

## *Supporting Information*

# Thermoresponsive poly(vinyl alcohol) derivatives: preparation, characterization and their capability of dispersing gold nanoparticles

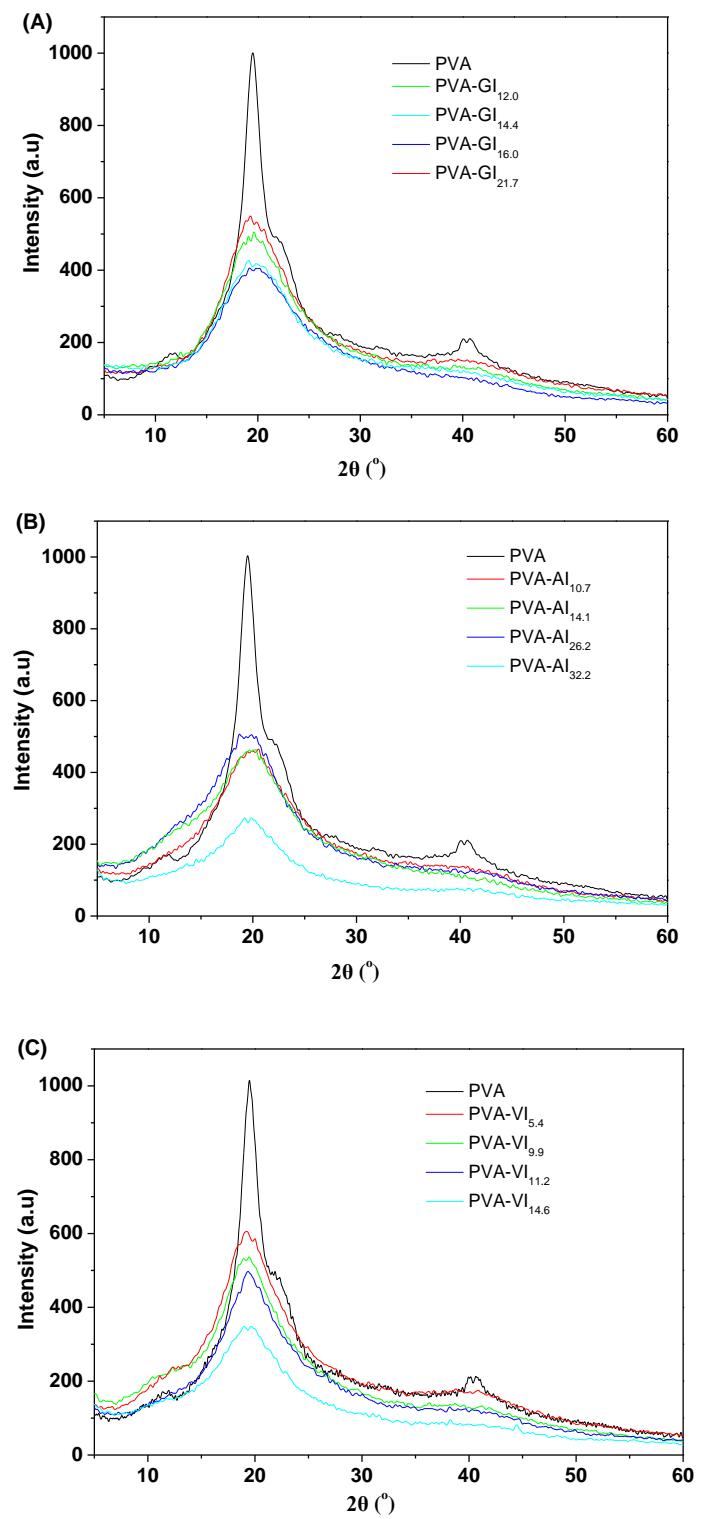
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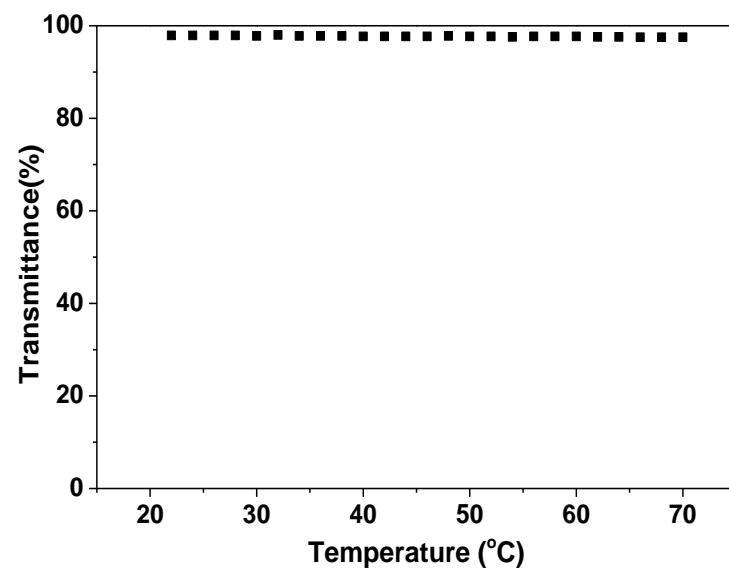
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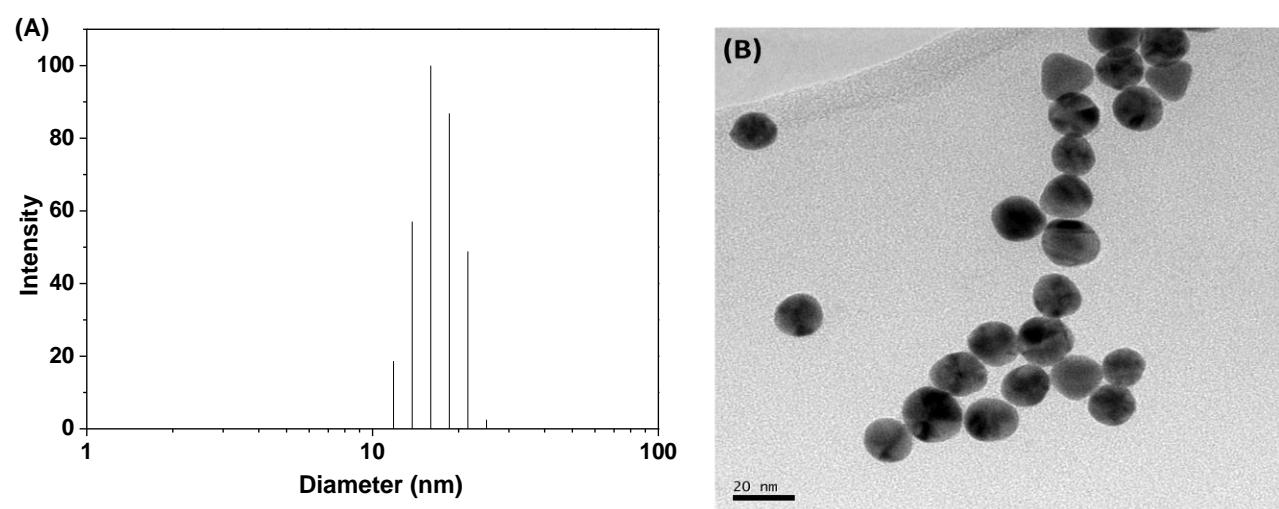
E-mail: [chenyu@tju.edu.cn](mailto:chenyu@tju.edu.cn) (Yu Chen)



