Supplemental Movie S1. Movement of 2-layer encapsulated MSC on a culture plate over 24 hours. The yellow arrows point to the MSCs that stayed spherical for longer and exhibited increased blebbing before attaching to the plate. Frame size: 665.28 µm × 665.28 µm.

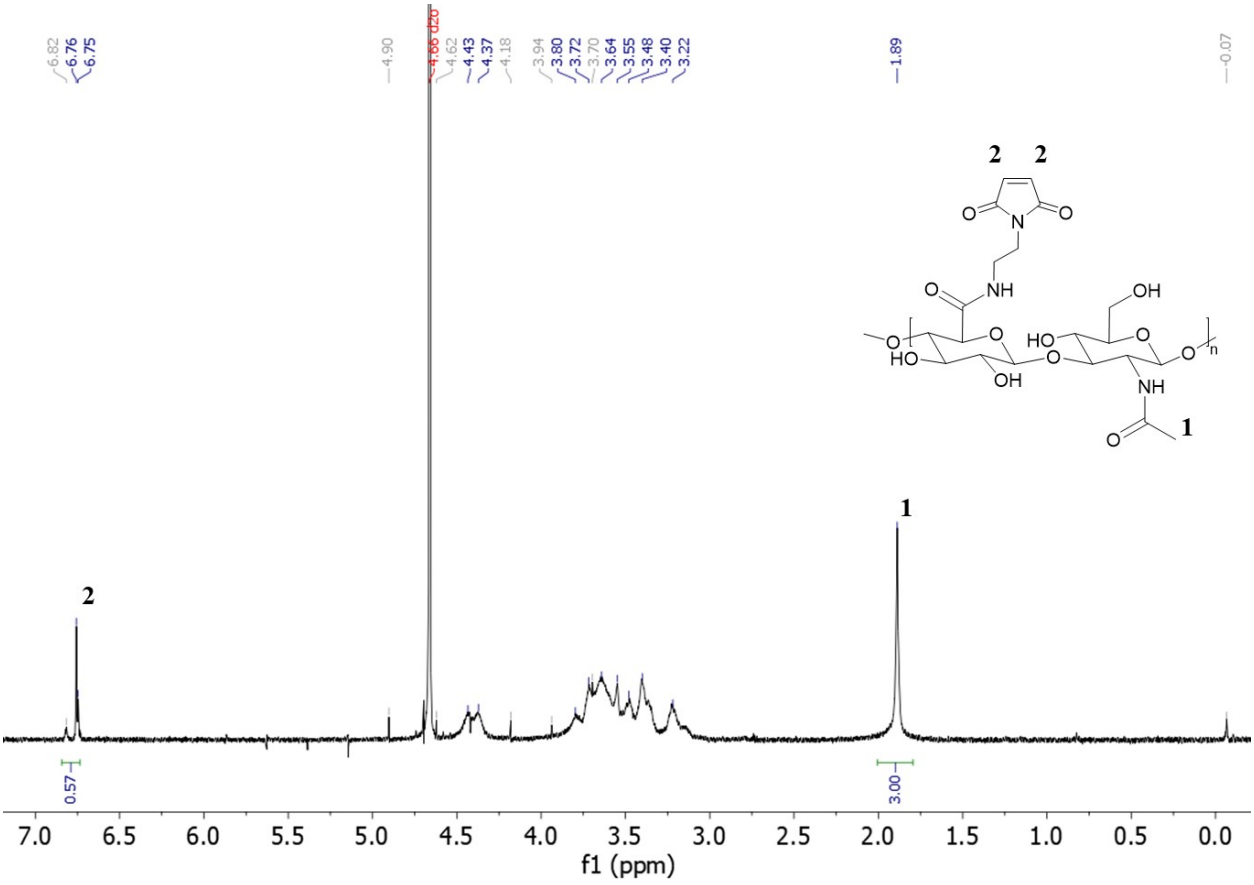

Figure S1. ^{1}H NMR spectrum of MaHA

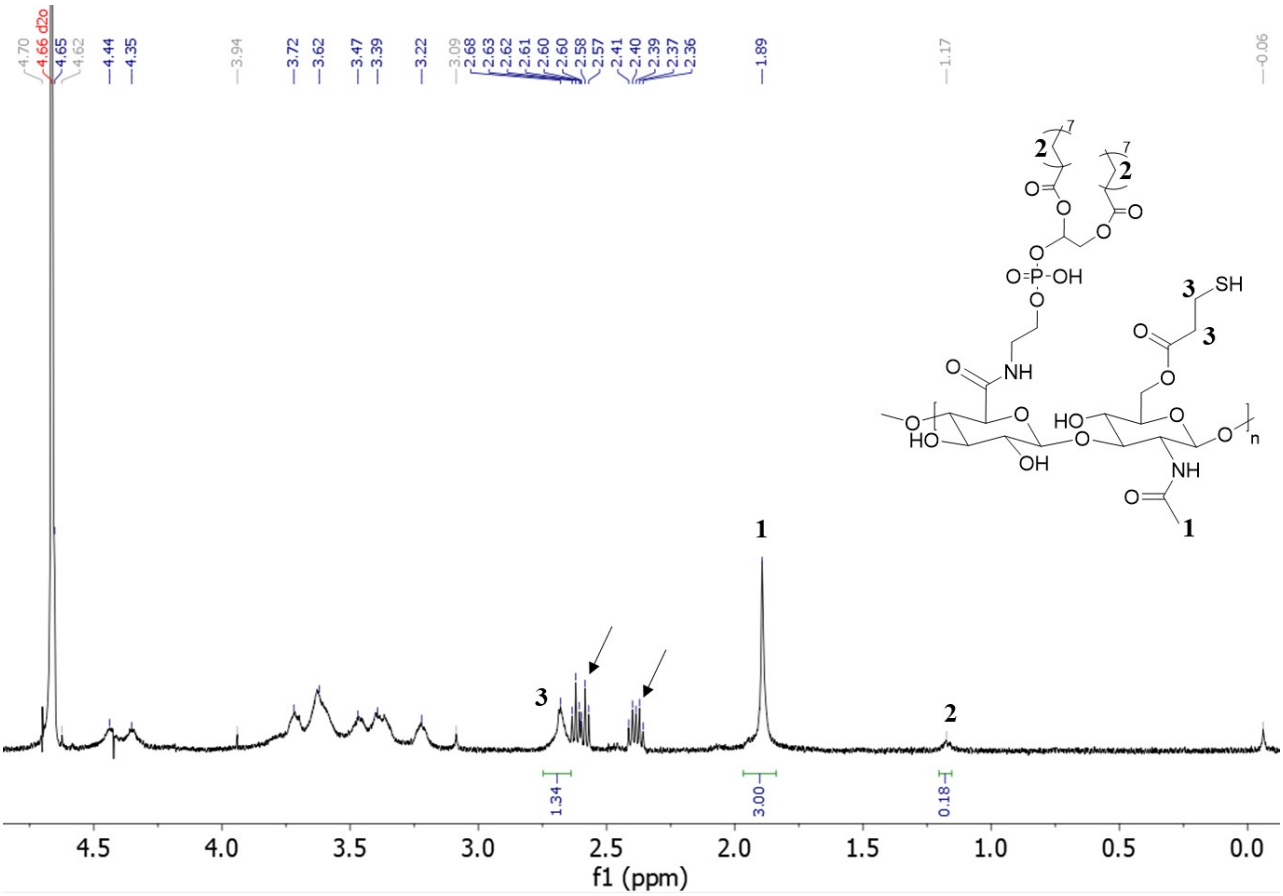

Figure S2. ^{1}H NMR spectrum of lipHASH

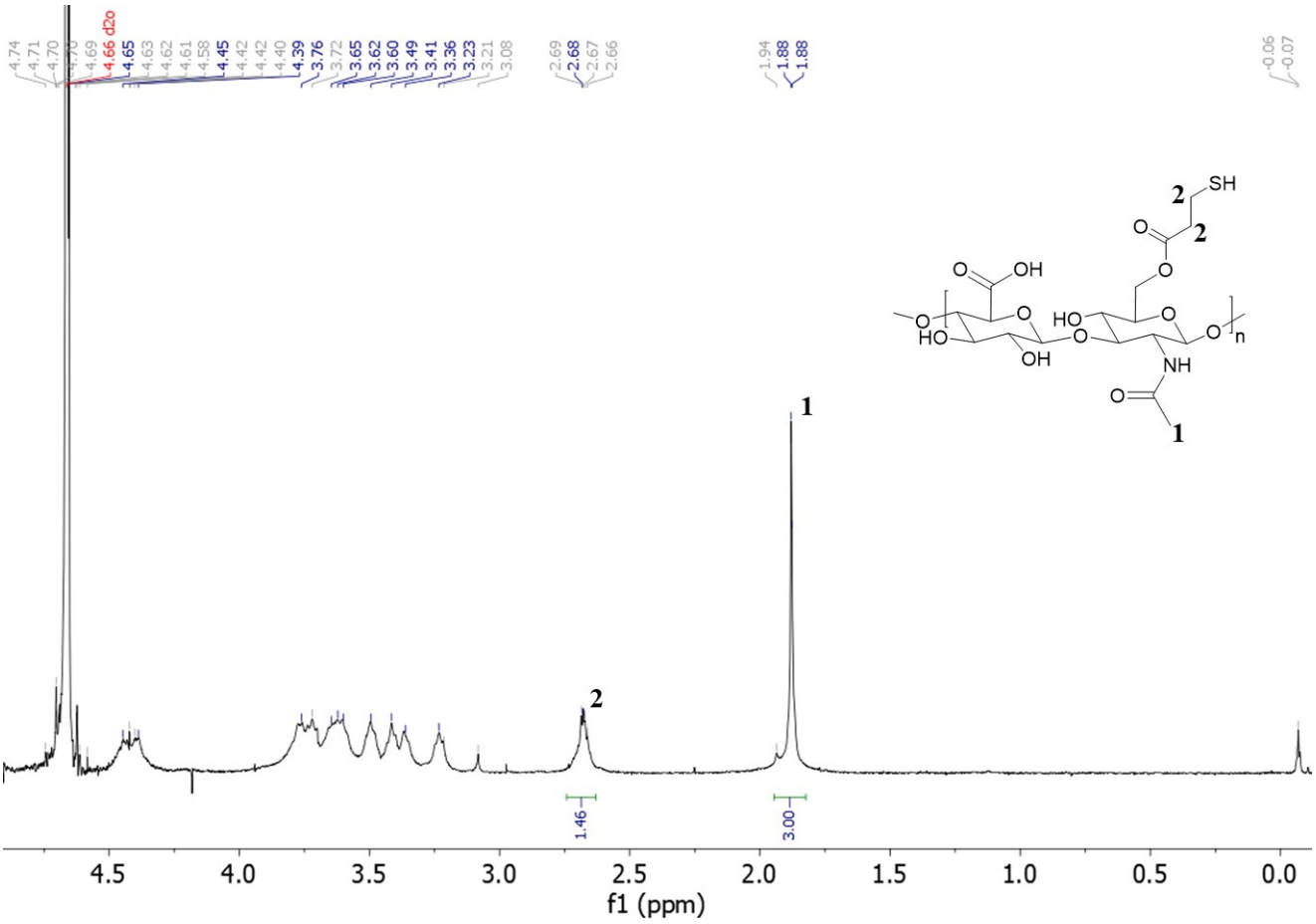

