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## (국문/영문)강연제목: 줄기세포 유래 나노소포를 활용한 동맥경화의 조기 치료/Early Treatment of Atherosclerosis using Stem Cell-Derived Nanovesicles.

**Abstract(영문):** Irreversibility of the atherogenic cascades highlight the need for early diagnosis and prevention. Disturbed blood flow is one of the earliest atherogenic events, inducing endothelial dysfunction and subsequent inflammatory responses. Here, we present a human mesenchymal stem cell (hMSC)-derived nanovesicle (NV) with the peptide GSPREYTSYMPH (PREY) (PMSC-NVs) that can target disturbed flow sites. The PMSC-NVs were effectively produced from hMSCs using plasmid DNA designed to functionalize the cell membrane by displaying PREY on the outer surface. We confirmed the potent therapeutic and diagnostic effect using in vivo mouse and porcine partial carotid artery ligation model or human microfluidic disturbed flow model, suggesting the potential for clinical translation by using models from multiple species. This nanoscale platform is expected to contribute to the development of new theragnostic strategies for preventing the progression of atherosclerosis.

### Brief Biosketch (간단한 이력, 연구/대외활동 소개,국문/영문)

Jeong-Kee Yoon is a currently an associate professor in Department of Systems Biotechnology at Chung-And University. He received his Ph.D. degree from Seoul National University in 2017, and he worked as a postdoctoral fellow at Yonsei University College of Medicine and Georgia Institute of Technology for two years, respectively, until 2021. His research mainly focuses on regenerative engineering, especially on stem cells and vascular biology. Recently, he is discovering novel nanotherapeutics for interdisciplinary research by developing next-generation human organ-on-a-chips for modeling of vascular/inflammatory diseases including angiogenic models, skin inflammation, and Alzheimer's disease.