

Electrodynamic Assisted Self-Assembled Fibrous Hydrogel Microcapsules: A Novel 3D *in-vitro* Platform for Assessment of Nanoparticle Toxicity

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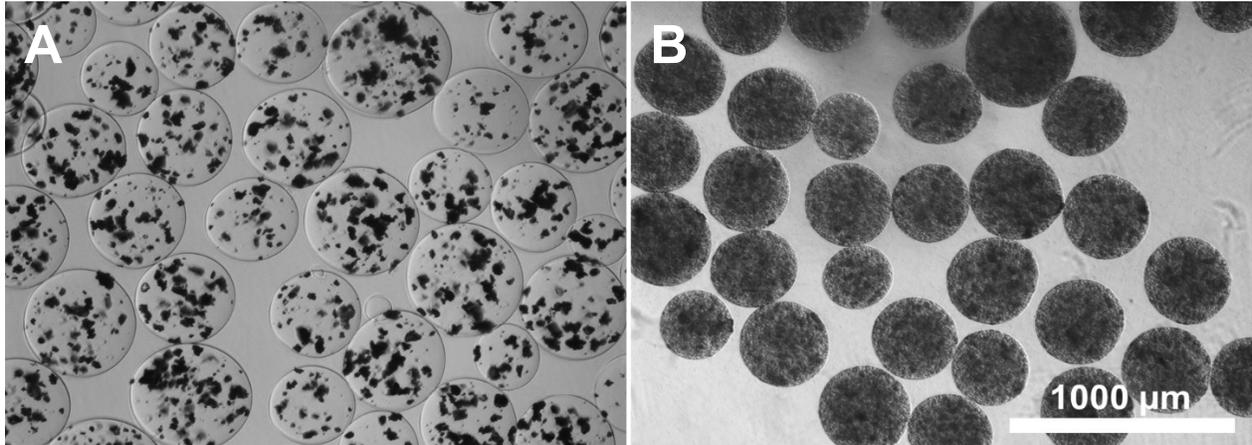
[†] *Equal contribution*

Supplemental Information

Supporting Table T1. SAF hydrogel microcapsule samples designation and composition

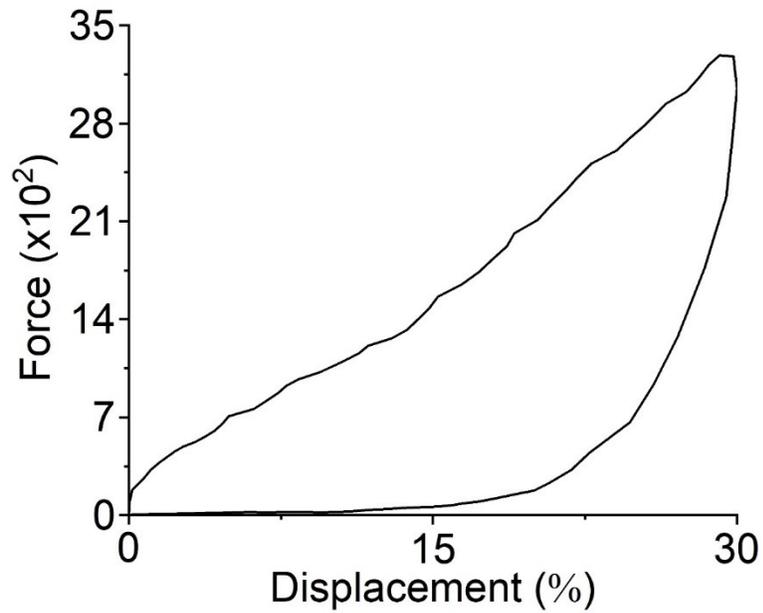
3D-SAF hydrogel	Weight of PLGA (%) (in terms of dry alginate weight)	Proportion of PLGA: Chitin (w/w)
SAF-0	0	0:0
SAF-10	10	10:0
SAF-20	10	10:10
SAF-30	10	10:20
SAF-50	10	10:40
SAF-100	10	10:90

Supporting Information S1.



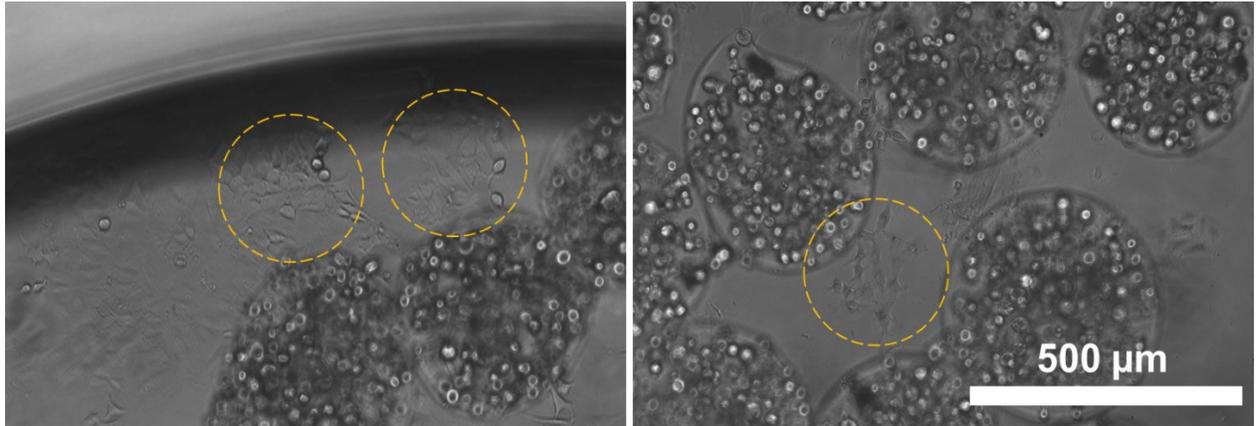
Optical microscopic images of SAF hydrogel microcapsules; encapsulated with cryogrind PLGA (A) (SAF-10) and PLGA nanofibers/chitin nanofibrils (B) (SAF-100) fiber. All gelled SAF microcapsules with PLGA nanofibers/chitin nanofibrils were found homogeneously distributed throughout microcapsules (B).

