Electronic Supplementary Material (ESI) for Journal of Materials Chemistry B.

Supporting Information

Janus adhesive microneedles patch loaded with exosomes for intrauterine adhesion treatment

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Experimental

The materials of adhesive layer and anti-adhesion layer were immersed in phosphate buffer solution (PBS×1, pH=7.4) with concentration of 0.1 g/ml and stored in a shaker with speed of 100 rpm at 57 °C for 14 days (Equivalent to 56 days at 37 °C according to the Arrhenius equation). After a 30 minutes' centrifugation at speed of 5000rpm, the supernatants were collected. The MEFs were seeded in a 48-well plate at a density of 5000 per well in the presence of the supernatants at concentration of 0.1 ml/ml conditioned medium. The well without supernatant was treated as a control group. After cultured for 24 h, the cells were rinsed twice with PBS. Then, the MEFs were incubated in 200 μl of live/dead staining kit solution containing calcein AM and ethidium homodimer at 25 °C for 30 min. After the staining solution was removed, each well was washed carefully with PBS and observed using an inverted fluorescence microscope (Zeiss, German). The live cells were stained green with calcein AM, and the dead cells were labelled red with ethidium homodimer.

Results and discussion

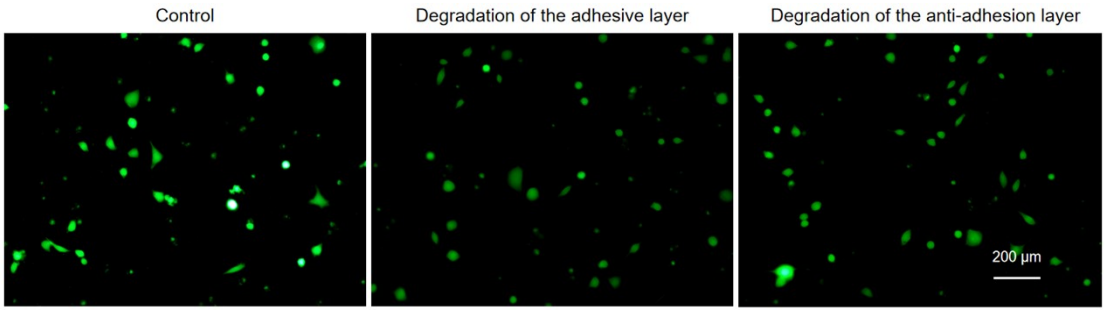

Fig. S1 Live/ded fluorescence images of MEFs co-cultured with the degradation products of adhesive layer and anti-adhesion layer.

As we can see in the **Fig. S1**, the live/ded fluorescence of MEFs co-cultured with the degradation products of adhesive layer and anti-adhesion layer were similar to the control group, proving the minimal cytotoxicity of these materials.

Application Format for Ethical Approval for Research Involving Animals

IACUC: SYT2023018

To Huihui Wang

Your group applied for the proposed animal experiment of "Exosome carrying Janus microneedle Patch for intrauterine adhesion Treatment", IACUC: SYT2024018, which was reviewed and passed by the Experimental Animal Welfare and Ethics Committee, and the relevant animal experiments were in line with the welfare and ethical principles. The applicant and all participants shall strictly carry out the animal experiment in accordance with the relevant regulations and welfare and ethical requirements of the animal experiment, and wish the experiment a satisfactory result.

Laboratory Animal Welfare and Ethics Committee (Seal)

2023/06/09

Fig. S2 Ethical Approval for Research Involving Animals