UT SOUTHWESTERN MEDICAL CENTER

Chen Liu

Curriculum Vitae (2/2026)

Center for Hypothalamic Research
Department of Internal Medicine
Department of Neuroscience
Peter O'Donnell Jr. Brain Insitute

5323 Harry Hines Blvd.
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Dallas, TX 75390-9077
Chen.Liu@UTSouthwestern.edu
www.chenliulab.us

Appointments

Associate Professor (with tenure)
Depts. of Internal Medicine and Neuroscience
Investigator, Peter O'Donnell Jr. Brain Insitute
Neuroscience Graduate Program
Molecular Metabolism & Metabolic Diseases Track
University of Texas Southwestern Medical Center, 2015.9-present

Education

Case Western Reserve University, Cleveland, OH, 2004-2010.
Ph.D., Dept. of Neurosciences, School of Medicine.
Pet-1 Is Required Across Different Stages of Life to Regulate Serotonergic Function.
Mentor: Evan S. Deneris, Ph.D.

Mentoring Statement

Over the past 15 years, I've had the privilege of mentoring high school students, undergraduates, graduate students, and postdoctoral fellows. I was trained by two highly supportive, hands-off mentors, and their approach has strongly shaped how I run my own lab. I strive to create an environment where trainees have the freedom and encouragement to explore ideas independently, while knowing that guidance, feedback, and support are always readily available. Below, I share a few thoughts for prospective students and postdocs who are considering joining our group.

For Graduate Students

The most important skill I hope students will develop during their Ph.D. training is critical thinking. This, more than any experimental technique, will have a lasting impact on their future careers and lives. I also encourage students to challenge themselves to learn new techniques and pursue original, curiosity-driven discoveries. Research is not easy—it demands hard work, perseverance, and sometimes, a bit of luck. But it's also a training ground for future challenges, and you'll have the full support of the lab behind you. Finally, students are expected to graduate on time—ideally within five years. A Ph.D. is just the first step in a long journey. Don't get stuck there.

For Postdoctoral Fellows

At the postdoc stage, I expect you to have the skills and knowledge to independently design and execute experiments. This phase of training should focus on developing the broader competencies required for independence. From the outset, I encourage postdocs to participate in grant writing, including drafting their own proposals. I also expect them to actively present their work at lab meetings, seminars, and conferences. Each year, my trainees attend national or international meetings to broaden their professional networks. In my view, postdoctoral training is a time to identify and define your unique research niche. I am committed to helping each postdoc build the necessary credentials (papers) and secure the resources (funding) to take that next step toward independence.

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Recent trainee achievements

Career Development Award (2026), The American Heart Association

Career Development Award (2025), The American Heart Association

PDA Travel Award (2025), UT Southwestern Medical Center

Basic Science Award (2024), The Ninth Seldin Research Symposium, UT Southwestern Medical Center

Career Development Award (2024), The American Heart Association

Best Poster Presentation (2024), Gordon Research Conference, Maine, USA

Best Oral Presentation (2024), CADA Annual Meeting, Orlando, Florida, USA

Basic Science Award (2023), The Eighth Seldin Research Symposium, UT Southwestern Medical Center

PDA Travel Award (2023), UT Southwestern Medical Center

Postdoctoral Fellowship Award (2023), The American Heart Association

Scholarship Award (2022), Keystone Symposium, Banff, Canada

Best Oral Presentation (2022), CADA Annual Meeting, New Orleans, USA

Selected publications **(Corresponding † and first author* ONLY)**

Xu, B, Li L, Chen M, Wu Z, Chen X, Swati, Wan R, Almeida A, Wyler S, **Liu C**†. Developmental reprogramming in the melanocortin neurons modulates diet-induced obeisty in mice (2026). ***Neuron***

Xu, B, Lawler K, Wyler S, Li L, Swati, Keogh J, Chen X, Wan R, Almeida A, Kirsch S, Mountjoy K, Elmquist J, Farooqi S†, **Liu C**†. Orthopedia regulates Melanocortin 4 Receptor transcription and energy homeostasis (2025). ***Sci Transl Med***.

