



履歷表

連正章 醫學士 博士

<https://orcid.org/0000-0002-6692-9942>

國立陽明交通大學 神經科學研究所

地址：11221 台灣台北市北投區立農街二段155號

辦公室電話號碼：+886 (02) 2826-7325; 傳真：+886 (02) 2821-5307;

電子郵件信箱：cclien@ym.edu.tw; or cclien@nycu.edu.tw

實驗室網頁：<http://lien.lab.nycu.edu.tw/lienlabwebsite>

姓名 連正章		職稱 神經科學研究所特聘教授兼生命科學院院長	
學歷			
就讀學校	學位	完成日期	科/系/所
台灣 中國醫藥大學	醫學士	民國86年06月	醫學系
德國 弗來堡大學	醫學博士	民國92年07月	生理學/神經科學 (導師：Peter Jonas)
德國 弗來堡大學	博士後研究員	民國93年02月	生理學/神經科學 (指導教授：Peter Jonas)
美國 加州大學 柏克萊分校	博士後研究員	民國95年07月	神經生物學 (指導教授：Mu-Ming Poo)

一、個人研究

興奮性與抑制性神經迴路之間的巧妙平衡是正常腦功能所必需的。由GABA神經元所釋放的GABA是主要的抑制性神經傳導物質。GABA系統的異常和許多腦疾病有關，包括癲癇、自閉症、精神分裂症和情感性疾患。因此，為了瞭解正常與疾患腦中的資訊處理，有必要了解調控抑制性神經功能的分子細胞機制。過去十年來，我和同事奠定了跨領域的研究方法(包括電生理學、藥理學、分子生物學、光遺傳學、計算生物學與行為測驗)並將其應用於揭開學習與情緒的關鍵要角-海馬迴-杏仁核綜合體中多種次型態GABA神經元之性質。長期目標為致力研究正常與疾患腦中資訊處理與行為的關聯。

二、工作經歷與榮譽

工作經歷

- 台灣 國立陽明交通大學 生命科學院 院長：民國109年11月2日起迄今
- 台灣 國立陽明交通大學 神經科學研究所 特聘教授：民國106年08月起迄今
- 台灣 國立陽明大學 神經科學研究所 所長：民國106年01月起~民國110年08月
- 台灣 國立陽明交通大學 神經科學研究所 教授：民國104年08月起迄今
- 台灣 國立陽明大學 神經科學研究所 副教授：民國100年02月~民國104年07月
- 台灣 國立陽明大學 神經科學研究所 助理教授：民國95年07月~民國100年02月
- 台灣 台大醫院 神經部 住院醫師：民國86年07月~民國87年06月

榮譽事蹟

- 台灣 國立陽明大學永久免接受評估教師：民國109年02月
- 台灣 國立陽明大學教師學術卓越獎勵：民國100年~民國109年
- 台灣 科技部105年度傑出研究獎：民國106年06月
- 德國 洪堡基金會資深學者研究獎助：民國105年~民國107年
- 台灣 國家衛生研究院頒獎表揚執行整合性醫藥衛生科技計畫經補助3次(含)以上：民國105年
- 台灣 第11屆永信李天德醫藥科技獎—青年醫藥科技獎：民國104年12月21日獲獎
- 德國 柏林醫科大學神經治療(NeuroCure)訪問學者獎：民國104年~民國105年
- 德國 學術交流總署 (DAAD) 海德堡大學訪問學者獎：民國101年
- 德國 學術交流總署 (DAAD) 獎學金獲獎人：民國87年~民國92年
- 台灣 國立陽明大學學生網路教學評估優良教師 (109年度第一學期、108年度第一學期、106年度第一學期、105年度第二學期、104年度第一學期、103年度第一學期、101年度第一學期、100年度第一學期、98年度第二學期、98年度第一學期、96年度學期)

