

Chung-Ping Liao (廖崇斌), Ph.D.

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Education

- 2004 - 2009 Ph.D., Pathology
Indiana University, Indianapolis, IN, USA
- 1999 - 2001 M.S., Microbiology and Immunology
National Yang-Ming University, Taipei, Taiwan
- 1995 - 1999 B.S., Medical Technology
Chang Gung University, Taoyuan, Taiwan

Positions

- 2020-Present Associate Professor
Graduate Institute of Medical Sciences
College of Medicine
Taipei Medical University, Taipei, Taiwan
- 2017 - 2020 Instructor
Department of Dermatology
University of Texas Southwestern Medical Center, Dallas, TX, USA
- 2019 - 2019 Adjunct Professor of Biology
Paul Quinn College, Dallas, TX, USA
- 2015 - 2017 Assistant Instructor
Department of Dermatology
University of Texas Southwestern Medical Center, Dallas, TX, USA
- 2012 - 2015 Postdoctoral Researcher
Laboratory of Lu Q. Le, M.D., Ph.D.
Department of Dermatology
University of Texas Southwestern Medical Center, Dallas, TX, USA
- 2010 - 2012 Research Fellow
Laboratory of Emily H. Cheng, M.D., Ph.D.
Human Oncology and Pathogenesis Program
Memorial Sloan Kettering Cancer Center, New York, NY, USA

Honors and Awards

- 2019 Pilot Project Award, Nathan Shock Center for Excellence in the Basic Biology of Aging
- 2016 Career Development Award, Dermatology Foundation
- 2015 Albert M. Kligman Travel Fellowship, Society for Investigative Dermatology
- 2014 Young Investigator Award, Children's Tumor Foundation
- 2008 Conference Travel Award, IWOP-10 Organizing Committee
- 2006 Conference Travel Award, Indiana University
- 2004 Graduate Fellowship, Indiana University

Presentations

- 2020 An essential stem cell niche in the hair follicle infundibulum for epidermal homeostasis. American Hair Research Society Annual Meeting. Webinar (invited oral presentation)
- 2018 Roles of transcription factor Krox20 in epithelial cell differentiation. UTSW Dermatology Departmental Meeting.

- 2018 Stem cell factor dictates the distribution of melanogenic melanocytes in the skin. International Investigative Dermatology. Orlando, FL. (selected oral presentation)
- 2018 β -Catenin regulation in Krox20 lineage hair follicle epithelial cells. International Investigative Dermatology. Orlando, FL. (selected ePoster presentation)
- 2017 Transcription factor KROX20 marks hair shaft progenitor cells that create an SCF-dependent niche for hair pigmentation. World Congress for Hair Research. Kyoto, Japan. (poster presentation)
- 2017 Serendipitous science discovery: Mechanisms of hair graying and hair loss. National Yang-Ming University, Taipei, Taiwan. (invited talk)
- 2017 Hair progenitor cells dictate hair pigmentation through non-cell autonomous KIT signaling. Society for Investigative Dermatology. Portland, OR. (selected oral presentation)
- 2016 Mechanisms regulating hair pigmentation. UTSW Dermatology Departmental Meeting.
- 2016 Contributions of stem cell factor and *Nf1* heterozygosity to neurofibroma tumor microenvironment. NF Conference. Austin, TX. (selected oral poster advertisement)
- 2015 Neurofibroma development is dependent on the presence of peripheral neurons in the tumor microenvironment. NF Conference. Monterey, CA (selected for posters of the day contest)
- 2015 Neurofibroma development is dependent on the presence of peripheral neurons in the tumor microenvironment. Society for Investigative Dermatology. Atlanta, GA. (selected oral presentation)
- 2008 Antizyme inhibitor mediates increased polyamine uptake in alveolar macrophages during *Pneumocystis pneumonia*. International Workshop on Opportunistic Protists. Boston, MA. (poster presentation)
- 2006 Polyamines and apoptosis of alveolar macrophages during *Pneumocystis pneumonia*. International Conference on Polyamines. Rome, Italy. (selected oral presentation)

