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Educational Background

- 2009-2012 Chung-Ang University (Ph.D.-Molecular Microbiology)
- 2007-2009 Chung-Ang University (M.S.-Molecular Microbiology)
- 2001-2007 Chung-Ang University (B.S.-Life Science)

Major Careers

- 2021-Present Assistant Professor, Department of Microbiology, College of Medicine, Hallym University
- 2016-2021 Research Professor, Department of Life Science, Chung-Ang University
- 2015-2016 Research Fellow, Michael Smith Laboratories, University of British Columbia, Canada
- 2013-2016 Research Fellow, Department of Life Science, Chung-Ang University
- 2012-2013 Post-Doc. Microbiomics Research Center

Research and Book

1. Regulator of ribonuclease activity modulates the pathogenicity of *Vibrio vulnificus*

Lee, J., Shin, E., Park, J., Lee M.^{*}, Lee, K.^{*}

Journal of Microbiology, 2021, 59(12), Accepted. (*Co-correspondence)

2. *Trans*-acting regulators of ribonuclease activity

Lee, J., Lee, M.^{*}, Lee, K.^{*}

Journal of Microbiology, 2021, 59(4), pp. 341–359. (*Co-correspondence)

3. Endoribonuclease-mediated control of *hns* mRNA stability constitutes a key regulatory pathway for *Salmonella* Typhimurium pathogenicity island 1 expression

Lee, M.^{*}, Ryu, M.^{*}, Joo, M.^{*}, Seo, Y.-J.^{*}, Lee, J., Kim, H.-M., Shin, E., Yeom, J.-H., Kim, Y.-H., Bae, J., Lee, K.

PLoS Pathogens, 2021, 17(2), e1009263. (*Equal contribution)

4. The coordinated action of RNase III and RNase G controls enolase expression in response to oxygen availability in *Escherichia coli*

Lee, M.^{*}, Joo, M.^{*}, Sim, M.^{*}, Sim, S.-H.^{*}, Kim, H.-L.^{*}, Lee, J., Ryu, M., Yeom, J.-H., Hahn, Y., Ha, N.-C., Cho, J.-C., Lee, K.

Scientific Reports, 2019, 9(1), 17257. (*Equal contribution)

5. Divergent rRNAs as regulators of gene expression at the ribosome level

Song, W.^{*}, Joo, M.^{*}, Yeom, J.-H.^{*}, Shin, E.^{*}, Lee, M.^{*}, Choi, H.-K., Hwang, J., Kim, Y.-I., Seo, R., Lee, J.E., Moore, C.J., Kim, Y.-H., Eyun, S., Hahn, Y., Bae, J., Lee, K.

Nature Microbiology, 2019, 4(3), pp. 515–526. (*Equal contribution)

6. Stoichiometry and mechanistic implications of the MacAB-TolC tripartite efflux pump

Jo, I., Hong, S., Lee, M., Song, S., Kim, J.-S., Mitra, A.K. Hyun, J., Lee, K., Ha, N.-C.

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7. Functional implications of hexameric assembly of RraA proteins from *Vibrio vulnificus*

Song, S., Hong, S., Jang, J., Yeom, J.-H., Park, N., Lee, J., Lim, Y., Jeon, J.-Y., Choi, H.-K., Lee, M., Ha, N.-C., Lee, K.

PLoS ONE, 2017, 12(12), e0190064.

8. Crystal Structure of a Soluble Fragment of the Membrane Fusion Protein HlyD in a Type I Secretion System of Gram-Negative Bacteria

Kim, J.-S., Song, S., Lee, M., Lee, S., Lee, K., Ha, N.-C.

Structure, 2016, 24(3), pp. 477–485.

