

Jean-Ju L. Chung

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Present Position: Assistant Professor, Yale School of Medicine

EDUCATION AND TRAINING

Harvard Medical School, Children's Hospital Boston, Boston, MA Postdoctoral fellow, with Dr. David E. Clapham	2006 - 2012
Johns Hopkins University School of Medicine, Baltimore, MD "Molecular Organization and Trafficking of Membrane Proteins" Ph.D. in Neuroscience and Biochemistry, with Dr. Min Li	2000 - 2006
Seoul National University, Seoul, Republic of Korea M.S. in Molecular Neuroendocrinology, with Dr. Kyungjin Kim	1997 - 1999
Seoul National University, Seoul, Republic of Korea B.S. in Molecular Biology, <i>Magna Cum Laude</i>	1993 - 1997

POSITIONS AND EMPLOYMENTS

Yale School of Medicine, New Haven, CT Assistant Professor, Dept. of Cellular & Molecular Physiology	2015 - current
Harvard Medical School, Children's Hospital Boston, Boston, MA Instructor, Dept. of Neurobiology and Staff Scientist, Dept. of Cardiology	2013 - 2015
Johns Hopkins University School of Medicine, Baltimore, MD Research Assistant, Laboratory of Dr. Peter Agre	1999 - 2000
Center for Cell Differentiation, Seoul National University, Seoul, Korea Intern Researcher	1999

HONORS AND AWARDS

• Goodman-Gilman Yale Scholar Award	2015
• Travel Grant Award (Korean Society for Molecular and Cellular Biology)	2014
• Boston Children's Hospital Dr. M. Judah Folkman Research Day 2014 Award	2014
• Boston Children's Hospital Dr. M. Judah Folkman Research Day 2011 Award	2011
• Ruth Kirschstein National Research Service Award (NIH) - Predoctoral Fellowship (F32)	2004-2006
• American Heart Association - Predoctoral Fellowship (AHA)	2002-2004
• Winner of National Undergraduates' Research Competition (Ministry of Education, Korea)	1996
• Korea Foundation for Advanced Studies Undergraduate Fellowship	1994-1997
• Seoul National University Merit Scholarship	1993-1997

INVITED TALKS (SELECTED)

2017.05	U Penn School of Medicine, Center for Research on Reproduction and Women's Health, Philadelphia, PA
2017.05	Goethe-University of Frankfurt am Main, Frankfurt Collaborative Research Center, Frankfurt, Germany
2017.05	9 th Copenhagen Workshop on Endocrine Disruptors (COW 2017), Copenhagen, Denmark
2017.04	American Society of Andrology (ASA) 2017 Annual Meeting, Miami, FL
2017.03	Yale Stem Cell Institute, Research Forum, New Haven, CT
2016.10	Yale School of Medicine, Dept. of Ob/Gyn and Div. of Reproductive Sciences, New Haven, CT
2016.09	Rensselaer Polytechnic Institute, Dept. of Biological Sciences, Troy, NY
2016.07	Society for the Study of Reproduction, Focus session on Producing Functional Sperm, San Diego, CA
2016.06	Yale School of Medicine, Dept. of Urology, New Haven, CT
2016.01	Gordon conference on Ligand Recognition and Molecular Gating, Lucca, Italy
2015.09	5 th International caesar conference on The Omnipresent Cilium, Bonn, Germany
2015.07	Gordon conference on Fertilization and Activation of Development, Holderness, NH, USA

2015.03	UC Santa Barbara, Dept. Molecular, Cellular & Developmental Biology, Santa Barbara, CA, USA
2015.03	Yale School of Medicine, Dept. Cellular & Molecular Physiology, New Haven, CT, USA
2015.01	Baylor college of Medicine, Center for Reproductive Medicine, Houston, TX, USA
2014.11	Seoul National University, Dept. of Biophysics and Chemical Biology, Seoul, Korea
2014.10	Osaka University, RIMD, Dept. Experimental Genome Research, Osaka, Japan
2014.07	Yonsei University, College of Medicine, Dept. of Anatomy, Seoul, Korea
2014.04	U Mass Amherst, Dept. of Veterinary and Animal Sciences, Amherst, MA, USA
2014.02	U Pennsylvania, Dept. of Physiology, Philadelphia, PA, USA
2013.07	Society for the Study of Reproduction, Module session lectures – Gametes, Montreal, Canada
2013.07	Gordon conference on Fertilization and Activation of Development, Holderness, NH, USA
2013.03	Kolloquium, Center of Advanced European Studies and Research, Bonn, Germany
2011.08	Korea Advanced Institute for Science and Technology, Dept. Biological Science, Daejeon, Korea
2011.08	Seoul National University, College of Natural Sciences, Dept. of Biological Sciences, Seoul, Korea

