



林錫賢 Hsi-Hsien Lin

教授 Professor

電話：03-2118800 ext 3321

傳真：03-2118469

信箱：hhlin@mail.cgu.edu.tw

個人網頁：<https://sites.google.com/site/hhlinlab/>

學經歷

Education:

- 1992/8 – 1997/12 博士，美國田納西大學 橡樹嶺生物醫學研究所
Ph.D., Oak Ridge Graduate School of Biomedical Sciences, University of Tennessee – Knoxville, TN, U.S.A.
- 1987/8 – 1989/6 碩士，國立台灣大學醫學院 生物化學研究所
M.S., Institute of Biochemistry, College of Medicine, National Taiwan University,
Taipei, Taiwan
- 1983/8 – 1987/6 學士，國立成功大學 生物系
B.S., Department of Biology, National Cheng Kung University, Tainan, Taiwan

Research Experience:

- 2011/8 – present **Professor/Laboratory Head**, Laboratory of Molecular Immunology, Department of Microbiology and Immunology, Chang Gung University, Taiwan.
- 2007/8 – 2011/7 **Associate Professor/Laboratory Head**, Laboratory of Molecular Immunology, Department of Microbiology and Immunology, Chang Gung University, Taiwan.
- 2004/12 – 2007/7 **Assistant Professor/Laboratory Head**, Laboratory of Molecular Immunology, Department of Microbiology and Immunology, Chang Gung University, Taiwan.
- 2000/7 – 2004/11 **Group leader/Senior Research Fellow**, Sir William Dunn School of Pathology, the University of Oxford, UK.
Functional study of the EGF-TM7 receptors.
- 1998/7 – 2000/7 **Research Fellow**, Sir William Dunn School of Pathology, the University of Oxford, UK.
Functional study of the EGF-TM7 receptors.
- 1997/12 – 1998/6 **Postdoctoral Research Scientist**, Oak Ridge National Laboratory, TN, U.S.A.
Gene expression profiling using genosensor (DNA chip) technology.
- 1992/8 – 1997/12 **Graduate Research Assistant**, University of Tennessee – Knoxville, TN, U.S.A.
Studied the functions of novel genes identified by differential display in c-myb mutant mice
- 1989/7 – 1992/7 **Research Assistant**, Department of Medical Research, Veterans General Hospital – Taipei, Taiwan.
Molecular cloning and sequence analysis of a common precursor for a putative hemorrhagic protein and rhodostomin.
Studied the effect of snake venom platelet inhibitor (Rhodostomin) on cell attachment.
- 1987/6 – 1989/6 **Graduate Research Student**, Institute of Biochemistry, College of Medicine, National Taiwan University, Taipei, Taiwan.
Growth and characterization of a newly established human pituitary tumor cell line.

1986/6 – 1987/6 **Undergraduate Research Student**, Department of Biology, National Cheng Kung University,
Tainan, Taiwan.

Studied the mechanism of δ -aminolevulinic acid synthetase.

研究方向

The research of my laboratory focuses principally on the functions and regulation of adhesion GPCRs. Specific interest includes:

1. The identification and characterization of, and the structural-functional study of the EGF-TM7 receptors, including EMR2, CD97 and F4/80.
2. The signaling pathways of EMR2 and CD97 receptors.
3. The role of adhesion-GPCRs in osteoclast differentiation and function.
4. Molecular and functional characterization of BFPP-associated GPR56 mutations.
5. The identification of the cellular ligand(s) of GPR56.
6. The role of GPR56 in tumor biology.
7. The expression and functional characterization of GPR56 in immune system.

We are well experienced in various biological assays of macrophage and neutrophil functions as well as tumor biology. Most modern technologies in molecular biology, cell biology, immunology, proteomics and biochemistry are well established in the laboratory.

本實驗室研究方向專注於黏合型 G 蛋白質耦合受體功能與調控，目前有幾個研究方向：

- 1、類上皮生長因子七次穿膜受體其特性的研究以及有關於他們特殊結構的探討，當中包含下列幾個分子：EMR2、CD97 與 F4/80
- 2、EMR2、CD97 受體的訊息傳導的研究
- 3、研究黏合型 G 蛋白質耦合受體在蝕骨細胞分化與功能所扮演的角色
- 4、探討人類腦部前額疾病 BFPP 的致病基因 GPR56 的功能與結構的特性
- 5、尋找 GPR56 在細胞上的受質
- 6、GPR56 在腫瘤生物學中所扮演的角色
- 7、探討 GPR56 在免疫細胞表現與功能所扮演的角色

本實驗室專精於免疫細胞，如巨噬細胞、嗜中性粒細胞的功能以及腫瘤生物方面的的各種生物分析方式，同時也建立了分子生物學、細胞生物學、免疫學、蛋白質體學、生物化學方面的技術。