三、學術貢獻

邀請演講/ 國際研討會

1. 2019/08/29 Co-transmission of glutamate and GABA by supramammillary nucleus neurons facilitates hippocampal LTP: Invited by Institute of Higher Nervous Activity and Neurophysiology of RAS, Russia.
2. 2019/07/15 IN-N-OUT of Dentate Inhibitory Circuits: Invited by Dr. Ching-Lung Hsu, Janelia Research Campus, Howard Hughes Medical Institute (HHMI), Ashburn, Virginia, USA.
3. 2018/09/17 Circuit specificity in the inhibitory architecture of the dentate gyrus: DANDRITE lecture: invited by DANDRITE, Dept. Biomedicine, Aarhus University, Denmark.
4. 2018/09/10 Connectivity and function of a longitudinal hippocampal circuitry: The 29th Ion Channel Meeting: invited by CIRB, CNRS UMR, Collège de France.
5. 2018/03/05 Session chair (co-chair with Cyril Herry) for "Circuit formation and function", EMBO Workshop on Neural Development, Taipei, Taiwan
6. 2017/12/21 Deconstructing Psychophysiology of Chronic Pain: Innsbruck Neuroscience Research Network: Invited by University of Innsbruck, Austria
7. 2015/08/16 - 2015/08/21 Pathway-Specific Recruitment of Dentate Gyrus Interneurons: Invited Talk, Gordon Research Conference, USA.
8. 2016/04/19 Dentate Gyrus GABAergic Circuits: IN-N-OUT Synapses: Invited by Université de Liège, Belgium.
9. 2015/12/07 Inhibitory control of memory circuits: Invited by EMBO/Neural Development Conference, Taipei, Taiwan.
10. 2015/12/02 Dentate Gyrus GABAergic Circuits: IN-N-OUT Synapses: Invited by NeuroCure, Charite, Germany.
11. 2015/11/19 Pathway-specific recruitment of dentate gyrus interneurons: Invited by 10th Conference of the Czech Neuroscience Society with International Participation and the Taiwan-Czech Neuroscience Symposium.

- 12.2015/11/17 Pathway-specific recruitment of dentate gyrus interneurons: Invited by Institute of Experimental Medicine, Hungarian Academy of Science, Hungary.
- 13.2014/11/20 Dynamic Inhibitory Control of the Gateway of the Hippocampus: Invited by National Institute of Aging/seminar.
- 14.2014/06/12 - 2014/06/14 Shunting Inhibition Controls the Gateway of the Hippocampus: Invited by The University of Hong Kong/Physiology Symposium 2014.
- 15.2013/07/11 Shunting Inhibition Controls the Gateway of the Hippocampus: Invited by Department of Pharmacology, UC Davis, USA.
- 16.2012/10/25 Distinct dynamic switch of GABA release in fast-spiking and non-fast-spiking GABAergic interneurons in the hippocampus: Invited by KOJACH Symposium 2012 in Pusan/Korean Physiological Society.
- 17.2012/09/12 Role of acid-sensing ion channel in synaptic function, learning and memory: Invited by Institute of science and technology, Austria.
- 18.2012/07/27 - 2013/09/27 Acid-Sensing Ion Channels in The Hippocampus: Invited by Department of Physiology and Pathophysiology, Heidelberg University, Germany.

期刊論文 (學術著作)

1. Abdulmajeed W, Wang KY, Wu JW, Ajibola MI, Cheng IH, Lien CC (2022). Connectivity and Synaptic Features of Hilar Mossy Cells and Their Effects on Granule Cell Activity Along the Hippocampal Longitudinal Axis. **Journal of Physiology** 600(14):3355-3381. # (# *Featured in Cover*)
2. Yen TY, Huang Y, MacLaren DAA, Schlesiger MI, Monyer H, Lien CC (2022). Inhibitory projections connecting the dentate gyri in the two hemispheres support spatial and contextual memory. **Cell Reports** 39(7):110831.
3. Chen WH, Lien CC, Chen CC (2022). Neuronal basis for pain-like and anxiety-like behaviors in the central nucleus of the amygdala. **Pain** 163(3):e463-e475.
4. Feng KL, Weng JY, Chen CC, Abubaker MB, Lin HW, Charng CC, Belle JS, Tully T, Lien CC, Chiang AS (2021). Neuropeptide F inhibits dopamine neuron interference of long-term memory consolidation in Drosophila. **iScience** 24(12):103506. (co-corresponding author)
5. Ajibola MI, Wu JW, Lien CC (2021). Hypothalamic glutamate/GABA co-transmission modulates hippocampal circuits and supports long-term potentiation. **Journal of Neuroscience** 41:8181-8196.
6. Wang KY, Wu JW, Cheng JK, Chen CC, Wong WY, Averkin RG, Tamás G, Nakazawa K, Lien CC (2021). Elevation of hilar mossy cell activity suppresses hippocampal excitability and avoidance behavior. **Cell Reports** 36:109702. # (# *Featured in Cover*)
7. Wei YT, Wu JW, Yeh CW, Shen HC, Wu KP, Vida Imre, Lien CC (2021). Morpho-physiological properties and connectivity of vasoactive intestinal polypeptide-expressing interneurons in the mouse hippocampal dentate gyrus. **Journal of Comparative Neurology** 529(10):2658-2675.
8. Wu PC, Fann MJ, Tran TT, Chen SC, Devina T, Cheng IH, Lien CC, Kao LS, Wang SJ, Fuh JL, Tzeng TT, Huang CY, Shiao YJ, Wong YH (2019). Assessing the therapeutic potential of *Graptopetalum paraguayense* on Alzheimer's disease using patient iPSC-derived neurons. **Scientific Reports** 9(1): 19301.
9. Hsu YT, Chang YG, Liu YC, Wang KY, Chen HM, Lee DJ, Yang SS, Tsai CH, Lien CC*, Chern YJ*. (2019). Enhanced $\text{Na}^+\text{-K}^+\text{-2Cl}^-$ cotransporter 1 underlies motor dysfunction in Huntington's disease. **Movement Disorders** 34(6): 845-857. (*corresponding)

