

Supplementary Videos

Supplementary Video 1

Real-time optical microscopy video showing temperature-induced liquid-liquid phase separation inside droplets comprised of PEG and dextran.

Supplementary Video 2

Optical microscopy video showing temperature-induced liquid-liquid phase separation inside droplets containing PEG, dextran, and sodium alginate (2.5 wt.%) at 600x speed.

Supplementary Video 3

3D confocal laser scanning microscopy cross-section of a multicompartmentalized ATPS emulsion droplet comprised of PEG, FITC-labeled dextran and sodium alginate (2.5 wt.%) after phase separation at room temperature for 20 min.

Supplementary Video 4

3D confocal laser scanning microscopy cross-section of a multicompartmentalized ATPS emulsion droplet comprised of PEG, FITC-labeled dextran and sodium alginate (2.5 wt.%) after phase separation at room temperature for 40 min.

Supplementary Video 5

3D confocal laser scanning microscopy cross-section of a multicompartmentalized ATPS emulsion droplet comprised of PEG, FITC-labeled dextran and sodium alginate (2.5 wt.%) after phase separation at room temperature for 70 min.

Supplementary Video 6

3D confocal laser scanning microscopy cross-section of a multicompartmentalized hydrogel particle obtained after gelation of an ATPS droplet comprised of PEG, FITC-labeled dextran and sodium alginate (2.5 wt.%) that was allowed to undergo phase separate at room temperature for 20 min.

Supplementary Video 7

3D confocal laser scanning microscopy cross-section of a multicompartmentalized hydrogel particle obtained after gelation of an ATPS droplet comprised of PEG, FITC-labeled dextran and sodium alginate (2.5 wt.%) that was allowed to undergo phase separate at room temperature for 40 min.

Supplementary Video 8

Initial oscillatory buoyant motion upon oxygen production of a catalase-containing hydrogel particle when placed inside a hydrogen peroxide solution. The movie is shown in real time.

Supplementary Video 9

Oscillatory buoyant motion due to oxygen production of a catalase-containing hydrogel particle 15 min after placement inside a hydrogen peroxide solution. The movie is shown at 2x speed.