ACCSCIENCE PUBLISHING

International Journal of Bioprinting

RESEARCH ARTICLE

3D-bioprinted model of adult neural stem cell microenvironment in Alzheimer's disease

Supplementary File

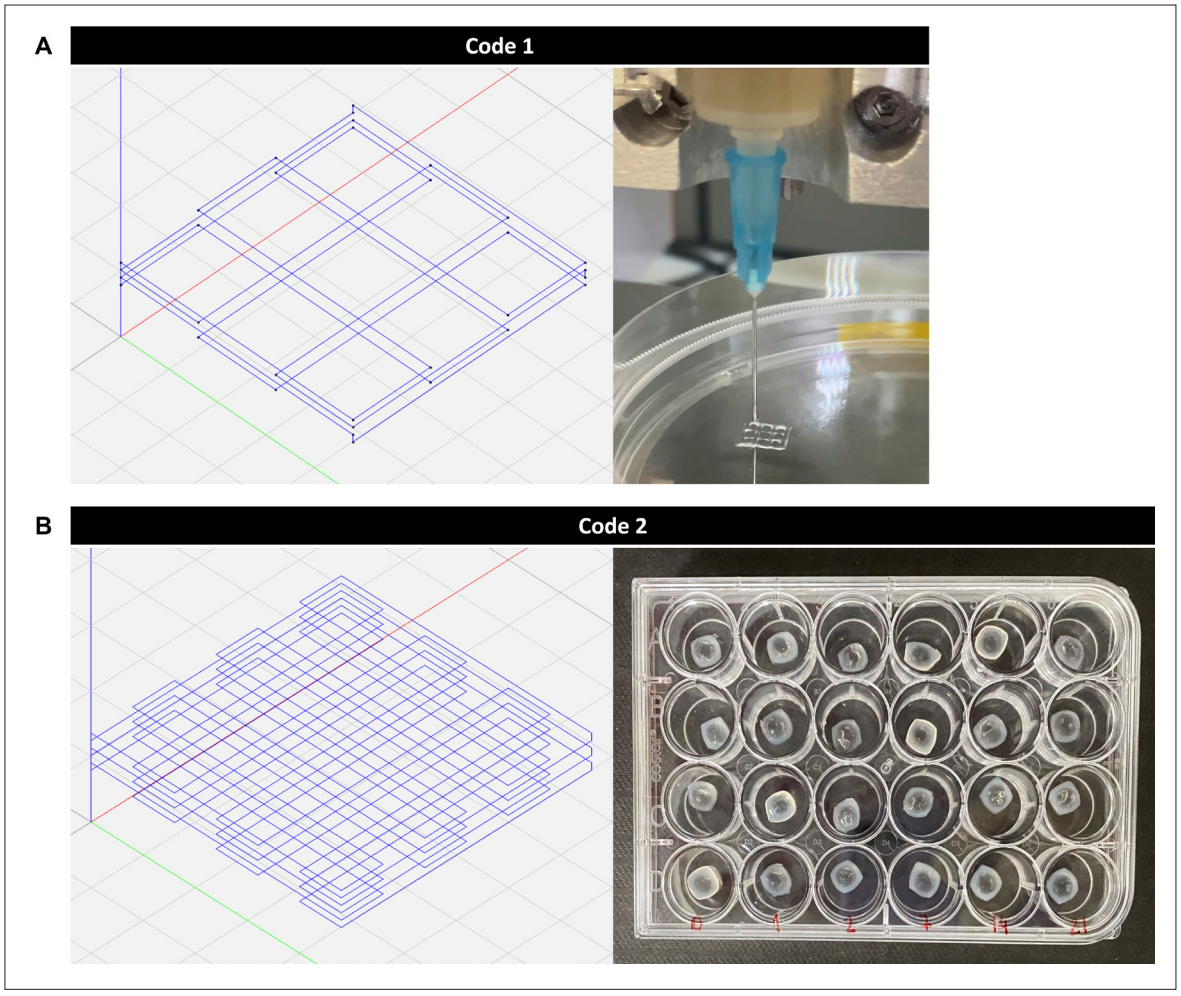

Figure S1. Bioprinting codes 1 and 2. Schematic G-code design, followed by programmed G-code sequence of (A) Code 1 (four deposited layers of cell-laden bioink; dimension: 6 × 6 × 0.6 mm); and (B) Code 2 (six deposited layers of cell-laden bioink; dimension: 6 × 6 × 1 mm).