10. Martina M*, Lien CC* (2018). Book Chapter: Physiological properties of hippocampal neurons. **Hippocampal Microcircuits**: 91-126. (*corresponding)
11. Chen CY, Di Lucente J, Lin YC, Lien CC, Rogawski MA, Maezawa I, Jin LW (2018). Defective GABAergic neurotransmission in the nucleus tractus solitarius in Mecp2-null mice, a model of Rett syndrome. **Neurobiology of Disease** 109(Pt A): 25-32.
12. Kuo YL, Cheng JK, Hou WS, Chang YC, Du PH, Jian JJ, Rau RH, Yang JH, Lien CC, Tsaur ML (2017). K⁺ channel modulatory subunits KChIP and DPP participate in Kv4-mediated mechanical pain control. **Journal of Neuroscience** 37(16): 4391-4404.
13. Huang CY, Lien CC, Cheng CF, Yen TY, Chen CJ, Tsaur ML (2017). K⁺ channel Kv3.4 is essential for axon growth by limiting the influx of Ca²⁺ into growth cones. **Journal of Neuroscience** 37(17): 4433-4449.
14. Lee CT, Kao MH, Hou WH, Wei YT, Chen CL, Lien CC (2016). Causal evidence for the role of specific GABAergic interneuron types in entorhinal recruitment of dentate granule cells. **Scientific Reports** 6: 36885.
15. Hou WH, Kuo N, Fang GW, Huang HS, Wu KP, Zimmer A, Cheng JK, Lien CC (2016). Wiring specificity and synaptic diversity in the mouse lateral central amygdala. **Journal of Neuroscience** 36(16): 4549-4563.
16. Hsu TT, Lee CT, Tai MH, Lien CC (2016). Differential recruitment of dentate gyrus interneuron types by commissural versus perforant pathways. **Cerebral Cortex** 26(6): 2715-2727.
17. Wu CC, Lien CC, Hou WH, Chiang PM, Tsai KJ (2016). Gain of BDNF function in engrafted neural stem cells promotes the therapeutic potential for Alzheimer's disease. **Scientific Reports** 6: 27358.
18. Chang CP, Lee CT, Hou WS, Lin MS, Lai HL, Chien CL, Chang C, Cheng PL, Lien CC*, Chern Y* (2016). Type VI adenylyl cyclase negatively regulates GluN2B-mediated LTD and spatial reversal learning. **Scientific Reports** 6: 22529. (*corresponding)
19. Chiang PH, Chien TC, Chen CC, Yanagawa Y, Lien CC (2015). ASIC-dependent LTP at multiple glutamatergic synapses in amygdala network is required for fear memory. **Scientific Reports** 5:10143.
20. Lin SH, Chien YC, Chiang WW, Liu YZ, Lien CC, Chen CC (2015). Genetic mapping of ASIC4 and contrasting phenotype to ASIC1a in modulating innate fear and anxiety. **European Journal of Neuroscience** 41(12): 1553-1568.
21. Chen WT, Hsieh YF, Huang YJ, Lin CC, Lin YT, Liu YC, Lien CC, Cheng IH (2015). G206D mutation of presenilin-1 reduces Pen2 interaction, increases A β 42/A β 40 ratio and elevates ER Ca²⁺ accumulation. **Molecular Neurobiology** 52(3): 1835-1849.
22. Liu YC, Cheng JK, Lien CC (2014). Rapid dynamic changes of dendritic inhibition in the dentate gyrus by presynaptic activity patterns. **Journal of Neuroscience** 34(4): 1344-1357.
23. Cheng CF, Cheng JK, Chen CY, Lien CC, Chu D, Wang SY, Tsaur ML (2014). Mirror-image pain is mediated by NGF produced from TNF α -activated satellite glia after peripheral nerve injury. **Pain** 155(5): 906-920.
24. Chan CF, Kuo TW, Weng JY, Lin YC, Chen TY, Cheng JK, Lien CC (2013). Ba²⁺- and bupivacaine-sensitive background K⁺ conductances mediate rapid EPSP attenuation in oligodendrocyte precursor cells. **Journal of Physiology** 591(19): 4843-4858. (an editor's choice and the highlight by the Perspectives in the same issue)

