

AIN CHUNG, PH.D.

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EDUCATION & TRAINING

2019- Present	MASSACHUSETTS GENERAL HOSPITAL, HARVARD MEDICAL SCHOOL <i>Postdoctoral Research Fellow, Center for Regenerative Medicine</i>	Boston, MA
2019	NEW YORK UNIVERSITY <i>PhD, Center for Neural Science</i>	New York, NY
2010	UNIVERSITY OF WASHINGTON <i>MS, Behavioral Neuroscience, Department of Psychology</i>	Seattle, WA
2006	SEOUL NATIONAL UNIVERSITY <i>MS, Interdisciplinary Program in Brain Science, School of Natural Science</i>	Seoul, South Korea
2004	SEOUL NATIONAL UNIVERSITY <i>BA in Psychology, School of Social Science</i>	Seoul, South Korea

RESEARCH INTEREST

Cellular and molecular mechanisms of learning & memory, synaptic and circuit function, Inhibitory interneuron neurobiology, *in vivo* electrophysiology, Social behaviors, Cognitive disorders

PUBLICATIONS

- J1. **Chung A**, Jou C, Grau-Perales A, Levy ERJ, Dvorak D, Hussain N, Fenton AA, Cognitive control persistently enhances hippocampal information processing. 2021, *Nature*, 600, 484–488*
*Highlighted in *Science Daily* and *NYU news* (“How do we learn to learn?”):
<https://www.sciencedaily.com/releases/2021/11/211110131631.htm>
- J2. Dvorak D, **Chung A**, Park EH, Fenton AA, Dentate spikes and external control of hippocampal function 2021, *Cell reports* 36 (5), 109497*
*Highlighted in *Science Daily* and *NYU news* (“Trains in the brain”):
<https://www.sciencedaily.com/releases/2021/08/210803121304.htm>
- J3. Hsieh C, Tsokas P, Grau-Perales A, Lesburguères E, Bukai J, Khanna K, Chorny J, **Chung A**, Jou C, Burghardt NS, Denny CA, Flores-Obando RE, Hartley BR, Rodríguez Valencia LM, Hernández AI, Bergold PJ, Cottrell JE, Alarcon JM, Fenton AA, Sacktor TC, Persistent increases of PKM ζ in memory-activated neurons trace LTP maintenance during spatial long-term memory storage, *Eur J Neurosci.*, 2021, doi: 10.1111/ejn.15137.
- J4. **Chung A**, Dahan N, Alarcon JM, Fenton AA, Effects of regulatory BC1 RNA deletion on synaptic plasticity, learning, and memory., *Learning & memory* 2017 Nov 15;24(12):646-649*.
*Cover article

- J5. Sink KS, **Chung A**, Ressler KJ, Davis M, Walker DL, Anxiogenic effects of CGRP within the BNST may be mediated by CRF acting at BNST CRFR1 receptors., *Behavioural Brain Research*. 2013 243:286–293
- J6. **Chung A**, Barot SK, Kim JJ, Bernstein IL, Biologically predisposed learning and selective associations in amygdalar neurons., *Learning & memory*. 2011 Jun;18(6):371-4 *
- *Recommended in Faculty of 1000 Biology: Michael Fanselow, evaluations for Chung A et al Learn Mem. 2011 Jun; 18(6):371-4 <http://f1000.com/13013957>
- J7. Barot SK, **Chung A**, Kim JJ, Bernstein IL, Functional imaging of stimulus convergence in amygdalar neurons during Pavlovian fear conditioning. *PLoS one*. 2009;4(7):e6156
- J8. Han DH, Renshaw PF, Dager SR, **Chung A**, Hwang J, Daniels MA, Lee YS, Lyoo IK, Altered cingulate white matter connectivity in panic disorder patients. *Journal of psychiatric research*. 2008 Apr;42(5):399-407
- J9. Kim MJ, Chey J, **Chung A**, Bae S, Khang H, Ham B, Yoon SJ, Jeong DU, Lyoo IK, Diminished rostral anterior cingulate activity in response to threat-related events in posttraumatic stress disorder. *Journal of psychiatric research*. 2008 Mar;42(4):268-77
- J10. **Chung A**, Lyoo IK, Kim SJ, Hwang J, Bae SC, Sung YH, Sim ME, Song IC, Kim J, Chang KH, Renshaw PF, Decreased frontal white-matter integrity in abstinent methamphetamine abusers. *The international journal of neuropsychopharmacology / official scientific journal of the Collegium Internationale Neuropsychopharmacologicum (CINP)*. 2007 Dec;10(6):765-75
- J11. Kim SJ, Lyoo IK, Hwang J, **Chung A**, Hoon Sung Y, Kim J, Kwon DH, Chang KH, Renshaw PF, Prefrontal grey-matter changes in short-term and long-term abstinent methamphetamine abusers. *The international journal of neuropsychopharmacology / official scientific journal of the Collegium Internationale Neuropsychopharmacologicum (CINP)*. 2006 Apr;9(2):221-8
- J12. Bae SC, Lyoo IK, Sung YH, Yoo J, **Chung A**, Yoon SJ, Kim DJ, Hwang J, Kim SJ, Renshaw PF, Increased white matter hyperintensities in male methamphetamine abusers. *Drug and alcohol dependence*. 2006 Jan 4;81(1):83-8
- J13. Kim SJ, Jeong DU, Sim ME, Bae SC, **Chung A**, Kim MJ, Chang KH, Ryu J, Renshaw PF, Lyoo IK, Asymmetrically altered integrity of cingulum bundle in posttraumatic stress disorder. *Neuropsychobiology*. 2006;54(2):120-5
- J14. Yoo HJ, Kim M, Ha JH, **Chung A**, Sim ME, Kim SJ, Lyoo IK, Biogenetic temperament and character and attention deficit hyperactivity disorder in Korean children. *Psychopathology*. 2006;39(1):25-31
- J15. Kim SJ, Lee SJ, Yune SK, Sung YH, Bae SC, **Chung A**, Kim J, Lyoo IK, The relationship between the biogenetic temperament and character and psychopathology in adolescents. *Psychopathology*. 2006;39(2):80-6
- J16. Oh JS, Lyoo IK, Sung YH, Hwang J, Kim J, **Chung A**, Park KS, Kim SJ, Renshaw PF, Song IC, Shape changes of the corpus callosum in abstinent methamphetamine users. *Neuroscience letters*. 2005 Aug 12-19;384(1-2):76-81
- J17. Oh JS, Park SK, Song CI, Kim JS, Hwang J, **Chung A**, Lyoo IK, Fractional anisotropy-based divisions of midsagittal corpus callosum. *Neuroreport*. 2005 Mar 15;16(4):317-20
- J18. Yoo HJ, Cho SC, Ha J, Yun SK, Kim SJ, Hwang J, **Chung A**, Sung YH, Lyoo IK, Attention deficit hyperactivity symptoms and internet addiction. *Psychiatry and clinical neurosciences*. 2004 Oct;58(5):487-94

CONFERENCE POSTERS

- C1. **A Chung**, AA Fenton, “Neurobiology of learning to learn; long-lasting, input-specific synaptic circuit function changes in hippocampus” 2018, Annual Meeting, Society of Neuroscience, San Diego, U.S.A.