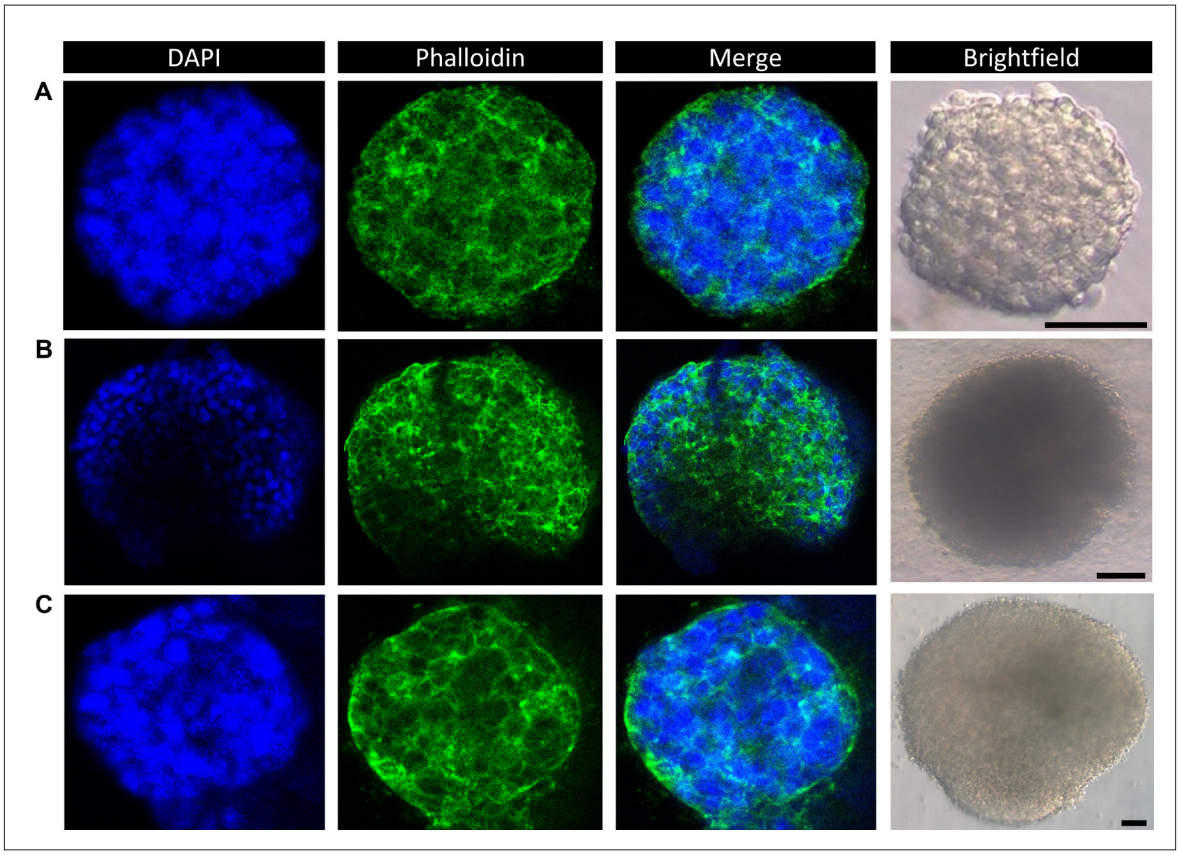

Figure S2. Validation of constructs (nuclei and cytoplasmic distribution) under different conditions: (A) Day 6 of constructs containing neural stem cells (NSCs) from six-week-old C57BL/6 mice that were bioprinted right after neurosphere dissociation; (B) Day 30 of constructs containing NSCs from six-week-old C57BL/6 mice that were bioprinted four days after neurospheres dissociation; and (C) Day 8 of constructs containing NSCs from newborn C57BL/6 mice that were bioprinted right after dissociation. Scale bars: 50 μm.

