Construction of antithrombotic and anti-microbial ultra-thin structures on polyethylene terephthalate implant via the surface grafting of heparin brushes

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Supporting Information

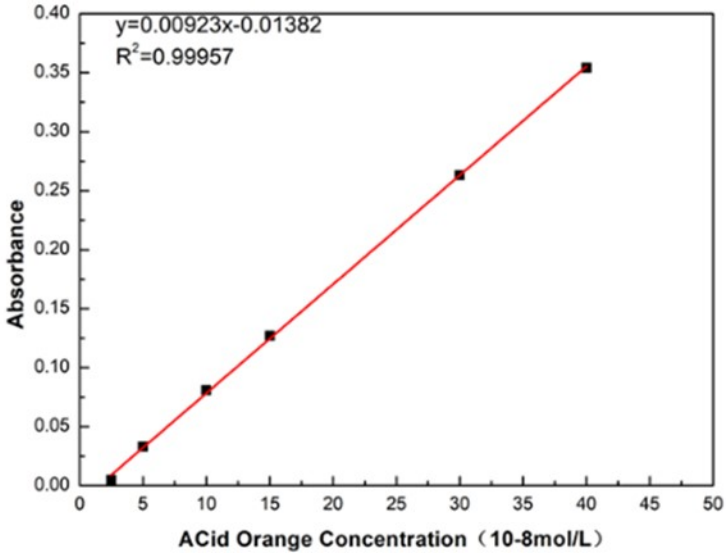

Figure S1. concentration-absorbance standard curve of Acid Orange II solution

The UV extinction coefficient (ε) was calculated according to Lambert-Beer's law:

$$A = \varepsilon cl$$

A: the UV absorbance at 485 nm;

c: concentration;

l: light path.

The light path in the UV-vis examination was 1 cm, and the ε was calculated according to the linear fitting between the concentration and the UV absorbance at 485 nm (Figure S3).

