

Joongkyu Park, Ph.D.

Wayne State University School of Medicine

540 E. Canfield, Scott Hall 6263

Detroit, MI 48201

+1 (313) 577-6737

joongkyu.park@wayne.edu

EDUCATION AND POSITIONS

Assistant Professor in Pharmacology and Neurology, Wayne State University School of Medicine, Detroit, MI	2018 – Present
Associate Research Scientist , Yale University School of Medicine, New Haven, CT	2017 – 2018
Postdoctoral Fellow/Associate , Yale University School of Medicine, New Haven, CT	2011 – 2017
Postdoctoral Fellow , Yonsei University, Seoul, South Korea	2010 – 2011
Ph.D. in Biology (Neuroscience), Yonsei University, Seoul, South Korea	2004 – 2010
B.S. in Biochemistry, Yonsei University, Seoul, South Korea	2000 – 2004

RESEARCH EXPERIENCE

Associate Research Scientist with Prof. Susumu Tomita Cellular and Molecular Physiology, Yale University, New Haven, CT	2017 – 2018
<ul style="list-style-type: none"> Studied the causal relation between synaptic modulation and mouse behaviors using a novel chemogenetic molecular tool 	
Postdoctoral Associate/Fellow with Prof. Susumu Tomita Cellular and Molecular Physiology, Yale University, New Haven, CT	2011 – 2017
<ul style="list-style-type: none"> Identified a critical substrate of CaMKII kinase as a key mediator for long-term potentiation in the hippocampus using biochemical approaches Assessed behavioral changes in fear learning and memory in the knockin mice lacking the CaMKII phosphorylation sites Developed a chemogenetic molecular tool for on-demand modulation of excitatory synaptic connections <i>Partially supported by the Fostering Next-generation Researchers Program type II (2012R1A6A3A03039314) funded by the National Research Foundation of Korea, the Ministry of Science, ICT & Future Planning</i> 	
Postdoctoral Fellow with Prof. Kwang Chul Chung Biology, Yonsei University, Seoul, South Korea	2010 – 2011
<ul style="list-style-type: none"> Studied the regulatory roles of N-WASP phosphorylation by Dyrk1A in actin polymerization and dendritic spine formation of hippocampal neurons <i>Supported by the Brain Korea 21 Postdoctoral Fellowship funded by the Korea Research Foundation</i> 	
Graduate Student , lab of Prof. Kwang Chul Chung Biology (Neuroscience), Yonsei University, Seoul, South Korea	2004 – 2010
<ul style="list-style-type: none"> Studied molecular mechanisms underlying the typical neural defects of Down syndrome including the 1) early onset of Alzheimer's disease, 2) impaired neuronal cell proliferation, and 	

3) defective neuronal differentiation

Undergraduate Researcher, lab of Prof. Hyeon-Sook Koo
Biochemistry, Yonsei University, Seoul, South Korea 2003 – 2004

- Characterized morphological changes in transgenic *C. elegans* and produced primary antibodies from mice for biochemical approaches

Undergraduate Researcher, lab of Prof. Yasuhiko Sekine
Life Science, Rikkyo (St. Paul's) University, Tokyo, Japan 2002 – 2003

- Constructed bacterial transposon plasmids and analyzed their transposition sites and mechanisms by DNA sequencing techniques

Undergraduate Researcher, lab of Prof. Hyeon-Sook Koo
Biochemistry, Yonsei University, Seoul, South Korea 2001 – 2002

- Constructed plasmids, purified recombinant proteins, and screened EMS-induced *C. elegans* mutants

FELLOWSHIPS AND GRANTS

Faculty Start-up Fund 2018 – 2021

- Wayne State University School of Medicine, Departments of Pharmacology and Neurology

Postdoctoral Fellowship 2012 – 2013

- The Fostering Next-generation Researchers Program type II funded by the National Research Foundation of Korea, the Ministry of Science, ICT & Future Planning

Brain Korea 21 Postdoctoral Fellowship 2010 – 2011

- Funded by the Korea Research Foundation

Brain Korea 21 Participation Scholarship 2006 – 2009

- Funded by the Korea Research Foundation

Seoul Science Fellowship Program 2007

- Funded by Seoul Metropolitan Government, South Korea

Teaching Assistantship 2005 – 2006

- Biology, Yonsei University, Seoul, South Korea

Scholarship for Excellent Graduate Student 2005

- Biology, Yonsei University, Seoul, South Korea

University Designated Scholarship 2004

- Biochemistry, Yonsei University, Seoul, South Korea 2000 – 2002

AWARDS AND HONORS

Poster Presentation Award in YKBS-KASBP-CT Joint Symposium 2016

- 2016 Yale Korean Bioscience Society (YKBS) and Korean American Society in Biotechnology and Pharmaceuticals-Connecticut (KASBP-CT) Joint Symposium, Yale University, New Haven, CT