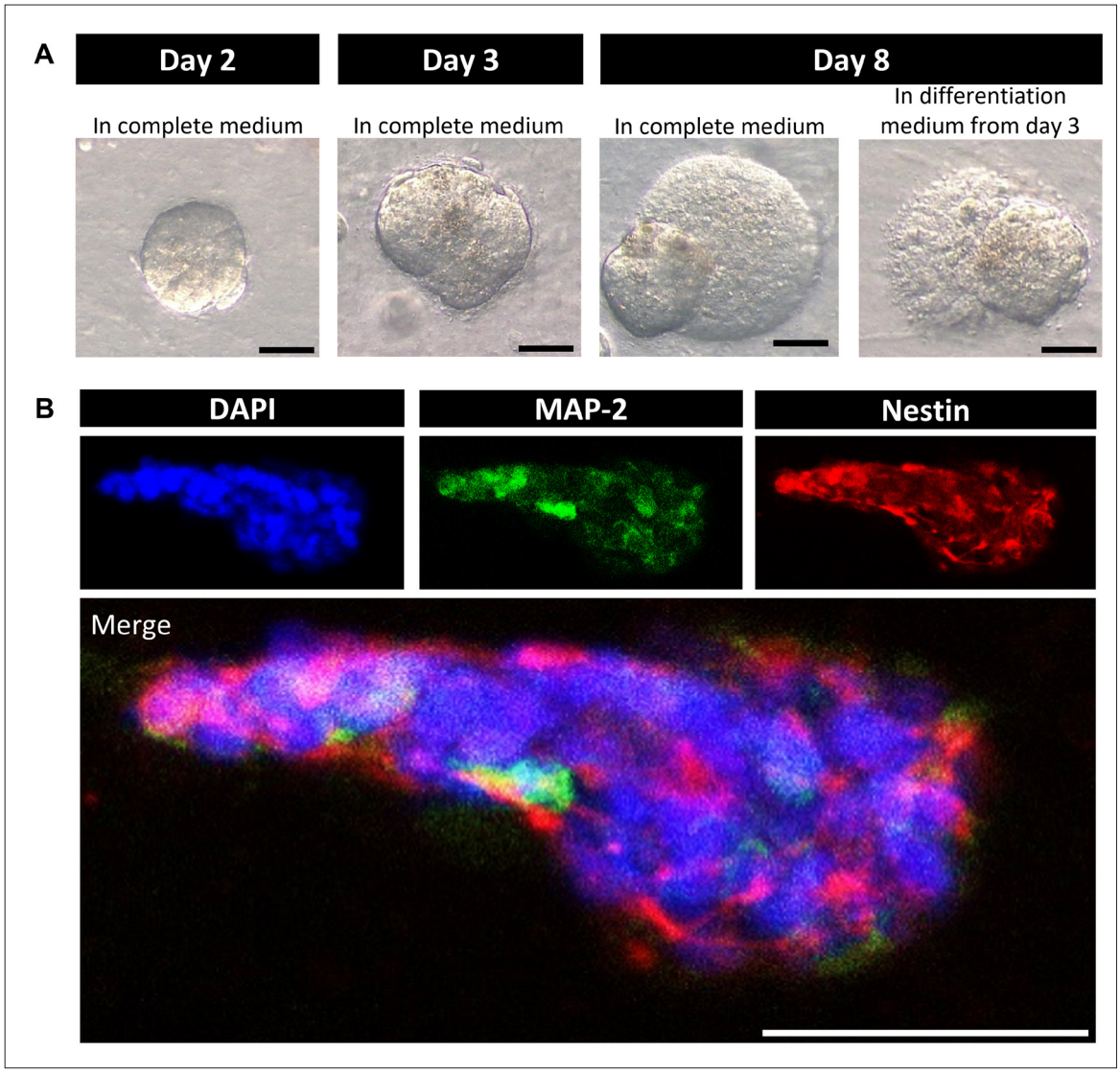

Figure S3. Neural stem cells (NSCs) can be differentiated into neurons within the constructs under specific conditions. When incubated from day 3 to day 8 after bioprinting with Dulbecco's modified eagle medium/nutrient mixture F-12 (DMEM/F-12), supplemented with 2% B-27 (supplemented with vitamin A), 1% fetal bovine serum (FBS), 1% penicillin/streptomycin, and 5 μg/mL heparin, neurospheres lose their spheroid shape. (A) Neurosphere incubation with and without neuronal differentiation medium, from day 3 after bioprinting; and (B) Micrographs of MAP-2 and Nestin immunocytochemistry in neurospheres after five days of differentiation, which was initiated three days after bioprinting. Scale bars: 50 μm.

Supplementary videos

Video S1. Code 1 command.

Video S2. Bioprinting code 1 process.

Video S3. Code 2 command.

Video S4. Bioprinting code 2 process.