Li L†, Xu, B, **Liu C**†. Sample enrichment for single-nucleus sequencing using concanavalin A-conjugated magnetic beads (2023). ***STAR Protocols***

Li L, Wyler SC, Leon-Mercado LA, Xu B, Oh Y, Swati, Chen X, R Wan, Arnold AG, Jia L, Wang G, Nautiyal K, Hen R, Sohn JW†, **Liu C**†. Delineating a serotonin receptor pathway for appetite suppression (2022). ***J. Exp Med.***

Yoo ES, Li L, Jia L, Lord CC, Lee CE, Vianna CR, Berglund ED, Cunningham KA, Xu Y, Sohn JW†, **Liu C**†. Gai/o-coupled Htr2c in the Paraventricular Nucleus of the Hypothalamus Antagonizes the Anorectic Effect of Serotonin Agents (2021). ***Cell Rep***.

Li L, Yoo ES, Li X, Wyler SC, Chen X, R Wan, Arnold AG, Birnbaum SG, Jia L, Sohn JW† **Liu C**†. The atypical antipsychotic risperidone targets hypothalamic melanocortin 4 receptors to cause weight gain. (2021). ***J. Exp Med.***

Chen X, Wyler SC, Li L, Arnold AG, Wan R, Jia L, Landy MA, Lai HC, Xu P, **Liu C**†. Comparative transcriptomic analyses of developing melanocortin neurons reveal new regulators for the anorexigenic neuron identity (2020). ***J. Neurosci***.

Park S, Williams KW, **Liu C**†, Sohn JW†. A neural basis for tonic suppression of sodium appetite (2020). ***Nat. Neurosci***.

Lord, CC, Wyler SC, Wan, R, Castorena, CM, Ahmed, N, Mathew, D, Lee, S, **Liu, C**†, Elmquist JK† (2017). The atypical antipsychotic olanzapine targets Htr2c to cause weight gain. ***J. Clin. Invest***.

Liu, C.*, Bookout, A.L.*, Lee, S., Sun, K., Jia, L., Lee, C., Udit, S., Deng, Y., Scherer, P.E.,

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Mangelsdorf, D.J., et al. (2014). PPARgamma in vagal neurons regulates high-fat diet induced thermogenesis. ***Cell Metab***.

Liu, C., Lee, S., and Elmquist, J.K. (2014). Circuits controlling energy balance and mood: inherently intertwined or just complicated intersections? ***Cell Metab***.

Wang, Q.*, **Liu, C.***, Uchida, A., Chuang, J.-C., Walker, A., Liu, T., Osborne-Lawrence, S., Mason, B.L., Mosher, C., Berglund, E.D., et al. (2014). Arcuate AgRP neurons mediate orexigenic and glucoregulatory actions of ghrelin. ***Mol. Metab***.

Berglund, E.D.*, **Liu, C.***, Sohn, J.-W., Liu, T., Kim, M.H., Lee, C.E., Vianna, C.R., Williams, K.W., Xu, Y., and Elmquist, J.K. (2013). Serotonin 2C receptors in pro-opiomelanocortin neurons regulate energy and glucose homeostasis. ***J. Clin. Invest***.

Liu, C. and Elmquist, J.K. (2012). Tipping the scales early: probing the long-term effects of obesity. ***J. Clin. Invest***.

Liu, C., Maejima, T., Wyler, S.C., Casadesus, G., Herlitze, S., and Deneris, E.S. (2010). Pet-1 is required across different stages of life to regulate serotonergic function. ***Nat. Neurosci***.

Selected other Publications (as a contributing author)

Xun Y, Jiang Y, Xu B, Tang M, Ludwig S, Nakamura K, Mukhopadhyay S, **Liu C**, Beutler B, Zhang Z. GPR45 modulates Galpha(s) at primary cilia of the paraventricular hypothalamus to control food intake (2025). ***Science***

Zhao S, Lin Q, Xiong W, Li L, Straub L, Zhang D, Zapata R, Zhu Q, Sun X, Zhang Z, Funcke J, Li C, Chen S, Zhu Y, Jiang N, Li G, Xu Z, Wyler SC, Wang, M, Bai J, Han X, Kusminski CM, Zhang N, An Z, Elmquist JK, Osborn O, **Liu C**, Scherer PE (2023). Hyperleptinemia contributes to antipsychotic drug-associated obesity and metabolic disorders. ***Sci Transl Med.***

