Chitosan nanoparticles functionality as redox active drugs through cytotoxicity radical scavenging and cellular behavior.

Sreelatha Sarangapani, Ajeetkumar Patil, Ngeow Yoke keng, Rosmin Elsa Mohan, Anand Asundi, Matthew J Lang

1 Biosystems & Micromechanics (Biosym) IRG, Singapore MIT Alliance for Research & Technology (SMART), Singapore.
2 Department of Atomic & Molecular Physics, Manipal Academy of Higher Education, Manipal, India.
3 Dept of Biological Science, National University of Singapore, Singapore.
4 School of Mechanical and Aerospace Engineering, Nanyang Technological University, Singapore.
5 Department of Chemical and Biomolecular Engineering and Department of Molecular Physiology and Biophysics, Vanderbilt University, Nashville, TN 37235 (USA).

Figure S1- FTIR Spectra of chitosan nanoparticles, chitosan and TPP. b) Zeta-potential of chitosan nanoparticles c) Size distribution of chitosan nanoparticles with size centered at 133 nm d) TEM images of chitosan nanoparticles.
Figure S2. (a) – (d) Bright-field imaging of acute lymphoblastic leukemia cells at time point 0 minutes, 30 minutes, 4 hours and 24 hours respectively. (e) – (h) Fluorescence microscopy (20x magnification) images showing, that cellular uptake of FITC-labelled chitosan nanoparticles increased with time at 0 minutes, 30 minutes, 4 hours and 24 hours respectively.

Figure S3. (a) – (d) Bright-field imaging of acute lymphoblastic leukemia cells at time point 0 minutes, 30 minutes, 4 hours and 24 hours respectively. (e) – (h) Fluorescence microscopy (20x magnification) images showing, that cellular uptake of FITC-labelled chitosan nanoparticles with time at 0 minutes, 30 minutes, 4 hours and 24 hours respectively.
Figure –S4 . Morphology of RBCs (blood smear) (bright field images at 20X)a) Control b) with chitosan polymer c) with chitosan nanoparticles.

Figure –S5 . Phase imaging (20x magnification) of chitosan nanoparticles only.