Supporting Information S2.



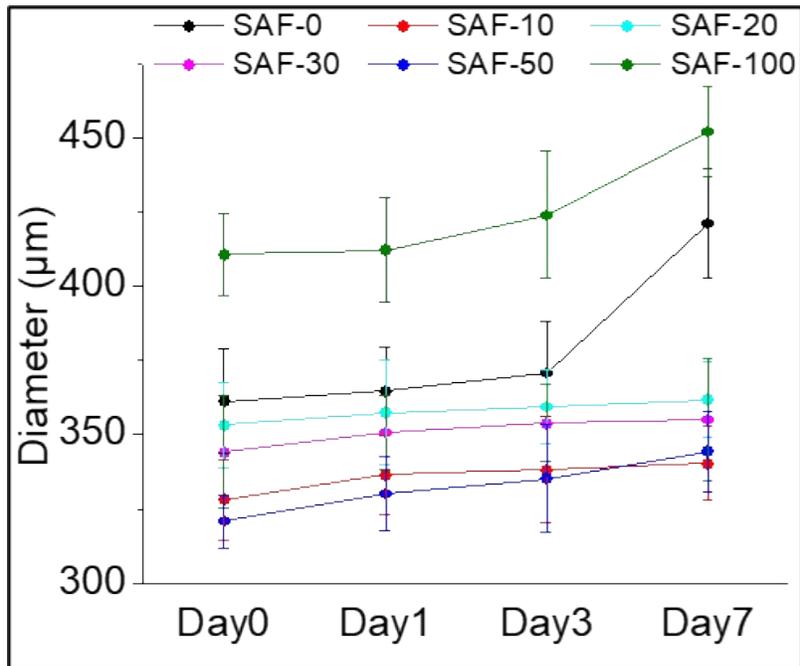
Representing force (μN) vs displacement (%) graph of SAF-100 microcapsule. Samples were compressed between two parallel plates where the bottom plate was fixed and the upper plate was movable. Deformation was fixed up to 30% of the microcapsules' diameter. Force was applied for 20 seconds and released. The non-uniform deformation is due to the inhomogeneous distribution of cryogrind fiber throughout the capsule.

Supporting Information S3.



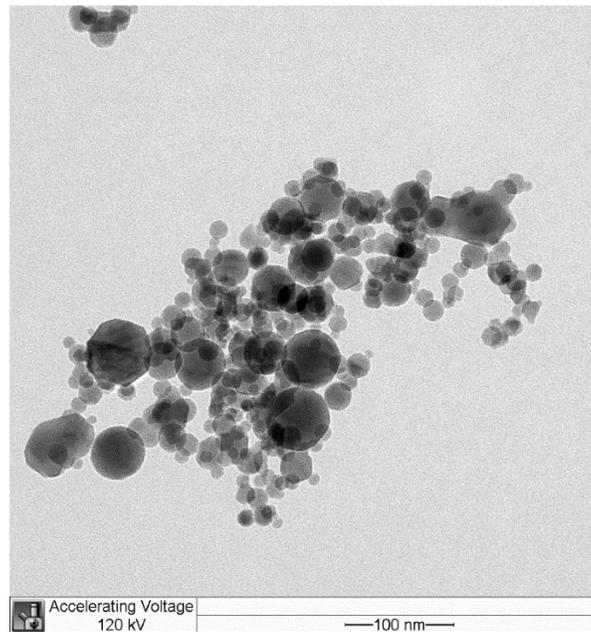
Out diffusion of cells (marked yellow dot circle) from SAF-0 (**A**) and SAF-10 (**B**) microcapsules; were observed after day 10 culture time.

Supporting Information S4.

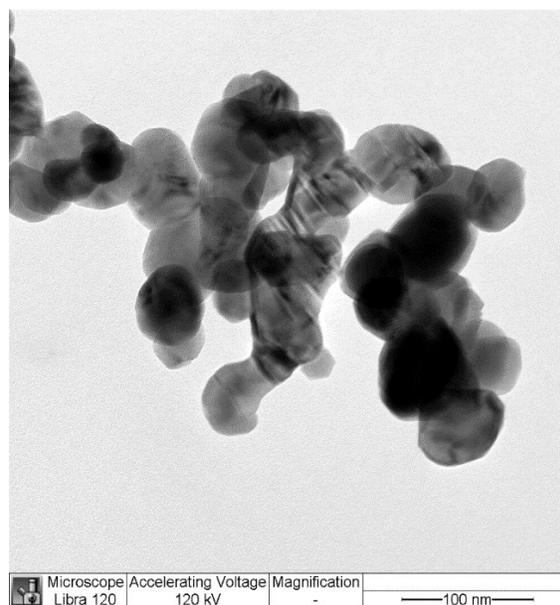


The average diameter of the A549 cells encapsulated microcapsules (SAF/A549 hydrogel microcapsules) measured at different time points up to 7 days.

Supporting Information S5.



TEM image of Aluminum oxide nanoparticles. Nominal size is 30 ± 10 nm. Images were taken on Zeiss Libra TEM at 120 kV.



TEM image of Zinc oxide nanoparticles. Average size is 30 nm. Images were taken on Zeiss Libra TEM at 120 kV.