. Maeda, T.L. Cheng, Y.J. Lee, S.T. Chuang, S.L. Lin, H.Y. Liu, F.Y. Lin, J.W. Lin, **W.L. Hsu*** and C.C. Chou*. 2023. Epidemiology of Severe Fever with Thrombocytopenia Syndrome in Dogs and Cats in Taiwan. *Viruses* 2023, 15(12), 2338.
11. Kuan C.Y., T.L. Lin, S.C. Ou, S.T. Chuang, J. P.W. Chan, K. Maeda, T. Mizutani, M.P. Wu, F. Lee, F.T. Chan, C.C. Chang, R.L. Liang, S.F. Yang, T.C. Liu, W.C. Tu, H.Y. Tzeng, C.J. Lee, C.F. Lin, H.H. Lee, J.H. Wu, H.C. Lo, K.C. Tseng, **W.L. Hsu***, and C.C. Chou*. 2023. The First Nationwide Surveillance of Severe Fever with Thrombocytopenia Syndrome in Ruminants and Wildlife in Taiwan. *Viruses* 15(2): 441.
12. Tu, E.C., **W.L. Hsu*** and J. T. C. Tzen*. 2023. Strictinin, a Major Ingredient in Yunnan Kucha Tea Possessing Inhibitory Activity on the Infection of Mouse Hepatitis Virus to Mouse L Cells. *Molecules*. 28(3): 1080.
13. Liu, Y.C., G.R. Liao, A. Y. Tsai, C.Y. Tseng, C.Y. Kuan, R.S. Tsai, R. A. Albrecht, R.L. Kuo, I.C. Cheng, W.T. Liang, S.C. Ou*, **W.L. Hsu***. 2023. NS2 is a key determinant of compatibility in reassortant avian influenza virus with heterologous H7N9-derived NS segment. *Virus Research*. 324: 199028
14. Yamada Y, Chuang ST, Tseng CY, Liao GR, Liu SW, Tseng YY, Lin FY, **Hsu WL***. 2023 Deletion of gene OV132 attenuates Orf virus more effectively than gene OV112. *Appl Microbiol Biotechnol*. 107(2-3):835-851.
15. Wang, C.H., C.Y. Tseng, **W.L. Hsu***, J.T.C*. Tzen. 2022. Establishment of a Cell Line Stably Expressing the Growth Hormone Secretagogue Receptor to Identify Crocin As a Ghrelin Agonist. *Biomolecules* 2022, 12, 1813
16. Li, C.Z.#, H.M. Chang#, **W.L. Hsu#**, P. Venkatesan, H.C. Lin, and P.S. Lai. 2022. Curcumin-Loaded Oil-Free Self-Assembled Micelles Inhibit the Influenza A Virus Activity and the Solidification of Curcumin-Loaded Micelles for Pharmaceutical Applications. *Pharmaceutics* 14: 2422. (# Equal contribution.) (IF: 6.321)
17. Chung, Y.T., C.Y. Kuan, G.R. Liao, R. Albrecht, Y.Y. Tseng, Y.C. Hsu, S.C. Ou, **W.L. Hsu***. 2022. A variant NS1 protein from H5N2 avian influenza virus suppresses PKR activation and

