## **Electronic Supplementary Information**

## Sheet-like Janus hemostatic dressings with synergistic effects of cardanol hemostasis and quaternary ammonium salt antibacteria

Yuxia Zhang <sup>a</sup>, Xiaoyu Lu <sup>a</sup>, Chongyi Chi <sup>a</sup>, Yanyan Zheng <sup>a</sup>, Qinhui Chen <sup>a,b,\*</sup>

<sup>a</sup> College of Chemistry and Materials Science, Fujian Normal University, Fuzhou,

Fujian 350007, P R China

<sup>b</sup> Fujian Provincial Key Laboratory of Polymer Materials, Fujian Normal University,

Fuzhou, Fujian 350007, P R China

\*Corresponding Authors. E-mails: <u>chengh@fjnu.edu.cn</u> (Qinhui Chen)

As shown in Figure S1, without the addition of span, the silicon source was hydrolyzed in situ to form hollow spherical MSN, but not break into pieces. Combined with Figure 2c, it can be deduced that the occupying of Span during the synthesis of MSNS is very important.



Figure S1. The SEM image of MSN without adding Span 80.

As shown in Figure S2, a and b are the two sides of MSNS, respectively. It can be seen from the energy spectra that the side of carbon-carbon double bonds does not contain N element (Figure S2a and a-1) and there contains a certain amount of N element on the amino side (Figure S2b and b-1). It indicated that the prepared MSNS has asymmetrical structure.





Figure S2. The EDS Element Mapping of MSNS.

As shown in Figure S3, the zeta potentials of GTA and CA are 14mV and -12mV

respectively.



Figure S3. Zeta potential of GTA and CA.