

## Supporting Information

### Role and Mechanism of Polydopamine and Cuttlefish Ink Melanin Carrying Copper Ions Nanoparticles in Antibacterial and Promoting Wound Healing

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#### UV-vis absorption spectra

Melanin NPs, PDA NPs, Cu(II) Load PDA NPs, Cu(II) Load Melanin NPs solution of the same concentration were obtained to detect UV-vis (UV1750, SHIMADZU, Japan) absorption spectra.

#### Degradation of Methylene blue (MB)

Pure MB has the maximum absorption at 664 nm, the blue MB can be degraded by free radicals, and the experimental phenomenon was that the color of the solution gradually became lighter from blue. Adjusted sample concentration to 100 µg/mL, MB 10 µg/mL, H<sub>2</sub>O<sub>2</sub> concentration 1mM, reaction volume 5 mL, pH was 7.4. After reaction for 30 min, the mixed solution was centrifuged to obtain the supernatant, then detected the UV-Vis absorbance at 664 nm.

#### Clinical Standard Coagulation Tests

Fresh New Zealand white rabbit blood was centrifuged for 5 minutes at 4 °C and 1000 rpm to obtain the supernatant as platelet-rich plasma (PRP), PRP was centrifuged at 3000 r/min for 10 min to obtain supernatant as platelet-poor plasma (PPP). 5 mg sample and 1 mL PPP were mixed and incubated at 37 °C for 5 minutes, removed the sediment by centrifugation and measured by an automatic coagulation analyzer to get the value of Fbg. For the aPTT test, samples were first added to 0.025 M CaCl<sub>2</sub> solution in the auto-coagulation analyzer and then directly added to the whole blood.

Supporting data

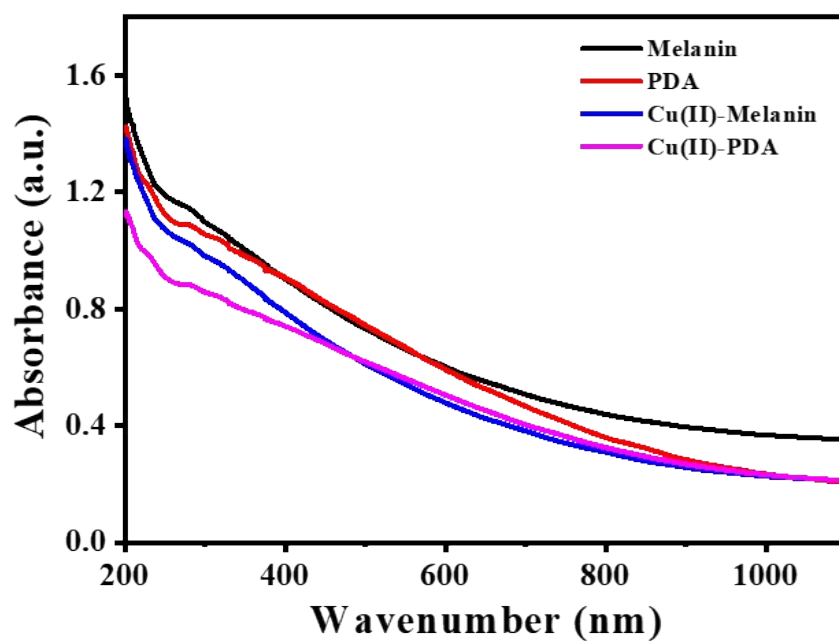


Fig. S1 UV-vis spectra of four nanomaterials.

