Supplementary Information

Investigation of human adipose stem cell-derived nanoparticles as a biomimetic carrier for intracellular drug delivery

Aparna R. Chakravarti[a], Settimio Pacelli[b], Arghya Paul[c]*

[a] *Bioengineering Graduate Program, School of Engineering, University of Kansas, Lawrence, KS, 66045, USA*

[b] *Department of Biomedical Engineering, The University of Texas at San Antonio, San Antonio, TX, 78249, USA*

[c] *Department of Chemical and Biochemical Engineering, Department of Chemistry, The University of Western Ontario, London, ON N6A 5B9, Canada*

*Corresponding author:

Dr. Arghya Paul

Email: arghya.paul@uwo.ca

Sample	η dispersed	η continuous	Measured T% (beginning)	Measured T% (end)	Particle size (beginning)	Particle size (end)
CDNs	1.377	1.334	90.75	90.72	88.4	90

Figure S1. Particle size analysis of the cell-derived nanoparticles (CDNs) A) Variation in Transmitted light signals (T%) as a measure of particle size (nm) for CDNs. Where, η dispersed, η continuous are the refractive indices of the two phases. The amount of scattered light is directly dependent upon particle size and concentration in accordance with Mie scattering theory.

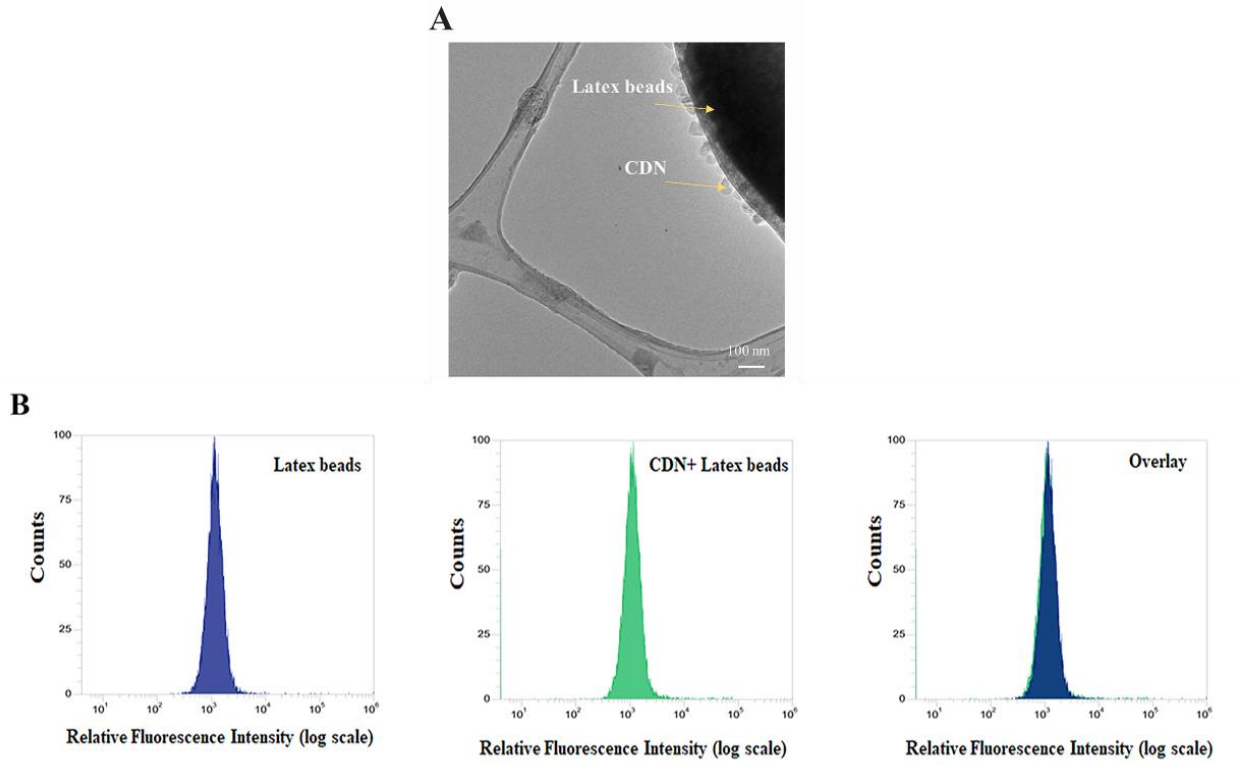

Figure S2. CDN-Latex bead conjugation A) TEM analysis of the attachment of CDNs onto the surface of aldehyde/sulfate latex beads. (Scale bar = 100 nm) B) Bead-assisted flow cytometry analysis to investigate the successful conjugation of CDNs and latex beads.

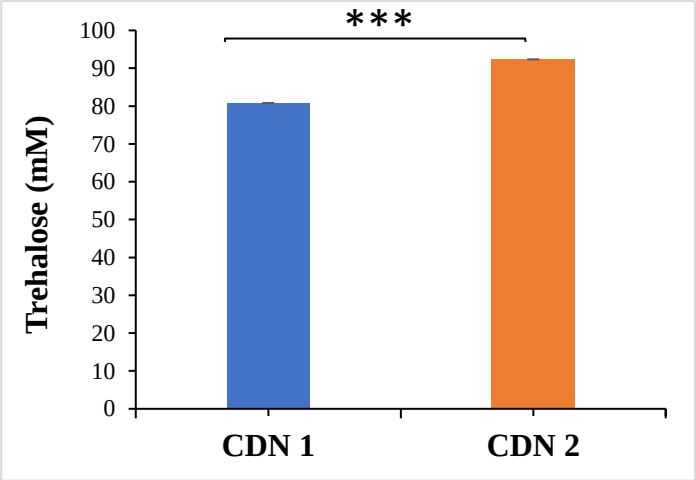

Fig S3. Loading efficiency of a model cell-impermeable molecule (Trehalose) into CDNs via extrusion techniques A) Enzymatic quantification of trehalose loading efficiency into CDNs via extrusion loading techniques. Two different samples of nanocarriers- CDN 1 and CDN 2 were tested to account for any batch-related variability and showcase the reproducibility of the encapsulation process. (n=3)