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Education

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| Dec 2006 | Ph.D. in Bioinorganic Chemistry
Department of Chemistry, Northwestern University, IL, USA
Advisor: Prof. Thomas J. Meade |
| Feb 2000 | M.S. in Medicinal Chemistry
Department of Pharmacy, Seoul National University
Advisor: Prof. Jeewoo Lee |
| Feb 1998 | B.S. in Pharmacy
Department of Pharmacy, Seoul National University |

Positions

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| 2023-Present | Professor
School of Biopharmaceutical and Medical Sciences
Sungshin University, Seoul, Korea |
| 2018-2022 | Associate Professor
School of Biopharmaceutical and Medical Sciences
Department of Global Medical Science
Sungshin University, Seoul, Korea |
| 2012-2017 | Assistant Professor
Department of Global Medical Science
Sungshin University, Seoul, Korea |
| 2010-2012 | Senior Research Scientist
Brain Science Institute, Neuro-Medicine Center
Korea Institute of Science and Technology, Seoul, Korea |
| 2007-2010 | Postdoctoral Research Fellow
Stanford University School of Medicine, CA, USA
Department of Pathology
Advisor: Prof. Matthew Bogyo |
| 2006-2007 | Postdoctoral Research Fellow
University of California, Berkeley
Department of Chemistry
Lawrence Berkeley National Laboratory, CA, USA
Advisor: Prof. Christopher J. Chang |

Research Interests

Chemical biology provides a unique approach to study biological systems by using synthetic small molecules. Unlike common biological methods involving genetic engineering and immunochemistry, small molecule chemical tools can be delivered easily and modified readily with high specificity, thus providing highly versatile and adaptable methods. Our research goal is to *develop and apply small molecule tools to identify and characterize proteases that are involved in mitochondrial physiology and expand these tools to generate diagnostic imaging agents of Alzheimer's disease and cancers.*

Publications (*co-corresponding authors)

