

## Supplementary data

### **A mechanically robust and stable estradiol-loaded PHEMA-based hydrogel barrier for intrauterine adhesions treatment**

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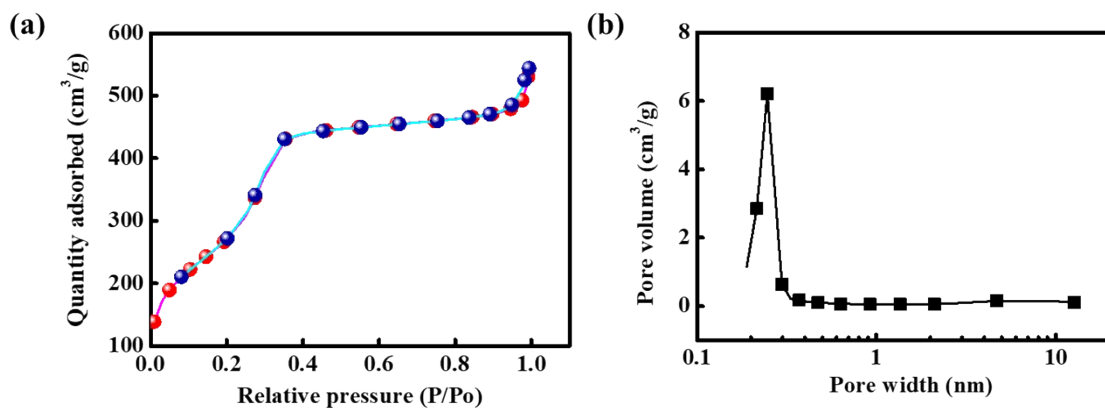
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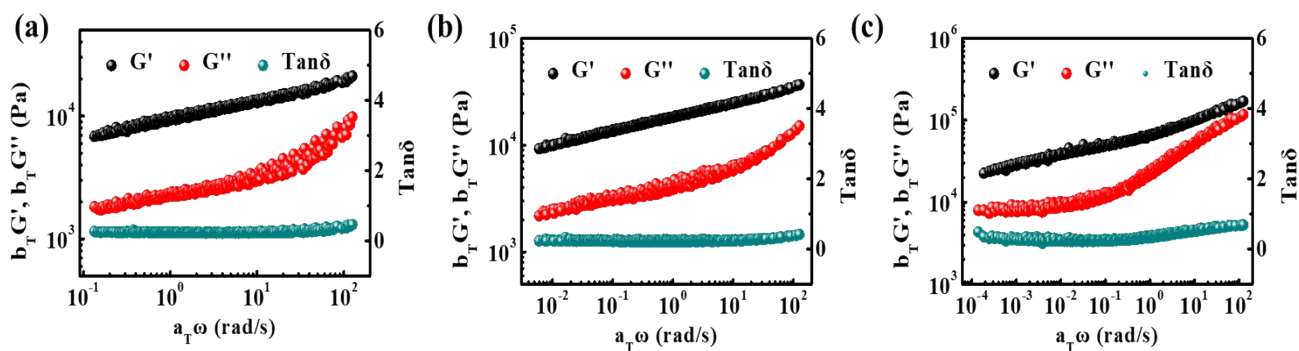
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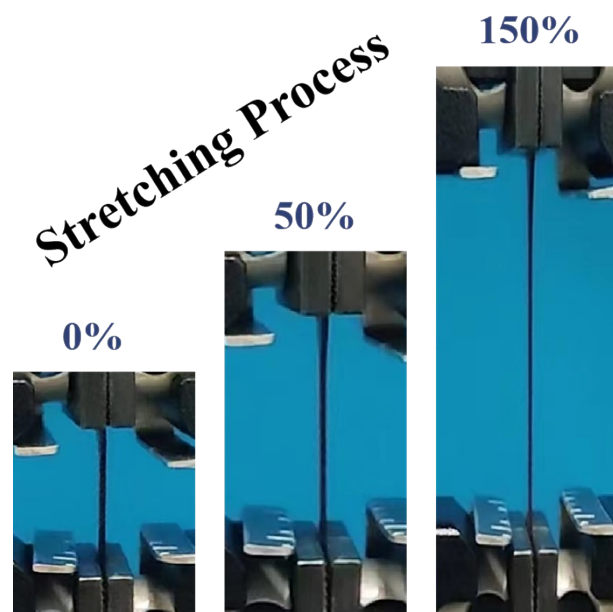
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**Fig. S1.** (a) The nitrogen adsorption–desorption isotherms of E2@SiO<sub>2</sub>. (b) The pore size distribution.



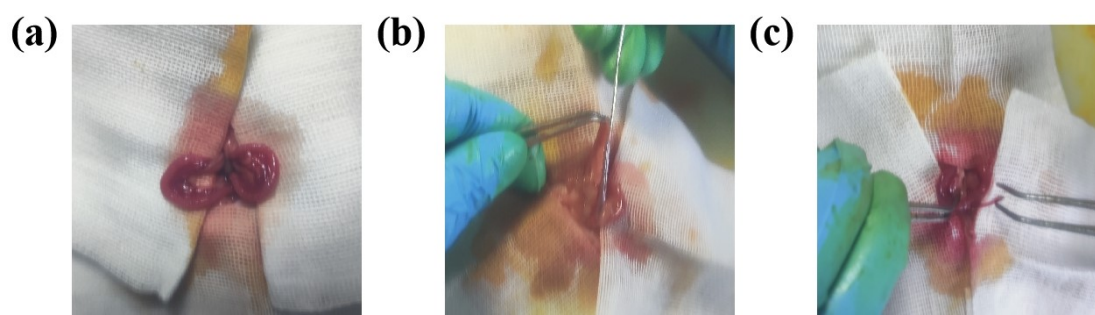
**Fig. S2.** Representative main curves of (a) the PHM hydrogel, (b) PHM<sub>C</sub> hydrogel, and (c) PHM<sub>H</sub>-Si hydrogel obtained by changing the frequency sweep curve at different temperatures with a reference temperature of 10 °C.



**Fig. S3.** Stretching of the PHM<sub>H</sub>-Si hydrogel.



**Fig. S4.** Photograph of the PHM<sub>H</sub>-Si hydrogel implanted under pig skin for 2 months.



**Fig. S5.** The surgery process of IUAs rat model and treatment with PHM<sub>H</sub>-Si hydrogel. **(a)** Exposing the uterus of the rat. **(b)** Establishing IUAs rat model by mechanical injury. **(c)** Putting PHM<sub>H</sub>-Si hydrogel into the injured uterus.