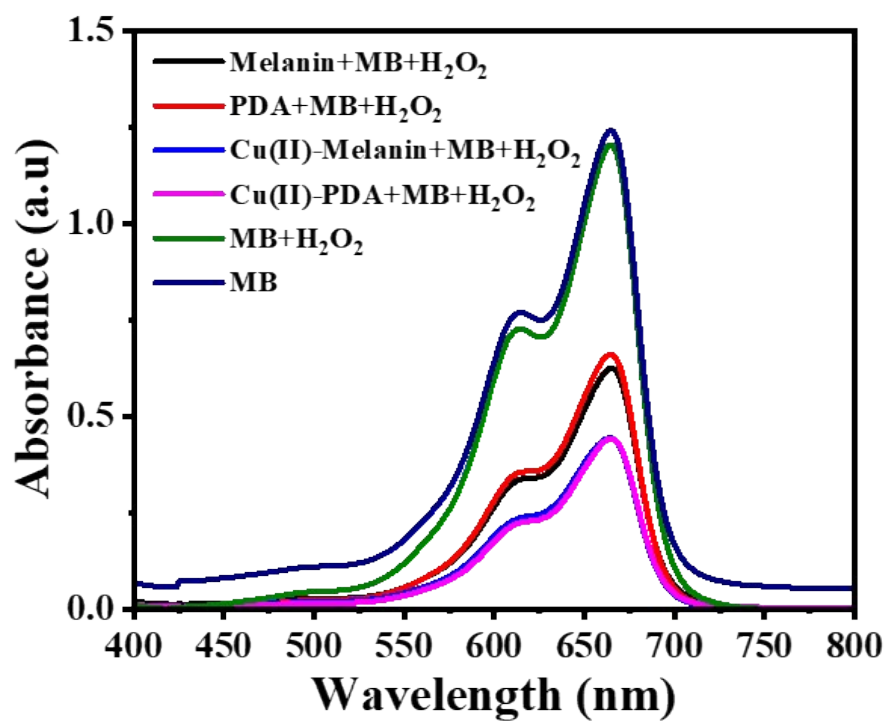


Fig. S2 UV-vis spectra of MB degradation experiment.

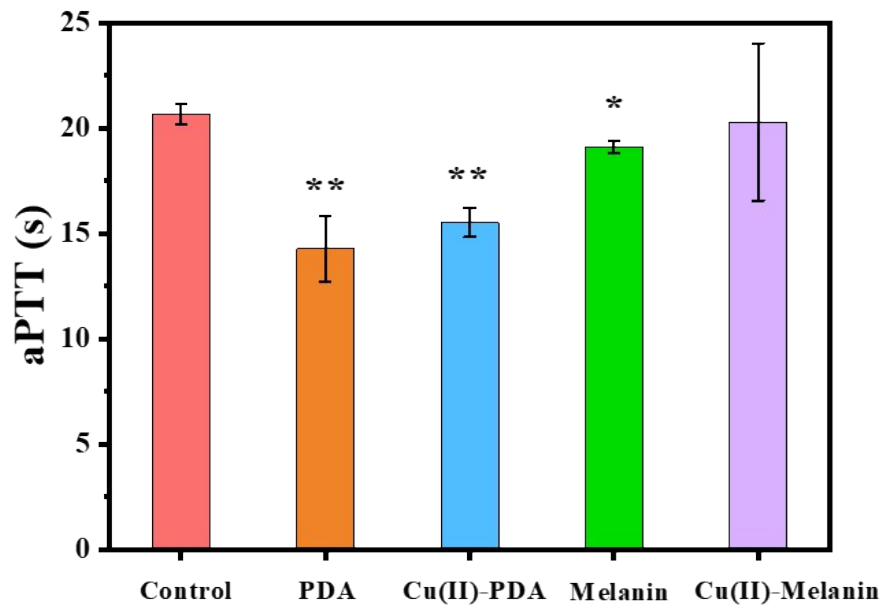


Fig. S3 The activated partial thromboplastin time (aPTT) of different materials

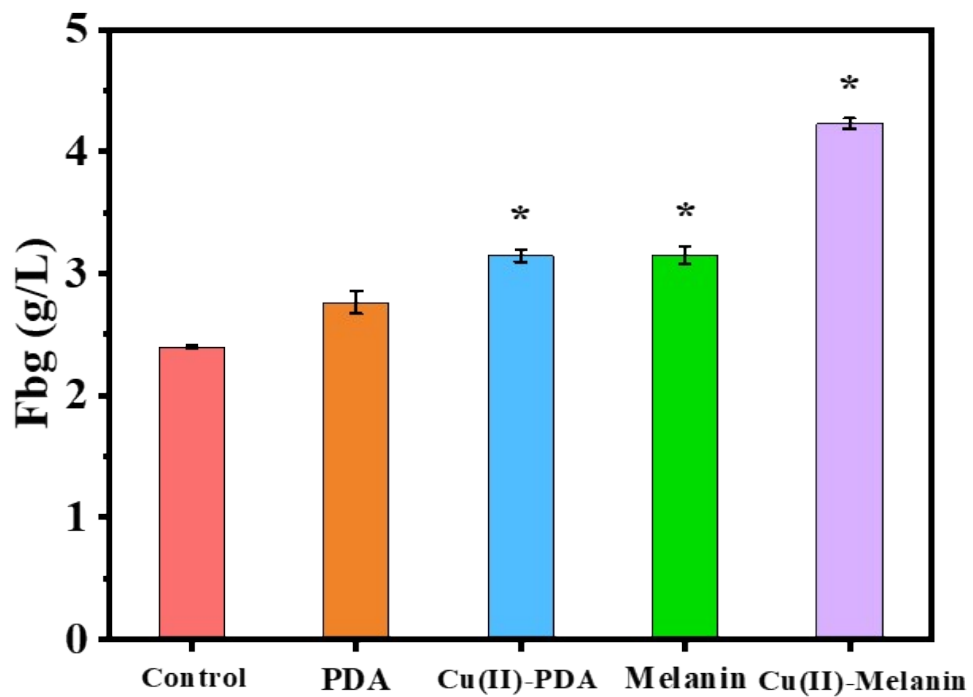


Fig. S4 The Fibrinogen (Fbg) content of different materials