Figure S3. ^{1}H NMR spectrum of HASH

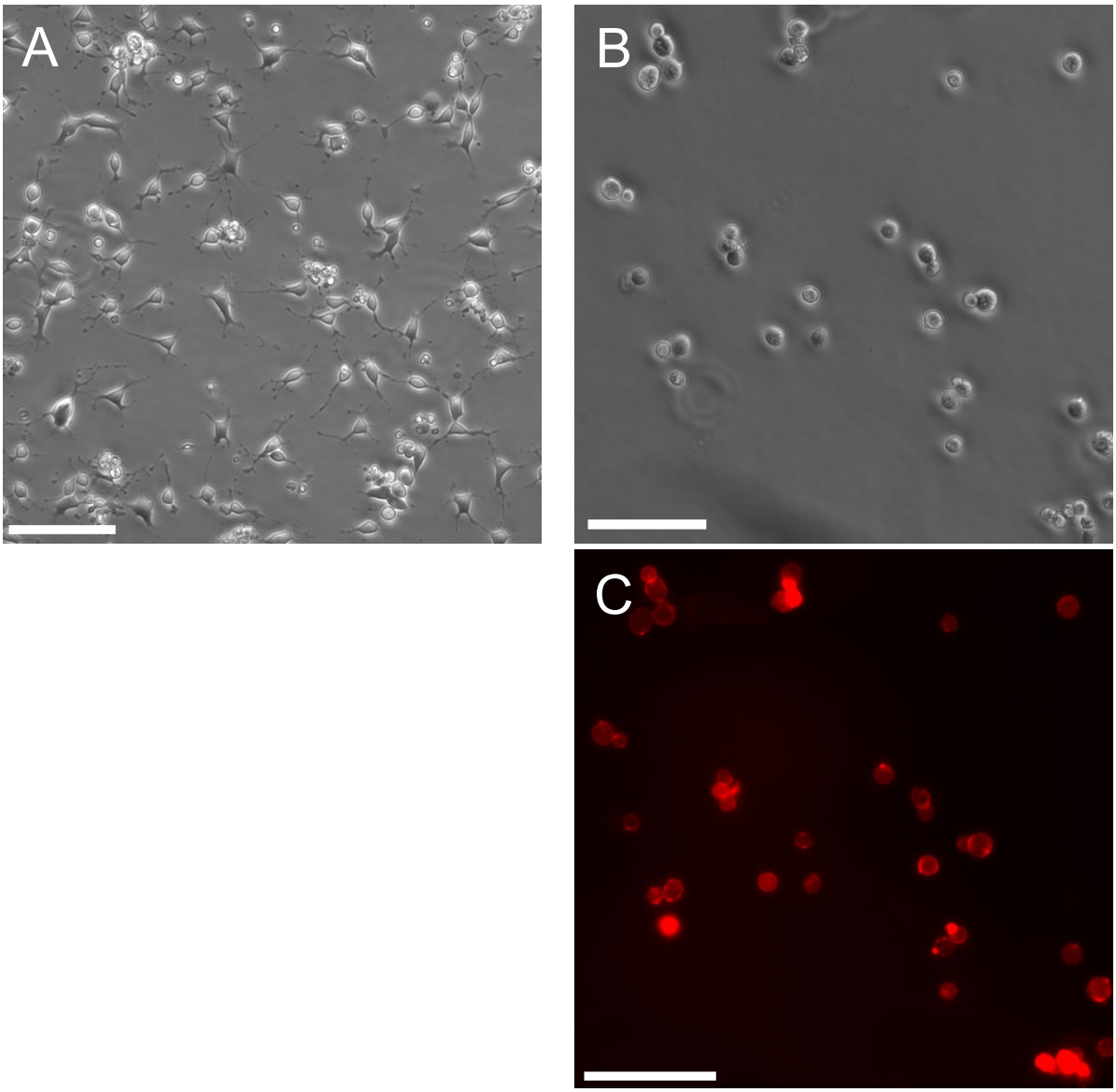

Figure S4. Images of unencapsulated NSCs adherent to culture surface in planar culture and encapsulated NSCs. A) When NSCs grow in adherent culture conditions, a loss of circularity (compared to suspension culture) can be seen along with small processes. B) When encapsulated NSCs remain rounded. C) Fluorescent labeling of nanoencapsulation around cells in (B) that gives the observed morphology. Scalebars: 100 μm.