$\varepsilon = 9.23 \times 10^5$ cm/mol

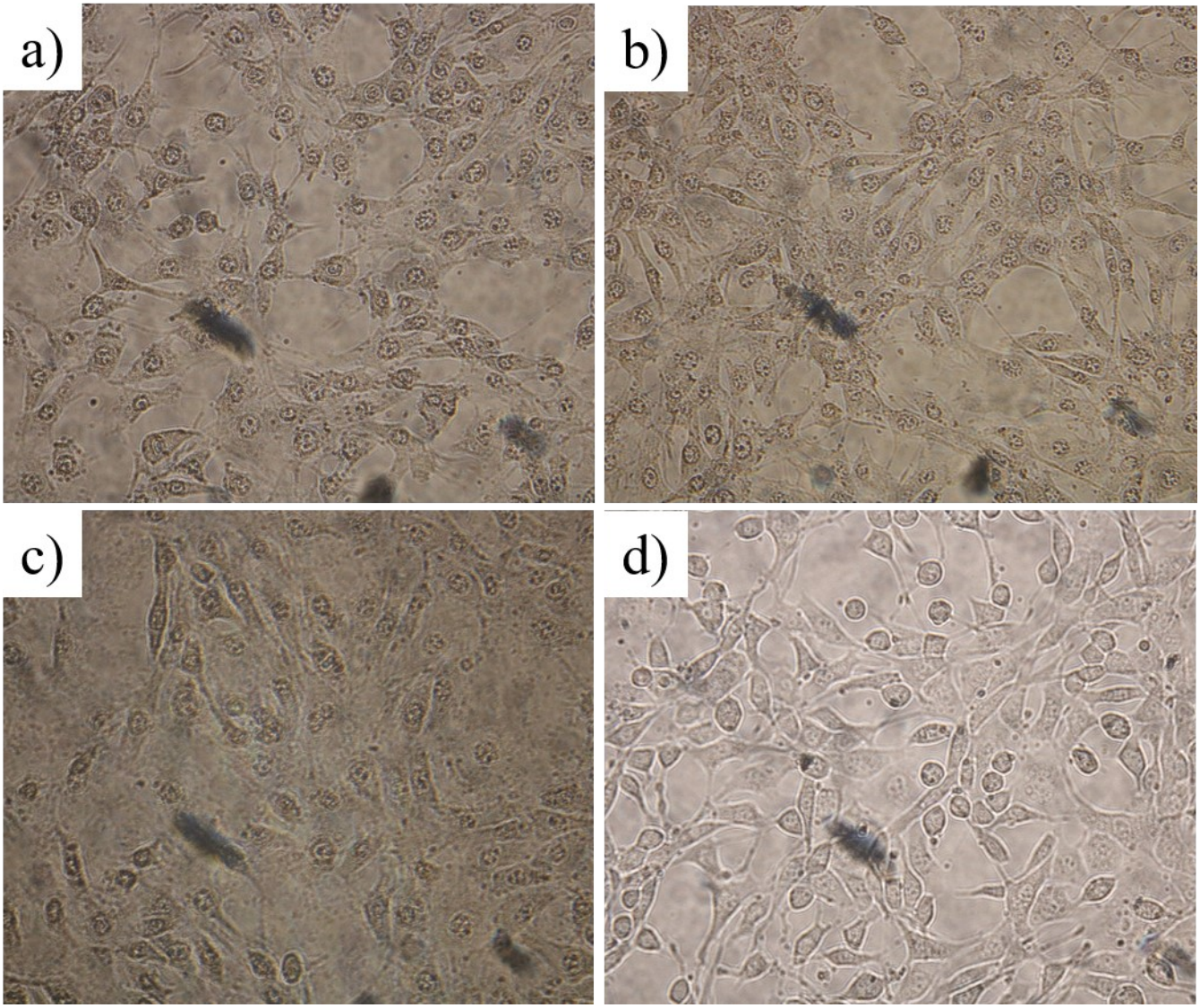

Figure S2. Digital photographs of the L929 fibroblasts cells cultured with sample membranes after 24 hours, a) PET; b) Hep1-g-PET; c) Hep2-g-PET; d) Hep3-g-PET.

