CURRICULUM VITAE

Cheng-Chang Lien, M.D., Ph.D.
https://orcid.org/0000-0002-6692-9942
National Yang Ming Chiao Tung University
Institute of Neuroscience
Current Address: No. 155, Section 2, LiNong Street, Taipei 11221, Taiwan
Work: +886 (02) 2826-7325; Fax: +886 (02) 2821-5307; E-mail: cclien@ym.edu.tw or cclien@nycu.edu.tw
Website: http://lien.lab.nycu.edu.tw/lienlabwebsite

NAME	POSITION TITLE
Lien, Cheng-Chang	Distinguished Professor, Institute of Neuroscience Dean, College of Life Sciences

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
China Medical University, Taiwan	M.D.	1990-1997	Medicine
University of Freiburg, Germany	Ph.D.	1998-2003	Physiology/Neuroscience (Mentor: Peter Jonas)
University of Freiburg, Germany	Postdoc	2003-2004	Physiology/Neuroscience (Supervisor: Peter Jonas)
University of California, Berkeley, USA	Postdoc	2004-2006	Neurobiology (Supervisor: Mu-Ming Poo)
Heidelberg University, Germany	Visiting scientist	2012 (July-Sep.)	Institute for physiology and pathophysiology (Prof. Andreas Draguhn)
Charité – Universitätsmedizin Berlin, Germany	Research fellow	2015-2016 2016-2018	NeuroCure Fellowship Alexander von Humboldt Foundation Fellowship

A. Personal statement (Research narrative)

My lab is interested in understanding brain circuits and behavior in health and disease. More recently we have become increasingly interested in neural mechanisms underlying emotion and cognition. We mainly focus on two key regions in the limbic system, that is, the hippocampus and amygdala. To establish causal relationships between brain circuits and behavior, we combine the optogenetic or chemogenetic approach with different readout methodologies including electrophysiology and calcium imaging in freely moving animals. To uncover the input-output organization of the network, we employ optogenetics-assisted circuit mapping in brain slices maintained *in vitro* or in intact brains *in vivo*. Over the past decade, we have highlighted the relevance of GABAergic circuitry in both network and cognitive functions.

Positions and Honors.

Positions and Employment

Since 2020.11: Dean of College of Life Sciences, National Yang Ming Chiao Tung University (previously named as National Yang-Ming University before 2021.02.01)
Since 2017.08: Distinguished Professor, National Yang Ming Chiao Tung University
2017 – 2021: Director of the Institute of Neuroscience, National Yang-Ming University
Since 2015.08: Professor of the Institute of Neuroscience, National Yang-Ming University

2011.02 – 2015.07: Associate Professor of the Institute of Neuroscience, National Yang-Ming University
2006.07 – 2011.02: Assistant Professor of the Institute of Neuroscience, National Yang-Ming University
1997– 1998: Medical Residency, Neurology, National Taiwan University Hospital

Other Experience and Professional Memberships

2018 – Present: Study Section, Ministry of Science & Technology Grant Review Panel
2016 – Present: Permanent Member, The Chinese Physiological Society, Taiwan
2008 – Present: Regular Member, Society for Neuroscience (SfN), USA
2008 – Present: Permanent Member, Neuroscience Society of Taiwan
2019 – Present: Executive Director and Permanent Member, Taiwanese Society for Computational Neuroscience (SfCN)

Other Academic Activities and Services

1. Member of Scientific Committee for EMBO Workshop on Neural Development (2-6, March, 2018), Taipei, Taiwan
2. Council Member of Neuroscience Society of Taiwan (2016 – 2018 year)
3. Executive Director of Taiwanese Society for Computational Neuroscience (2019 – present)
4. PhD Assessment Committee Member, Faculty of Natural Sciences, Aarhus University, Denmark (2022)

***Ad hoc* Peer Review for Scientific Journals**

PNAS, eLife, Journal of Neuroscience, Journal of Neurophysiology**,** Journal of Physiology (London)**,** Biochimica et Biophysica Acta (BBA – General Subjects), Chinese Journal of Physiology**,** Developmental Neurobiology, PLoS ONE, Neurotoxicity Research; Current Topics in Medicinal Chemistry, Neuropharmacology, Journal of Neuroscience Research, Scientific Reports, Frontiers in Cellular Neuroscience, Cerebral Cortex, Physiology & Behavior, Journal of Visualized Experiments, EJN, Oncotarget; Science signalling; European Neuropsychopharmacology, J Biomedical Science, Journal of the Chinese Medical Association (JCMA); Pain