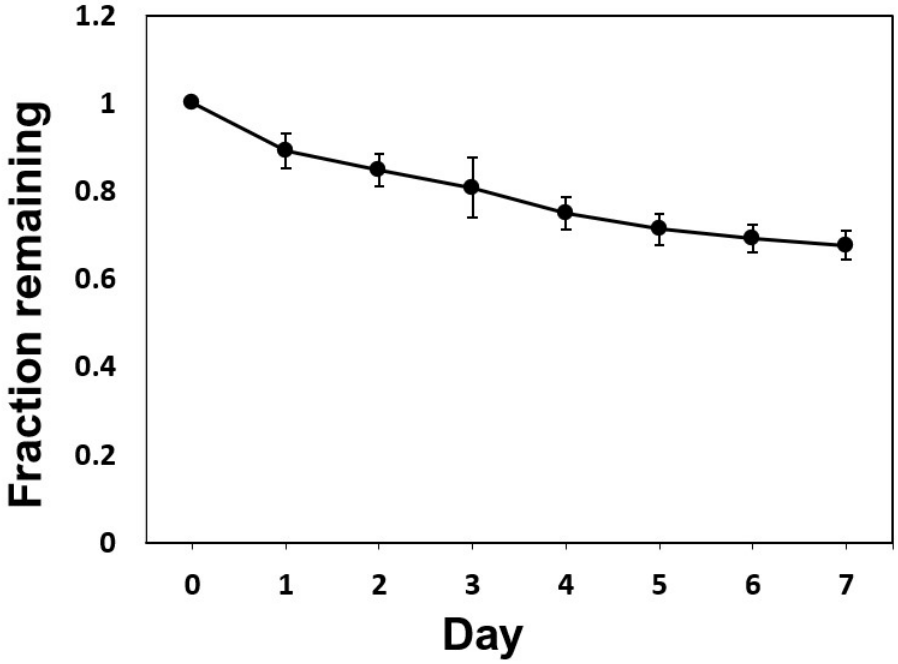

Figure S5. MaHA-HASH gel degradation. Gel degradation was assessed by tracking the weight of the MaHA-HASH gels for 7 days. The weight of the gels was normalized to their original weight at day 0. n=3 replicates were done for the degradation, for each replicate, >5 gels were made as repeats.

