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主要教授課程：

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

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簡要學經歷及重要榮譽：

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 B.V.M Department of Veterinary Medicine, National Chung-Hsing University (Taiwan)

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, 2017-2019)

研究成果簡述：

Several lines of researches are ongoing in my lab:

1. **薑黃素抑制流感病毒**：We first identify curcumin exerts strong anti-influenza activity via the inhibition of haemagglutination. Structure-activity relationship analyses indicate that the presence of the double bonds in the central seven-carbon chain enhanced the Cur-dependent anti-IAV activity and also that Cur might interfere with IAV entry by its interaction with the receptor binding region of viral HA protein.
2. **orf 病毒 OV20.0 蛋白之功能分析**. Orf virus (ORFV), a parapoxvirus, causes endemic disease in Taiwan. We noticed the ORFV OV20.0 protein has two isoforms (full length, and N-truncated sh20). The sh20 form also differs in expression kinetics and cellular localisation compared with full length OV20.0. Similar to the full length isoform, sh20 bind dsRNA and PKR, inactivate PKR and thus act as an antagonist of the interferon response in vitro. In vivo however, wild type OV20.0 could not be replaced with sh20 alone without a loss of virulence suggesting that the functions of the isoforms are not simply redundant. We further elucidate mechanisms by which OV20.0 mediates the inhibition of PKR activation: ORFV OV20.0 inhibits PKR activation via at least three mechanisms: sequestering dsRNA (1), interaction with PKR (2), and binding to PACT. Binding of the PKR activators (dsRNA and PACT) leads to a change in the conformation of PKR that affects the protein's dimerization and autophosphorylation.

代表著作 (2012-2018)：

1. Lin K.H., C.F. Lin, S.S. Chiou, A.P. Hsu, M.S. Lee, C.C. Chang, T.J. Chang, J.H. Shien and **W.L. Hsu***. 2012. Application of purified recombinant antigenic spike fragments to the diagnosis of avian infectious bronchitis virus infection. *Applied Microbiology & Biotechnology*. 95:233-42.
2. Lin K.H., A.P. Hsu, J.H. Shien, T.J. Chang, J.W. Liao, J.R. Chen, C.F. Lin, **W.L. Hsu***. 2012. Avian reovirus sigma C enhances the mucosal and systemic immune responses elicited by antigen-conjugated lactic acid bacteria. *Vaccine* 30:5019-5029.
3. Lee, Y.J., Y.Y. Hu, Y.S. Lin, C.T. Chang, F.Y. Lin, K.H. Hsu, M.L. Wong, **W.L. Hsu***. 2012. Urine neutrophil gelatinase-associated lipocalin (NGAL) as a biomarker for acute canine kidney injury. *BMC Veterinary Research*. 8:248
3. Chen, Y.C.#., **W.L. Hsu#**, C.Y. Chiu, J.W. Liao, C.C. Chang, S.C. Chang*. 2013. Expression of MAGE-A restricted to