PROFESSIONAL MEMBERSHIP

Member, Biophysical Society	2007-current
Member, Society of Cell Biology	2013-current
Member, Society of Study of Reproduction	2013-current

OTHER EXPERIENCE

ADDITIONAL TRAINING

CLARITY workshop, MIT, Cambridge, MA (Laboratory of Dr. Kwanghun Chung)	2013
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PROFESSION SERVICE

Journal Service - Ad hoc Reviewer

iBiology, Cell Calcium, and Molecular Human Reproduction	2014-current
Andrology	2016-current
PNAS, Cell, Journal of Cellular Physiology, Developmental Cell, Science Translational Medicine	2017-current

Journal Service - Early Career Reviewer

eLife	2016-current
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Journal Service - Editorial Board Member

Open Biology (Royal Society)	2017-current
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Peer Review Groups/Grant Study Sections:

NIH study section (CMIR): Early career reviewer	2017 June
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PUBLIC SERVICE

Outreach Program: Reproductive Physiology Club under Yale Pathways to Science	2017-current
Minor in Lab, serving as a mentor for a high school student (Seema Patel)	2017-current

TRAINEES

Jae Yeon Hwang (post-doctoral fellow)	2016-current
Lukas Ded (post-doctoral fellow)	2016-2017
Huanan (Frederick) Shi (student intern, Renmin University of China)	2015-2016
Currently graduate student at Baylor college of medicine	

TEACHING EXPERIENCE

Guest Lecturer

PATH680 and CB601	2015-current
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Supervisor

Pichet Adstamongkonkul (rotation student of Harvard University)	2015
Bayush Dinegde (laboratory assistant, Boston Children's Hospital)	2015
Yusuf Iseri (volunteer research assistant of Clapham lab)	2014
Yuze Shang (research technician of Clapham lab)	2013-2014

Currently REM Analyst at MedAssets	
Hannah Warren (summer student, University of Connecticut)	2013
Amanda Tong (post-doctoral fellow of Dr. Clapham)	2011-2013
Currently resident at Dept. of Internal Medicine, University of Iowa Hospitals and Clinics	
Partha Pati (summer student, Indian Institute of Technology Madras)	2011
Yuko Miki (volunteer research assistant of Clapham lab)	2011
Janice Jun (research assistant of Clapham lab)	2010
Currently at Case Western Reserve University School of Medicine	
Hung Le (volunteer student of Mass. college of pharmacy and health sciences)	2009
Currently medical student at U Massachusetts Medical School at Worcester	
Brad Nelms (rotation student of Harvard medical school, Dept. of Biophysics G1)	2009
Teaching Assistant	1998
“Developmental Biology Laboratory” course, Seoul National University, Seoul, Korea	

