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Education

Ph.D. Molecular Virology (Division of Molecular and Life Sciences), 2008
Pohang University of Science and Technology (POSTECH), Pohang, Republic of Korea

Research Advisor: Dr. Sung Key Jang

Thesis Title: "Studies on the relationship between inflammatory response and translational control"

M.S. Molecular Virology (Division of Molecular and Life Sciences), 2002
Pohang University of Science and Technology (POSTECH),
Pohang, Republic of Korea

Research Advisor: Dr. Sung Key Jang

Thesis Title: "Studies on the interaction between eIF4GI and TRAF2"

B.S. Biology (Department of Biological Sciences), 2000
Yonsei University, Seoul, Republic of Korea

Academic Advisor: Dr. Junho Lee

Research Experience

Assistant Professor: Principal Investigator 2015.07-present
Department of Cellular and Molecular Medicine, University of Ottawa, Canada

Understanding social behavior using simple genetic model systems and its application into reverse engineering.

-How do *Drosophila melanogaster* change their behavior dependent on social-context?

-Can we understand the underlying comprehensive neural circuitry and genetic components of these social behaviors using *Drosophila melanogaster*?

-Can we formulate and reverse engineer a eusocial behavior using this knowledge?

-Can we develop efficient pesticide using neuropeptide receptors that are responsible for such behaviors?

Independent Contractor 2015.01-2015.06
Department of Cellular and Molecular Medicine, University of Ottawa, Canada

Understanding social behavior using simple genetic model systems and its application into reverse engineering.

Associate specialist/Advisor: Yuh Nung Jan & Lily Yeh Jan 2014.08-2015.01
Jan lab, UCSF, CA

Postdoctoral fellow/Advisor: Yuh Nung Jan & Lily Yeh Jan
Jan lab, UCSF, CA

2008.08-2014.07

Study the social-context dependent sexual behavior of male *Drosophila melanogaster*.

- Found and established newly identified male's behavior called Longer-Mating-Duration (LMD). Males invest more time on their mating duration when previously exposed to rivals.
- Neural circuit mapping of LMD behavior using neuropeptides and receptors.
- Found and established newly identified male's behavior called Shorter-Mating-Duration (SMD). Males invest less time on their mating duration when they have been sexually experienced.
- Neural circuit mapping of SMD behavior using neuropeptides and receptors.
- Setting up genetic tools to dissect minimal neural circuitry required for LMD and SMD.

Postdoctoral fellow/Advisor: Dr. Sung Key Jang
Molecular Virology lab, POSTECH, Pohang, Korea

2007.07-2008.07

Study the relationship between inflammation and translation in model organisms.

- Extended doctoral thesis projects into vertebrate and invertebrate model systems including zebra fish, frog, mice and fruit fly.

Graduate student/ Advisor: Dr. Sung Key Jang
Molecular Virology lab, POSTECH, Pohang, Korea

2000.03-2007.06

Study the relationship between inflammation and translational control.

- Firstly identified TNF signaling scaffold protein TRAF2 integrated into stress granules via eIF4GI when cells are stressed.
- Established the mechanisms how anti-inflammatory prostaglandin 15d-PGJ2 block translational initiation via eIF4A.

Teaching Experience

DGIST
Biology Textbook Advisor

Daegu, Korea
2015.01-present

POSTECH
Teaching Assistant, Microbiology,
Teaching Assistant, Molecular Biology,
Teaching Assistant, Biochemistry,

Pohang, Korea
Spring, 2001
Fall, 2003
Spring, 2005

History and Philosophy of Science

I have many experiences teaching history and philosophy of science related to science, technology and society in various institutes and universities:

Korea
2008-present

Related Professional Experience

SEODAEMUN Museum of Natural History
Special lecturer: broadcasted in www.100miin.com
"How biologists view the society"

Seoul, Korea
2015.03-2015-04

Woo Jae Kim	3
<u>KOFAC (Korea Foundation for Advancement of Science and Technology)</u> Science Writer, Science Times "History of microRNA" "Scientific intellectuals in history"	Seoul, Korea 2006-2009 2009-2010
<u>APCTP (The Asia Pacific Center for Theoretical Physics)</u> Guest science book examiner	Pohang, Korea 2009-present
<u>Sae Sa Yon</u> Science Columnist	Seoul, Korea 2010-present
<u>The Hangyoreh Newspaper</u> Science Writer "History of Drosophila Genetics" "Science and Society"	Seoul, Korea 2009-present 2013-present
<u>KOFST (Korean Federation of Science and Technology Societies)</u> Biology Columnist "History and Philosophy of Model Organisms"	Seoul, Korea 2011-2013
<u>PBG (Pohang Biology Group)</u> Co-founder -Organized postdocs and graduate students for intra-disciplinary research and discussion -Funded from Department of Life Science, POSTECH	Pohang, Korea 2005

