Thomas Jhou

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Lab site:
www.jhoulab.org

Education:

BS	Massachusetts Institute of Technology	1995	Computer Science
PhD	Harvard University	2003	Neurobiology (advisor Dr Clif Saper)

Post-doctoral training:

2004-2005	UC San Francisco, Ernest Gallo Clinic and Research Center, Dr Howard Fields
2005-2008	Johns Hopkins University, Dept of Psychological and Brain Sciences, Dr Peter Holland
2008-2010	National Institute on Drug Abuse, Behavioral Neuroscience Branch, Dr Satoshi Ikemoto

Appointments:

2010-present Assistant professor, Dept of Neurosciences, Medical University of South Carolina

Current Extramural Funding:

2014-2019 $225,000 annual direct costs. NIDA R01 DA037327-01 “Cocaine-Conditioned Avoidance Behavior”. Role: Principal Investigator.

2016-2019 $200,000 annual direct costs. W911NF-16-0070, Army Research Labs, Department of Defense, “Genetic Anatomy of Sleep”. Role: Principal Investigator.

2017-2018 $30,000 total direct costs. NINDS 1R41NS102049 (SBIR), “A Unified System for Wireless Optogenetics and Brain Microdialysis for Small Molecules: Prototype Development and Validation”. Role: subcontract.

2018-2023 ~$600,000 annual direct costs (varies by year). NIDA 1U01DA044468, “Genomic Analysis of Avoidance Learning in Addiction”. Role: Principal Investigator.

Pending extramural funding:

2018 $60,000 direct costs. NINDS 1R41NS107142 (SBIR), “Wireless implantable neural recording device”. Role: subcontract.

Completed Extramural Funding:

2012-2017 $46,876 annual direct costs, subcontract from NIMH R01MH094489, PI Dr. Paul Shepard, University of Maryland, “Habenulomesencephalic role in depression and anhedonia”.

2012-2014 $150,000 annual direct costs, NIDA, 1R21DA89501, “Neural mechanisms by which punishment modulates drug-seeking”, Role: Principal Investigator.

2012-2014 $50,000 annual direct costs, NIDA, 1R03DA034431, “Gene expression and drug targets in the rostromedial tegmentum”, Role: Principal Investigator.

2013 $25,000. Pilot project for Alcohol Research Center at the Medical University of South Carolina. Role: Principal Investigator.

2015-2016 $31,316 direct costs, subcontract from 1R21DA037744, PI Rachel Smith, Texas A&M University, “Opposing roles of distinct output projections from prefrontal cortex”.

2015-2018 $120,000 annual direct costs, project on NIDA P50DA015369, “Neurobiology of Addiction Research Center”. Role: Principal Investigator on project 3.

Peer-reviewed publications

Complete publication list in MyBibliography:
https://www.ncbi.nlm.nih.gov/sites/myncbi/1Dch9GcOUfg5w/bibliography/46645081/public/?sort=date&direction=descending

As of April 2017: 6813 total citations, 3110 citations since 2012, h-index=22. Items 1-13 (prior to 2005) are published under alternate (now defunct) spelling of my last name, “Chou”.

1. Cusack, B., Jansen, K. McCormick DJ, **Chou, T**, Pang Y, Richelson E. "A single amino acid of the human and rat neurotensin receptors (subtype 1) determining the pharmacological profile of a species-selective neurotensin agent." *Biochem. Pharmacol.* Sept 15; 60(6):793-801, 2000.
2. Cusack B, **Chou T**, Jansen K, McCormick, DJ, Richelson E, "Analysis of binding sites and efficacy of a species-specific peptide at rat and human neurotensin receptors." *J. Peptide Research* Jan; 55(1):72-80, 2000.
3. Estabrooke IV, McCarthy MT, Ko E, **Chou TC**, Chemelli RM, Yanagisawa M, Saper CB, Scammell TE, Fos expression in orexin neurons varies with behavioral state. *J Neurosci.* 2001 Mar 1;21(5):1656-62.
4. Lu J, Zhang YH, **Chou TC**, Gaus SE, Elmquist JK, Shiromani P, Saper CB, "Contrasting effects of ibotenate lesions of the paraventricular nucleus and subparaventricular zone on sleep-wake cycle and temperature regulation.", *J. Neurosci.*, 21(13):4864-74, 2001.
5. **Chou TC**, Lee CE, Lu J, Elmquist JK, Hara J, Willie JT, Beuckmann CT, Chemelli RM, Sakurai T, Yanagisawa M, Saper CB, Scammell TE, "Orexin neurons contain dynorphin", *J. Neurosci.*, 21(19): RC168, 2001.
6. Saper, CB, **Chou, TC**, Scammell, TE, "The sleep switch: hypothalamic control of sleep and wakefulness," *Trends in Neurosci.*, 12:726-31, 2001.