9. Functional analysis of *Vibrio vulnificus* RND efflux pumps homologous to *Vibrio cholerae* VexAB and VexCD, and to *Escherichia coli* AcrAB
Lee, S., Yeom, J.-H., Seo, S., Lee, M., Kim, S., Bae, J., Lee, K., Hwang, J.
Journal of Microbiology, 2015, 53(4), pp. 256–261.
10. Functional conservation of RNase III-like enzymes: Studies on a *Vibrio vulnificus* ortholog of *Escherichia coli* RNase III
Lee, M.*, Ahn, S.*, Lim, B., Lee, D.-H., Lee, K.
Current Microbiology, 2014, 68(4), pp. 413–418. (*Equal contribution)
11. Modulation of RNase E activity by alternative RNA binding sites
Kim, D., Song, S., Lee, M., Go, H., Shin, E., Yeom, J.-H., Ha, N.-C., Lee, K., Kim, Y.-H.
PLoS ONE, 2014, 9(3), e90610.
12. The α -Barrel Tip Region of *Escherichia coli* TolC Homologs of *Vibrio vulnificus* Interacts with the MacA Protein to Form the Functional Macrolide-Specific Efflux Pump MacAB-TolC
Lee, M.*, Kim, H.-L.*, Song, S., Joo, M., Lee, S., Kim, D., Hahn, Y., Ha, N.-C., Lee, K.
Journal of Microbiology, 2013, 51(2), pp. 154-159. (*Equal contribution)
13. Membrane Fusion Proteins of Type I Secretion System and Tripartite Efflux Pumps Share a Binding Motif for TolC in Gram-Negative Bacteria
Lee, M.*, Jun, S.-Y.*, Yoon, B.-Y., Song, S., Lee, K., Ha, N.-C.
PLoS ONE, 2012, 7(7), e40460. (*Equal contribution)
14. Assembly and Channel Opening of Outer Membrane Protein in Tripartite Drug Efflux Pumps of Gram-negative Bacteria
Xu, Y., Moeller, A., Jun, S.-Y., Lee, M., Yoon, B.-Y., Kim, J.-S., Lee, K., Ha, N.-C.
Journal of Biological Chemistry, 2012, 287(15), pp. 11740-11750.
15. RNase G Participates in Processing of the 5'-end of 23S Ribosomal RNA
Song, W., Lee, M., Lee, K.
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16. Funnel-like Hexameric Assembly of the Periplasmic Adapter Protein in the Tripartite Multidrug Efflux Pump in Gram-negative Bacteria
Xu, Y.*, Lee, M.*, Moeller, A., Song, S., Yoon, B.-Y., Kim, H.-M., Jun, S.-Y., Lee, K., Ha, N.-C.
Journal of Biological Chemistry, 2011, 286(20), pp. 17910-17920. (*Equal contribution)
17. Studies on a *Vibrio vulnificus* Functional Ortholog of *Escherichia coli* RNase E Imply a Conserved Function of RNase E-like Enzymes in Bacteria

Lee, M., Yeom, J.-H., Jeon, C.O., Lee, K.
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18. Expression of Divergent LSU rRNA Genes in the *Vibrio vulnificus* CMCP6 Genome During Both Infection and Non-Pathogenic Stages

Kim, H.-L., Ryou, S.-M., Lee, M., Lee, J.-W., Lee, K., Bae, J.
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19. Upregulation of RNase E activity by mutation of a site that uncompetitively interferes with RNA binding
Go, H., Moore, C.J., Lee, M., Shin, E., Jeon, C.O., Cha, C.-J., Han, S.H., Kim, S.-J., Lee, S.-W., Lee, Y., Ha, N.-C., Kim, Y.-H., Cohen, S. N., Lee, K.

RNA Biology, 2011, 8(6), pp. 1022-1034.

20. Functional Relationships between the AcrA Hairpin Tip Region and the TolC Aperture Tip Region for the Formation of the Bacterial Tripartite Efflux Pump AcrAB-TolC

Kim, H.-M.* , Xu, Y.* , Lee, M.* , Piao, S., Sim, S.-H., Ha, N.-C., Lee, K.
Journal of Bacteriology, 2010, 192(17), pp. 4498-4503. (*Equal contribution)

21. Effects of *Escherichia coli* RraA Orthologs of *Vibrio vulnificus* on the Ribonucleolytic Activity of RNase E *In Vivo*

Lee, M., Yeom, J.-H., Sim, S.-H., Ahn, S., Lee, K.
Current Microbiology, 2009, 58(4), pp. 349-353.