Zapata RC, Zhang D, Libster A, Porcu A, Montilla-Perez P, Nur A, Xu B, Zhang Z, Correa SM, **Liu C**, Telese F, Osborn O (2023). Nuclear receptor 5A2 regulation of Agrp underlies olanzapine-induced hyperphagia. ***Mol Psychiatry.***

Landy MA, Goyal M, Casey KM, **Liu C**, Lai HC (2021). Loss of Prdm12 during development, but not in mature nociceptors, causes defects in pain sensation. ***Cell Rep.***

Shankar K, Gupta D, Mani BK, Findley BG, Lord CC, Osborne-Lawrence S, Metzger NP, Pietra C, **Liu C**, Berglund ED, Zigman JM (2019). Acyl-ghrelin is Permissive for the Normal Counterregulatory Response to Insulin-induced Hypoglycemia. ***Diabetes***.

Jia L, Chang X, Qian S, **Liu, C**, Lord CC, Ahmed N, Lee CE, Lee S, Gautron L, Mitchell MC, Horton JD, Scherer PE, Elmquist JK (2018). Hepatocyte toll-like receptor 4 deficiency protects against alcohol-induced fatty liver disease. ***Mol Metab***.

Caron A, Dungan Lemko HM, Castorena CM, Fujikawa T, Lee S, Lord CC, Ahmed N, Lee CE, Holland WL, **Liu C**, Elmquist JK (2018). POMC neurons expressing leptin receptors coordinate metabolic responses to fasting via suppression of leptin levels. ***Elife***.

Santoro A, Campolo, M, **Liu, C**, Sesaki, H, Meli, R, Liu, Z, Kim JD, Diano, S (2017). DRP1 suppresses leptin and glucose sensing of POMC neurons. ***Cell Metab***.

He Y, Shu G, Yang Y, Xu P, Xia Y, Wang C, Saito K, Hinton A Jr, Yan X, **Liu C**, Wu Q, Tong Q, Xu, Y (2016). A Small Potassium Current in AgRP/NPY Neurons Regulates Feeding

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Behavior and Energy Metabolism. ***Cell Rep***.

Jia, L., Vianna, C.R., Fukuda, M., Berglund, E.D., **Liu, C.**, Tao, C., Sun, K., Liu, T., Harper, M.J., Lee, C.E., et al. (2014). Hepatocyte Toll-like receptor 4 regulates obesity-induced inflammation and insulin resistance. ***Nat. Commun***.

Chen, Z., Holland, W., Shelton, J.M., Ali, A., Zhan, X., Won, S., Tomisato, W., **Liu, C.**, Li, X., Moresco, E.M.Y., et al. (2014). Mutation of mouse Samd4 causes leanness, myopathy, uncoupled mitochondrial respiration, and dysregulated mTORC1 signaling. ***Proc. Natl. Acad. Sci. U. S. A.***

Oh, E., Maejima, T., **Liu, C.**, Deneris, E., and Herlitze, S. (2010). Substitution of 5-HT1A receptor signaling by a light-activated G protein-coupled receptor. ***J. Biol. Chem.***

Research Support

Ongoing:

NIH R01 DK114036 (PI, Liu) **7/2017-2/2028**

Hypothalamic MC4Rs and Antipsychotic Drug-induced Metabolic Syndrome

NIH R01 DK130892 (PI, Liu) **1/2022-12/2026**

A Human Genetic Variant Ties Defective Hypothalamic Development to Obesity and Diabetes

NIH R01 DK136592 (PI, Liu) **4/2024-3/2029**

Deconstruct Raphe Serotonin Neurons that Regulate Satiety

American Heart Association 24CDA1257999 (Mentor, Liu) **9/2024-9/2027**

AHA Career Development Awardee

American Heart Association 26CDA1601024 (Mentor, Liu) **4/2026-3/2029**

Mentor for AHA Career Development Awardee

UTSW Medical Foundation Research Start-up (PI, Liu) **9/1/2015-present**

Completed:

2025	Career Development Award (mentor, AHA), *declined*
2024	Postdoctoral Fellowship Award (mentor, AHA23POST1019715)
2020	Scientist Development Award (AHA 16SDG2726001)
2019	Pilot & Feasibility Award (NIH U01NS090405)
2018	Pilot & Feasibility Award (UTSW)
2018	Grossman Endowment Award for Diabetes Research
2016	Beginning Grant-in-Aid Award (AHA 16BGIA27260023)
2014	Fellowship, Davis Foundation in Eating Disorder Research.
2014	Fellowship, American Diabetes Association.