- testis and ovary or to various cancers in dogs. *Veterinary Immunology and Immunopathology* 153: 26– 34. (#co-first author)
4. Chulakasian, S., T.J. Chang, C.H. Tsai, M.L. Wong, **W.L. Hsu***. 2013. Translational enhancing activity in 5'UTR of peste des petits ruminants virus fusion gene. *FEBS Journal*. 280:1237-1248.
 5. Chen, T.Y., D.Y. Chen, H.W. Wen, J.L. Ou, S.S. Chiou, J.M. Chen, M.L. Wong, **W.L. Hsu***. 2013 Inhibition of Enveloped Viruses Infectivity by Curcumin. *PLoS ONE*. 8(5): e62482.
 6. Ou, J.L., Y. Mizushima, S.Y. Wang, D.Y. Chuang, M. Nadar, **W.L. Hsu***. 2013. Structure-activity relationship analysis of curcumin derivatives on anti-influenza virus activity. *FEBS Journal*. 280: 5829–5840 (IF: 3.790; 89/290 *Biochemistry and Molecular Biology*)
 7. **Hsu, W.L.**, Y.S Lin, Y.Y. Hu, M.L Wong, Y.J Lee. 2014. Neutrophil gelatinase-associated lipocalin in dogs with naturally occurring renal diseases. *Journal of Veterinary Internal Medicine*. 28(2):437-42
 8. **Hsu, W.L.**, C.L. Chen, S.W. Huang, C.C. Wu, I.H. Chen, M. Nadar, Y.P. Su, C.H. Tsai*. 2014. The Untranslated Regions of Classic Swine Fever Virus RNA Trigger Apoptosis. *PLoS ONE*. 9(2): e88863
 9. **Hsu, W.L.**, Chiou HC, Tung KC, Belot G, Virilli A, Wong ML, Lin FY, Lee YJ. 2014. The different molecular forms of urine neutrophil gelatinase- associated lipocalin present in dogs with urinary diseases. *BMC Vet Res*. Aug 27;10(1):202.
 10. Chiu, H.C., S. Richart, F.Y. Lin, **W.L. Hsu***, H.J. Liu *. 2014 The interplay of reovirus with autophagy. *Biomed Res Int*. 2014:483657. (a review article)
 11. Tseng Y.Y., F.Y. Lin, S.F. Cheng, D. Tschärke, S. Chulakasian, C.C. Chou, Y.F. Liu, W.S. Chang, M.L. Wong, and **W.L. Hsu***. 2015. Functional analysis of the short isoform of orf virus protein OV20.0. *Journal of Virology*. 89 (9): 4966-4979
 12. Tseng, YY., GR Liao, GC. Sen, FY Lin, and **W.L. Hsu***. 2015. Regulation of PACT-mediated PKR activation by the OV20.0 protein of orf virus. *J. Virology*. 89(22):11619-29.
 13. Lin, F.Y., Y.Y. Tseng, K.W. Chan, S.T Kuo, C.H. Yang, C.Y. Wang, M. Takasu, **W.L. Hsu*** and M.L. Wong* 2015. Suppression of influenza virus infection by the orf virus isolated in Taiwan. *Journal of Veterinary Medical Science*. 77(9): 1055–1062.
 14. Liu, Y.F., P.Y. Tsai, F.Y. Lin, K.H. Lin, T.J. Chang, H.W. Lin, S. Chulakasian, and **W.L. Hsu***. 2015. Roles of nucleic acid substrates and cofactors in the vhs protein activity of pseudorabies virus. *Veterinary Research* 46(1):141
 15. Liu, Y.F., P.Y. Tsai, S. Chulakasian, F.Y. Lin, and **W.L. Hsu***. 2016. The pseudorabies virus vhs protein cleaves RNA containing an IRES sequence. *FEBS Journal*. DOI: 10.1111/febs.13642.
 16. Chen, Y.C., J.W. Liao, **W.L. Hsu***, S.C. Chang*. 2016. Identification of the two KIT isoforms and their expression status in canine hemangiosarcomas. *BMC Veterinary Research*. 12:142.
 17. Wang, I.C[#], **W.L. Hsu[#]**, P.H. Wu, H.Y. Yin, H.J. Tsai, Y.J. Lee. Neutrophil Gelatinase-Associated Lipocalin in Cats with Naturally Occurring Chronic Kidney Disease. *J Vet Intern Med*. 2017 31(1):102-108 (# co-first author)
 18. Li, TH., **W.L. Hsu**, YC Lan, G.H. Balazs, T. M. Work, C.T. Tseng, C.C. Chang*. 2017. Identification of Chelonid herpesvirus 5 (ChHV5) in endangered green turtles (*Chelonia mydas*) with fibropapillomatosis in Asia. *Bulletin of Marine Science* 93(4) 1011-1022
 19. Chen JM, Fan YC, Lin JW, Chen YY, **Hsu WL**, Chiou SS. Bovine Lactoferrin Inhibits Dengue Virus Infectivity by Interacting with Heparan Sulfate, Low-Density Lipoprotein Receptor, and DC-SIGN. *Int J Mol Sci*. 2017 18(9). pii: E1957
 20. Tsai, CF, H.Y. Lin, **W.L. Hsu*** and CH Tsai*. 2017. The novel mitochondria localization of influenza A virus NS1 visualized by FIAsh labelling. *FEBS OpenBio*. 7(12): 1960-1971
 21. Richart, S. M.[#], Y.L. Li[#], Y. Mizushima, Y.Y. Chang, T.Y. Chung, G.H. Chen, J. T.C. Tzen, K.S. Shia and **W.L. Hsu***. 2018. Synergic effect of curcumin and its structural analogue (Monoacetylcurcumin) on anti-influenza virus infection. *JFDA*
 22. Dony Mathew, **Wei-Li Hsu***. 2018 Antiviral Potential of Curcumin. *Journal of Functional Foods* 40: 692-699
 23. Liao, G.R., Y.Y. Tseng, C.Y. Tseng, F.Y. Lin, Y. Yamada, H.P. Liu, C.Y. Kuan, **W.L. Hsu***. 2018. Adenosine Deaminase Acting on RNA 1 Associates with Orf Virus OV20.0 and Enhances Viral Replication *J. Virology*. (Accepted, 21 Dec 2018).

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.