Supporting information

Shikonin delivery strategy through alkali-crosslinked polyvinyl alcohol hydrogel promotes effective wound healing

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1. The effect of NaOH concentration on the loading efficiency of SHK

The PVA membranes (～20 mg per piece) were immersed in a 20 mL SHK/NaOH solution (320 μM) with NaOH concentrations of 0.1, 1, 3, 6, and 9 M, respectively, for 30 min. The obtained SHK/PVA hydrogels were took out and the water on the surface was wiped off with filter paper. The SHK/PVA hydrogels were continuely washed until neutral. The SHK in the SHK/PVA hydrogels was dissolved using DMSO and its absorbance was measured at 520 nm using a UV spectrophotometer (n=4).

2. The effect of immersion time on the loading efficiency of SHK

The PVA membranes (～20 mg per piece) were immersed in a 20 mL SHK/NaOH solution (SHK: 320 μM, NaOH: 6 M) for 10, 30, 60, 120, 240, 480, and 2880 min, respectively. The obtained SHK/PVA hydrogels were took out and the water on the surface was wiped off with filter paper. The SHK/PVA hydrogels were continuely washed until neutral. The SHK in the SHK/PVA hydrogels was dissolved using DMSO and its absorbance was measured at 520 nm using a UV spectrophotometer (n=4).

3. SHK absorption of PVA membrane in different solutions

The PVA membranes (～20 mg per piece) were seperately immersed in deionized water, 6M NaOH solution, and 320 μM SHK in 6M NaOH solution for 2880 min, respectively. After taking out and wiped with filter paper, the formed PVA or SHK/PVA hydrogels were washed with deionized water until neutral and weighed. The PVA or SHK/PVA hydrogels were placed in an oven at 37 ^{o}C, and the weight of all the samples was recorded before and after drying for 15, 30, 45, 60, 90, 120, 180, 240, 360, 480, 720, and 1440 min, respectively (n=4).

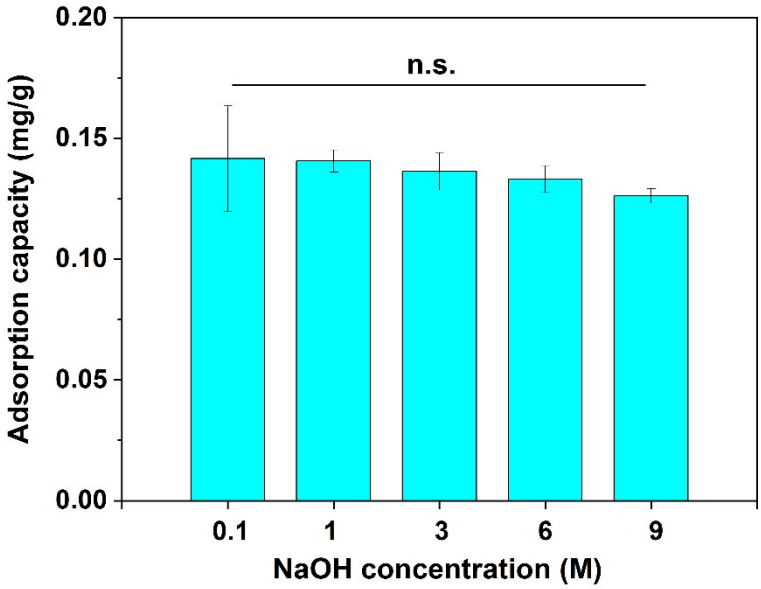

Figure S1. The effect of NaOH concentration (0.1 to 9 M) on the loading efficiency of SHK in the SHK/PVA hydrogels (n=4, n.s. indicates no significant statistical difference).