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2011 Ruth L. Kirschstein National Research Service Award (T32).

Awards and Honors

6/2022 Young Investigator Award, Chinese American Diabetes Association

6/2018 Grossman Award for Excellence in Diabetes Research

11/2016 Peter A. Getting Memorial Letcure, University of Iowa

1/2014 Scholarship, Keystone Symposium 2014, Vancouver, Canada.

1/2014 Scholarship, Molecular Neuroanatomy Course, Allen Brain Institute.

10/2011 Fellowship, Davis Foundation in Eating Disorder Research

1/2011 Ruth L. Kirschstein National Research Service Award (NRSA)

4/2011 Doctoral Excellence Award, Case Western Reserve University

5/2010 Vance Lemmon Award, Case Western Reserve University

5/2008 The President's Award, Case Western Reserve University

5/2008 Excellence in Science Program,American Association for the Advancement of Science (AAAS)

Invited Talks

03/2026 **Keystone Symposium: Gut-Brain Axis, Keystone, CO, US**

02/2026 Harold Hamm Diabetes Center, University of Oklahoma, Oklahoma City

01/2026 American Soceity for Chinese Neuroscientists Syposium, Houston, TX

09/2025 **7th International Melanocortin Meeting, Cambridge, United Kingdom**

07/2025 Quebeck Heart and Lung Institue, Quebec City, Canada (**invited by students**)

07/2025 **International Society for Serotonin Research, Vienna, Austria**

04/2025 BHRI Virtual Seminar Series, Kent State University, Ohio

02/2024 Keystone Symposium: Obesity Causes and Consequences, Canada

04/2023 International Society for Serotonin Research, Cancun, Mexico

12/2022 Chinese American Diabetes Association (virtual)

11-02-2022 Dept. of Neuroscience, Case Western Reserve University, Cleveland

02-01-2021 Keystone Symposium: Obesity: From Cell to Patient, 2021 (virtual)

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02/2021 **Keystone Symposia: Obesity, From Cell to Patient (virtual)**

12/2020 The 19th Annual Meeting of Korean Basic Dental Science Soceity (virtual)

09/2019 **International Brain Research Organiation Conference, Daegu, Korea**

06/2017 Teratoloogy Soceity 57th Annual Meeting, Dever, Colorado

11/2016 Department of Molecular Physiology and Biophysics, Univesity of Iowa

12/2015 American Society for Epilepsy Annual Meeting, Philadelphia, PA.

11/2015 Department of Neurology, Baylor College of Medicine, Houston, TX.

Services

2023- *UTSW Graduate School Admissions Committee*

2021- *Standing member for AHA Fellowsihp Review Committee*

12-2025 *Ad hoc Reviewer for NIH Director's Pioneer Award (DP1)*

07-2025 *Ad hoc Reviewer for NIH Special Emphasis Panel ZRG1-EMS-S(90)*

12-2024 *Ad hoc Reviewer for NIH Director's Pioneer Award (DP1)*

06-2023 *Ad hoc Reviewer for NIH DDK-B Study Section*

05-2023 *Ad hoc Reviewer for French National Research Agency*

01-2023 *Ad hoc Reviewer for NIH Director's Pioneer Award (DP1)*

10-2022 *Ad hoc Reviewer for NIH POMD Study Section*

05-2022 *Ad hoc Reviewer for NIH DDK-B Study Section*

2016-2021 *Early-career reviewer for eLife*

Memberships

2008 – Society for Neuroscience (SFN)

2013- American Heart Association (AHA)

2022- International Society for Serotonin Research (ISSR)

2023- American Diabetes Association (ADA)