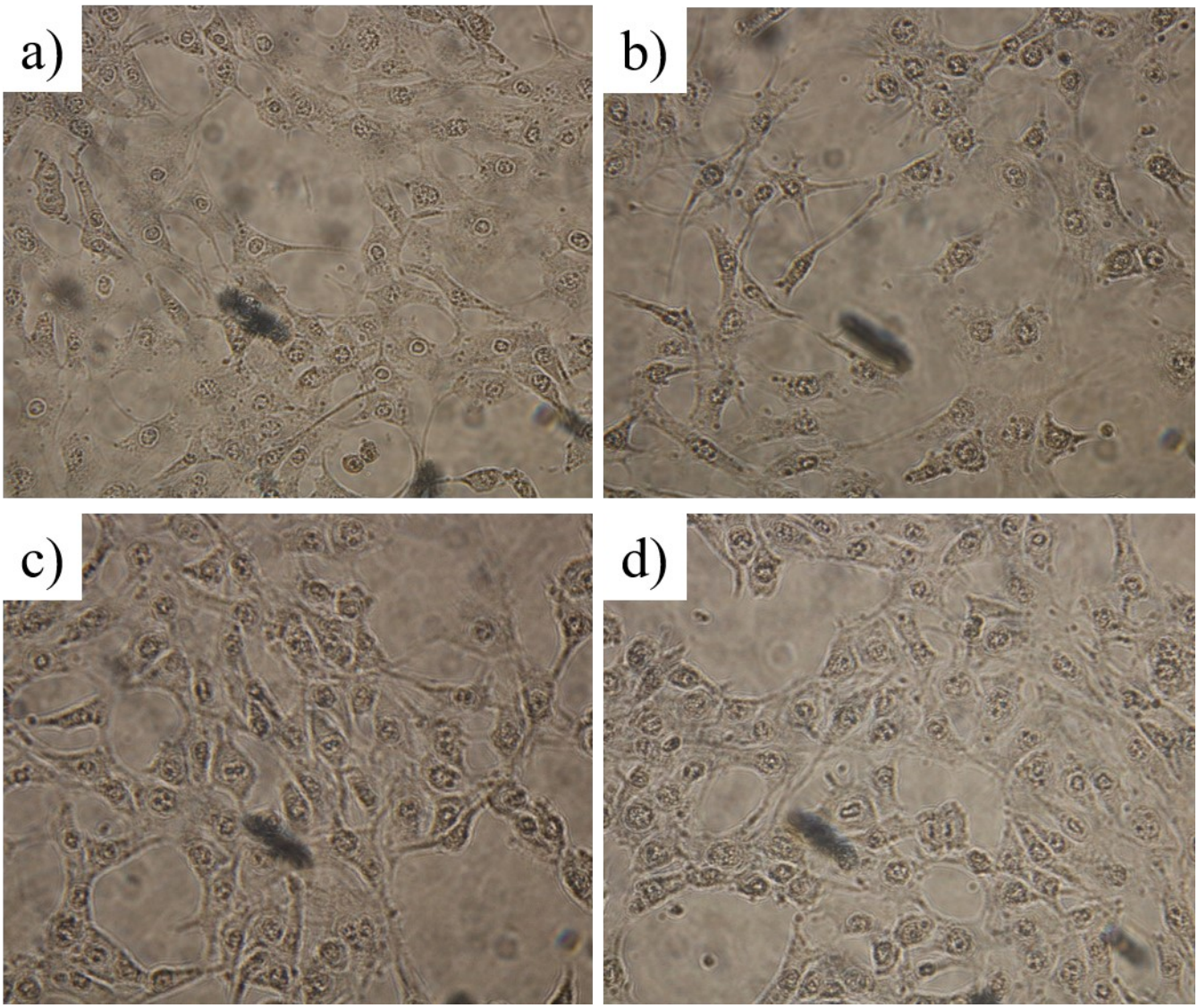

Figure S3. Digital photographs of the L929 fibroblasts cells cultured with sample membranes after 48 hours, a) PET; b) Hep1-g-PET; c) Hep2-g-PET; d) Hep3-g-PET.

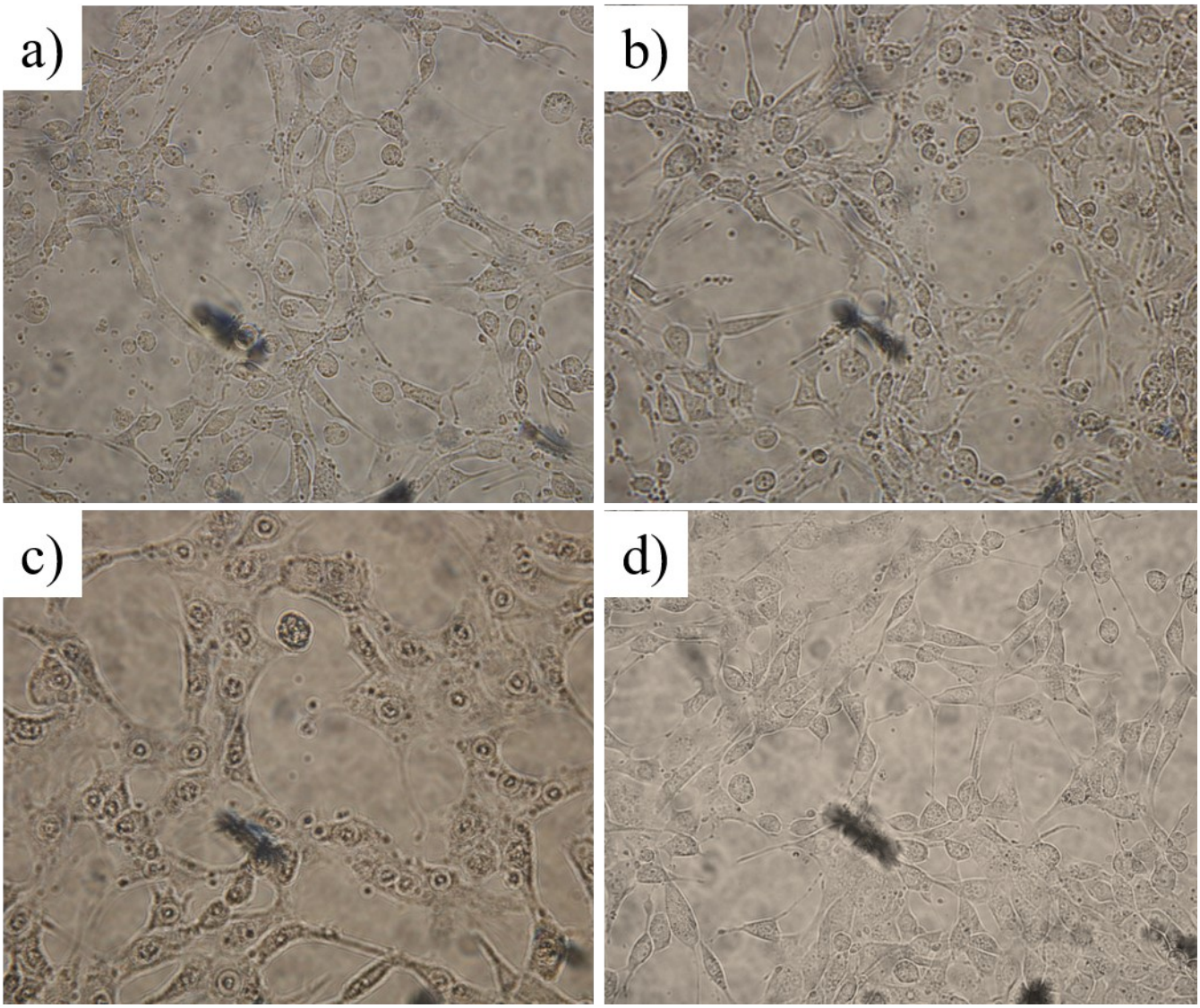

Figure S4. Digital photographs of the L929 fibroblasts cells cultured with sample membranes after 72 hours, a) PET; b) Hep1-g-PET; c) Hep2-g-PET; d) Hep3-g-PET.