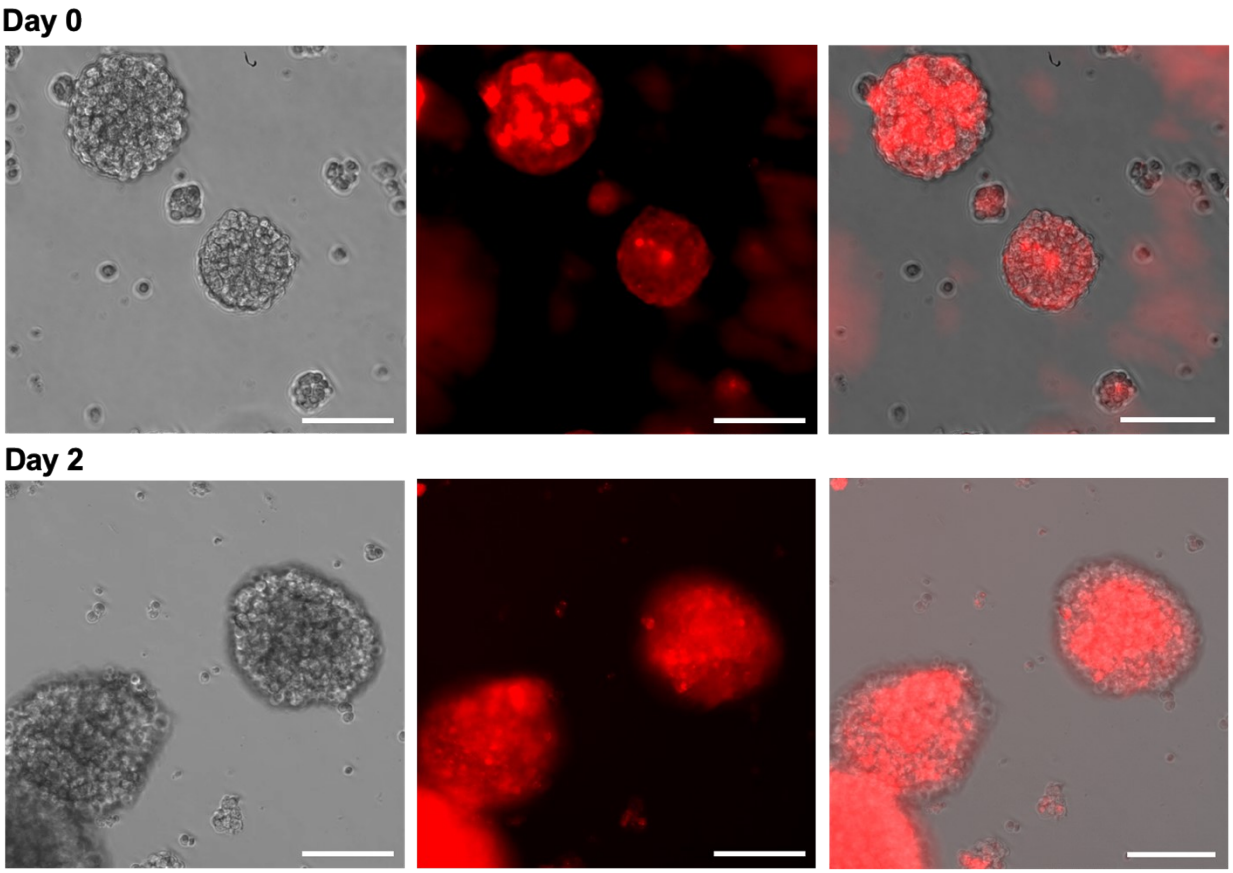

Figure S6. NSC spheroids encapsulated with 2 layers of material on Day 0 (Top row) and Day 2 (Bottom row). From left to right: phase contrast image of NSC spheroids; fluorescent image of spheroids coated in rhoB-conjugated MaHA; and merged image of both phase contrast and fluorescent channel. Scale bar = 100 μm.

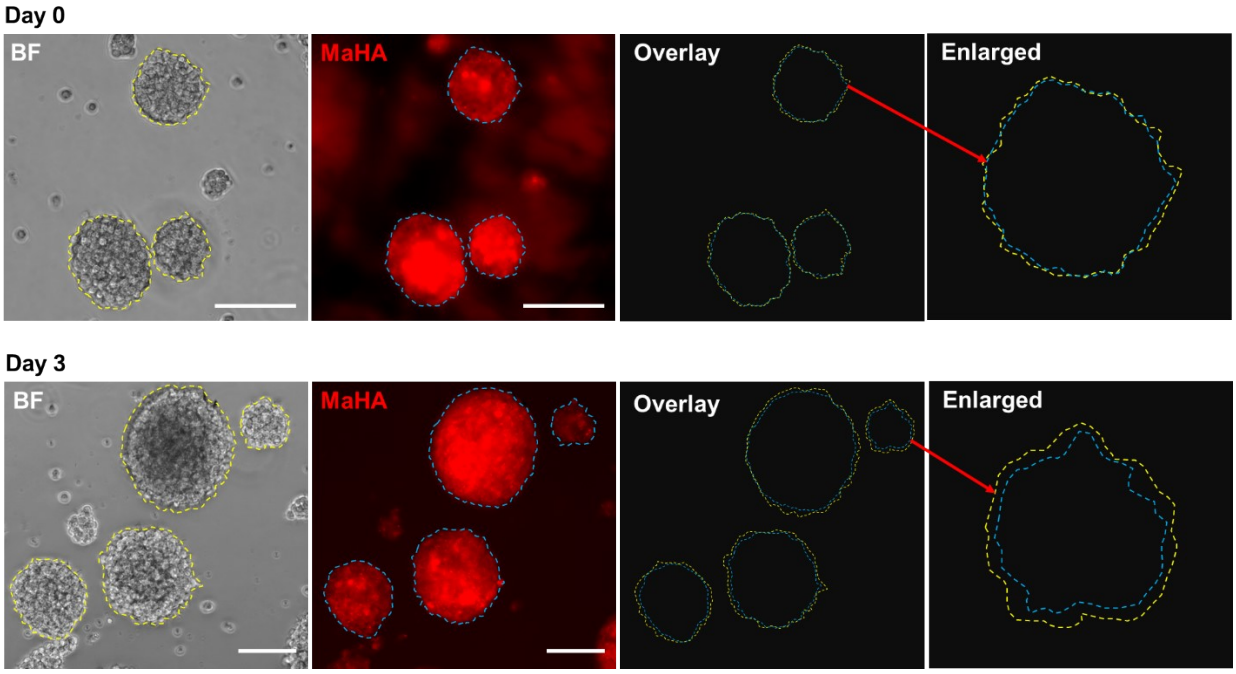

Figure S7. Comparing NSC spheroids encapsulated with 2 layers of material after 3 days. From left to right: spheroids with 2 layers of encapsulation in bright field (outline traced in yellow); spheroids with 2 layers of encapsulation under fluorescence (outline traced in blue); overlay of traced outlines from bright field and fluorescent micrograph; and enlarged overlay of selected outlines (indicated by red arrow). Scale bar = 100 µm.