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Key Words

Structural Biology, Protein Interactions, Signaling, Bionanosensors, Mini-antibody

Research Area

Life is controlled by a milieu of macromolecular interactions. We focus on understanding structural basis for protein interactions and their applications using a variety of biophysical and biochemical techniques such as crystallography and sdution scattering as well as standard techniques in molecular cell biology. We study proteins interactions in ubiquitin signaling, host-pathogen relationship and abiotic stress response signaling. We also develop mini-antibody based bionano sensors for both diagnostic and therapeutic purposes.

Education

- 2003 PhD University of California, Los Angeles
- 1997 MSc Seoul National University
- 1993 BSc Seoul National University

Experience

- 2013 Jul – 2014 Aug Visiting Scholar, University of California, Los Angeles
- 2007 Mar - Present Assistant and Associate Professor, Department of Biological Sciences, Sungkyunkwan University
- 2004 Sep – 2007 Feb Visiting Fellow, National Institutes of Health
- 2003 Dec – 2004 Aug Postgraduate Researcher, University of California, Los Angeles

Position

- 2013 Dec - Present Editorial Board, Biodesign Journal

Publication

- Trung Thanh Thach, Donghyuk Shin, Seungsu Han and Sangho Lee (2016) New conformations of linear polyubiquitin chains by crystallographic and solution scattering studies expand the conformational space of polyubiquitin. Acta Cryst. D Biol. Crystallogr. In press.
- Trung Thanh Thach, Namsoo Lee, Donghyuk Shin, Seungsu Han, Gyuhee Kim, Hongtae Kim, and Sangho Lee (2015) Molecular Determinants of Polyubiquitin Recognition by Continuous Ubiquitin-Binding Domains of Rad18. Biochemistry. 54:2136-2148.
- Trung Thanh Thach, Truc Thanh Luong, Sangho Lee, and Dong-kwon Rhee (2014). Adenylate kinase from Streptococcus pneumoniae is essential for growth through its cataytic activity. FEBS Open Bio 4:672-682.
- Hai Minh Ta, Sangsu Bae, Seungsu Han, Jihyuck Song, Tae Kyu Ahn, Sungchul Hohng, Sangho Lee and Kyeong Kyu Kim (2013). Structure-based elucidation of the regulatory mechanism for aminopeptidase activity. Acta Cryst. D Biol. Crystallogr. 69:1738-1747.
- Yoshikatsu Aikawa, Hideki Hirakawa, and Sangho Lee (2012). Spatiotemporal Regulation of the Ubiquitinated Cargo-binding Activity of Rabex-5 in the Endocytic Pathway. J. Biol. Chem. 287(48):40586-40597.
- Sangho Lee, Yien Che Tsai, Rafael Mattera, William J. Smith, Michael S. Kostelansky, Allan M. Weissman, Juan S. Bonifacino and James H. Hurley. Structural basis for ubiquitin recognition and autoubiquitination by Rabex-5. Nat. Struct. Mol. Biol. 13, 264-271.