Publications

1. Brosseau JP, **Liao CP**, Le LQ. Translating current basic research into future therapies for Neurofibromatosis type I. *Br J Cancer*. 2020. doi: 10.1038/s41416-020-0903-x
2. Cooper JM, Patel AJ, Chen Z*, **Liao CP***, Chen K*, Mo J, Wang Y, Le LQ. Overcoming BET inhibitor resistance in malignant peripheral nerve sheath tumors. *Clin Cancer Res* 2019;25(11):3404-3416. (*equal contribution)
3. **Liao CP**, Tchegnon E, Le LQ. Double-stranded RNA sensing determines epithelial cell identity. *J Invest Dermatol* 2019;139(1):17-19.
4. Brosseau JP*, **Liao CP***, Wang Y, Ramani V, Vandergriff T, Lee M, Patel A, Ariizumi K, Le LQ. *NF1* heterozygosity fosters de novo tumorigenesis but impairs malignant transformation. *Nat Commun* 2018;9(1):5014. (*co-first author)
5. Chen Z, Mo J, Brosseau JP, Shipman T, Wang Y, **Liao CP**, Cooper JM, Allaway RJ, Gosline SJC, Guinney J, Carroll TJ, Le LQ. Spatiotemporal loss of NF1 in Schwann cell lineage leads to different types of cutaneous neurofibroma susceptible to modification by the Hippo pathway. *Cancer Discov* 2018;pii: CD-18-0151.
6. **Liao CP**, Booker RC, Brosseau JP, Chen Z, Mo J, Tchegnon E, Wang Y, Clapp DW, Le LQ. Contributions of inflammation and tumor microenvironment to neurofibroma tumorigenesis. *J Clin Invest* 2018;128(7):2848-2861.
7. **Liao CP**, Booker RC, Morrison SJ, Le LQ. Identification of hair shaft progenitor cells that create a niche for hair pigmentation. *Genes & Dev* 2017;31(8):744-756.
 - Featured on cover
 - Featured in Outlook: *Genes Dev*. 2017;31(8):721-723.
 - **Exceptional Altmetric Attention Score at 1198**
(<https://genesdev.altmetric.com/details/19797690#score>)
8. **Liao CP**, Pradhan S, Chen Z, Patel AJ, Booker RC, Le LQ. The role of nerve microenvironment for neurofibroma development. *Oncotarget* 2016;7(38):61500-61508.

9. Chen HC, Kanai M, Inoue-Yamauchi A, Tu HC, Huang Y, Ren D, Kim H, Takeda S, Reyna DE, Chan PM, Ganesan YT, **Liao CP**, Gavathiotis E, Hsieh JJ, Cheng EH. An interconnected hierarchical model of cell death regulation by the BCL-2 family. *Nat Cell Biol* 2015;10(17):1270-1281.
10. Chen Z, Liu C, Patel AJ, **Liao CP**, Wang Y, Le LQ. Cells of origin in the embryonic nerve roots for NF1-associated plexiform neurofibroma. *Cancer Cell* 2014;10;26(5):695-706.
11. Patel AJ, **Liao CP**, Chen Z, Liu C, Wang Y, Le LQ. Bromodomain inhibition triggers apoptosis of NF1-associated malignant peripheral nerve sheath tumors through Bim induction. *Cell Rep* 2014;6(1):81-92.
12. Lasbury ME, **Liao CP**, Hage CA, Durant PJ, Tschang D, Wang SH, Zhang C, Lee CH. Defective nitric oxide production by alveolar macrophages during *Pneumocystis* pneumonia. *Am J Respir Cell Mol Biol* 2011;44(4):540-547.
13. Zhang C, Wang SH, **Liao CP**, Shao S, Lasbury ME, Durant PJ, Lee CH. Downregulation of PU.1 leads to decreased expression of Dectin-1 in alveolar macrophages during *Pneumocystis* pneumonia. *Infect Immun* 2010;78(3):1058-1065.
14. Cheng BH, Liu Y, Xuei X, **Liao CP**, Lu D, Lasbury ME, Durant PJ, Lee CH. Microarray studies on effects of *Pneumocystis carinii* infection on global gene expression in alveolar macrophages. *BMC Microbiol* 2010;10:103.
15. **Liao CP**, Phanstiel O IV, Lasbury ME, Zhang C, Shao S, Durant PJ, Cheng BH, Lee CH. Polyamine transport as a target for treatment of *Pneumocystis* pneumonia. *Antimicrob Agents Chemother* 2009;53(12):5259-5264.
16. **Liao CP**, Lasbury ME, Wang SH, Zhang C, Durant PJ, Murakami Y, Matsufuji S, Lee CH. *Pneumocystis* mediates overexpression of antizyme inhibitor resulting in increased polyamine levels and apoptosis in alveolar macrophages. *J Biol Chem* 2009;284(12):8174-8184.
17. Lasbury ME, Durant PJ, **Liao CP**, Lee CH. Effects of decreased calmodulin protein on the survival mechanisms of alveolar macrophages during *Pneumocystis* pneumonia. *Infect Immun* 2009;77(8):3344-3354.
18. Wang SH, Zhang C, Lasbury ME, **Liao CP**, Durant PJ, Tschang D, Lee CH. Decreased inflammatory response in toll-like receptor 2 knockout mice is associated with exacerbated *Pneumocystis* pneumonia. *Microbes Infect* 2008;10(4):334-341.
19. **Liao CP**, Lasbury ME, Wang SH, Zhang C, Durant PJ, Tschang D, Lee CH. Inflammatory cells are sources of polyamines that induce alveolar macrophage to undergo apoptosis during *Pneumocystis* pneumonia. *J Eukaryot Microbiol* 2006;53 Suppl 1:S134-135.
20. Zhang C, Wang SH, Lasbury ME, Tschang D, **Liao CP**, Durant PJ, Lee CH. Toll-like receptor 2 mediates alveolar macrophage response to *Pneumocystis murina*. *Infect Immun* 2006;74(3):1857-1864.
21. **Liao CP**, Syu WJ. Analysis of the baseplate region of phage AR1 that specifically infects *Escherichia coli* O157:H7. *J Microbiol Immunol Infect* 2002;35(4):269-271.