著作

*: corresponding author; &: co-first author

1. **Hsi-Hsien Lin*** 2023 Functional Partnerships between GPI-anchored Proteins and Adhesion GPCRs. **BioEssays** 2023:e2300115. doi: 10.1002/bies.202300115 (SCI, IF=4.0) (Invited Review article, corresponding author)
2. Wen-Yi Tseng, Martin Stacey, **Hsi-Hsien Lin*** 2023 Role of adhesion G protein-coupled receptors in immune dysfunction and disorder. **International Journal of Molecular Sciences** 24, 5499 (doi.org/10.3390/ijms24065499) (SCI, IF=5.6) (Invited Review article, corresponding author)
3. Scott R Henderson, Harry Horsley, Paul Frankel, Maryam Khosravi, Marilina Antonelou, Rhys DR Evans, Xiang Zhang, Tai-Ying Chu, **Hsi-Hsien Lin**, Siamon Gordon, Alan D Salama 2023 Proteinase 3 promotes formation of multinucleate giant cells and granuloma-like structures in patients with granulomatosis with polyangiitis. **Annals of the Rheumatic Diseases** 82(6):848-856. (doi:10.1136/annrheumdis-2021-221800) (SCI, IF= 27.4)

4. Cheng-Yen Kuo, Meng-Han Tsai, **Hsi-Hsien Lin**, Yu-Chi Wang, Abhishek Kumar Singh, Chang-Chih Chen, Jaiinn-Jim Lin, Po-Cheng Hung, Kuang-Lin Lin* 2023 Identification and Clinical Characteristics of a Novel Missense ADGRG1 Variant in Bilateral Frontoparietal Polymicrogyria: the Electroclinical Change from Infancy to Adulthood after Callosotomy in Three Siblings. **Epilepsia Open** 8:154–164 (doi.org/ 10.1002/epi4.12685) (SCI, IF=3.0)
5. Tai-Ying Chu[&], Celine Zheng-Gerard[&], Kuan-Yeh Huang, Yu-Chi Chang, Ying-Wen Chen, Kuan-Yu I, Yu-Ling Lo, Nien-Yi Chiang, Chien-Hao Huang, Hsin-Yi Chen, Martin Stacey, Siamon Gordon, Wen-Yi Tseng, Chiao-Yin Sun, Yen-Mu Wu, Yi-Shin Pan, Chien-Hao Huang, Chun-Yen Lin, Tse-Ching Chen, Kamel El Omari, Marilina Antonelou, Scott R Henderson, Alan Salama, Elena Seiradake*, and **Hsi-Hsien Lin*** 2022 GPR97 triggers inflammatory processes in human neutrophils via a macromolecular complex upstream of PAR2 activation. **Nature Communications** 13(1):6385 (doi.org/10.1038/s41467-022- 34083-1) (SCI, IF=16.6) (co-corresponding author)
6. **Hsi-Hsien Lin***, Kwai-Fong Ng, Tse-Ching Chen, Wen-Yi Tseng* 2022 Ligands and Beyond: Mechanosensitive Adhesion GPCRs. **Pharmaceuticals** 15(2), 219 (doi.org/10.3390/ph15020219) (SCI, IF=4.6) (Invited Review article, co-corresponding author).
7. Kwai-Fong Ng[&], Tse-Ching Chen[&], Martin Stacey, and **Hsi-Hsien Lin*** 2021 Role of ADGRG1/GPR56 in tumor progression. **Cells** 10, 3352 (doi.org/10.3390/cells10123352) (SCI, IF=6.0) (Invited Review article, corresponding author).
8. Abhishek Kumar Singh and **Hsi-Hsien Lin*** 2021 The role of GPR56/ADGRG1 in health and disease. **Biomedical Journal** 44(5):534-547 (doi:10.1016/j.bj.2021.04.012) (SCI, IF=5.5) (Invited Review article, corresponding author)
9. Yi-Shu Huang, Wen-Yi Tseng, Joy Ogbechi, Louise M. Topping, Felix Clanchy, Kay McNamee, Dany Perocheau, Nien-Yi Chiang, Peter Ericsson, Anette Sundstedt, Zhongtian Xue, Leif G. Salford, Hans-Olov Sjögren, Trevor W. Stone, **Hsi-Hsien Lin**, Shue-Fen Luo* and Richard O. Williams* 2021 Pharmacological modulation of T cell immunity results in long-term remission of autoimmune arthritis. **Proc Natl Acad Sci USA** May 11, 118 (19) e2100939118; (doi:10.1073/pnas2100939118) (SCI, IF=11.1)
10. Kuan-Yu I[&], Wen-Yi Tseng[&], Wen-Chih Wang, Siamon Gordon, Kwai-Fong Ng and **Hsi-Hsien Lin*** 2021 Stimulation of vibratory urticaria-associated adhesion-GPCR, EMR2/ADGRE2, triggers the NLRP3 inflammasome activation signal in human monocytes. **Frontiers in Immunology** 11: 602016 (doi: 10.3389/fimmu.2020.602016) (SCI, IF=7.3) (corresponding author)
11. **Hsi-Hsien Lin***, Yu-Ling Lo, Wen-Chih Wang, Kuan-Yeh Huang, Kuan-Yu I, and Gin-Wen Chang 2020 Overexpression of FAM46A, a non-canonical poly(A) polymerase, promotes hemin-induced hemoglobinization in K562 cells. **Frontiers in Cell and Developmental Biology** 8: 414 (doi: 10.3389/fcell.2020.00414) (SCI, IF=5.5) (corresponding author)
12. Po-Hsiang Chen, Yi-Tung Chen, Tai-Ying Chu, Tian-Hsiang Ma, Mei-Hsuan Wu, **Hsi-Hsien Lin**, Yu-Sun Chang*, Bertrand Chin-Ming Tan* and Szecheng J. Lo* 2020 Nucleolar size control by a non-apoptotic p53-caspases-deubiquitylase axis confers bacterial resistance. **The FASEB Journal** 2020; 34(1):1107-1121. (doi.org/10.1096/fj.201901959R) (SCI, IF=4.8)
13. Wen-Ye Tjong and **Hsi-Hsien Lin*** 2019 The role of the RGD-motif in CD97/ADGRE5- and EMR2/ADGRE2-modulated tumor angiogenesis. **Biochemical and Biophysical Research Communications** 520:243-249 (doi:10.1016/j.bbrc.2019.09.113) (SCI, IF=3.1) (corresponding author)

