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기타소속:

강연제목: 초고해상도 현미경 기반의 나노스케일 이미징을 통한 세균 유래 세포외소포체의 영향 규명

Investigation of Effects of Bacterial Extracellular Vesicles via Nanoscale Imaging with Super-Resolution Microscopy,

Abstract:

The past decade has witnessed the development of super-resolution microscopy (SRM), a research field recognized with the Nobel Prize in Chemistry in 2014, which overcomes the diffraction-based far-field resolution limits of conventional light microscopy. The new opportunities afforded by SRM have motivated extensive research, providing multidimensional, multi-scale, and corroborated information about a system's morphology, functionality, dynamics, cellular context, and chemical composition. In this presentation, I will introduce our technology development and recent applications of the SRM technique. In particular, I will present our recent studies on the biogenesis of extracellular vesicles (EVs) in gram-positive bacteria and their direct interaction with human host cells. Bacterial EVs are known to play a role in bacterial communication and the transfer of genetic material, and they are being studied as potential diagnostic markers and therapeutic targets for bacterial infections. We observed bacterial EV formation and their host cell infection in super-resolution to investigate the biological roles of EVs. These findings call for a reassessment of previously unresolved, complex, and multi-factorial biological processes involving nano-sized EVs.

Brief Biosketch

한양대학교 화학과 부교수로 재직 중이며, Harvard University 에서 물리화학 박사학위를 취득하고 UC Berkeley 에서 박사후연구원을 지냈다. 초고해상도 현미경 및 나노광학 분야에서 활발히 연구 중이며, 도레이펠로십, POSCO 청암 펠로십, 미래인재상, 삼성전자 우수특허상, ASML Young Professor Award 등 다수의 학술상을 수상하였다. 대한화학회, 한국현미경학회 등에서 임원을 맡고 있으며, 국가과학기술자문회의 기초연구진흥협의회 위원으로 활동하고 있다.

Prof. Doory Kim is currently serving as an associate professor in the department of chemistry at Hanyang University. She obtained her Ph.D. from Harvard University and completed postdoctoral research at UC Berkeley. Her research focuses on super-resolution microscopy and nano-optics, earning numerous awards including the TORAY Fellowship, POSCO Science Fellowship, Excellence Award for Young Scientist, Samsung Electronics Excellent Patent Award, and ASML Young Professor Award. She serves as a committee member in the Korean Chemical Society (KCS) and the Korean Society of Microscopy (KSM), and was recently appointed as a committee member of the Presidential Advisory Council on Science and Technology for the promotion of basic research.