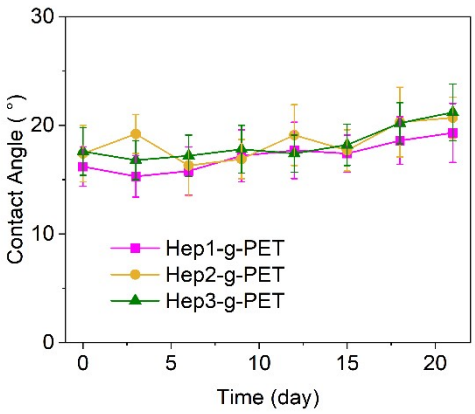

Figure S5. The change of contact angles for the modified membranes immersed in PBS.

The membrane before and after the surface modification were cut into round disks with 8 mm diameter. All the disks were placed in 12 wells plate with 1 mL PBS and stored under room temperature. The PBS buffer was replaced every 7 days. The soaked disks were taken out, cleaned by DI water and dried every 3 days. The DI water contact angles of the dried disks were examined and recorded.

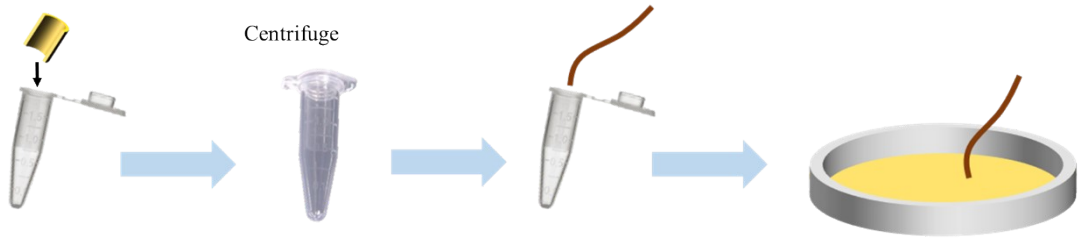

Figure S6. The schematically demonstration of the bactericidal efficiency experiment.

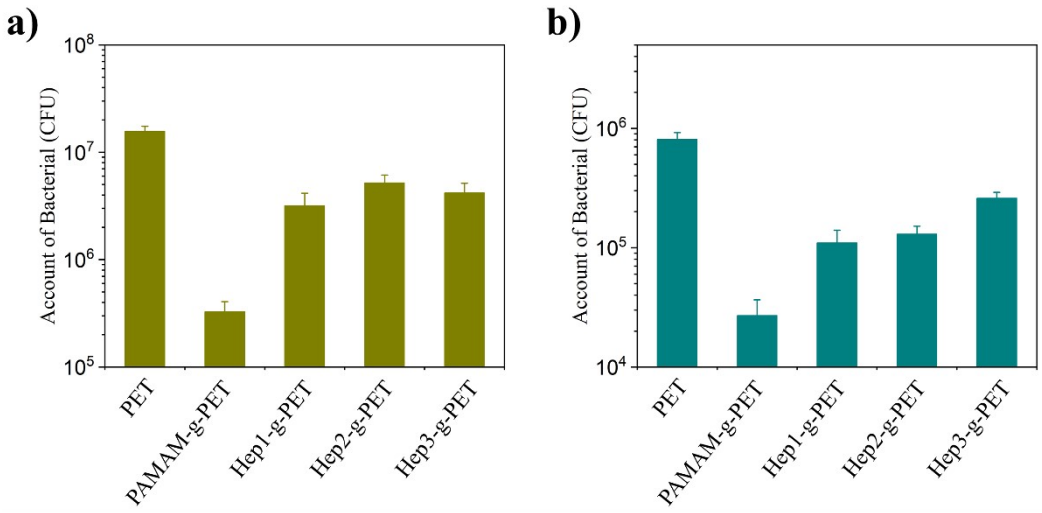

Figure S7. The bacterial account on PET cultured with bacterial before and after the surface modification.