7. Gooley JJ, Lu J, **Chou TC**, Scammell TE, Saper CB. "Melanopsin in cells of origin of the retinohypothalamic tract", *Nat Neurosci.* 2001 Dec;4(12):1165.
8. **Chou, TC**, Bjorkum, A, Gaus, SE, Lu, J, Scammell, TE, Saper, CB, "Afferents to the ventrolateral preoptic nucleus," *J. Neurosci.*, 22(3):977-90, 2002.
9. Saper, CB, **Chou, TC**, Elmquist, JK, "The Need to Feed: Homeostatic and hedonic control of feeding", *Neuron*, 36(2):199, Oct. 2002.
10. Chamberlin NL, Arrigoni E, **Chou TC**, Saper CB, “Effects of adenosine on GABAergic synaptic inputs to identified ventrolateral preoptic neurons”, *Neuroscience*, 119(4), 913-918.
11. **Chou, TC**, Scammell, TE, Gooley, JJ, Gaus, SE, Saper, CB, Lu, J, "Critical role of the dorsomedial hypothalamic nucleus in a wide range of behavioral circadian rhythms", *J. Neuroscience*, 23(33):106910-702, 2003.
12. **Chou TC,** Rotman SR, Saper CB., Lateral hypothalamic acetylcholinesterase-immunoreactive neurons co-express either orexin or melanin concentrating hormone., *Neurosci Lett*. 2004 Nov 11;370(2-3):123-6.
13. Gerashchenko D, **Chou TC,** Blanco-Centurion CA, Saper CB, Shiromani PJ., Effects of lesions of the histaminergic tuberomammillary nucleus on spontaneous sleep in rats., *Sleep.* 2004 Nov 1;27(7):1275-81.
14. Saper CB, Lu J, **Chou TC**, Gooley J., The hypothalamic integrator for circadian rhythms., *Trends Neurosci*. 2005 Mar;28(3):152-7.
15. **Jhou, T,** “Neural mechanisms of freezing and passive aversive behaviors”, *J. Comp. Neurol*. Dec. 2005, 493(1):111-4.
16. Lu, J, **Jhou, TC**, Saper, CB, “Identification of Wake-Active Dopaminergic Neurons in the Ventral Periaqueductal Gray Matter”, *J. Neurosci.*, January 4, 2006; 26(1): 193 - 202.
17. Phillips, PEM, Walton, ME, **Jhou, TC**, “Calculating Utility: Preclinical evidence for cost-benefit analysis by mesolimbic dopamine”, *Psychopharmacology*, 2007; 191(3):483-95.
18. Greco MA, Fuller P, **Jhou TC**, Martin-Schild S, Zadina JE, Hu Z, Shiromani P, Lu J. Opioidergic projections to sleep-active neurons in the ventrolateral preoptic nucleus. *Brain Res.* 2008.
19. **Jhou TC**, Geisler S, Marinelli M, DeGarmo BA, Zahm DS, “The rostromedial tegmental nucleus: a mesopontine structure targeted by the lateral habenula that projects to the ventral tegmental area and substantia nigra compacta”. *J. Comp. Neurology*, 513(6):566-96, 2009.
20. **Jhou, TC**, Fields, HL, Baxter, MG, Saper, CB, Holland PC, “The rostromedial tegmental nucleus (RMTg), a major GABAergic afferent to midbrain dopamine neurons, encodes aversive stimuli and promotes behavioral inhibition”. *Neuron,* 61(5):786-800, 2009.
21. Hong S, **Jhou TC**, Smith M, Saleem KS, Hikosaka, O, “Negative reward signals from the lateral habenula to dopamine neurons are mediated by rostromedial tegmental nucleus in primates”, *J. Neurosci*. 31(32):11457-71, 2011.
22. **Jhou TC**, Xu SP, Lee MR, Gallen CL, Ikemoto S., Mapping of reinforcing and analgesic effects of the mu opioid agonist Endomorphin-1 in the ventral midbrain of the rat. *Psychopharmacology*, 2012.
23. Webb SM, Vollrath-Smith FR, Shin R, **Jhou TC**, Xu S, Ikemoto S, “Rewarding and incentive motivational effects of excitatory amino acid receptor antagonists into the median raphe and adjacent regions of the rat”, Psychopharmacology 224(3):401-12, 2012.
24. Barrot M, Sesack SR, Georges F, Pistis M, Hong S, **Jhou TC**, “Braking dopamine systems: a new GABA master structure for mesolimbic and nigrostriatal functions”. *J. Neurosci.* 32(41):14,094-101, 2012.
25. **Jhou, TC**, Good CH, Rowley CS, Xu SP, Wang H, Burnham N, Hoffman AF, Lupica CR, Ikemoto S, “Cocaine drives aversive conditioning via delayed activation of dopamine-responsive habenular and midbrain pathways”, *J. Neurosci*. vol. 33(17):7501-12, 2013.

