

Maghemite-Human Serum Albumin Hybrid Nanoparticles: Towards a Theranostic System with High MRI r_2^* Relaxivity

Rivka Ben Ishay, Liron L Israel, Esthy Levy Eitan, David M Partouche, Jean-Paul Lellouche*

Department of Chemistry, Nanomaterials Research Center, Institute of Nanotechnology & Advanced Materials, Bar-Ilan University, Ramat-Gan 5290002, Israel.

*Corresponding Author: jean-paul.m.lellouche@biu.ac.il; Tel: 972-3-5318324; Fax: 972-3-7384053

Supporting Information

DoE-Optimized Fabrication of HSA Core NPs – Complementary Graphs & Data relating to the Fabrication of Optimized HSA Core NPs

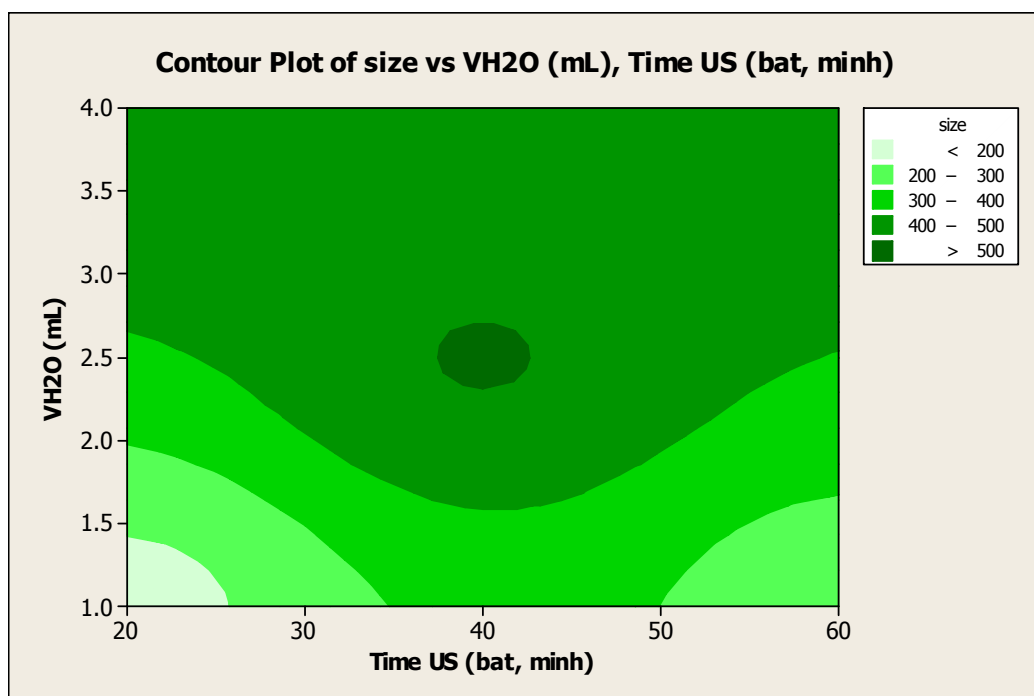


Figure SI-1. DoE-optimized fabrication of HSA_{DoE} NPS – 2D contour plot of size vs. both relative volume of H₂O (mL) and the time of ultrasonication (minutes)

