

第146回創薬科学セミナー

Zoom参加

日時：2021年12月21日（火曜日）17:00～18:30

対象：大学院生 開催方法：Zoom（右2Dバーコード）

※ 参加方法はHPにも詳細情報があります！



講演タイトル：

『Lectin-glycan affinity in nanobio theragnostics:
The specific capture of pancreatic cancer exosomes
and the targeted therapy of tumor cells.』

講師：Associate Professor Jonghoon Choi, Ph.D
(Chung-Ang University, Seoul, Republic of Korea)



The unique profile of upregulated glycosylation in metastatic cancer cells may form the basis for the development of new biomarkers for the targeting and diagnosis of specific cancers. This study introduces a pancreatic cancer cell-derived exosome detection technology, which is based on the specific binding of lectins to distinctive glycan profiles on the surface of exosomes. Lectins with a high and specific affinity for sialic acid or fucose were attached to bifunctional Janus nanoparticles (JNPs), which facilitated interactions with pancreatic cancer cell-derived exosomes in a microfluidic device.

Here, we show that pancreatic cancer cell-derived exosomes from two cell lines and plasma samples collected from patients diagnosed with pancreatic cancer were successfully captured on the lectin-conjugated JNPs with affinities that were comparable to those of CA19-9, a conventional antibody. In addition, exosome detection using our platform could differentiate between metastatic and nonmetastatic pancreatic cancer cells. The lectin affinity to surface glycan of cancer cells can also be the strategy to target tumor with lectin-nanoparticles in photothermal therapy. This study opens the possibility to achieve a new early diagnosis marker and targeting moiety based on the glycan properties of pancreatic cancer cells.

BIOGRAPHY:

Dr. Jonghoon Choi is an Associate Professor in the School of Integrative Engineering at Chung-Ang University. He is also holding an affiliation as an adjunct professor at the School of Dentistry at Yonsei University. Dr. Choi's research aims to develop novel nanobiosensors and smart nanobiomaterials for their applications in nanomedicine. Dr. Choi has authored more than 110 SCI(E) journal articles and other numerous publications, patent/disclosure applications. His work has been published in top journals, including Nature Nanotechnology, Journal of Controlled Release, and Journal of the American Chemical Society, which has been cited >3200 times with the h-index over 30 to date. Dr. Choi has been serving as an editorial board member for SCI(E) Journals, including PLoS ONE, Analytical Sciences and Biotechnology & Bioprocess Engineering.

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若きRising starの一人です。皆様ぜひ奮ってご参加ください。

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