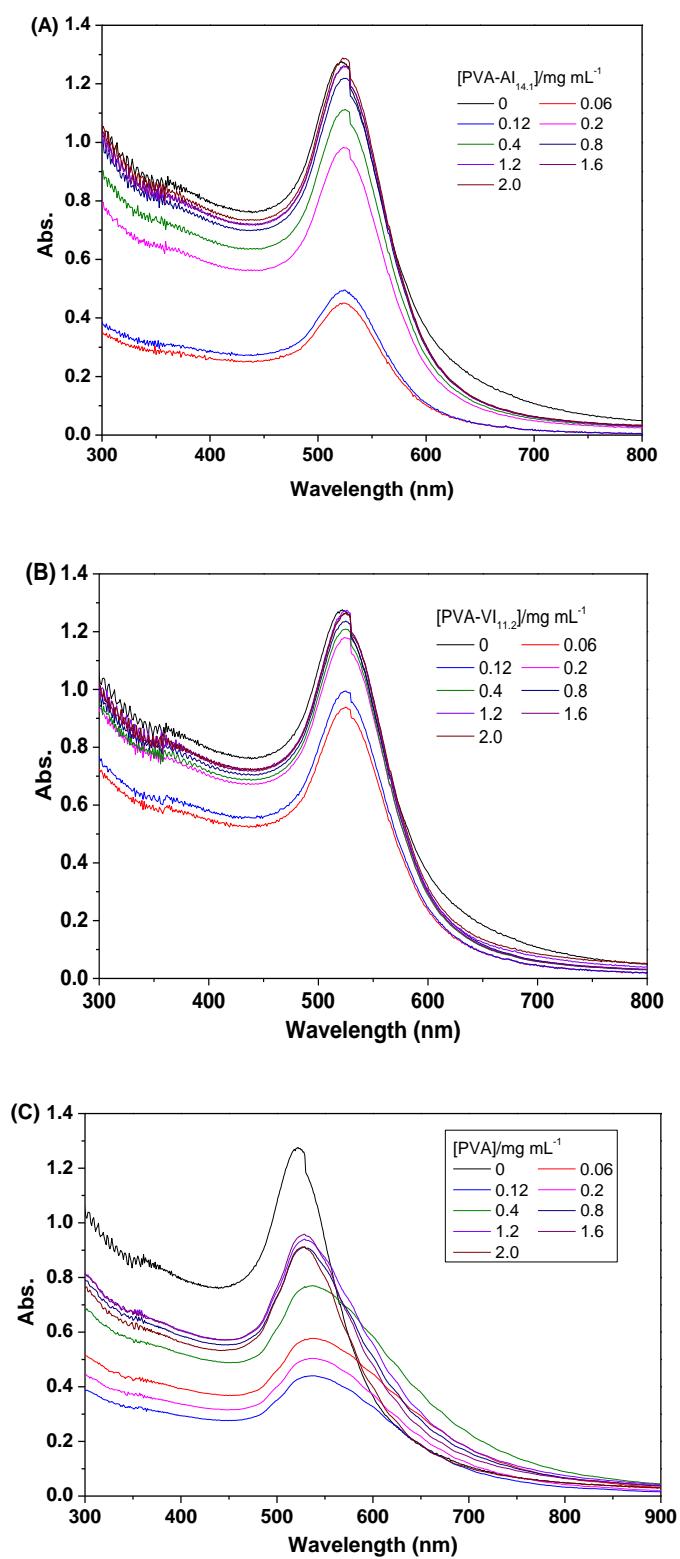
**Fig. S1** Typical XRD spectra of PVA, (A) PVA-GI, (B) PVA-AI and (C) PVA-VI



