Transport of nanocarriers across gastrointestinal epithelial cells by a new transcellular route induced by targeting ICAM-1.
Title: Transport of nanocarriers across gastrointestinal epithelial cells by a new transcellular route induced by targeting ICAM-1.

Publication Type: Journal Article

Year of Publication: 2012

Authors: Ghaffarian, R, Bhowmick, T, Muro, S

Journal: J Control Release

Volume: 163

Issue: 1

Pagination: 25-33

Date Published: 2012 Oct 10

ISSN: 1873-4995

Keywords: alpha-Galactosidase, Biological Transport, Caco-2 Cells, Drug Carriers

Abstract: Bioavailability of oral drugs, particularly large hydrophilic agents, is limited by poor adhesion and transport across the gastro-intestinal tract. The present study investigated the potential use of alpha-Galactosidase conjugated with picomolar concentrations of ICAM-1 in enhancing transport of a hydrophilic drug carrier (lipid nanoparticles) across the Caco-2 cell monolayer. Enzyme transport efficiency increased 10-fold over non-conjugated controls. Results indicate that ICAM-1 targeting may provide delivery of therapeutics, such as enzymes, to and across the GI epithelium.

DOI: 10.1016/j.jconrel.2012.06.007

Alternate Journal: J Control Release

PubMed ID: 22698938

PubMed Central ID: PMC3462239

Grant List: R01 HL098416 / HL / NHLBI NIH HHS / United States
R01-HL98416 / HL / NHLBI NIH HHS / United States
// Howard Hughes Medical Institute / United States