- C2. D Dvorak, **A Chung**, Nida Hussain, AA Fenton, “Dentate spike modulation of hippocampal activity”. 2018, Annual Meeting, Society of Neuroscience, San Diego, U.S.A.
- C3. **A Chung**, AA Fenton, “Place learning induces persistent and input-specific hippocampus circuit function changes in the freely-behaving mouse” 2017, Annual Meeting, Society of Neuroscience, Washington DC, U.S.A.
- C4. D Dvorak, **A Chung**, AA Fenton, “Impaired learning-related dynamics of local field potentials and evoked responses in Fmr1-null mice. 2017, Annual Meeting, Society of Neuroscience, Washington DC, U.S.A.
- C5. **A Chung**, AA Fenton, “Long-lasting input-specific place learning-induced changes of the hippocampal circuit measured in the freely-behaving mouse” 2016, Annual Meeting, Society of Neuroscience, San Diego, California, U.S.A.
- C6. RM. Harris, H Kao, **A Chung**, J Alarcon, E Klann, HA Hofmann, AA Fenton “Molecular and synaptic mechanisms of learning and persistent hippocampal memory for an active place avoidance” 2016, Annual Meeting, *Society of Neuroscience*, San Diego, California, U.S.A.
- C7. RM. Harris, **A Chung**, J Alarcon, AA Fenton, , HA Hofmann, “Integrated molecular and synaptic hippocampal mechanisms of place avoidance learning and memory, 2014, Annual Meeting, *Society of Neuroscience*, Washington DC, U.S.A.
- C8. KS Sink, **A Chung**, DL Walker, M Davis, “Anxiogenic Effect of Calcitonin Gene-Related Peptide within the Bed Nucleus of the Stria Terminalis is Mediated by Downstream CRFR1 and CRFR2 Receptors” 2011 Annual Meeting, *Society of Neuroscience*, Washington DC, U.S.A.
- C9. **A Chung**, SK Barot, JJ Kim and IL Bernstein, “Functional imaging of stimulus convergence in amygdalar neurons during Pavlovian fear conditioning” 2009 Annual Meeting, *Society of Neuroscience*, Chicago, Illinois, U.S.A
- C10. **A Chung** and IK Lyoo, “Gender difference in size and integrity of the fronto-striatal white matter tract in abstinent methamphetamine users: Diffusion tensor imaging and tractography study”, 2005 Annual Meeting, *College on Problems of Drug Dependence*, Florida, U.S.A.
- C11. **A Chung** and IK Lyoo, “Structural changes of the brain gray matter using voxel based morphometry in methamphetamine abusers” 2004 Annual Meeting, *College on Problems of Drug Dependence*, Puerto Rico, U.S.A.

HONORS AND AWARDS

- 2019 Department Nominee for Dean’s Outstanding Dissertation Award, Center for Neural Science, New York University, NY, U.S.A
- 2018 Predoctoral Awards, Association of Korean Neuroscientist in America, Chicago, IL U.S.A
- 2017 Dean’s Dissertation Fellowship, Graduate School of Arts and Science, New York University, NY, U.S.A
- 2017 SNUAA Predoctoral scholarship, Seoul National University Alumni Association, Port lee, NJ, U.S.A.
- 2012 MacCracken Fellowship, Graduate School of Arts and Science, New York University, NY, U.S.A
- 2005 Travel Fellowship and Poster Award, 2005 College on Problems of Drug Dependence, National Institute on Drug Abuse, National Institute of Health, U.S.A.
- 2005 Research Support Full Scholarship, Seoul National University School of Medicine, Seoul, South Korea

2004 Merit-Based Scholarship, Seoul National University College of Natural Science, Seoul, South Korea
2004 Cum Laude, Seoul National University, Seoul, South Korea
2001-2003 Merit-Based Scholarship, Seoul National University College of Social Science, Seoul, South Korea

TEACHING EXPERIENCE

Fall 2016	NEW YORK UNIVERSITY Neurobiology of Brain Disorders (NEURL-UA 302), Teaching Assistant	New York, NY
Summer 2014	MARINE BIOLOGICAL LABORATORY Mouse Hippocampus Physiology, Teaching Assistant	Woods Hole, MA
Spring 2014	NEW YORK UNIVERSITY Development and Dysfunction of the Nervous System (NEURL-UA 305) Teaching Assistant	New York, NY
Summer 2010	UNIVERSITY OF WASHINGTON Biological Psychology (PSY202) Teaching Assistant	Seattle, WA
Spring 2010	UNIVERSITY OF WASHINGTON Biological Psychology (PSY202) Teaching Assistant	Seattle, WA
Winter 2009	UNIVERSITY OF WASHINGTON Biological Psychology (PSY202) Teaching Assistant	Seattle, WA
Fall 2009	UNIVERSITY OF WASHINGTON Introduction to Psychology (PSY101) Teaching Assistant	Seattle, WA