26. Bentzley BS, **Jhou TC**, Aston-Jones G, "Economic demand predicts addiction-like behavior and therapeutic efficacy of oxytocin in the rat." *Proc. Natl. Acad. Sci, USA*, 2014, PMC4136574.
27. Quina LA, Tempest L, Ng L, Harris JA, Ferguson S, **Jhou TC**, Turner EE., "Efferent pathways of the Mouse Lateral Habenula", *J. Comp. Neurol.* 2014.
28. Vujovic N, Gooley JJ, **Jhou** TC, Saper CB. Projections from the subparaventricular zone define four channels of output from the circadian timing system. J Comp Neurol. 523(18):2714-37, 2015.
29. Brown RM, Kupchik YM, Spencer S, Garcia-Keller C, Spanswick DC, Lawrence AJ, Simonds SE, Schwartz DJ, Jordan KA, **Jhou TC**, Kalivas PW. Addiction-like synaptic impairments in diet-induced obesity. *Biol Psychiatry*. EPub 2015 Dec 2.
30. Vento PJ, Rowley CS, Burnham NW, **Jhou TC**. Learning from one's mistakes: A dual role for the rostromedial tegmental nucleus in the encoding and expression of punished reward seeking. *Biological Psychiatry*, 2017.
31. Elmer GI, Palacarolla H, Mayo CL, Brown PL, **Jhou TC**, Brady D, Shepard PD. The rostromedial tegmental nucleus modulates the development of stress-induced helpless behavior, *Behav Brain Res*, S0166-4328(17)31832-6, 2018.

Awards and Honors:

2010 Travel fellowship for Winter Conference on Brain Research (WCBR).

2012 Young Investigator Award (formerly Herrick Award) from American Association of Anatomists.

Invited Talks:

May, 2005 *Anatomy of the Soul* conference, "*Neural Mechanisms of Freezing and Passive Aversive Behaviors*", Hosted by Drs. Clifford Saper and Gert Holstege, Ameland, Netherlands

Jan, 2008 St. Louis University. *"The Good and the Bad: aversive processing by a GABAergic afferent to midbrain dopamine neurons"*. Hosted by Dr. Daniel S. Zahm

April, 2009 Maryland Psychiatric Research Center, Hosted by Dr. Paul Shepard, "*A convergence of aversion, pathways linking aversive and appetitive brain systems*"

Jan, 2010 Speaker and travel award recipient, Winter Conference on Brain Research, Breckenridge, CO. Session chaired by Dr. Susan Sesack: "*A Newly Discovered Collection of GABA Neurons in the Brainstem Tegmentum that Projects Strongly to Midbrain Dopamine Cells and Influences Aversive Behavior*"

Feb, 2010 "Role of the habenula", at Banbury Center, Cold Spring Harbor, New York. Hosted by Dr. Fritz Henn

April, 2010 Co-chair, workshop panel at 5th Motivational Neural Networks Meeting, Wrightsville Beach, North Carolina. Panel organized by Daniel S. Zahm.

May, 2010 University of Texas, San Antonio. Hosted by Drs. Hitoshi Morikawa and Michael Beckstead.

May, 2010 Center for Neuroeconomics, New York University. Hosted by Dr. Nathaniel Daw.

Sept, 2010 Symposium speaker, 33rd Annual Japan Neuroscience Meeting, Kobe Japan. Hosted by Drs. Masayuki Matsumoto and Hitoshi Okamoto.