Manuscript

22. **Liao CP**, Tchegnon E, Li S, Wang Y, Raman J, Le LQ. An essential stem cell niche in the hair follicle infundibulum for epidermal homeostasis. (submitted)

Book Chapter

23. **Liao CP**, Tchegnon E, Le LQ. Krox20 in epithelial and glial stem cells and their niches. Book: *Advances in Stem Cells and their Niches* (2019 Elsevier)
<https://www.sciencedirect.com/science/article/pii/S2468509719300028>

Research Support

Pilot Project Award 2019 - 2020
 Nathan Shock Center for Excellence in the Basic Biology of Aging
 The Jackson Aging Center
 NIH P30 AG038070

Liao (Principal Investigator) 07/01/2016 - 06/30/2019
Career Development Award
Dermatology Foundation
Mechanisms regulating hair pigmentation and development

2014-01-006 – Liao (Principal Investigator) 07/01/2014 - 06/30/2016
Young Investigator Award
Children's Tumor Foundation
Tumor microenvironment and stem cell factor contributions in neurofibroma development

Teaching Experience

2019 - 2019 Adjunct Professor of Biology
General Biology I (BIOL1324) (>90% teaching satisfaction)
General Biology I Lab (BIOL1124)
General Biology II Lab (BIOL1125)
Paul Quinn College

2005 - 2009 Teaching Assistant
Molecular Biology Workshop (3-credit graduate course)
Indiana University School of Medicine

- Preparation of experimental materials & pre-run experiments
- Establish and modify experimental protocols
- Guide students to perform experiments & lead group discussions
- Answer students' questions & help students to prepare for exams

Research Mentoring Experience

01/2017 - 05/2017 **Jenny Raman**
Green Fellow of UT Dallas and UT Southwestern
Current position: Medical Student at UT Southwestern
Research project: Role of Krox20 in epidermal differentiation
Research techniques: mouse epithelial cell isolation & culture, qRT-PCR, Western blotting, immunofluorescence staining, LacZ staining

02/2014 - 07/2015 **Reid Booker**
Research Assistant, UT Southwestern
Current position: Anesthesiology Resident, University of Washington, Seattle
Research project: (1) Contributions of inflammation and tumor microenvironment to neurofibroma tumorigenesis, (2) Identification of hair shaft progenitors that create a niche for hair pigmentation.
Research techniques: mouse breeding and maintenance, mouse dissection, mouse spinal cord extraction, tissue processing and embedding, LacZ staining, tissue sectioning, H&E staining.

07/2016 - present **Edem Tchegnon**
Ph.D. Student, UT Southwestern
Research project: Evaluating the downstream effectors of Krox20
Research techniques: mouse breeding, epithelial cell isolation & culture, qRT-PCR, Western blotting, tissue processing and embedding, immunofluorescence staining.

01/2019 – 05/2019 **Janelle Liew**
Business Pre-Med Student, UT Austin
Research project: L'Oreal Brandstorm 2019 Competition - To invent the future skincare experience for health-conscious consumers