

Curriculum Vitae

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Contact Information

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Education

1991 – 1999 B.S., Microbiology, Keimyung University in Korea
2002 - 2004 M.S., College of Medicine, Keimyung University in Korea
2004 - 2006 Ph. D., College of Medicine, Keimyung University in Korea

Post Graduate Education and Training

2006 - 2008 Post-doctoral fellow, Department of Biochemistry and Molecular Biology,
College of Medicine, Yeungnam University
2008 - 2013 Visiting Post-doctoral fellow, Laboratory of Molecular Biology, NIDDK, NIH
2013 - 2017 Research fellow, Laboratory of Molecular Biology, NIDDK, NIH

Employment History

Academic Appointments

2006 - 2008 Research professor, Department of Biochemistry and Molecular Biology, College
of Medicine, Yeungnam University
2017 - 2019 Research Associate, Center for Genetic Medicine Research, Children's National
Health System
2019 - 2022 Research Associate, Division of Endocrinology, Diabetes and Nutrition,
Department of Medicine, University of Maryland School of Medicine
2022 - 2024 Assistant Professor, Division of Endocrinology, Diabetes and Nutrition,
Department of Medicine, University of Maryland School of Medicine

2024 - present Assistant Professor, Department of Obstetrics, Gynecology and Reproductive Sciences, University of Maryland School of Medicine

Other Employment

1999 – 2002 Biologist, Kidney Institute, College of Medicine, Keimyung University in Korea

Honors And Awards

2009 Nancy Nossal Postdoctoral Fellowship Award, NIDDK

2010 Fellows Award for Research Excellence (FARE), NIH

2013 Fellows Award for Research Excellence (FARE), NIH

Publications

Peer-reviewed journal articles

1. K.K. Park, S.M. Han, M.Y. Jegal, H.S. Jeong, **J.G. Lee**, H.C. Kim (2003) Patterns and Sites of Tumor Necrosis Factor- α and Transforming Growth Factor- β 1 Expression in Human Renal Allograft Biopsies. *Transplant Proc.* 35:249-250
2. Young-Mi Chae, Kwan-Kyu Park, Junji Magae, In-Seon Lee, Cheorl-Ho Kim, Hyun-Chul Kim, SaHyun Hong, **Jin-Gu Lee**, In-Jang Choi, Hyun-Soo Kim, Kwan-Sik Min, In-Kyu Lee, Young-Chae Chang (2004) Sp1-decoy oligodeoxynucleotide inhibits high glucose-induced mesangial cell proliferation. *Biochem Biophys Res Commun.* 319:550-555
3. **Jin-Gu Lee**, Sung-Bae Park, Seung-Yeup Han, Eun-Ah Hwang, Kwan-Kyu Park, Jeong-Ho Lee, Hyun-Chul Kim (2004) Effect of TGF- β 1 Antisense Oligodeoxynucleotides on Fibrosis of Peritoneum in Peritoneal Dialysis Animal Model and Mesothelial Cells Cultured in High Glucose Media. *Keimyung Med J.* 23:65-76
4. ChuHee Lee, Dae-Weon Park, **Jingu Lee**, Tae-Il Lee, Young-Jo Kim, Yun-Sik Lee, Suk-Hwan Baek (2006) Secretory phospholipase A2 induces apoptosis through TNF- α and cytochrome c-mediated caspase cascade in murine macrophage RAW 264.7 cells. *Eur J Pharmacol.* 536:47-53
5. ChuHee Lee*, **Jingu Lee***, Young-Ae Choi, Shin-Sung Kang, Suk-Hwan Baek (2006) cAMP elevating agents suppress secretory phospholipase A2-induced matrix metalloproteinase-2 activation. *Biochem Biophys Res Commun.* 340: 1278-1283
* Co-first author
6. Eun-Jung Lim, Sun-Hye Lee, **Jin-Gu Lee**, Byung-Ro Chin, Yoe-Sik Bae, Jae-Ryong Kim, Chu-Hee Lee, Suk-Hwan Baek (2006) Activation of toll-like receptor-9 induces matrix metalloproteinase-9 expression through Akt and tumor necrosis factor- α signaling. *FEBS Lett.* 580:4533-4538
7. **Jin-Gu Lee**, Sun-Hye Lee, Dae-Weon Park, Yoe-Sik Bae, Sung-Su Yun, Jae-Ryong Kim, Suk-Hwan Baek (2007) Phosphatidic Acid as a Regulator of Matrix Metalloproteinase-9