Oct, 2010	Symposium speaker, “Brain Circuits and Behavioral Control”, NIH Research Day, National Institute on Mental Health, Bethesda MD. Hosted by Dr. Heather Cameron.
April 2011	Duke University. Hosted by Drs. Ben Hayden and Michael Platt.
Feb, 2012	University of Washington, Seattle Children’s Research Institute, Center for Integrative Brain Research. Hosted by Dr. Eric Turner
March, 2013	International Basal Ganglia Society (IBAGS) meeting, Eilat, Israel. Hosted by Dr. Peter Redgrave
April, 2013	Young Investigator Award Symposium, Boston, MA.
April, 2014	UT Austin, hosted by Dr. Michela Marinelli
April, 2014	The Scripps Research Institute, hosted by Dr. Bert Weiss
July, 2014	INRC (International Narcotics Research Conference), Montreal, Canada
June, 2015	University of Chicago, *Rat Genetics and Genomics for Psychiatric Disorders and Addiction*, organized by NIDA and Center for GWAS in Outbred Rats.
Sept, 2015	University of Helsinki, hosted by Mikko Airavaara
Sept, 2016	Texas A&M, hosted by Rachel Smith
Nov, 2016	SFN symposium on habenula, hosted by Susan Volman, NIDA.
Feb, 2017	Panel at Winter Conference on Brain Research, chaired by Carl Lupica, NIDA.
April, 2017	University of Pennsylvania, hosted by Mariela de Biasi
April, 2017	University of Pittsburgh, hosted by Susan Sesack and Alan Sved
July, 2017	NASA Ames Research Center
Feb, 2018	Winter Conference on Neural Plasticity, Curacao, speaker panel chaired by Sheri Mizumori
March, 2019	Fudan University, Shanghai, China, symposium “Cellular and circuit mechanisms of motivated behaviors”, hosted by Drs. Bo Li and Ping Zheng

Study section/Grant review activity:

March, 2013	NIH: Cutting Edge Brain Research Awards (CEBRA)
June, 2013	NIH: F02A-J(20) Fellowships: Behavioral Neuroscience
May, 2013	ANR (Agence nationale de la recherche), France, SAMENTA 2013.
June, 2014	NIH: ETTN-C(10) Small Business: Clinical Neurophysiology, Devices, Neuroprosthetics, and Biosensors
July, 2014	MRC (Medical Research Council), United Kingdon.
October, 2014	NSF: CAREER awards
June, 2015	NIH: study section, Neurobiology of Motivated Behavior (NMB)
Nov, 2016	NIH: ETTN-C(10) Small Business: Clinical Neurophysiology, Devices, Neuroprosthetics, and Biosensors

Journal/Editorial activity:

Reviewer for:

Brain Research
European Journal of Neuroscience
Journal of Comparative Neurology
Journal of Neurophysiology
Journal of Neuroscience
Nature Neuroscience
Neuropsychopharmacology
PLoS One

Synapse
Trends in Neurosciences

Member of Editorial Board:

PLoS One

Teaching and mentoring:

Member of thesis committees:

P. Leon Brown, PhD 2014, Dept. of Psychiatry, University of Maryland, advisor Dr. Paul Shepard. (I am external committee member)
Michael Stefanik, PhD 2014, Dept. of Neurosciences, MUSC, advisor Dr. Peter Kalivas.
Zachary Cope, PhD 2014, Dept. of Neurosciences, MUSC, advisor Dr. Gary Aston-Jones.
Brandon Bentzley (MD-PhD candidate) Dept of Neurosciences, MUSC, advisor Dr. Gary Aston-Jones.
Ellen McGlinchey, PhD 2015, Dept of Neurosciences, MUSC, advisor Dr. Gary Aston-Jones.
Douglas Wolfe, MD-PhD candidate, Dept of Neurosciences, MUSC, advisor Dr. Peter Kalivas
Jasper Heinsbroek, PhD candidate, Dept of Neurosciences, MUSC, advisor Dr. Peter Kalivas
Spencer Bell, PhD candidate, Dept of Neurosciences, MUSC, advisor Dr. Brett Froeliger
Brandon Vaughan, MS candidate, Dept of Neurosciences, MUSC, advisor Dr. Jane Joseph
Zahraa Sabra, PhD candidate, Dept of Neurosciences, MUSC, advisor Dr. Thomas Naselaris
Jessica Breedlove, PhD candidate, Dept of Neurosciences, MUSC, advisor Dr. Thomas Naselaris

Graduate students:

Hao Li, PhD candidate, Fall 2014-present
Maya Eid, MD-PhD candidate, Fall 2015-present
Ying Chao, MD-PhD candidate, Fall 2016-present
Crystal Smith, PhD candidate, 2018-present

Post-doctoral fellows:

Peter Vento, March, 2013 - present
Rachel Smith, June, 2013 – Feb, 2015
Jennifer L. Thompson, Oct, 2014 – June 2016
Jeffrey Parilla-Carrero, Sept, 2017 - present

Lectures/Classes taught:

Fundamentals of Neuroscience lectures, Spring 2012-present
Systems Neuroscience lectures, Fall 2013-present
Cognitive Neuroscience, lecture on prediction error, Spring 2013
Neuroscience journal club, Fall 2013
Mathematical Methods in Neuroscience, Fall 2015

Publications in the humanities:

Jhou TC, “Rene Descartes and modern science – a legacy in retrospect”. Preface to the Chinese translation of *Descartes and the Meditations*, by Gary Hatfield, translated by Clayton Chou. Routledge, New York, 2009.