Supporting Information

Functionalised GO Nanovehicle with Nitric Oxide Release and Photothermal Activity-Based Hydrogels for Bacteria-Infected Wound Healing

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Materials

Gelatin (type A, from porcine) was purchased from Sigma-Aldrich (Shanghai, China). Hyaluronic acid (Mw=10,000) was purchased from Meilunbio (Dalian, China). Methacrylate anhydride, dopamine hydrochloride, ethylene glycol and sodium periodate were purchased from Aladdin Co., Ltd (Shanghai, China). Sodium nitrite (NaNO₂), ethanol and paraformaldehyde were purchased from Macklin Co., Ltd (Shanghai, China). N, N’-bis-sec-butylamino-p-phenylenediamine (BPA) was purchased from TCI Shanghai Inc (Shanghai, China). Hydrochloric acid (HCl) and sodium hydroxide (NaOH) were purchased from Guangzhou Chemical Reagent Factory (Guangzhou, China). Lithium phenyl-2,4,6-trimethylbenzoylphosphinate (LAP) was purchased from Jiangyin StemEasy Biotechnology Company (Wuxi, China). Dulbecco’s modified Eagle’s medium (DMEM), fetal bovine serum (FBS) and penicillin/streptomycin were purchased from Gibco, Thermo Fisher scientific (Shanghai, China). Cell Counting Kit-8 and Griess Reagent were purchased from Beyotime (Shanghai, China). Calcein-AM and PI were purchased from Dojindo Laboratories (Beijing, China). S. aureus and E. coli were got from Guangdong Microbial Culture Collection Center (Guangzhou, China). All reagents were of analytical grade and used as received without further purification.
Figure S1 $^1$H NMR of the gelatin and GelMA. The methacrylamide vinyl group signal increased at 6.0 ppm and 5.6 ppm indicating MA modified the gelatin successfully.
Figure S2 $^1$H NMR of the HA and HA-DA. Protons in the catechol ring newly appeared at 6.7-6.9 ppm, and the proton peak at 2.3 ppm was due to a -CH$_2$-group close to the catechol ring. The results confirmed that the HA-DA was successfully synthesized.
Figure S3 FTIR of the GelMA and HA-DA and their precursors. The absorption peak 1022 cm$^{-1}$ was due to twisted vibration of $=\text{CH}_2$, and the absorption peak 1154 cm$^{-1}$ was due to the C-O of the phenol groups.
The degradation properties of the hydrogels in vitro, n=3, error bars indicate standard deviation.

Figure S4
Figure S5 XPS survey spectrum of GO nanosheets.
Figure S6 $^1$H NMR spectra of the reactant BPA and the product BNN6: $\delta = 7.52 (4H), 4.95-4.69 (2H), 2.00-1.84 (2H), 1.81-1.69 (2H), 1.48 (t, J=7.6Hz, 6H), 1.08(td, J=7.4, 5.3Hz, 6H).
Figure S7 The standard curve of BNN6 in dimethyl sulfoxide.
Figure S8 The standard curve of NO concentration.
Figure S9 Pictures of agar plates of *S. aureus* and *E. coli* collected from the rat wounds.
Figure S10

Immunohistochemical staining of wound tissues on 14th day, scale bar: 200 μm.

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<th>Protein</th>
<th>Control</th>
<th>Gel</th>
<th>Gel/BNN6</th>
<th>Gel/GO-βCD+NIR</th>
<th>Gel/GO-βCD-BNN6+NIR</th>
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