**Supplementary information**

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**Fig.S1.** The security of the Pol hydrogel by measuring cell viability.

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**Fig.S2.** Survival curve for the mice treated with different dose of T1AM, injected i.p.

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**Fig.S3.** Brain water content. Values are the mean ± SEM. (n = 5). \*\*P < 0.01.

**Movie S1.** The behavior of TBI models treated with T1AM, injected i.p.

**Movie S2.** The behavior of TBI models treated with Pol/T hydrogel.

**Data availability**

The data that support the findings of this study are available from the corresponding

author upon reasonable request.