25. Wu PY, Huang YY, Chen CC, Hsu TT, Lin YC, Weng JY, Chien TC, Cheng IH, Lien CC (2013). Acid-sensing ion channel-1a is not required for normal hippocampal LTP and spatial memory. **Journal of Neuroscience** 33(5): 1828-1832.
26. Sun YY, Lin SH, Lin HC, Hung CC, Wang CY, Lin YC, Hung KS, Lien CC, Kuan CY, Lee YH (2013). Cell type-specific dependency on the PI3K/Akt signaling pathway for the endogenous Epo and VEGF induction by baicalein in neurons versus astrocytes. **PLoS ONE** 8(7): e69019.
27. Lee YC, Durr A, Majczenko K, Huang YH, Liu YC, Lien CC, Tsai PC, Ichikawa Y, Goto J, Monin ML, Li JZ, Chung MY, Mundwiller E, Shakkottai V, Liu TT, Tesson C, Lu YC, Brice A, Tsuji S, Burmeister M, Stevanin G, Soong BW (2012). Mutations in *KCND3* cause spinocerebellar ataxia type 22. **Annals of Neurology** 72(6): 859-869.
28. Majumder P, Chen YT, Bose JK, Wu CC, Cheng WC, Cheng SJ, Fang YH, Chen YL, Tsai KJ, Lien CC, Shen CK (2012). TDP-43 regulates the mammalian spinogenesis through translational repression of Rac1. **Acta Neuropathologica** 124(2): 231-245.
29. Chiang PH, Wu PY, Kuo TW, Liu YC, Chan CF, Chien TC, Cheng JK, Huang YY, Chiu CD, Lien CC (2012). GABA is depolarizing in hippocampal dentate granule cells of the adolescent and adult rats. **Journal of Neuroscience** 32(1): 62-67.
30. Weng JY, Lin YC, Lien CC (2010). Cell type-specific expression of acid-sensing ion channels in hippocampal interneurons. **Journal of Neuroscience** 30(19): 6548-6558.
31. Lin YC, Liu YC, Huang YY, Lien CC (2010). High-density expression of Ca²⁺-permeable ASIC1a channels in NG2 glia of rat hippocampus. **PLoS ONE** 5(9): e12665.
32. Chu KC, Chiu CD, Hsu TT, Hsieh YM, Huang YY, Lien CC (2010). Functional identification of an outwardly rectifying pH- and anesthetic-sensitive leak K⁺ conductance in hippocampal astrocytes. **European Journal of Neuroscience** 32(5): 725-735.
33. Chiang PH, Yeh WC, Lee CT, Weng JY, Huang YY, Lien CC (2010). M1-like muscarinic acetylcholine receptors regulate fast-spiking interneuron excitability in rat dentate gyrus. **Neuroscience** 169(1): 39-51.
34. Liao CW, Lien CC (2009). Estimating intracellular Ca²⁺ concentrations and buffering in a dendritic inhibitory hippocampal interneuron. **Neuroscience** 164(4): 1701-1711.
35. Lien CC, Mu Y, Vargas-Caballero M, Poo MM (2006). Visual stimuli-induced LTD of GABAergic synapses mediated by presynaptic NMDA receptors. **Nature Neuroscience** 9(3): 372-380.
36. Aponte Y, Lien CC, Reisinger E, Jonas P (2006). Hyperpolarization-activated cation channels in fast-spiking interneurons of rat hippocampus. **Journal of Physiology** 574(Pt 1): 229-243.
37. Oliver D#, Lien CC#, Soom M, Baukrowitz T, Jonas P, Fakler B (2004). Functional conversion between A-type and delayed rectifier K⁺ channels by membrane lipids. **Science** 304(5668): 265-270. (#: equally contributing).
38. Lien CC, Jonas P (2003). Kv3 potassium conductance is necessary and kinetically optimized for high-frequency action potential generation in hippocampal interneurons. **Journal of Neuroscience** 23(6): 2058-2068.
39. Lien CC, Martina M, Schultz JH, Ehmke H, Jonas P (2002). Gating, modulation, and subunit composition of voltage-gated K⁺ channels in dendritic inhibitory interneurons of rat hippocampus. **Journal of Physiology** 538(Pt 2): 405-419.