- promotes replication and virulence in mammals. *Emerg Microbes Infect.* 11(1):2291-2303. (IF: 19.56)
18. Li, T.H. #, **W.L. Hsu**#, C.Y. Chen#, Y.C. Chen, Y.C. Wang, M.A. Tsai, I.C. Chen, and C.C. Chang*. 2022. Preparation of Recombinant Glycoprotein B (gB) of Chelonid Herpesvirus 5 (ChHV5) for Antibody Production and Its Application for Infection Detection in Sea Turtles. *Scientific Reports.* 12:11022. (IF: 4.38)
 19. W.J. Wang, M.C. Chou, Y.J. Lee, **W.L. Hsu***, and G.J. Wang*. 2022. A simple electrochemical immunosensor based on a gold nanoparticle monolayer electrode for neutrophil gelatinase-associated lipocalin detection. *Talanta.* 246: 123530 (4 May 2022) (IF: 6.057)
 20. Chen, Y.C., W.Y. Chin, C.C. Chang, S.T. Chuang, and **W.L. Hsu***. 2021. Potential Risk Factors Associated with Infection with Bovine Leukaemia Virus in Dairy and Beef Cattle in Taiwan. *Pathogens* 10(12): 1553
 21. Liao, G.R., Y.Y. Tseng, C.Y. Tseng, C.Y. Lo, **W.L. Hsu***. 2021. The orf virus (ORFV) protein OV20.0 interacts with the microprocessor complex subunit DGCR8 to regulate miRNA biogenesis and ORFV infection. *FEBS Letters.* 595 (2021) 2897-2908. (IF: 4.124)
 22. Tseng, Y.Y., C.Y. Kuan, M. Mibayashi, C.J. Chen, P. Palese, R. A. Albrecht, **W.L. Hsu***. 2021. Interaction between NS1 and cellular MAVS contributes to NS1 mitochondria targeting. *Viruses.* 13: 1909. (IF: 5.079)
 23. M.H. Liao, X.R. Wang, **W.L. Hsu***, Jason T.C. Tzen*. 2021. Pu'er tea rich in strictinin and catechins prevents biofilm formation of two cariogenic bacteria, *Streptococcus mutans* and *Streptococcus sobrinus*. *Journal of Dental Sciences.* Accepted in May 25, 2021. (IF: 2.08)
 24. Lin, H.W., Y.J. Lee, D.J. Yang, M.C. Hsieh, C.C. Chen, **W.L. Hsu**, Y.Y. Chang*, C.W. Liu*. 2021. Anti-inflammatory effects of Flos Lonicerae Japonicae Water Extract are regulated by the STAT/NF- κ B pathway and HO-1 expression in Virus-infected RAW264.7 cells. *Int J Med Sci.* Mar 30;18(11):2285-2293. (IF 5.923)
 25. Liao, G.R., Y.Y. Tseng, C.Y. Tseng, Y.P. Huang, C.H. Tsai, H.P. Liu, **W.L. Hsu***. 2021. K160 in the RNA-binding domain of the orf virus virulence factor OV20.0 is critical for its functions in counteracting host antiviral defense. *FEBS Letters.* 595: 1721-1733. (IF: 4.124)
 26. Tseng, Y.Y., G.R. Liao, A. Lien, and **W.L. Hsu***. 2021. Current concepts in the development of therapeutics against human and animal coronavirus diseases by targeting NP. *Computational and Structural Biotechnology Journal* 19 (2021) 1072-1080.
 27. Lin, P.R., P.C. Kuo, Y.C. Lia, C.F. Jhuo, **W.L. Hsu***, Jason T.C. Tzen*. 2020. Theacrine and strictinin, two major ingredients for the anti-influenza activity of Yunnan Kucha tea. *Journal of Ethnopharmacology* November, 262: 113190. (IF:4.36)
 28. Jing, H. #, **W.L. Hsu**#, V. Wu, H.J. Tsai, S.F. Tsai, P. S Tsai, T. S. Lai, and Y.J. Lee*. 2020. Urine hemojuvelin in cats with naturally occurring kidney diseases. *Journal of Veterinary Internal Medicine.* May 34(3):1222-1230.(IF: 3.33)
 29. Chen, Y.C., C.C. Chang, **W.L. Hsu***, and S.T. Chuang*. 2020. Dairy cattle with bovine leukaemia virus RNA show significantly increased leukocyte counts. *Veterinary Journal* 257:105449. (IF: 2.688)
 30. Wang W.C., C.Y. Kuan, Y.J. Tseng, C.H. Chang, Y.C. Liu, Y.C. Chang, Y.C. Hsu, M.K. Hsieh, S.C. OU*, **W.L. Hsu***. The Impacts of Reassortant Avian Influenza H5N2 Virus NS1 Proteins on Viral Compatibility and Regulation of Immune Responses. 2020. *Frontiers in Microbiology.* Mar.12; 11:280. (IF: 5.64)
 31. Lin, T.L.#, S.C. Ou#, K. Maeda, H. Shimoda, Jacky P.W. Chan, W.C. Tu, **W.L. Hsu*** and C.C. Chou*. 2020. The First Discovery of Severe Fever with Thrombocytopenia Syndrome Virus in Taiwan. *Emerging Microbes and infections.* 9: 148-151.(IF: 7.163)
 32. Chen, YC., J.W. Liao, S.C. Chang, and **W.L. Hsu***. 2020. Expression frequency of c-kit isoforms and its prognostic potential in canine mammary Tumours. *Veterinary and Comparative Oncology.* Sep;18:303-314. (IF: 2.613)

專利:

1. Novel *Enterococcus faecium* LJS-01 and its use for probiotic (No I-417054), 2013, Taiwan

2. Tumor specific antigen, recombinant protein, antibody, and primer thereof, and the method for identifying mammalian tumors, 2016, Taiwan.