Honors and Awards

<u>POSTECH Excellent Paper Awards</u> POSTECH	2008
<u>KSBMB Annual Meeting Poster Awards</u> 64th KSBMB Annual Meeting in 2007 and 19 th FAOBMB Seoul Conference	2007
<u>Excellent Poster Awards</u> POSTECH and Ehwa Women's University Joint Annual Meeting	2002

Patents

"Anti-inflammatory lipid mediator 15d-PGJ2 inhibits translation through inactivation of eIF4A", Kim WJ and Jag SK, US, LPP20070668US, PCT. 2007

Funding Sources/Grants Awarded

<u>Understanding Social Behaviour Using Simple Genetic Model System</u> uOttawa, Startup grant	2015-
<u>Genetic Dissection of Dendrite Development</u> NIH/NINDS, NS040929	2009-2015
<u>Molecular mechanisms of dendrite development in mammalian CNS</u> NIH, MH084234	2008

Basic Science Research Program, National Research Foundation of Korea (NRF)
Ministry of Education, Korea 2007-2008

Small Group Colloquium grant, Evolution and Physiology studying group
National Research Foundation of Korea (NRF) 2005-2006

Brain-Korea 21 projects grant for graduate student
Ministry of Education, Korea 2000-2007

Professional Associations

Society for Neuroscience	2015-present
Association of Korean Neuroscientists	2015-present
CanFly (The Biennial Canadian <i>Drosophila</i> Research Conference)	2015-present
The Association of Korean-Canadian Scientists and Engineers	2015-present
Genetic Society of America	2008-present
Korean Society for Molecular and Cellular Biology	2000-present

Publications

Kim, W. J., Jan, L.Y., & Jan, Y.N. (2013). A PDF/NPF neuropeptide signaling circuitry of male *Drosophila melanogaster* controls rival-induced prolonged mating. *Neuron*, 80(5), 1190-1205.

Kim, W. J., Jan, L.Y., & Jan, Y.N. (2012). Contribution of visual and circadian neural circuits to memory for prolonged mating induced by rivals. *Nature neuroscience*. 15(6), 876-83.

Kim, J. E., Ryu, I., **Kim, W. J.**, Song, O. K., Ryu, J., Kwon, M. Y., . . . Jang, S. K. (2008). Proline rich transcript in brain protein induces stress granule formation. *Mol Cell Biol*, 28(2), 803-813.

Kim, W. J., Kim, J. H., & Jang, S. K. (2007). Anti-inflammatory lipid mediator 15d-PGJ2 inhibits translation through inactivation of eIF4A. *EMBO J*, 26(24), 5020-5032.

Kim, W. J., Back, S. H., Kim, V., Ryu, I., & Jang, S. K. (2005). Sequestration of TRAF2 into stress granules interrupts tumor necrosis factor signaling under stress conditions. *Mol Cell Biol*, 25(6), 2450-2462.

Back, S. H., Kim, Y. K., **Kim, W. J.**, Cho, S., Oh, H. R., Kim, J. E., & Jang, S. K. (2002). Translation of polioviral mRNA is inhibited by cleavage of polypyrimidine tract-binding proteins executed by polioviral 3C(pro). *J Virol*, 76(5), 2529-2542.

Invited Talks and Seminars

Kim, W.J (2016). A novel paradigm of interval timing in *Drosophila*. Disease and function of neural circuits meeting, Cold Spring Harbor Laboratory Asia, Suzhou, China, May 18, 2016.

Kim, W.J (2016). Neuronal circuits of time investment: how flies show us circuit-level model for analysis. Neuroscience Symposium, uOttawa Brain and Mind Research Institute & CMM, Ottawa, Canada, Feb 27, 2016.

Kim, W.J (2015). Learning to be connected to our society. Special invited lecture in DGIST Global Innovation Festival (DGIF), DGIST, Daegu, Korea, November 19-20, 2015.

Kim, W.J (2015). Circuits to behaviours: Fruit fly in the era of brain research. Neuroscience seminar, Neuroscience graduate program & uOBMRI, Ottawa, Canada, November 10, 2015.