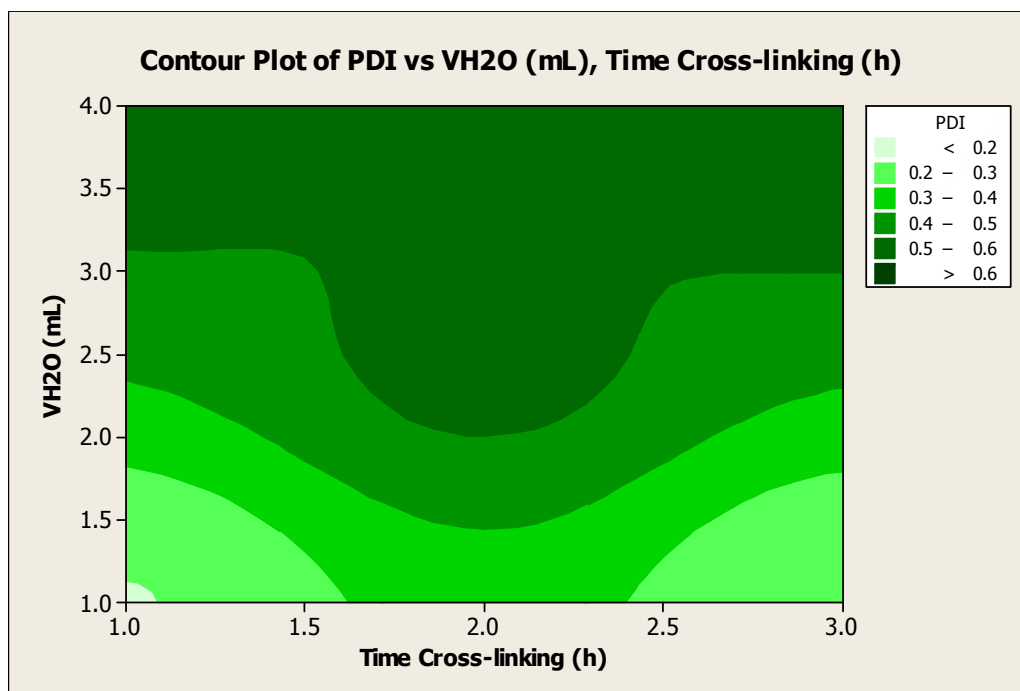


Figure SI-2. DoE-optimized fabrication of HSA_{DoE} NPS – 2D contour plot of PDI vs. both relative volume of H₂O (mL) and the time of cross-linking (hours)

