

## 세미나초록

발표주제	Nanotechnology Platforms for Quantitative Analyses of Extracellular Vesicles	
발표내용	<p>Extracellular vesicles (EVs) have emerged as a novel biomarker for diagnosis and prognosis of human diseases, including cancer, infection, and metabolic disorders. Analyzing EVs in routine clinical settings, however, still remains a difficult task, mainly due to the lack of adequately sensitive and fast assay platforms. Our laboratory has been developing new assay technologies tailored for on-site EV analysis. This presentation will discuss two presentative systems: i) in-flow filtration devices to enrich EVs directly from biological fluids, and ii) a nano-plasmonic chip to profile EV protein. The filter system is a microfluidic cartridge capable of fast and on-chip vesicle isolation; it uses size-based sonophoresis to selectively enrich EVs. The plasmonic chip, termed nano-plasmonic exosome (nPLEX), is developed for high-throughput exosome protein profiling. The detection is based on extraordinary optical transmission through periodic nanoholes. The strategy provides an ideal sensing scheme for EVs, as the sensor probing depth (&lt; 200 nm) could be matched to EV size. We applied the developed systems to isolate and profile cancer-derived EVs in patient samples. Our results confirmed the potential of using EV analysis to monitor tumor progression and treatment responses. Further clinical investigations are underway to rigorously evaluate the clinical utility of the developed systems.</p>	
발표자	Hakho Lee	
학력 (학사이상)	연도	내용
	2005	PhD Physics, Harvard University
	1998	BS Physics, Seoul National University
주요약력	연도	내용
	06/2015 – present	Associate Professor in Radiology Harvard Medical School
	10/2010 – present	Director in Biomedical Engineering Program Center for Systems Biology, Massachusetts General Hospital
	10/2010 – 05/2015	Assistant Professor in Radiology Harvard Medical School
	08/2008 – 09/2010	Instructor, Center for Systems Biology Harvard Medical School