Kim, W.J & **Suh, M.** (2015). Evolutionary Biology in Korea and the Reality of it; Evolution and Parasites. Special Lecture Series on "Stories of Science connecting Society", SEODAEMUN Museum of Natural History, Seoul, Korea, April 23, 2015.

Kim, W.J., Jan, L.Y., & Jan, Y.N. (2015). Previous socio-sexual experience modulates the mating investment of male *Drosophila melanogaster*. Oral presentation to be delivered at the GIST (Gwangju Institute of Science and Technology, Hosted by Young-Joon Kim), Gwangju, Korea, April 21, 2015.

Kim, W.J., Jan, L.Y., & Jan, Y.N. (2015). Previous socio-sexual experience modulates the mating investment of male *Drosophila melanogaster*. Oral presentation to be delivered at the KAIST (Korea Advanced Institute of Science and Technology, Hosted by Jae-Myung Suh), Daejeon, Korea, April 20, 2015.

Kim, W.J. & Hwang, S.S. (2015). Manuals of Statistics for Survival; Calculated Risks. Special Lecture Series on “Stories of Science connecting Society”, SEODAEMUN Museum of Natural History, Seoul, Korea, April 16, 2015.

Kim, W.J., Jan, L.Y., & Jan, Y.N. (2015). Origin of Behavioral Genetics (Special lecture for Undergraduate students of Biology major); Previous socio-sexual experience modulates the mating investment of male *Drosophila melanogaster*. Oral presentation to be delivered at the Chungbuk National University (Hosted by Hojin Ryu), Cheongju, Korea, April 15, 2015.

Kim, W.J., Jan, L.Y., & Jan, Y.N. (2015). Previous socio-sexual experience modulates the mating investment of male *Drosophila melanogaster*. Oral presentation to be delivered at the Sung Kyun Kwan University (Hosted by KyeongJin Kang), Suwon, Korea, April 15, 2015.

Kim, W.J. & Namgoong, S. (2015). Otaku and Basic Science; How does Molecular Biology explain the Life? Special Lecture Series on “Stories of Science connecting Society”, SEODAEMUN Museum of Natural History, Seoul, Korea, April 9, 2015.

Kim, W.J., Jan, L.Y., & Jan, Y.N. (2015). Previous socio-sexual experience modulates the mating investment of male *Drosophila melanogaster*. Oral presentation to be delivered at the Sejong University (Hosted by Moon-soo Soh), Seoul, Korea, April 8, 2015.

Kim, W.J., Jan, L.Y., & Jan, Y.N. (2015). Previous socio-sexual experience modulates the mating investment of male *Drosophila melanogaster*. Oral presentation to be delivered as ‘1* Young Investigator’s Seminar Series’ at the Seoul National University (Hosted by V. Narry Kim), Seoul, Korea, April 8, 2015.

Kim, W.J., Jan, L.Y., & Jan, Y.N. (2015). Previous socio-sexual experience modulates the mating investment of male *Drosophila melanogaster*. Oral presentation to be delivered at the DGIST (Daegu-Gyeongbuk Institute of Science and Technology, Hosted by Chang-hun Lee), Daegu, Korea, April 7, 2015.

Kim, W.J. & Kim, Y.J. (2015). Behavioral genetics of Seymour Benzer and Korean society; Mating behavior of fruit flies. Special Lecture Series on “Stories of Science connecting Society”, SEODAEMUN Museum of Natural History, Seoul, Korea, April 2, 2015.

Kim, W.J., Jan, L.Y., & Jan, Y.N. (2015). Previous socio-sexual experience modulates the mating investment of male *Drosophila melanogaster*. **56th Annual Drosophila Research Conference, Chicago, USA, March 4-8, 2015.**

Kim, W.J., Jan, L.Y., & Jan, Y.N. (2014). The neural circuitry that mediates the social influence on mating duration of *Drosophila* males. **Janelia Conference, Neural Circuits Controlling Sexual Behavior (Organizers: Barry Dickson, Catherine Dulac, Nirao Shah), HHMI Janelia Research Campus, Washington, USA, November 9-12, 2014.**

Kim, W.J., Jan, L.Y., & Jan, Y.N. (2013). Social-exposure changes *Drosophila* male’s investment on mating duration. **Young scientist session in International Conference of KSMCB 2013, Oral presentation to be delivered at the Korean Society for Molecular and Cellular Biology, COEX Center in Seoul, Korea, October 9, 2013.**

Kim, W.J., Jan, L.Y., & Jan, Y.N. (2013). Time, Love and Memory: Social-exposure changes

Drosophila male's investment on mating duration. Oral presentation to be delivered at the GIST (Gwangju Institute of Science and Technology, Hosted by Young-Joon Kim), Gwangju, Korea, October 10, 2013.