1. Park JE**, Lee J**, Ok S, Byun S, Yoon SE, Kim YJ, Kang MJ "Wg/Wnt1 and Erasp link ER stress to proapoptotic signaling in an autosomal dominant retinitis pigmentosa model" **2023**, *Submitted* (**co-first authors)
2. Song D**, Lee JY**, Park EC, Choi NE, Nam HY, Seo J*, Lee J* "Structure-activity relationship analysis of activity-based probes targeting HTRA family of serine proteases" **2023**, *Submitted* (**co-first authors)
3. Choi, N.E.; Kim, E.J.; Lee, J. "A fluorescent molecular rotor for the *in situ* imaging of latent fingerprints" *RSC Adv.* **2022**, *12*, 33180-33186
4. Kim, S.**; Lee, J.Y.**; Choi, J.; Nam, H.Y.; Seo, J.*; Lee, J.* "Structure-activity relationship of mitochondria-targeting peptoids" *Pept. Sci.* **2022**, *114*, e24239. (**co-first authors)
5. Manh, N.V.; Hoang, V.; Ngo, V.T.H.; Ann, J.; Jang, T-H.; Ha, J-H.; Song, J.Y.; Ha, H-J.; Kim, H.; Kim, Y-H.; Lee, J.; Lee, J. "Discovery of highly potent human glutaminy cyclase (QC) inhibitors as anti-Alzheimer's agents by the combination of pharmacophore-based and structure-based design" *Eur. J. Med. Chem.* **2021**, *226*, 113819.
6. Kim, T.H.; Morshed, M.N.; Londhe, A.M.; Lim, J.W.; Jung, S.Y.; Yang, H.; Cho, S.; Cho, S.J.; Hwang, H.; Lim, S.M.; Lee, J.Y.; Lee J*, Pae AN* "The translocator protein ligands as mitochondrial functional modulators for the potential anti-Alzheimer agents" *J. Enzyme Inhib. Med. Chem.* **2021**, *36*, 831-846.
7. Choi, N.E.; Lee, J.Y.; Park, E.C.; Lee, J.H.; Lee, J. "Recent advances in organelle-targeted fluorescent probes" *Molecules* **2021**, *26*, 217.
8. Nam, H.Y.; Choi, J.; Kumar, S.D.; Nielsen, J.E.; Kyeong, M.; Wang, S.; Kang, D.; Lee, Y.; Lee, J; Yoon, M.H.; Hong, S.; Lund, R; Jenssen, H.; Shin, S.Y.; Seo, J. "Helicity modulation improves the selectivity of antimicrobial peptoids" *ACS Infect. Dis.* **2020**, *6*, 2732-2744.
9. Nam, H.Y.**; Song, D.**; Eo, J.**; Choi, N.E.; Hong, J.A.; Hong, K.T.; Lee, J.S.; Seo, J.*; Lee, J.* "Activity-based probes for the high temperature requirement A serine proteases" *ACS Chem. Biol.* **2020**, *15*, 2346-2354. (**co-first authors)
10. Kim, S.; Nam, H.Y.; Lee, J.*; Seo, J.* "Mitochondria-targeting peptides and peptidomimetics: recent progress and design principles" *Biochemistry* **2020**, *59*, 270-284.
11. Lim, J.W.; Lee, J.*; Pae, A.N.* "Mitochondrial dysfunction and Alzheimer's disease: Prospects for therapeutic intervention" *BMB Rep.* **2020**, *53*, 47-55.
12. Hoang, V.H.; Ngo, V.T.H.; Cui, M.; Manh, N.V.; Tran, P.T.; Ann, J.; Ha, H.J.; Kim, H.; Choi, K.; Kim, Y.H.; Chang, H.; Macalino, S.J.Y.; Lee, J.; Choi, S.; Lee, J. "Discovery of Conformationally Restricted Human Glutaminy Cyclase Inhibitors as Potent Anti-Alzheimer's Agents by Structure-Based Design." *J. Med. Chem.* **2019**, *62*, 8011-8027
13. Yoon, S.; Kim, S.E.; Kim, J.H.; Yoon, I.; Tran, P.T.; Ann, J.; Kim, C.; Byun, W.S.; Lee, S.; Kim, S.; Lee, J*.; Lee, J.* "Structure-activity relationship of leucyladenylate sulfamate analogues as leucyl-tRNA synthetase (LRS)-targeting inhibitors of Mammalian target of rapamycin complex 1 (mTORC1)" *Bioorg. Med. Chem.* **2019**, *27*, 1099-1109.

14. Elkamhawy, A.; Park, J.E.; Hassan, A.H.E.; Pae, A.N.; **Lee, J.**; Paik, S.; Park, B.G.; Roh, E.J. "Pyrazinyl ureas revisited: 1-(3-(Benzyloxy)pyrazin-2-yl)-3-(3,4-dichlorophenyl)urea, a new blocker of A β -induced mPTP opening for Alzheimer's disease." *Eur. J. Med. Chem.* **2018**, *157*, 268-278.
15. Yoon, S.; Zuo, D.; Kim, J.H.; Yoon, I.; Ann, J.; Kim, S.E.; Cho, D.; Kim, W.K.; Lee, S.; **Lee, J.**; Kim, S.; Lee, J. "Discovery of novel leucyladenylate sulfamate surrogates as leucyl-tRNA synthetase (LRS)-targeted mammalian target of rapamycin complex 1 (mTORC1) inhibitors." *Bioorg. Med. Chem.* **2018**, *26*, 4073-4079.
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18. Hong, J.A.; Kim, M.J.; Eoh, J.; **Lee, J.** "A turn-on fluorescent probe for live cell imaging of biothiols" *Bull. Kor. Chem. Soc.* **2018**, *39*, 425-426.
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 31. Elkamhawy, A.; Park, J.E.; Hassan, A.H.; Ra, H.; Pae, A.N.; **Lee, J.**; Park, B.G.; Moon, B.; Park, H.M.; Roh, E.J. "Discovery of 1-(3-(benzyloxy)pyridin-2-yl)-3-(2-(piperazin-1-yl)ethyl)urea: A new modulator for amyloid beta-induced mitochondrial dysfunction" *Eur. J. Med. Chem.* **2017**, *128*, 56-69
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Patents

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