Fig. S1 SEM images of PLLA PMs prepared under different temperatures when the pressure was 8 MPa, W/O ratio was 1.80/20, emulsion flow rate was 4.0 mL min⁻¹, CO₂ venting rate was 1200 L h⁻¹, oil phase concentration was 2.3%.
Fig. S2 SEM images of PLLA PMs and corresponding magnified porous structures prepared under different W/O ratios when the pressure was 8 MPa, temperature was 30 ℃, emulsion flow rate was 4.0 mL·min⁻¹, CO₂ venting rate was 1200 L·h⁻¹, oil phase concentration was 2.3%.
Fig. S3 SEM images of PLLA PMs prepared under different CO$_2$ venting rates when the pressure was 8 MPa, temperature was 30°C, emulsion flow rate was 4.0 mL·min$^{-1}$, W/O ratio was 1.8/20, oil phase concentration was 2.3%.
Fig. S4 SEM images of PLLA PMs prepared under different emulsion flow rates when the pressure was 8 MPa, temperature was 30°C, CO₂ venting rate was 1200 L·h⁻¹, W/O ratio was 1.8/20, oil phase concentration was 2.3%.

Fig. S5 SEM images of PLLA PMs prepared under different oil phase concentrations when the pressure was 8 MPa, temperature was 30°C, CO₂ venting rate was 1200 L·h⁻¹, W/O ratios was 1.8/20, emulsion flow rate was 4.0 mL·min⁻¹.
Fig. S6 Optical images of L929 cells cultured for 48 hours.