Kim, W.J., Jan, L.Y., & Jan, Y.N. (2013). Time, Love and Memory: Social-exposure changes *Drosophila* male's investment on mating duration. Oral presentation to be delivered at the Dankook University (Hosted by Chian Kwon), Jukjeon, Korea, October 8, 2013.

Kim, W.J., Jan, L.Y., & Jan, Y.N. (2013). Time, Love and Memory: Social-exposure changes *Drosophila* male's investment on mating duration. Oral presentation to be delivered at the University of Seoul (Hosted by Yun Doo Chung), Seoul, Korea, October 7, 2013.

Kim, W.J., Jan, L.Y., & Jan, Y.N. (2013). Time, Love and Memory: Frut fly genetics and two Biologies. Oral presentation to be delivered at the Korean Cognitive Neuroscientists' annual Saturday meeting, Sogang University (Hosted by Ji-Won Chun), Seoul, Korea, October 4, 2013.

Kim, W.J., Jan, L.Y., & Jan, Y.N. (2013). Time, Love and Memory: Social-exposure changes *Drosophila* male's investment on mating duration. Oral presentation to be delivered at the KRIBB (Korean Research Institute of Bioscience and Biotechnology, Hosted by Tae-Don Kim), Daejeon, Korea, October 3, 2013.

Kim, W.J., Jan, L.Y., & Jan, Y.N. (2013). Time, Love and Memory: Social-exposure changes *Drosophila* male's investment on mating duration. Oral presentation to be delivered at the Sejong University (Hosted by Moon-Soo Soh), Seoul, Korea, October 2, 2013.

Kim, W.J., Jan, L.Y., & Jan, Y.N. (2013). Time, Love and Memory: Social-exposure changes *Drosophila* male's investment on mating duration. Oral presentation to be delivered at the Seoul National University (Hosted by Junho Lee), Seoul, Korea, October 1, 2013.

Kim, W.J. (2013). Secret Life of Fruit Flies. Oral lecture to be delivered at the Seodaemun Museum of Natural History (Hosted by Jung-Mo Lee), Seoul, Korea, September 30, 2013.

Kim, W.J., Jan, L.Y., & Jan, Y.N. (2013). Time, Love and Memory: Social-exposure changes *Drosophila* male's investment on mating duration. Oral presentation to be delivered at the POSTECH (Hosted by Sung Key Jang), Pohang, Korea, September 26, 2013.

Kim, W.J., Jan, L.Y., & Jan, Y.N. (2013). Time, Love and Memory: Social-exposure changes *Drosophila* male's investment on mating duration. Oral presentation to be delivered at the Yonsei University (Hosted by Jin-Won Cho), Seoul, Korea, September 23, 2013.

Kim, W.J., Jan, L.Y., & Jan, Y.N. (2013). Time, Love and Memory: Social-exposure changes *Drosophila* male's investment on mating duration. Oral presentation to be delivered at the Sung Kyun Kwan University (Hosted by KyeongJin Kang), Suwon, Korea, September 16, 2013.

Kim, W.J. (2013). Lunar society of Birmingham, Venus Project, and the Society of Engineers. Oral lecture to be delivered at the School of Electrical Engineering, Korea University (Hosted by Tae-Woong Yoon), Seoul, Korea, September 12, 2013.

Kim, W.J., and Jang, S.K. (2006). Anti-Inflammatory prostaglandin 15d-PGJ2 blocks inflammatory signaling through stress granules formation that is induced by translation inhibition. Oral lecture to be delivered at the POSTECH-Stanford University Joint Symposium

on Cell Signaling for Young Scientists, POSTECH Biotech Center Auditorium, Pohang, Korea, October 19, 2006.

Conference Presentations (Posters)

Kim, W.J., Jan, L.Y., & Jan, Y.N. (2015). Time investment for copulation in male *Drosophila melanogaster* is regulated by pheromone, circadian and neuropeptide signaling. Abstracts of CSHL "Neurobiology of *Drosophila*" 2015:151, Poster presentation to be delivered at Cold Spring Harbor Laboratory meeting "Neurobiology of *Drosophila*", Cold Spring Harbor, NY, September 29- October 3, 2015.