Expression via the TNF- α Signaling Pathway. *FEBS Lett.* 581:787-793

8. Eun-Jung Lim, Sun-Hye Lee, **Jin-Gu Lee**, Jae-Ryong Kim, Sung-Su Yun, Suk-Hwan Baek, Chu-Hee Lee (2007) Toll-like receptor 9 dependent activation of MAPK and NF- κ B is required for the CpG ODN-induced matrix metalloproteinase-9 expression. *Exp Mol Med.* 39:239-245.
9. Dae-Weon Park, Kheewoong Baek, **Jin-Gu Lee**, Yun-Ki Park, Jung-Hye Kim, Jae-Ryong Kim, Suk-Hwan Baek (2007) Activation of toll-like receptor 4 modulates vascular endothelial growth factor synthesis through prostacyclin-IP signaling. *Biochem Biophys Res Commun.* 362:1090-1095.
10. Sun-Hye Lee, **Jin-Gu Lee**, Jae-Ryong Kim, Suk-Hwan Baek (2007) Toll-Like Receptor 9-Mediated cytosolic Phospholipase A₂ Activation Regulates Expression of Inducible Nitric Oxide Synthase. *Biochem Biophys Res Commun.* 364:996-1001
11. **Jin-Gu Lee**, Sun-Hye Lee, Dae-Weon Park, Sang-Hoon Lee, Hong-Sik Yoon, Byung-Ro Chin, Jung-Hye Kim, Jae-Ryong Kim, Suk-Hwan Baek (2008) Toll-like Receptor 9-stimulated Monocyte Chemoattractant Protein 1 is Mediated Via JNK-cytosolic Phospholipase A₂-ROS Signaling. *Cellular Signalling.* 20:105-111.
12. **Jin-Gu Lee**, Eun-Jung Lim, Dae-Weon Park, Sun-Hye Lee, Jae-Ryong Kim, Suk-Hwan Baek (2008) A Combination of Lox-1 and Nox1 Regulates TLR9-Mediated Foam Cell Formation. *Cellular Signalling.* 20:2266-2275.
13. So-Yeon Kim, **Jin-Gu Lee**, Woo-Sung Cho, Kyong-Hyun Cho, Jun Sakong, Jae-Ryong Kim, Byung-Rho Chin, Suk-Hwan Baek (2010) Role of NADPH oxidase-2 in lipopolysaccharide-induced matrix metalloproteinase expression and cell migration. *Immunology and Cell Biology.* 88:197-204.
14. Hyung-Kyoung Lee, Seungeun Yeo, Jin-Sik Kim, **Jin-Gu Lee**, Yoe-Sik Bae, Chuhee Lee, Suk-Hwan Baek (2010) Protein Kinase C- η and Phospholipase D2 Pathway Regulates Foam Cell Formation via Regulator of G Protein Signaling 2. *Mol Pharmacol.* 78(3):478-85.
15. Eun-Jung Lim, Dae-Weon Park, **Jin-Gu Lee**, Chu-Hee Lee, Yoe-Sik Bae, Young-Chul Hwang, Jae-Weon Jeong, Byung-Rho Chin, Suk-Hwan Baek (2010) Toll-like receptor 9-mediated inhibition of apoptosis occurs through suppression of FoxO3a activity and induction of FLIP expression. *Experimental & Molecular Medicine.* 42:712-20.
16. Qiuyan Wang, Bidhan A. Shinkre, **Jin-Gu Lee**, Marc A. Weniger, Yanfen Liu, Weiping Chen, Adrian Wiestner, William C. Trenkle, Yihong Ye (2010) The ERAD Inhibitor Eeyarestatin I Is a Bifunctional Compound with a Membrane-Binding Domain and a p97/VCP Inhibitory Group. *PLoS One.* 5(11):e15479
17. Yongwang Zhong, Yang Wang, Hui Yang, Petek Ballar, **Jin-Gu Lee**, Yihong Ye, Mervyn J. Monteiro, Shengyun Fang (2011) Importin beta interacts with the endoplasmic reticulum-associated degradation machinery and promotes ubiquitination and degradation of mutant alpha1-antitrypsin. *J Biol Chem.* 286(39):33921-30.
18. Hyung-Kyoung Lee, Dae-Weon Park, Jun Ho Bae, Hyung Jun Kim, Dong-Gu Shin, Jong-Seon Park, **Jin-Gu Lee**, Sung Joong Lee, Yoe-Sik Bae, Suk-Hwan Baek (2012) RGS2 is a negative regulator of STAT3-mediated Nox1 expression. *Cellular Signalling.* 24(3):803-9.

