## **Supporting Information**

## Size-selective sorting of kaolinite micro/nanoflakes *via* microfluidic filtration for wound hemostasis

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Fig. S1 The physical image of the microfluidic filtration device for the screening of micro/nano-scale kaolinite.



**Fig. S2** Optical microscope view of membrane: (a) fresh filter membrane, (b) used in direct filtration method and (c) used in co-flow fluid arrangement.



Fig. S3 (a) Particle size distribution and (b) median particle size of Kaol-0.



Fig. S4 SEM images of Kaol-0.



Fig. S5 TEM images of Kaol-0, 1, 2 and 3, respectively.



Fig. S6 Zeta potential (pH=7.4) of Kaol-0, 1, 2 and 3, respectively.



Fig. S7 Photographs of dynamic coagulation experiment of Kaolinite.



Fig. S8 SEM images of red blood cells.



Fig. S9 SEM images of interfacial interactions between kaolinite samples and red blood cells.



Fig. S10 Photographs of blood diffusion after different treatments in the mouse liver hemorrhage model.

Sample	Surface area/m <sup>2</sup> g <sup>-1</sup>	Pore size/nm	Pore volume/cm <sup>3</sup> g <sup>-1</sup>
Kaol-0	13.031	18.503	0.069
Kaol-1	23.885	22.185	0.150
Kaol-2	25.465	22.987	0.161
Kaol-3	34.213	24.838	0.242

**Table S1** Specific surface area and pore structure parameters of Kaol-0, 1, 2 and 3.

Membrane Filter	Pore diameter (μm)	Pore density (pores/cm²)	Nominal Thickness (µm)	Materials
1	0.8	2×107	9	PC
2	0.45	2×107	10	PC

 Table S2 Parameters of filter membrane.