PUBLICATIONS

PEER-REVIEWED RESEARCH PAPERS

1. **Chung, J.J.***, Miki, K., Kim, D., Shim, S.H., Shi, H.F., Hwang, J.Y., Cai, X., Iseri, Y., Zhuang, X., Clapham, D.E.* (2017) CatSper ζ regulates the structural continuity of sperm Ca²⁺ signaling domains and is required for normal fertility. *eLife* 10.7554/eLife.23082 (*co-correspondence)
2. **Chung, J.J.***, Shim, S.H.*, Everley, R.A. Gygi, S.P. Zhuang, X., and Clapham, D.E. (2014) Structurally distinct Ca²⁺ signaling domains of sperm flagella orchestrate tyrosine phosphorylation and motility. *Cell* **157** (4): 808-822. (*Equal contribution) (Selected for PaperFlicks; *Cell* video abstract online, Recommended by Faculty of 1000)
3. **Chung, J.J.**, Navarro, B., Krapivinsky, G., Krapivinsky, L., and Clapham, D.E. (2011) A novel gene required for male fertility and functional CATSPER channel formation in spermatozoa. *Nat Commun* **2**: 153 doi:10.1038/ncomms1153.
4. **Chung, J.J.**, Okamoto, Y., Coblitz, B., Li, M., Qiu, Y., and Shikano, S. (2009) PI3K/ Akt signaling-mediated surface expression sensed by 14-3-3 interacting motif. *FEBS Let.* **276** (19): 5547-58.
5. **Chung, J.J.** and Li, M. (2005) Biochemical characterization of the native Kv2.1 potassium channel. *FEBS J.* **272** (14): 3743-55.
6. **Chung, J.J.**, Yang, H., and Li M. (2003) Genome-wide Analyses of Carboxyl-terminal Sequences. *Mol Cell Proteomics* **2**(3): 173-81.
7. Cho, S., **Chung, J.J.**, Choe, Y., Choi, H.S., Kim D.H., Rhee, K., and Kim, K. (2001) A functional retinoic acid response element (RARE) is present within the distal promoter of the rat gonadotropin-releasing hormone (GnRH) gene. *Brain Res Mol Brain Res.* **87**(2): 204-13.
8. Cho, S., **Chung, J.J.**, Han J., Lee B.J., Kim D. H., Rhee K., and Kim K. (2001) 9-cis-Retinoic acid represses transcription of the gonadotropin-releasing hormone (GnRH) gene via promoter region and that is distinct from all-trans-retinoic acid response element. *Brain Res Mol Brain Res.* **87**(2): 214-22.
9. **Chung, J.J.**, Cho, S., Kwon, Y.K., Kim, D.H., and Kim, K. (2000) Activation of retinoic acid receptor gamma induces proliferation of immortalized hippocampal progenitor cells. *Brain Res Mol Brain Res.* **83**(1-2): 52-62.
10. Francis, P.*, **Chung, J.J.***, Yasui, M., Berry, V., Moore, A., Wyatt, M.K., Wistow, G., Bhattacharya, S.S., and Agre, P. (2000) Functional impairment of lens aquaporin in two families with dominantly inherited cataracts. *Hum Mol Genet.* **9**(15): 2329-34. (*Equal contribution)

Review Articles

11. Hwang, J. and **Chung, J.J.** (2017) Sex at Atomic Resolution. *Cell* **169** (7): doi:10.1016/j.cell.2017.05.043 (in press)
12. **Chung, J.J.** (2016) Sugarcoated sperm. *Mol Reprod Dev* doi:10.1002/mrd.22732. PMID:27591546
13. **Chung, J.J.** (2016) Sperm flagellar Ca²⁺ signaling domains. *Mol Reprod Dev* **83** (4):275. doi: 10.1002/mrd.22628.
14. Lishko, P., Kirichok, Y., Ren, D., Navarro, B., **Chung, J.J.**, and Clapham, D.E. (2012) The control of male fertility by spermatozoan ion channels. *Ann Rev of Physiol* **74**: 453-470.
15. Navarro, B., Kirichok, Y., **Chung, J.J.**, and Clapham, D.E. (2008) Ion channels that control fertility in mammalian spermatozoa *Int J Dev Biol* **52**: 607-613.
16. **Chung, J.J.**, Shikano, S., Hanyu, Y., and Li, M. (2002) Functional diversity of protein C-termini: more than zipcoding? *Trends Cell Biol.* **12**(3):146-50.

Peer-Reviewed Educational Materials

17. **Chung, J.J.**, and Clapham, D.E. (2013) CatSper and Two-pore channels, IUPHAR database (IUPHAR-DB), <http://www.guidetopharmacology.org/GRAC/FamilyDisplayForward?familyId=70>
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AREAS OF EXPERTISE

Reproductive physiology

Fertilization

Sperm function; motility, fertility

Ca²⁺ signaling; signal transduction

Ion channels

Advance imaging; super-resolution imaging, dynamic live-cell imaging

RESEARCH SUPPORT

Current Grants

None

Past Grants

None