Caveolae-mediated endocytosis of biocompatible gold nanoparticles in living Hela cells - DTU Orbit (17/01/2019)

Caveolae-mediated endocytosis of biocompatible gold nanoparticles in living Hela cells

Efficient intracellular delivery of gold nanoparticles (AuNPs) and unraveling the mechanism underlying the intracellular delivery are essential for advancing the applications of AuNPs toward in vivo imaging and therapeutic interventions. We employed fluorescence microscopy to investigate the internalization mechanism of small-size AuNPs by living Hela cells. Herein, we found that the caveolae-mediated endocytosis was the dominant pathway for the intracellular delivery of small-size AuNPs. The intracellular delivery was suppressed when we depleted the cholesterol with methyl-β-cyclodextrin (M beta CD); in contrast, the sucrose that disrupts the formation of clathrin-mediated endocytosis did not block the endocytosis of AuNPs. Meanwhile, we examined the intracellular localization of AuNPs in endocytic vesicles by fluorescent colocalization. This work would provide a potential technique to study the intracellular delivery of small-size nanoparticles for biomedical applications.

General information
State: Published
Organisations: Center for Nanoteknologi, Department of Chemistry, Chinese Academy of Sciences
Number of pages: 8
Pages: 164207
Publication date: 2012
Peer-reviewed: Yes

Publication information
Journal: Journal of Physics: Condensed Matter
Volume: 24
Issue number: 16
ISSN (Print): 0953-8984
Ratings:
BFI (2019): BFI-level 1
Web of Science (2019): Indexed yes
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): CiteScore 2.37 SJR 0.875 SNIP 0.921
Web of Science (2017): Impact factor 2.617
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 1.89 SJR 1.553 SNIP 0.91
Web of Science (2016): Impact factor 2.678
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): CiteScore 1.65 SJR 1.043 SNIP 0.889
Web of Science (2015): Impact factor 2.209
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): CiteScore 1.99 SJR 1.284 SNIP 0.987
Web of Science (2014): Impact factor 2.346
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): CiteScore 2.11 SJR 1.326 SNIP 1.022
Web of Science (2013): Impact factor 2.223
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): CiteScore 2.33 SJR 1.688 SNIP 1.168
Web of Science (2012): Impact factor 2.355
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes