

Development of MOF-Coated Janus Cells for Cancer Therapy.

하미진, 김동표^{1,†}

포항공과대학교; ¹POSTECH

(dpkim@postech.ac.kr[†])

Envisioned to develop nanoparticle (NP) integrated cell-mediated drug delivery system with enhanced the cell-microenvironment interactions and suppressed nanoparticle internalization mechanisms, we report on the development of metal-organic frameworks coated Janus cells (MOF-Janus cells). MOF-Janus cells were fabricated by asymmetrically coating MOFs on carrier cells and tightly interconnects MOF NPs as a form of large sized patch around the curved cell surfaces using tannic acid (TA). Due to the asymmetric nature, MOF-Janus cells allowed the cells to stably attached to the extracellular matrix coated substrate while the viability of the cells were not affected by the MOF coating and removal processes. Under tumor-like environment, MOF-Janus cells loaded with Proteinase K successfully eliminate tumor spheroid via release of Proteinase K. Altogether, these cells with ambidextrous characteristics may bode well for potential use for various biomedical applications including cell-mediated combination therapy.