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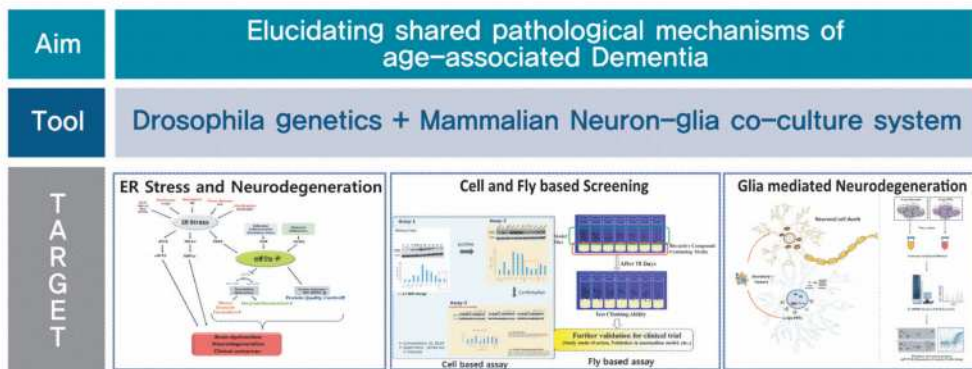
Principal Investigator

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Elucidation of molecular pathogenesis for neurodegenerative diseases

Neurodegenerative diseases are devastating both to the individual suffering from disease, and the family members of patients. However, there are no effective therapies for major neurodegenerative diseases such as Amyotrophic Lateral Sclerosis (ALS), Alzheimer's disease (AD), and Parkinson's disease (PD). Therefore, we desperately need new insights and ideas for developing novel therapeutic strategies. Our lab uses *Drosophila* and mammalian cell culture system as a model for human neurodegenerative diseases. *Drosophila* has the most powerful *in vivo* genetic manipulation system among eukaryotic model organisms currently in use. Moreover, these systems are simple and fast, and have highly conserved fundamental pathways that allow powerful insight into complex human neurodegenerative diseases. Using these systems, we are trying to dissect common shared pathological mechanisms of neurodegenerative diseases including dysfunction of protein quality control system, Endoplasmic reticulum stress and neuroinflammation.



Curriculum Vitae

2013~Present : Principal Investigator, KBRI
 2008~2013 : Postdoctoral fellow, HHMI / UPENN., USA
 2007~2008 : Postdoctoral Fellow, School of biological sciences, Seoul National Univ., Korea

Academic Credential

2007 : Ph.D., Biology, Seoul National Univ.
 2000 : B.S., Microbiology, Seoul National Univ.

Awards/Honors/Memberships

2017~Present : Member, Scientific committee of Korean Society for Neurodegenerative disease
 2013~Present : Member, Korean Society for Molecular and Cellular Biology
 2013~Present : Member, Korean Society for Brain and Neuroscience
 2015~ Present : Member, Korean Society for Biochemistry and Molecular Biology
 2000 : Honored Graduation

Research keywords

Neurodegenerative diseases, Drosophila genetics, Neuron-glia interaction.

Key techniques

Drosophila genetics, Neuron-glia co-culture, Mitochondrial activity assay, Behavioral analysis in fly.

Research Interests/Topics

- Establishment of High-throughput validation system for candidate genes of neurodegenerative diseases.
- Precise molecular analysis of common pathogenic mechanisms of neurodegenerative diseases. (PQC, ER stress, Neuroinflammation)

Research Publications (selected)

- Elden AC*, Kim HJ*, Hart MP*, Chen-Plotkin AS*, Johnson BS, Fang X, Armakola M, Geser F, Greene R, Lu MM, Padmanabhan A, Clay-Falcone D, McCluskey L, Elman L, Juhr D, Gruber PJ, Rub U, Auburger G, Trojanowski JQ, Lee VM, Van Deerlin VM, Bonini NM, Gitler AD. Ataxin-2 intermediate-length polyglutamine expansions are associated with increased risk for ALS. *Nature*, 466(7310):1069-75, 2010. (*These Authors equally contributed, Nature News and Views, F1000 must read.)
- Kim HJ, Raphael AR, LaDow ES, McGurk L, Weber RA, Trojanowski JQ, Lee VM, Finkbeiner S, Gitler AD, Bonini NM. Therapeutic modulation of eIF2 α phosphorylation rescues TDP-43 toxicity in amyotrophic lateral sclerosis disease models. *Nature Genetics*, 46(2):152-60, 2014.
- Jeon YM, Lee S, Kim S, Kwon Y, Kim K, Chung CG, Lee S, Lee SB, Kim HJ. Neuroprotective Effects of Protein Tyrosine Phosphatase 1B Inhibition against ER Stress-Induced Toxicity. *Molecules and Cells*, 40:280-290, 2017. (corresponding author)
- Kim K, Yoon J, Yim J, Kim HJ. Deneddylase 1 Regulates Deneddylase Activity of the Cop9 Signalosome in Drosophila Melanogaster. *Insect Science*, 24(1):27-34, 2017. (corresponding author)

Patents (selected)

- Kim HJ, Lee S, Jeon YM, Kim S, Kwon Y, Jang K. A method for preventing, attenuating or treating amyotrophic lateral sclerosis. (10-194269)