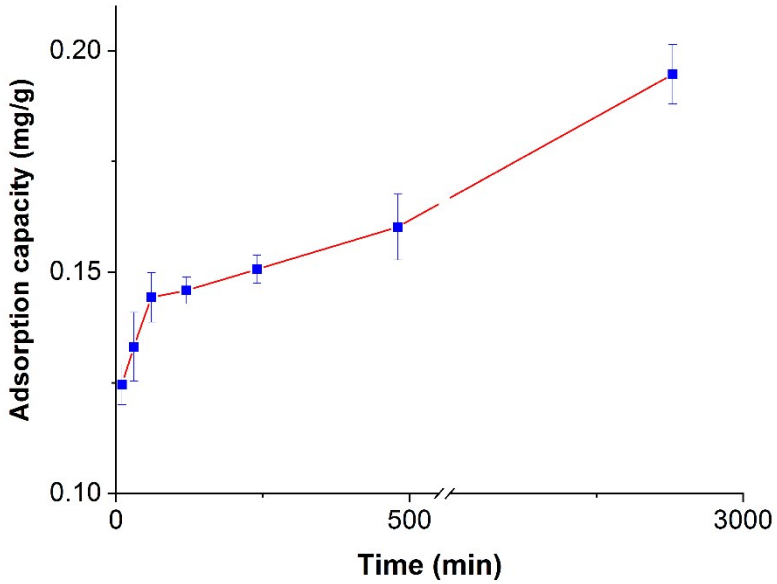

Figure S2. The effect of immersing time (10 to 2880 min) on the loading efficiency of SHK in the SHK/PVA hydrogels (n=4).

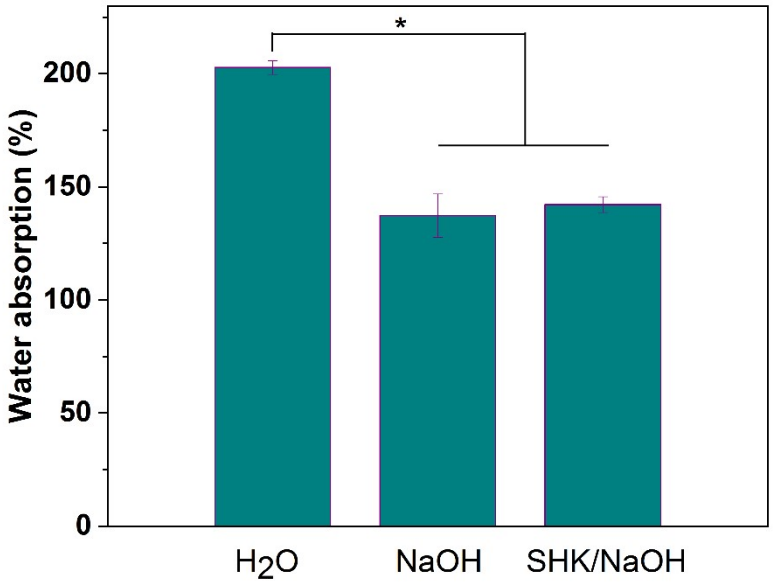

Figure S3. Water absorption of PVA membranes in different solutions (n=4).

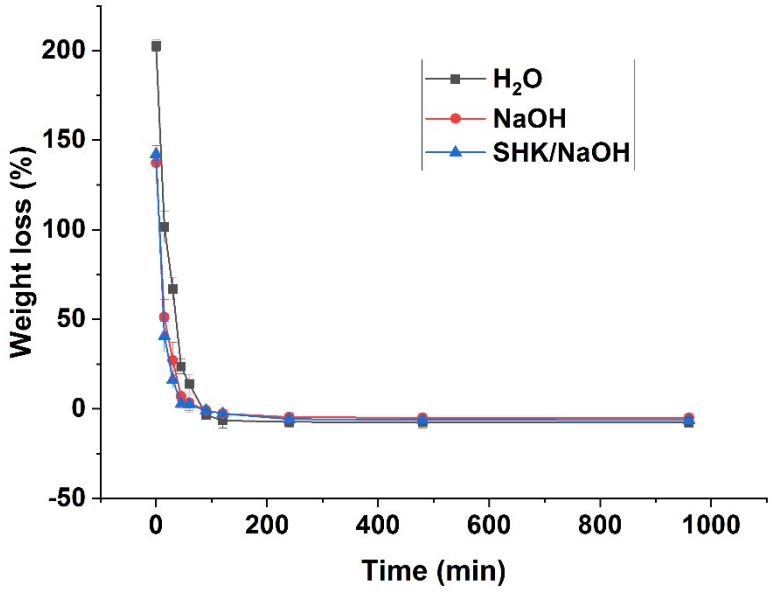

Figure S4. Water loss of PVA or SHK/PVA hydrogels at 37 °C for 15 to 1440 min.