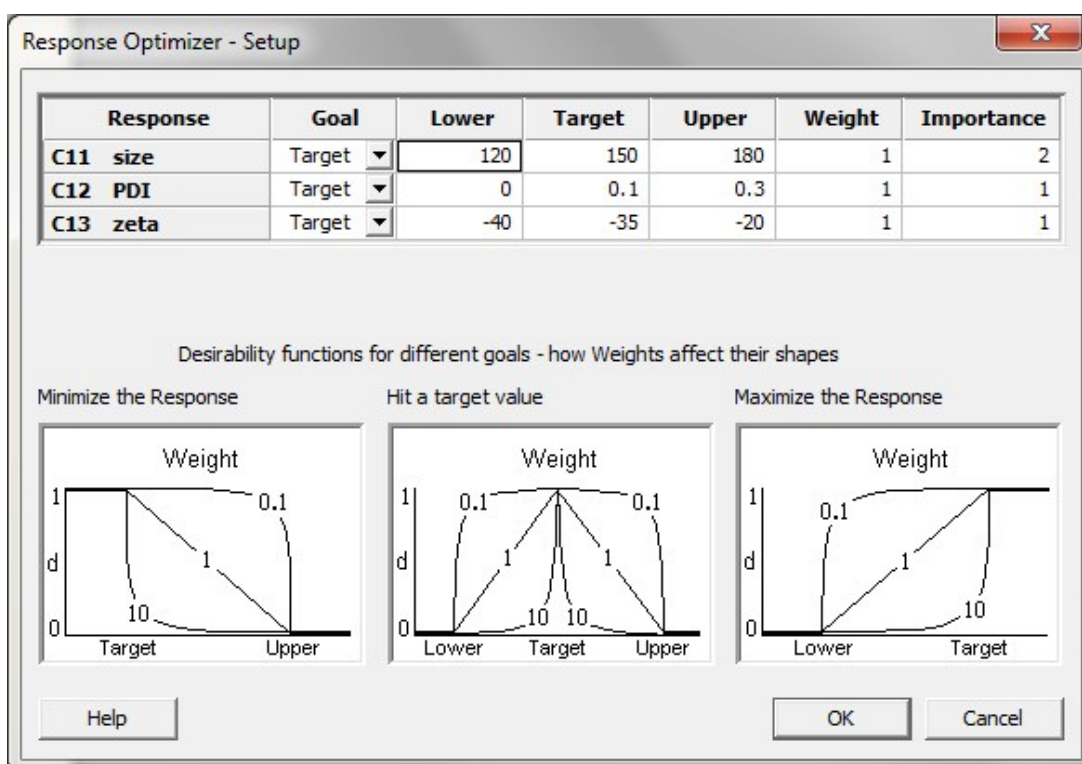


Figure SI-3. DoE-optimized fabrication of HSA_{DoE} NPS – NP specifications for MINITAB® 16 software profile optimizer tool calculations

