

Imaging of local glucose level in tumor periphery via peroxyoxalate
chemiluminescent nanoparticles-glucose oxidase doped alginate
hydrogel

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Materials and methods

Reagents and materials

MTT (3-[4,5-dimethylthiazol-2-yl]-2,5-diphenyltetrazolium bromide) was purchased from Shanghai Aladdin Biochemical Technology Co. Ltd. Alginate microspheres were prepared using SC-3610 low speed centrifuge (ANHUI USTC Zonkia Scientific Instruments Co. Ltd). Bright field images were obtained via Olympus FV-1200 microscopy (Japan). The absorbance of MTT experiment was measured at 490 nm by Epoch BioTek microplate reader (BioTek Instruments, Inc., USA).

Study of the stability of the POCL-GOx-alginate/Ca gel

We loaded the POCL-GOx-alginate solution into a syringe with a needle and dripped the solution droplets into the Ca-HEPES buffer by centrifugation to prepare the alginate microspheres¹. We placed the microspheres in the DMEM medium or the Ca-HEPES buffer then photographed the microspheres after 0, 24, 36, and 48 h, respectively.

Cytotoxicity evaluation of the POCL-GOx-alginate/Ca gel

Firstly, the POCL-GOx-alginate/Ca microspheres were prepared though above method. Secondly, we added different concentrations of microspheres into the cell culture medium and incubated with CT26 cells (1×10^6 cells/mL) for 24h. Cells were then washed several times with media to remove microspheres and assayed for mitochondrial activity with MTT based cell proliferation kit and prepared according to manufacturer's instructions. MTT absorbance readings were performed at 550 nm with 650 nm absorbance used for background subtraction. Values are reported as

percent of cell viability and each condition was repeated in triplicate and averaged.

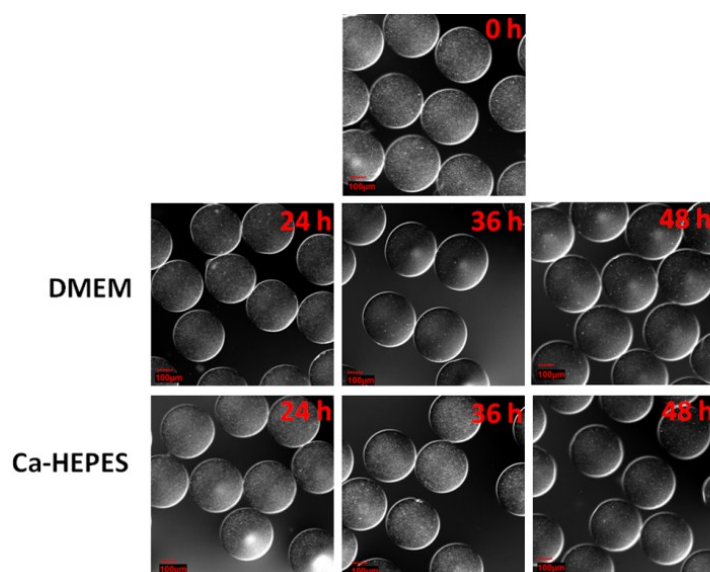


Fig. S1 Bright field images of the alginate microspheres. Alginate microspheres were placed in DEME medium or Ca-HEPES for 24 h, 36 h and 48 h.

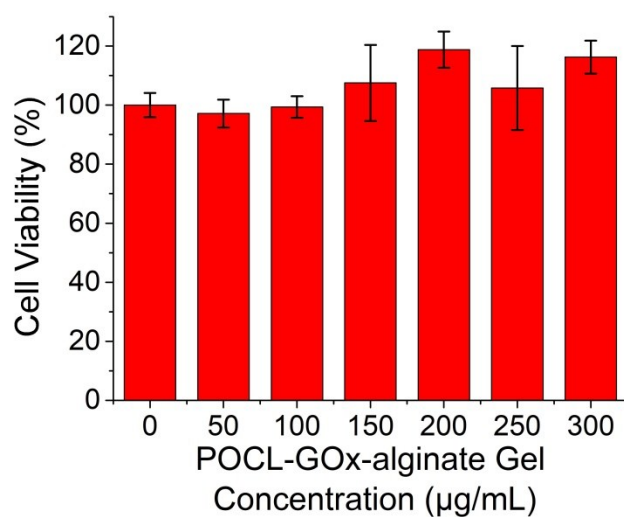


Fig. S2 Cell viability after incubation with different concentrations of the POCL-GOx-alginate/Ca gel by MTT experiment. The error bars represent the standard deviations (n = 3).

Reference

1 Y. Morimoto, M. Onuki, S. Takeuchi. *Adv. Healthcare Mater.*, 2017, **6**, 1601375.