Review Editorial Board

2015 Frontiers in Cellular Neuroscience
2016 Scientific Reports; Frontiers in Cellular Neuroscience; Neural Plasticity (Guest Editor); French National Research Agency (ANR; External Reviewer); Frontiers in Aging Neuroscience (Review Editor); Matters
2018 External Reviewer of Danish Research in relation to NIH Brain Initiative; French National Research Agency (ANR; External Reviewer)
2019 National Science Centre in Poland (Grant Reviewer)
2022 Reviewer of the scientific review committee II of National Health Research Institutes (NHRI)
2022 Reviewer of European Research Council (ERC) Consolidator Grant – 2022

Honors

2020/02: Honors with Qualifications for Permanent Assessment Exemption for Teachers
2017-2019: NYMU Academic Excellence Award (the same award received in 2015-2016; 2013-2014; 2011-2012)
2017-2019: Distinguished Professor, National Yang-Ming University
2017: MOST Outstanding Research Award
2016: TienTe Lee Young Scientist Research Award
2016 – 2018: Research Fellow of Alexander von Humboldt Foundation, Germany
2015 – 2016: NeuroCure Fellowship, Berlin, Germany

2012: Award of German Academic Exchange Service (DAAD) Scholarship for the research visit at the Institute for Physiology and Pathophysiology, Ruprecht-Karls-Universität Heidelberg, Germany
2007 – 2012: Teaching award for outstanding teachers in the School of Medicine, National Yang-Ming University.
2010: The Best Poster Award of 2010 TPEVGH-UST Research Grant.
2006: Award of stipend from Cold Spring Harbour for the imaging course: Imaging Structure & Function in the Nervous Systems.
2003: Doctoral thesis with the grade "***summa cum laude***" and research doctorate (research supervisor: Peter Jonas) from Albert-Ludwigs-Universität Freiburg, Germany.
2002: Award of stipend from Marine Biological Laboratory (Woods Hole, USA) for the "Method in Computational Neuroscience" summer course.
1998 – 2003: Award of German Academic Exchange Service (DAAD) Scholarship for the international PhD program in the Institute of Physiology, Albert-Ludwigs-Universität Freiburg, Germany.

Invited Speeches/Chairs in International Conferences

1. 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.
2. 2018/09/17 Circuit specificity in the inhibitory architecture of the dentate gyrus: DANDRITE lecture: invited by DANDRITE, Dept. Biomedicine, Aarhus University, Denmark.
3. 2018/09/10 Connectivity and function of a longitudinal hippocampal circuitry: The 29th Ion Channel Meeting: invited by CIRB, CNRS UMR, Collège de France.
4. 2018/03/05 Session chair (co-chair with Cyril Herry) for "Circuit formation and function", EMBO Workshop on Neural Development, Taipei, Taiwan
5. 2017/12/21 Deconstructing Psychophysiology of Chronic Pain: Innsbruck Neuroscience Research Network: Invited by University of Innsbruck, Austria
6. 2015/08/16 - 2015/08/21 Pathway-Specific Recruitment of Dentate Gyrus Interneurons: Invited Talk, Gordon Research Conference, USA.
7. 2016/04/19 Dentate Gyrus GABAergic Circuits: IN-N-OUT Synapses: Invited by Université de Liège, Belgium.
8. 2015/12/07 Inhibitory control of memory circuits: Invited by EMBO/Neural Development Conference, Taipei, Taiwan.
9. 2015/12/02 Dentate Gyrus GABAergic Circuits: IN-N-OUT Synapses: Invited by NeuroCure, Charite, Germany.
10. 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.
11. 2015/11/17 Pathway-specific recruitment of dentate gyrus interneurons: Invited by Institute of Experimental Medicine, Hungarian Academy of Science, Hungry.
12. 2014/11/20 Dynamic Inhibitory Control of the Gateway of the Hippocampus: Invited by National Institute of Aging/seminar.
13. 2014/06/12 - 2014/06/14 Shunting Inhibition Controls the Gateway of the Hippocampus: Invited by The University of Hong Kong/Physiology Symposium 2014.
14. 2013/07/11 Shunting Inhibition Controls the Gateway of the Hippocampus: Invited by Department of Pharmacology, UC Davis, USA.
15. 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.
16. 2012/09/12 Role of acid-sensing ion channel in synaptic function, learning and memory: Invited by Institute of science and technology, Austria.
17. 2012/07/27 - 2013/09/27 Acid-Sensing Ion Channels in The Hippocampus: Invited by Department of Physiology and Pathophysiology, Heidelberg University, Germany.