DoE-Optimized HSA_{DoE} NPS – Additional Characterization Data

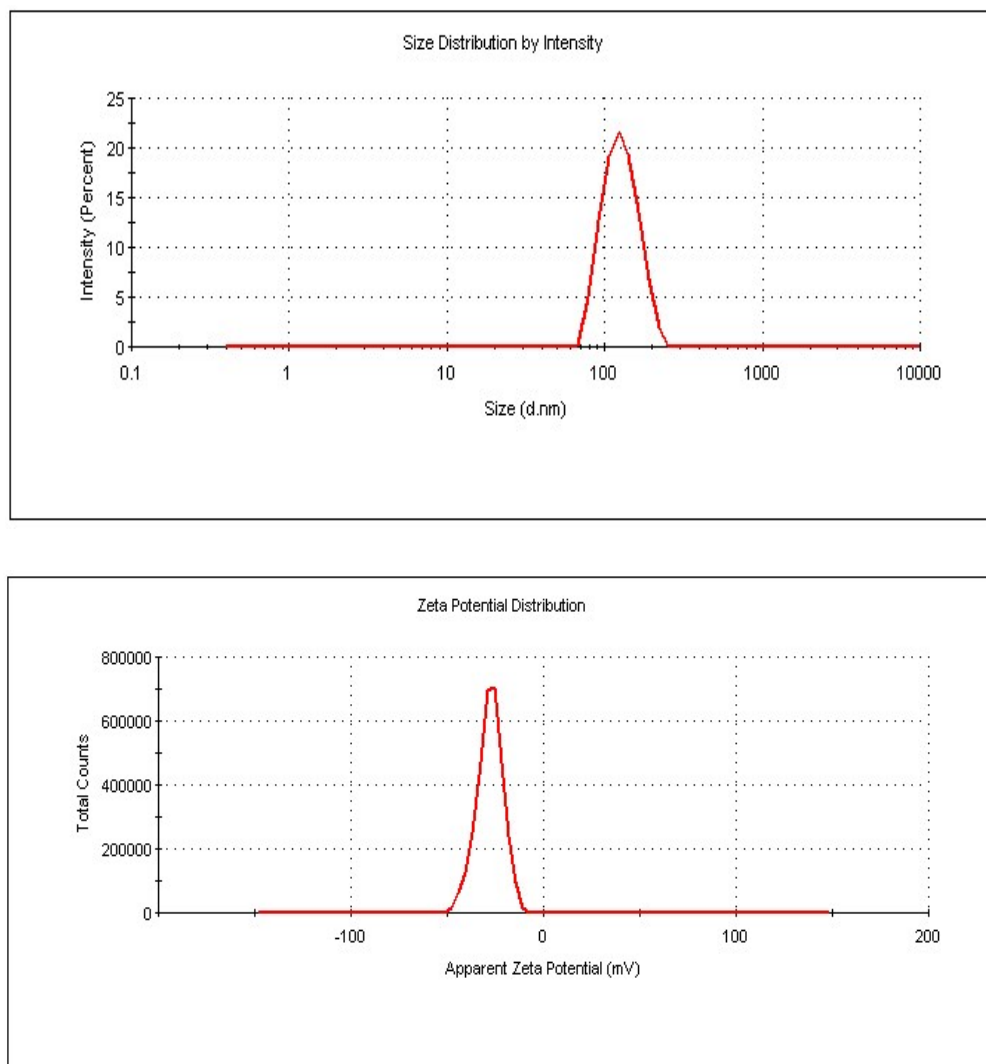


Figure SI-4. DLS Analysis of DoE-optimized (i) 149.56 ± 1.8 nm – sized (*top*) and -35.4 ± 2.4 mV-charged (*bottom*) HSA_{DoE} NPS (MINITAB® 16 software profile optimizer tool output)

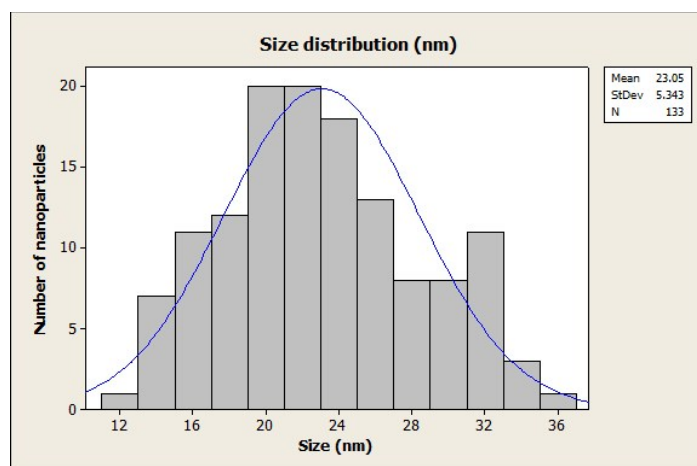


Figure SI-5. Size distribution histogram of small 23.05 ± 5.3 nm-sized core $\text{HSA}_{\text{D}_{0\text{E}}}$ NPs (MINITAB® 16 software profile optimizer tool output, TEM microphotograph analysis)

