

Electronic Supplementary Information

**Preparation of polyurethane/polyvinyl alcohol hydrogel and its  
performance enhancement via compositing silver particles**

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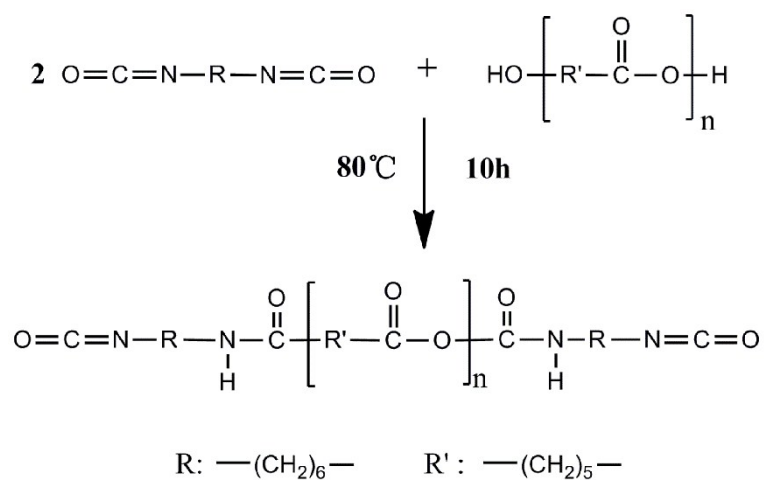
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## 1. Chemical route of urethane prepolymers (PPU)



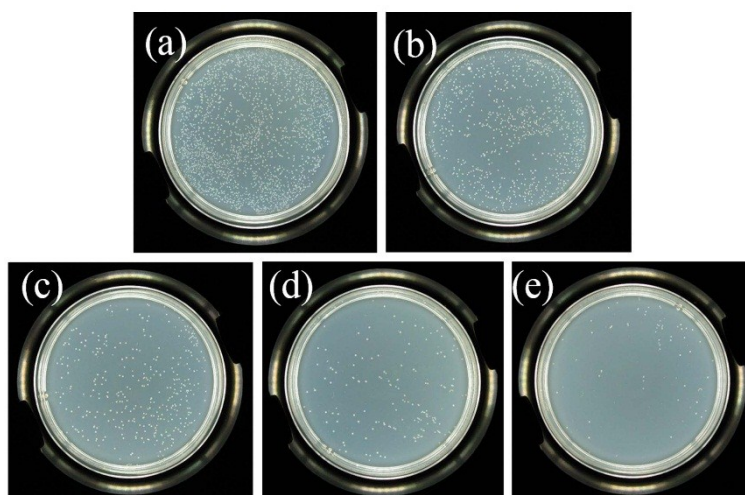
**Scheme S1** Synthetic route for PPU dispersion.

## 2. Detailed mechanical parameters of the as-prepared hydrogels

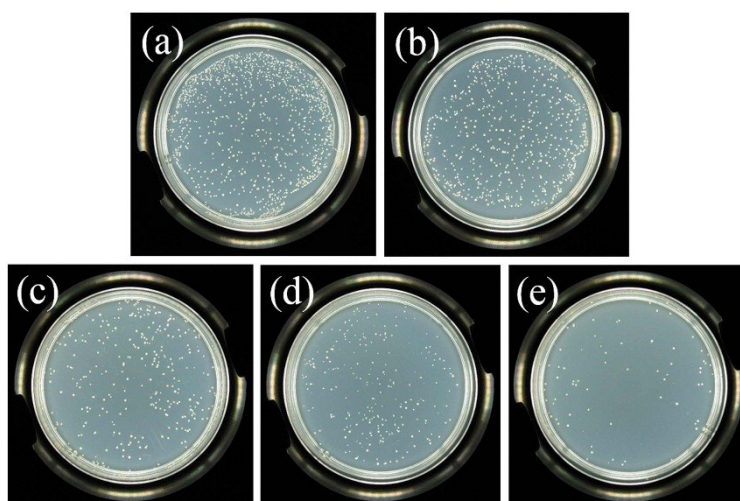
**Table S1** Tensile properties of PU/PVA hydrogels and PU/PVA/Ag nanocomposite hydrogels.

| Sample        | Young's modulus<br>(MPa) | Tensile strength<br>(MPa) | Elongation at break<br>(%) |
|---------------|--------------------------|---------------------------|----------------------------|
| PU/PVA        | 0.12 ± 0.01              | 0.05 ± 0.01               | 200 ± 2.02                 |
| PU/PVA/Ag-0.5 | 0.22 ± 0.01              | 0.18 ± 0.02               | 299 ± 26.14                |
| PU/PVA/Ag-1   | 0.25 ± 0.01              | 0.27 ± 0.01               | 398 ± 3.63                 |
| PU/PVA/Ag-5   | 0.30 ± 0.04              | 0.41 ± 0.03               | 527 ± 41.38                |
| PU/PVA/Ag-10  | 0.34 ± 0.07              | 0.52 ± 0.07               | 621 ± 42.86                |

### 3. Antibacterial activities of the hydrogels



**Fig. S1** Photographs of bacterial colonies formed by *E. Coli* cells treated with hydrogels of (a) PU/PVA, (b) PU/PVA/Ag-0.5, (c) PU/PVA/Ag-1, (d) PU/PVA/Ag-5, and (e) PU/PVA/Ag-10, respectively.



**Fig. S2** Photographs of bacterial colonies formed by *S. Aureas* cells treated with hydrogels of (a) PU/PVA, (b) PU/PVA/Ag-0.5, (c) PU/PVA/Ag-1, (d) PU/PVA/Ag-5, and (e) PU/PVA/Ag-10, respectively.