YBRI Advanced Publication Presentation 2011

- Yonsei Biomolecule Research Initiative (BK21), Seoul, South Korea

Oral Presentation Award in YBRI International Symposium 2010

- 2010 Yonsei Biomolecule Research Initiative (BK21) International Symposium, Seoul, South Korea

Magna Cum Laude

2004

- Biochemistry, Yonsei University, Seoul, South Korea

Highest Honors Undergraduate Student

2000 and 2003

- Biochemistry, Yonsei University, Seoul, South Korea

High Honors Undergraduate Student

2000 and 2001

- Biochemistry, Yonsei University, Seoul, South Korea

ACADEMIC SERVICE

Journal Reviewer

- Journal of Neuroscience Research 2019
- International Journal of Molecular Sciences 2019
- Current Opinion in Neurobiology 2017

SEMINARS

Neurology Grand Rounds (Host: Jun Li), Wayne State University, Detroit, MI, May 31, 2019.

The 5th Annual Ionotropic Glutamate Receptor (iGluR) Retreat (Host: Susumu Tomita), Yale University, New Haven, CT, August 7-9, 2017.

Wayne State University, Department of Pharmacology (Host: Izabela Podgorski), Detroit, MI, May 2017.

Yale University, Yale Korean Bioscience Society (YKBS) and Korean American Society in Biotechnology and Pharmaceuticals-Connecticut (KASBP-CT) Joint Symposium, New Haven, CT, November 2016.

Yonsei University, Yonsei Biomolecule Research Initiative (BK21) International Symposium, Seoul, South Korea, 2010.

POSTER PRESENTATIONS

Park J, Berthoux C, Hoyos-Ramirez E, Shan L, Wang Y, Castillo PE, and Tomita S (2019) Contribution of synaptic AMPA receptor complex to LTP and fear conditioning. Gordon Research Conference on Excitatory Synapses and Brain Function, **Southern New Hampshire University, Manchester, NH**, June 2019.

Park J, Chavez AE, Mineur YS, Morimoto-Tomita M, Lutz S, Kim KS, Picciotto MR, Castillo PE, and Tomita S (2016) Molecular mechanism underlying long-term potentiation and learning and memory. 2016 Yale Korean Bioscience Society (YKBS) and Korean American Society in Biotechnology and Pharmaceuticals-Connecticut (KASBP-CT) Joint Symposium, **Yale University, New Haven, CT**, September 2016.

Park J, Yoo L, and Chung KC (2012) Dual-specificity-tyrosine-phosphorylated and regulated kinase 1A (Dyrk1A) inhibits filopodia formation through modification of intramolecular N-WASP interaction and actin polymerization. The 24th Annual Meeting of the Korean Society for Molecular and Cellular Biology, **Seoul, South Korea**, October 2012.

Park J and Chung KC (2011) Identification of a novel regulator for ubiquitin E3 ligase SIAH1 and its putative role in the formation of abnormal alpha-synuclein inclusions and Parkinson Disease. The 23rd Annual Meeting of the Korean Society for Molecular and Cellular Biology, **Seoul, South Korea**, October 2011.

Park J, Sung JY, Chang S, and Chung KC (2011) Dual specificity protein kinase Dyrk1A regulates dendritic spine formation in hippocampal neurons and contributes to neural defects in Down syndrome. The 23rd Annual Meeting of the Korean Society for Molecular and Cellular Biology, **Seoul, South Korea**, October 2011.

Park J, Oh Y, Yoo L, Jung MS, Song WJ, and Chung KC (2010) Down syndrome-associated kinase Dyrk1A attenuates neuronal cell proliferation by activating p53-p21^{CIP1} signaling. 2010 Yonsei Biomolecule Research Initiative (YBRI) International Symposium, **Seoul, South Korea**, October 2010.