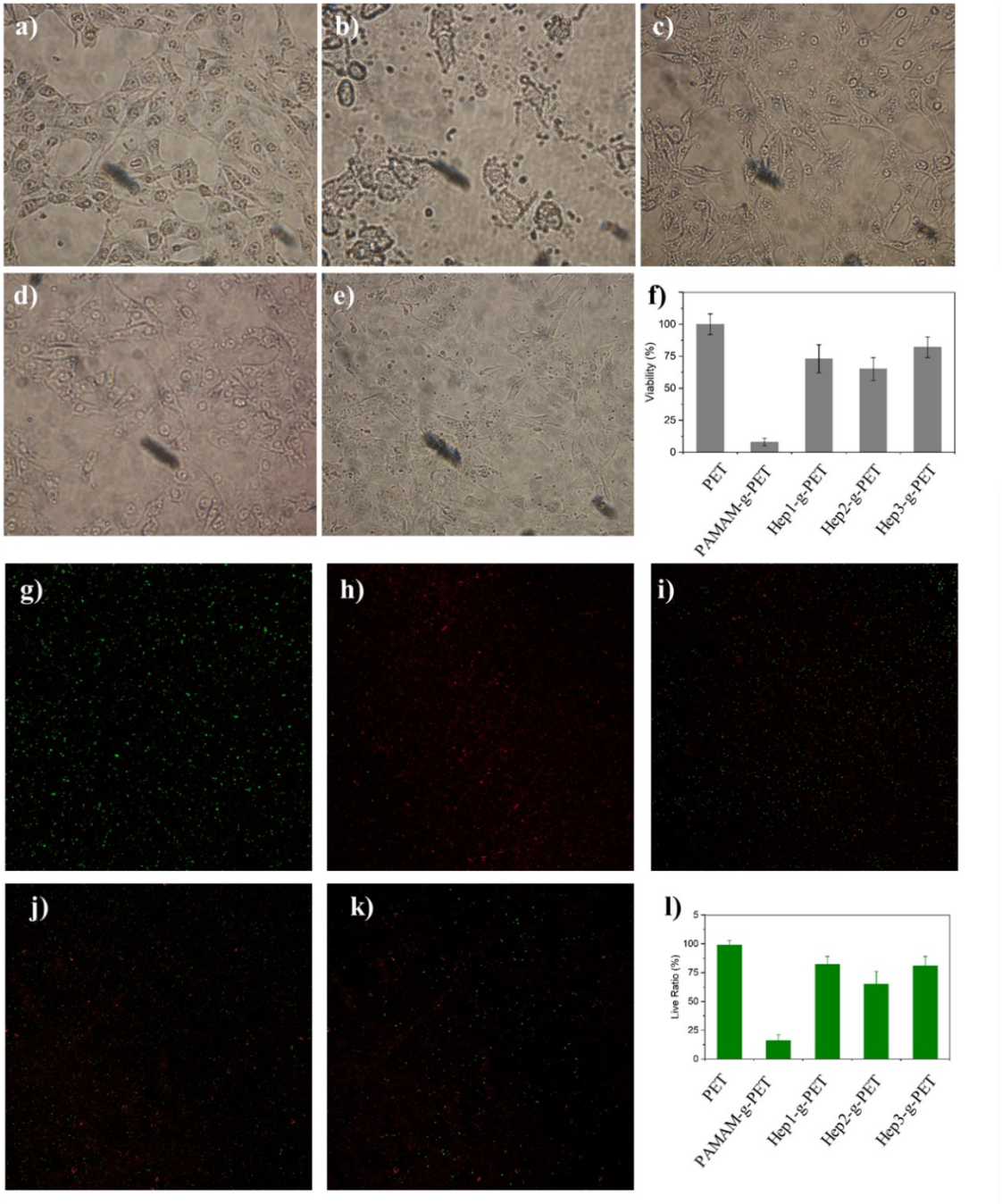

Figure S8. The cell cytotoxicity evaluation of functionalized membrane, a-e) photographs of 3T3 fibroblasts cells cultured directly on the surface of PET, PAMAM-g-PET, Hep1-g-PET, Hep2-g-PET and Hep3-g-PET, respectively; f) cell viability evaluated by CCK8 assay; g-k) live/death staining of 3T3 fibroblasts cells cultured directly on the surface of PET, PAMAM-g-PET, Hep1-g-PET, Hep2-g-PET and Hep3-g-PET, respectively; i) cell survive ratio of liv/death evaluation.