B. Peer-reviewed publications (in reverse chronological order).

1. Huang DF, Lee CY, Chou MY, Yang TY, Cao X, Hsiao YH, Wu RN, Lien CC, Huang YS, Huang HP, Gau SF, Huang HS (2022). Neuronal splicing regulator RBFOX3 mediates seizures via regulating Vamp1 expression preferentially in NPY-expressing GABAergic neurons. **PNAS** 119(33):e2203632119.
2. 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. **J Physiol.** 600(14):3355-3381 (*# Cover article*)
3. 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 Rep.** 39(7):110831.
4. 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.
5. 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)
6. Ajibola MI, Wu JW, Abdulmajeed W, Lien CC (2021). Hypothalamic glutamate/GABA co-transmission modulates hippocampal circuits and supports long-term potentiation. **Journal of Neuroscience** 41:8181-8196.
7. 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*)
8. 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
9. 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.
10. Hsu YT, Chang YG, Liu YC, Wang KY, Chen HM, Lee DJ, Yang SS, Tsai CH, Lien CC*, Chern YJ*. (2019). Enhanced Na^+-K^+-$2Cl^-$ cotransporter 1 underlies motor dysfunction in Huntington's disease. **Movement Disorders** 34(6): 845-857. (*corresponding) (*Featured in Cover*)
11. Martina M*, Lien CC* (2018). Book Chapter: Physiological properties of hippocampal neurons. **Hippocampal Microcircuits**: 91-126. (*corresponding)
12. 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.
13. 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.
14. 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 Ca^{2+} into growth cones. **Journal of Neuroscience** 37(17): 4433-4449.
15. 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.

16. 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: 4549-4563.

17. 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.

18. 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.

19. 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)

20. 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.

21. 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.

22. 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 Aβ42/Aβ40 ratio and elevates ER Ca^{2+} accumulation. **Molecular Neurobiology** 52(3): 1835-1849.

23. 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.

24. Cheng CF, Cheng JK, Chen CY, Lien CC, Chu D, Wang SY, Tsaur ML (2014). Mirror-image pain is mediated by NGF produced from TNFα-activated satellite glia after peripheral nerve injury. **Pain** 155(5): 906-920.

25. Chan CF, Kuo TW, Weng JY, Lin YC, Chen TY, Cheng JK, Lien CC (2013). Ba^{2+}- and bupivacaine-sensitive background K^+ conductances mediate rapid EPSP attenuation in oligodendrocyte precursor cells. **Journal of Physiology (London)** 591(19): 4843-4858. (an editor's choice and the highlight by the Perspectives in the same issue)

26. 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.

27. 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.

28. 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.

29. 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.

30. 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.

31. 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.

32. Lin YC, Liu YC, Huang YY, Lien CC (2010). High-density expression of Ca^{2+}-permeable ASIC1a channels in NG2 glia of rat hippocampus. **PLoS ONE** 5(9): e12665.

33. 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.

34. 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.

35. Liao CW, Lien CC (2009). Estimating intracellular Ca^{2+} concentrations and buffering in a dendritic inhibitory hippocampal interneuron. **Neuroscience** 164(4): 1701-1711.

36. 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.

37. Aponte Y, Lien CC, Reisinger E, Jonas P (2006). Hyperpolarization-activated cation channels in fast-spiking interneurons of rat hippocampus. **Journal of Physiology (London)** 574(Pt 1): 229-243.

38. 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).

39. 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.

40. Lien CC, Martina M, Schultz JH, Ehmke H, Jonas P (2002). Gating, modulation, and subunit composition of voltage-gated K^+ channels in dendritic inhibitory interneurones of rat hippocampus. **Journal of Physiology (London)** 538(Pt 2): 405-419.