- Park J**, Oh Y, Yoo L, Jung MS, Song WJ, and Chung KC (2010) Trisomy-like 1.5-fold accumulation of Down syndrome-linked Dyrk1A inhibits embryonic neuronal cell proliferation through p53 phosphorylation. The 22nd Annual Meeting of the Korean Society for Molecular and Cellular Biology, **Seoul, South Korea**, October 2010.
- Park J**, Oh Y, and Chung KC (2009) Neuropathological features of Down syndrome shown in Dyrk1A-overexpressing immortalized hippocampal neurons. The 9th International Conference on Alzheimer's & Parkinson's Diseases, **Prague, Czech Republic**, March 2009.
- Park J**, Oh Y, and Chung KC (2006) Microarray analysis of serum deprivation-induced cell death in hippocampal neural progenitor cells to overexpress Dyrk1A. The 36th Annual Meeting of Society for Neuroscience, **Atlanta, GA**, October 2006.
- Park J**, Oh Y, and Chung KC (2006) Differential gene expression profiles in embryonic hippocampal cells to overexpress Dyrk1A, a candidate gene for the mental retardation in Down syndrome patients. The 18th Annual Meeting of the Korean Society for Molecular and Cellular Biology, **Seoul, South Korea**, October 2006.
- Park J** and Chung KC (2006) Regulation of pro-apoptotic E3 ubiquitin ligase SIAH1 through two novel binding proteins. The 18th Annual Meeting of the Korean Society for Molecular and Cellular Biology, **Seoul, South Korea**, October 2006.
- Park J**, Yang EJ, and Chung KC (2005) Induction of apoptosis and defect in neuronal differentiation occur in hippocampal neuroprogenitor cells to overexpress the dual-specificity protein kinase Dyrk1A. The 17th Annual Meeting of the Korean Society for Molecular and Cellular Biology, **Seoul, South Korea**, October 2005.

PUBLICATIONS

- Park J** (2018) Phosphorylation of the AMPAR-TARP complex in synaptic plasticity. *Proteomes* 6: 40. *Review*.
- Park J***, Chavez AE*, Mineur YS, Morimoto-Tomita M, Lutz S, Kim KS, Picciotto MR, Castillo PE, and Tomita S (2016) CaMKII phosphorylation of TARP γ -8 is a mediator of LTP and learning and memory. *Neuron* 92: 75-83.
- **F1000Prime Recommended.**
 - **Highlighted in** Lewis S (2016) Synaptic plasticity: TARP target. *Nat Rev Neurosci* 17: 671.
- Park J** and Chung KC (2013) New perspectives of Dyrk1A role in neurogenesis and neuropathologic features of Down syndrome. *Exp Neurol* 22: 244-248. *Review*.
- Park J**, Sung JY, Park J, Song WJ, Chang S, and Chung KC (2012) Dyrk1A negatively regulates the actin cytoskeleton through threonine phosphorylation of N-WASP. *J Cell Sci* 125: 67-80.
- Um JW, Im E, **Park J**, Oh Y, Min B, Lee HJ, Yoon JB, and Chung KC (2010) ASK1 negatively regulates the 26S proteasome. *J Biol Chem* 285: 36434-36446.
- Park J**, Oh Y, Yoo L, Jung MS, Song WJ, Lee SH, Seo H, and Chung KC (2010) Dyrk1A phosphorylates p53 and inhibits proliferation of embryonic neuronal cells. *J Biol Chem* 285: 31895-31906.
- Park J**, Song WJ, and Chung KC (2009) Function and regulation of Dyrk1A: towards understanding Down syndrome. *Cell Mol Life Sci* 66: 3235-3240. *Review*.
- Park J**, Oh Y, and Chung KC (2009) Two key genes closely implicated with the neuropathological characteristics in Down syndrome: *DYRK1A* and *RCAN1*. *BMB Reports* 42: 6-15. *Review*.
- Song HJ, **Park J**, Seo SR, Kim J, Paik SR, and Chung KC (2008) Down syndrome critical region 2 protein inhibits the transcriptional activity of peroxisome proliferator-activated receptor β in HEK293 cells. *Biochem Biophys Res Commun* 376: 478-482.
- Lee EJ, Seo SR, Um JW, **Park J**, Oh Y, and Chung KC (2008) NF- κ B-inducing kinase phosphorylates and blocks the degradation of Down syndrome candidate region 1. *J Biol Chem* 283: 3392-3400.
- Park J**, Yang EJ, Yoon JH, and Chung KC (2007) Dyrk1A overexpression in immortalized hippocampal cells produces the neuropathological features of Down syndrome. *Mol Cell Neurosci* 36: 270-279.

Sung JY, Lee HJ, Jeong EI, Oh Y, **Park J**, Kang KS, and Chung KC (2007) α -Synuclein overexpression reduces gap junctional intercellular communication in dopaminergic neuroblastoma cells. *Neurosci Lett* 416: 289-293.