19. **Jin-Gu Lee**, Yihong Ye (2013) Bag6/Bat3/Scythe: a novel chaperone activity with diverse regulatory functions in protein biogenesis and degradation. *Bioessays*. 35(4):377-85.
- This article has been selected as a highlight from this issue.
20. **Jin-Gu Lee**, Nia Soetandyo, Kheewoong Baek, Yihong Ye (2013) Reversible inactivation of deubiquitinases by reactive oxygen species in vitro and in cells. *Nature Communications*. 4: 1568.
- This article has been highlighted in *Nature Structural & Molecular Biology* (2013, 20(4): 411) and introduced in the News and Views section of *Nature* (2013, 497: 49-50).
21. Yue Xu, Yanfen Liu, **Jin-Gu Lee**, Yihong Ye (2013) A Ubiquitin-like Domain Recruits an Oligomeric Chaperone to a Retrotranslocation Complex in Endoplasmic Reticulum-associated Degradation. *J Biol Chem*. 288(25): 18068-76.
22. **Jin-Gu Lee**, Woong Kim, Steven Gygi, Yihong Ye (2014) Characterization of the deubiquitinating activity of USP19 and its role in endoplasmic reticulum-associated degradation. *J Biol Chem*. 289(6): 3510-7
23. Yanfen Liu, Soetandyo Nia, **Jin-Gu Lee**, Liping Liu, Yue Xu, William M Clemons Jr, Yihong Ye (2014) USP13 antagonizes gp78 to maintain functionality of a chaperone in ER-associated degradation. *Elife*. 3(0): e01369.
24. Ji Hyo Lyu, Dae-Weon Park, Bin Huang, Su Hwan Kang, Soo Jung Lee, Chuhee Lee, Yoe-Sik Bae, **Jin-Gu Lee**, Suk-Hwan Baek (2015) RGS2 Suppresses Breast Cancer Cell Growth via a MCP1-Dependent Pathway. *Journal of Cellular Biochemistry* 116(2): 260-7
25. **Jin-Gu Lee**, Shokichi Takahama, Guofeng Zhang, Stanislav Tomarev, Yihong Ye (2016) Unconventional secretion of misfolded proteins adapts cells to proteasome dysfunction in mammalian cells. *Nat. Cell Biol.* 18(7): 765-76
- This article has been highlighted in the News and Views section of *Nature Cell Biology* (2016; 18(7):724-26).
26. Seo-Yeon Lee, Yun-Seok Choi, Eun-Hee Kim, Hae-Kap Cheong, Yun-Ju Lee, **Jin-Gu Lee**, Yihong Ye, Kyoung-Seok Ryu (2018) Nonenzymatic acetylation of ubiquitin Lys side chains is modulated by their neighboring residues. *The FEBS Journal* 285(7):1277-1289
27. Yue Xu, Lei Cui, Anthony Dibello, Lihui Wang, Juhyung Lee, Layla Saidi, **Jin-Gu Lee**, Yihong Ye (2018) DNAJC5 facilitates USP19-dependent unconventional secretion of misfolded cytosolic proteins. *Cell Discovery* 4:11
28. **Jin-Gu Lee**, Weiliang Huang, Hangnoh Lee, Joyce van de Leemput, Maureen A Kane, Zhe Han (2021) Characterization of SARS-CoV-2 proteins reveals Orf6 pathogenicity, subcellular localization, host interactions and attenuation by Selinexor. *Cell & Bioscience* 11:58
29. Jun-Yi Zhu, **Jin-Gu Lee**, Joyce van de Leemput, Hangnoh Lee, Zhe Han (2021) Functional analysis of SARS-CoV-2 proteins in Drosophila identifies Orf6-induced pathogenic effects with Selinexor as an effective treatment. *Cell & Bioscience* 11:59
30. Josephine Bock, Nathalie Kühnle, Julia D. Knopf, Nina Landscheidt, **Jin-Gu Lee**, Yihong Ye, Marius K. Lemberg (2022) Rhomboid protease RHBDL4 promotes retrotranslocation of aggregation-prone proteins for degradation. *Cell Rep.* 40(6): 111175

31. Jun-yi Zhu, Guanglei Wang, Xiaohu Huang, Hangnoh Lee, **Jin-Gu Lee**, Penghua Yang, Joyce van de Leemput, Weiliang Huang, Maureen A. Kane, Peixin Yang, Zhe Han (2022) SARS-CoV-2 Nsp6 damages Drosophila heart and mouse cardiomyocytes through MGA/MAX complex-mediated increased glycolysis. *Commun Biol.* 5(1):1039
32. **Jin-Gu Lee**, Yulong Fu, Jun-Yi Zhu, Pei Wen, Joyce van de Leemput, Patricio E Ray, Zhe Han (2023) A SNARE protective pool antagonizes APOL1 renal toxicity in Drosophila nephrocytes. *Cell & Bioscience.* 13(1):199
33. Jun-yi Zhu, **Jin-Gu Lee**, Yulong Fu, Joyce van de Leemput, Patricio E Ray, Zhe Han (2023) APOL1-G2 accelerates nephrocyte cell death by inhibiting the autophagy pathway. *Dis Model Mech.* 16(12)
34. Lihui Wang, Yue Xu, Tetsunari Fukushige, Layla Saidi, Xiaorong Wang, Clinton Yu, **Jin-Gu Lee**, Michael Krause, Lan Huang, Yihong Ye (2024) Mono-UFMylation promotes misfolding-associated secretion of α -synuclein. *Science Advances.* 10(11)

Proffered Communications

International

1. **Jin-Gu Lee**, USP19 promotes unconventional secretion of unfolded cytosolic proteins from mammalian cells, Cold Spring Harbor Laboratory Meeting: Protein Homeostasis in Health & Disease, Cold Spring Harbor, NY, oral presentation, 2016
2. **Jin-Gu Lee**, Unconventional secretion of misfolded proteins promotes adaptation to proteasome dysfunction in mammalian cells, Cold Spring Harbor Laboratory Meeting: Neurodegenerative Diseases, Cold Spring Harbor, NY, oral presentation, 2016