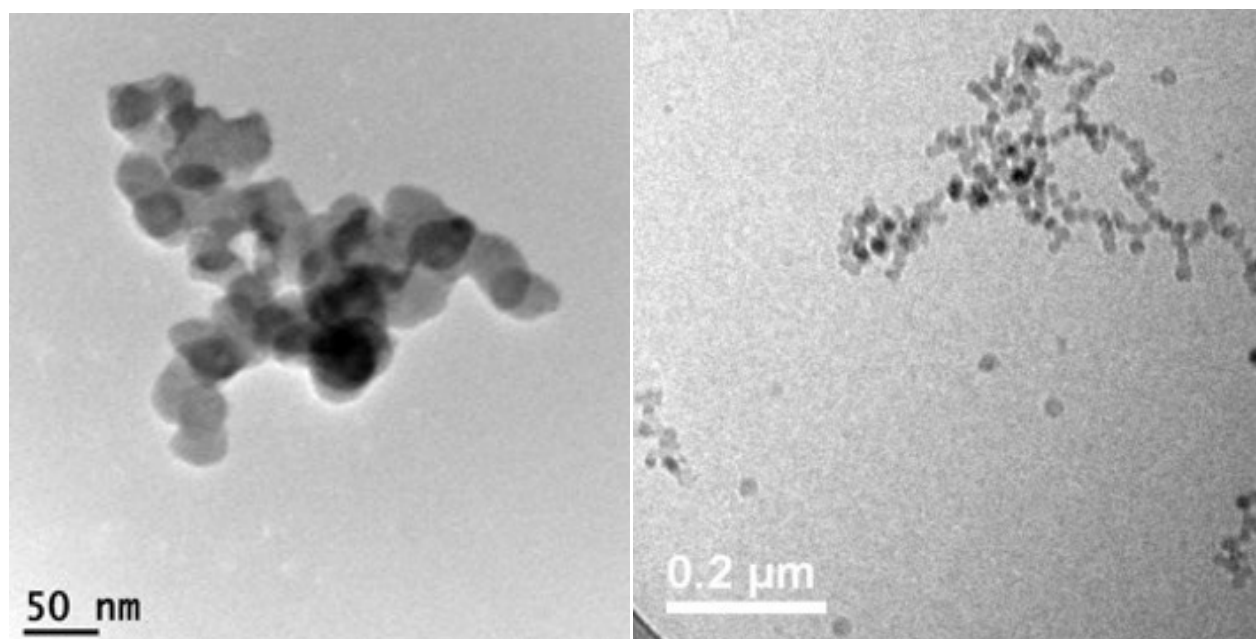


Figure SI-6. TEM images of core $\text{HSA}_{\text{D}_{0\text{E}}}$ NPs: TEM (*left*, scale bar: 50 nm) and cryo-TEM (*right*, scale bar: 0.2 μm) microphotographs of 23.05 ± 5.3 nm-sized core $\text{HSA}_{\text{D}_{0\text{E}}}$ NPs

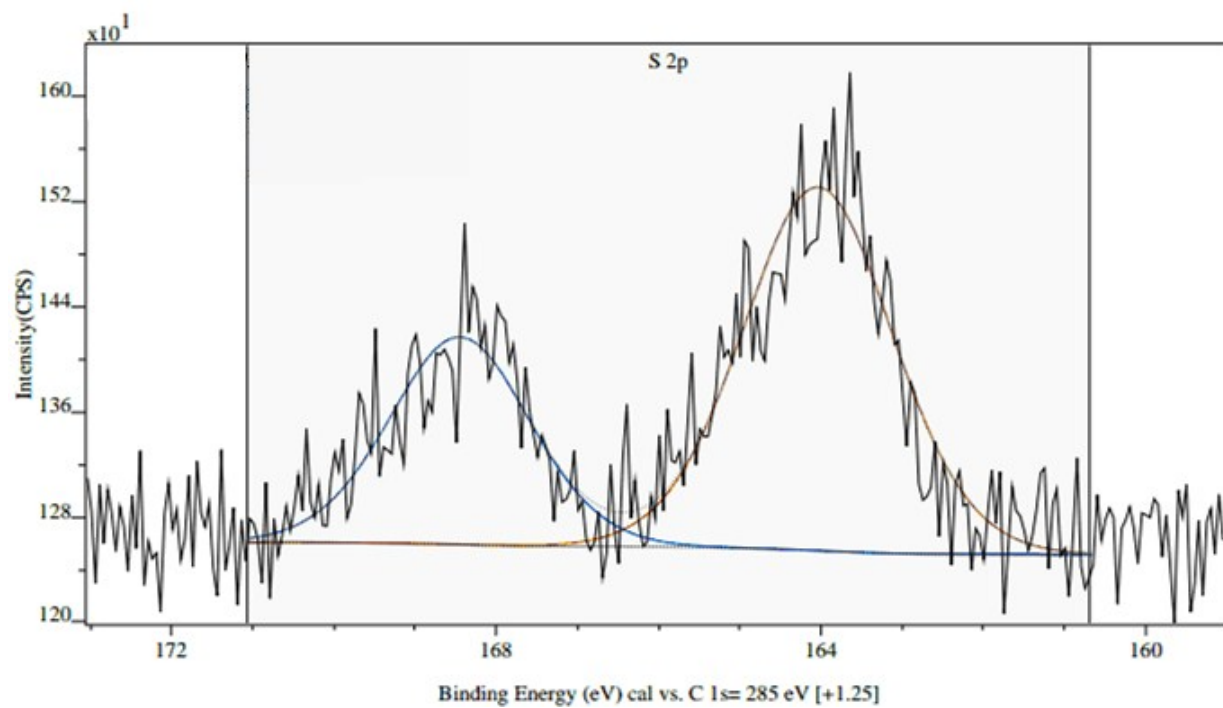


Figure SI-7: Core HSA_{D0E} NPs - XPS Spectrum (NPs fabrication using a 10% DVS EtOH solution)