

# Seokhee Kim

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## Education

- Ph.D.** in Chemistry and Chemical Biology 2008  
• **Harvard University**, Cambridge, MA  
• Thesis advisor: Daniel Kahne
- M.A.** in Chemistry 2004  
• **Princeton University**, Princeton, NJ
- B.S.** in Chemistry 2001  
• **Seoul National University**, Seoul, South Korea

## Professional Experience

- Assistant Professor** 2014-current  
• Seoul National University, Seoul, South Korea
- Postdoctoral Associate/Fellow** 2008 - 2014  
• Massachusetts Institute of Technology, Cambridge, MA  
• Advisor: Robert T. Sauer

## Awards/Fellowships

- TJ Park Science Fellowship 2015 - 2016
- Bushrod H. Campbell and Adah F. Hall Charity Fund and Charles A. King Trust Postdoctoral Fellowship 2012 - 2014

## Publications

- H. Park and **S. Kim**, "Gene-specific mutagenesis enables rapid continuous evolution of enzymes in vivo" *Nucleic Acids Res*, **2021**, 49, e32
- M. Montalbán-López, T.A. Scott, S. Ramesh, I.R. Rahman, A.J. van Heel, J.H. Viel, V. Bandarian, E. Dittmann, O. Genilloud, Y. Goto, M.J. Grande Burgos, C. Hill, **S. Kim**, J. Koehnke, J.A. Latham, A.J. Link, B. Martinez, S.K. Nair, Y. Nicolet, S. Rebuffat, H.G. Sahl, D. Sareen, E.W. Schmidt, L. Schmitt, K. Severinov, R.D. Süßmuth, A.W. Truman, H. Wang, J.K. Weng, G.P. van Wezel, Q. Zhang, J. Zhong, J. Piel, D.A. Mitchell, O.P. Kuipers, W.A. van der Donk, "New developments in RiPP discovery, enzymology and engineering", *Nat Prod Rep*, **2021**, 38, 130-239
- H. Cho, Y. Choi, K. Min, J.B. Son, H. Park, H.H. Lee, **S. Kim**, "Over-activation of a nonessential bacterial protease DegP as an antibiotic strategy" *Commun Biol*, **2020**, 3, 547
- H. Lee, M. Choi, J. Park, H. Roh, **S. Kim**, "Genome Mining Reveals High Topological Diversity of  $\omega$ -Ester-Containing Peptides and Divergent Evolution of ATP-Grasp Macrocyclases." *J Am Chem Soc*, **2020**, 142, 3013-3023
- C. Lee, H. Lee, J. Park, **S. Kim**, "Introduction of Bifunctionality into the Multidomain Architecture of the  $\omega$ -Ester-Containing Peptide Plesiocin." *Biochemistry*, **2020**, 59, 285-289
- H. Roh, Y. Han, H. Lee, **S. Kim**, "A Topologically Distinct Modified Peptide with Multiple Bicyclic Core Motifs Expands the Diversity of Microviridin-Like Peptides." *ChemBioChem*, **2019**, 20, 1051-1059
- G. Eom, **S. Kim**, "Identification of nucleophilic probes for protease-mediated transpeptidation." *Molecules*, **2018**, 23, E2109

- S. Kim, I. Song, G. Eom, **S. Kim**, "A small periplasmic protein with a hydrophobic C-terminal residue enhances DegP proteolysis as a suicide activator." *J Bacteriol*, **2018**, 200, e00519-17 **\*\*Highlighted with a Commentary**
- H. Park, Y.T. Kim, C. Choi, **S. Kim**, "Tripodal lipoprotein variants with C-terminal hydrophobic residues allosterically modulate activity of the DegP protease." *J Mol Biol*, **2017**, 429, 3090-3101
- H. Lee, Y. Park, **S. Kim**, "Enzymatic cross-linking of side chains generates a modified peptide with four hairpin-like bicyclic repeats." *Biochemistry*, **2017**, 56, 4927-4930 **\*\* ACS Editors' Choice**
- A.K. de Regt, **S. Kim**, J. Sohn, R.A. Grant, T.A. Baker, R.T. Sauer, "A conserved activation cluster is required for allosteric communication in HtrA-family proteases." *Structure*, **2015**, 23, 517-26
- S. Kim**, R.T. Sauer, "Distinct regulatory mechanisms balance DegP proteolysis to maintain cellular fitness during heat stress." *Genes Dev*, **2014**, 28, 902-911
- S. Kim**, R.T. Sauer, "Cage assembly of DegP protease is not required for substrate-dependent regulation of proteolytic activity or high-temperature cell survival." *Proc Natl Acad Sci USA*, **2012**, 109, 7263-8
- S. Kim**, R.A. Grant, R.T. Sauer, "Covalent linkage of distinct substrate degrons controls assembly and disassembly of DegP proteolytic cages." *Cell*, **2011**, 145, 67-78
- C.L. Hagan\*, **S. Kim**\*, D. Kahne, "Reconstitution of outer membrane protein assembly from purified components." *Science*, **2010**, 328, 890-892 **\*These authors contributed equally**
- S. Kim**, J.C. Malinverni, P. Sliz, T.J. Silhavy, S.C. Harrison, D. Kahne, "Structure and function of an essential component of the outer membrane protein assembly machine." *Science*, **2007**, 317, 961-964
- J.C. Malinverni, J. Werner, **S. Kim**, J.G. Sklar, D. Kahne, R. Misra, T.J. Silhavy, "YfiO stabilizes the YaeT complex and is essential for outer membrane protein assembly in *Escherichia coli*." *Mol Microbiol*, **2006**, 61, 151-164
- T. Wu, J. Malinverni, N. Ruiz, **S. Kim**, T.J. Silhavy, and D. Kahne, "Identification of a multi-component complex required for outer membrane biogenesis in *Escherichia coli*." *Cell*, **2005**, 121, 235-245