Kim, W.J., Jan, L.Y., & Jan, Y.N. (2011). Longer-Sex-Duration (LSD): *Drosophila* male's investment on mating duration depends on visual cues from rivals, circadian neural circuits, and memory residing in ellipsoid body. Abstracts of CSHL "Neurobiology of *Drosophila*" 2011:154, Poster presentation to be delivered at Cold Spring Harbor Laboratory meeting "Neurobiology of *Drosophila*", Cold Spring Harbor, NY, October 3-7, 2011.

Kim, W.J., Jan, L.Y., & Jan, Y.N. (2011). Rival-induced increased mating duration of *Drosophila* male is dependent on the visual stimulus, circadian neural pathways, and ellipsoid body function. Abstracts of 52nd Annual *Drosophila* Research Conference 651C, Poster presentation to be delivered at 52nd Annual *Drosophila* Research Conference, Town & Country Resort & Conference Center, San Diego, CA, March 30-April 3, 2011.

Kim, W.J., Ryu, J.E., Kim, J.H., and Jang, S.K. (2007). 15-deoxy-delta 12,14-prostaglandin J2 inhibits translation through inactivation of eIF4A. Poster presentation to be delivered at the 19th 2007 Annual Meeting of the Korean Society for Molecular and Cellular Biology, Seoul, Korea, October 18, 2007.

Kim, W.J., Ryu, I., Ryu, J.E., and Jang, S.K. (2007). When inflammation met translation: Anti-inflammatory lipid mediator 15d-prostaglandin J2 inhibits translation through inactivation of a translation initiation factor eIF4A. Poster presentation to be delivered at the 64th KSBMB Annual Meeting in 2007 and 19th FAOBMB Seoul Conference, Seoul, Korea, May 27-30, 2007.

Kim, W.J., Park, S.M., and Jang, S.K. (2006). Anti-Inflammatory Prostaglandin 15-dPGJ2 Blocks Inflammatory Signaling Through Stress Granules Formation that is Induced By Translational Inhibition. Poster presentation to be delivered at the CSHL Meeting on Translational Control, Cold Spring Harbor, New York, September 6-10, 2006.

Kim, W.J., Ryu, J.E., Park, S.I., and Jang, S.K. (2006). Structure and Function of Stress Granules. Poster presentation to be delivered at the 63rd KSBMB Annual Meeting in 2006, Seoul, Korea, May 25-26, 2006.

Kim, W.J., and Jang, S.K. (2005). Stress Granules and Inflammatory Response. Poster presentation to be delivered at the POSTECH NCRC workshop, Pohang, Korea, August 28, 2005.

Kim, W.J., Back, S.H., and Jang, S.K. (2003). Translation factor eIF4G1 interacts with a signaling molecule TRAF2. Poster presentation to be delivered at the PNRC winter conference, Daechon, Korea, August 21, 2003.

Kim, W.J., Back, S.H., and Jang, S.K. (2002). Translation factor eIF4GI interacts with a signaling molecule TRAF2. Poster presentation to be delivered at the 42nd Annual Meeting of American Society for Cell Biology, San Francisco, Moscov Convention Center, December 14-18, 2002.

Kim, W.J., Back, S.H., and Jang, S.K. (2002). Interaction of eIF4GI with TRAF2 during heat shock leads to inhibition of TNF- α mediated NF- κ B activation. Poster presentation to be delivered at the 14th 2002 Annual Meeting of the Korean Society for Molecular and Cellular Biology, Seoul, Korea, October 17, 2002.

Kim, W.J., Back, S.H., and Jang, S.K. (2002). Interaction of eIF4GI with TRAF2 during heat shock leads to inhibition of TNF- α mediated NF- κ B activation. Poster presentation to be delivered at the POSTECH and Ehwa Women's University Annual Meeting, Pohang, Korea, September 16, 2002.

Kim, W.J., Back, S.H., and Jang, S.K. (2002). Interaction of eIF4GI with TRAF2 during heat shock leads to inhibition of TNF- α mediated NF- κ B activation. Poster presentation to be delivered at the Protein Network Research Center Annual Meeting, Seoul, Korea, August 20, 2002.

Back, S.H., Kim, Y.K., **Kim, W.J.** and Jang, S.K. (2001). Regulation of IRES-dependent translation by proteinases. Poster presentation to be delivered at the 13th 2001 Annual Meeting of the Korean Society for Molecular and Cellular Biology, Seoul, Korea, October 11, 2001.

Woo Jae Kim

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Kyeongjin Kang. Ph.D.

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