14. Wen-Ye Tjong and Hsi-Hsien Lin* 2019 The RGD motif is involved in CD97/ADGRE5-promoted cell adhesion and viability of HT1080 cells. **Sci. Rep.** 9:1517 (doi:10.1038/s41598-018-38045-w) (SCI, IF=4.6) (corresponding author)
15. Cheng-Chih Hsiao#, Tai-Ying Chu#, Chia-Jung Wu, Maartje van den Biggelaar, Caroline Pabst, Josée Hébert, Taco W. Kuijpers, Brendon P. Scicluna, Kuan-Yu I, Tse-Ching Chen, Ines Liebscher, Jörg Hamann*, and Hsi-Hsien Lin* 2018 The adhesion G protein-coupled receptor GPR97/ADGRG3 is expressed in human granulocytes and triggers antimicrobial effector functions. **Frontiers in Immunology** 9: 2830 (doi:10.3389/fimmu.2018.02830) (SCI, IF=7.3) (co-corresponding author)
16. Wen-Yi Tseng, Yeong-Jian Jan Wu, Tai-Yun Yang, Nien-Yi Chiang, Wen-Pin Tsai, Siamon Gordon, Gin-Wen Chang, Chang-Fu Kuo, Shue-Fen Luo*, Hsi-Hsien Lin* 2018 High levels of soluble GPR56/ADGRG1 are associated with positive rheumatoid factor and elevated tumor necrosis factor in patients with rheumatoid arthritis. **Journal of Microbiology, Immunology and Infection** 51(4):485-491 (SCI, IF=7.4) (co-corresponding author) (<http://dx.doi.org/10.1016/j.jmii.2016.11.010>)
17. Kuan-Yeh Huang and Hsi-Hsien Lin* 2018 The activation and signaling mechanisms of GPR56/ADGRG1 in melanoma cell. **Frontiers in Oncology** 8: 304 (doi:10.3389/fonc.2018.00304) (SCI, IF=4.7) (corresponding author)
18. Yi-Shu Huang, Nien-Yi Chiang, Gin-Wen Chang, Hsi-Hsien Lin* 2018 Membrane-association of EMR2/ADGRE2-NTF is regulated by site-specific N-glycosylation. **Sci. Rep.** 8: 4532 (doi:10.1038/s41598-018-22849-x) (SCI, IF=4.6) (corresponding author)
19. Wen-Yi Tseng, I-Shu Huang, Hsi-Hsien Lin, Shue-Fen Luo, Kay McNamee, Felix Clanchy, Richard Williams 2018 TNFR1 and TNFR2 signalling and its clinical implications. **Cytokine** 101:19-25 (<http://dx.doi.org/10.1016/j.cyto.2016.08.027>) (SCI, IF=3.8)