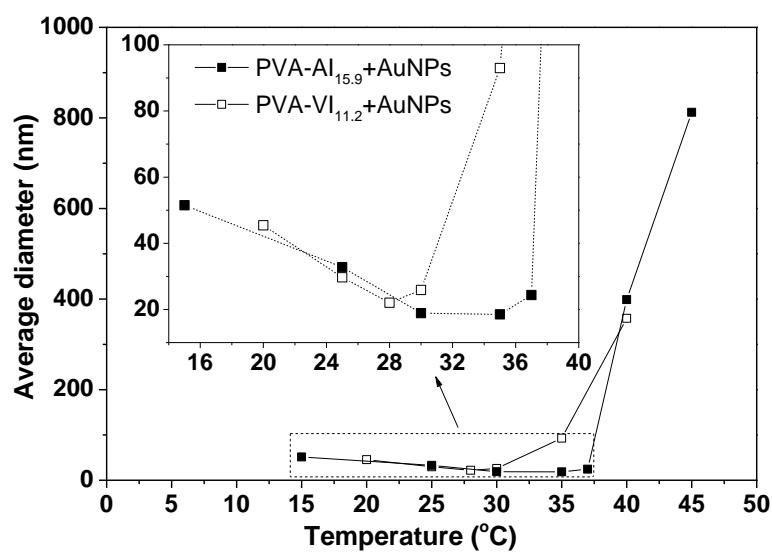
**Fig. S2** Typical influence of temperature on the light transmittance of PVA in deionized water  
(concentration of PVA is 5 mg/mL)



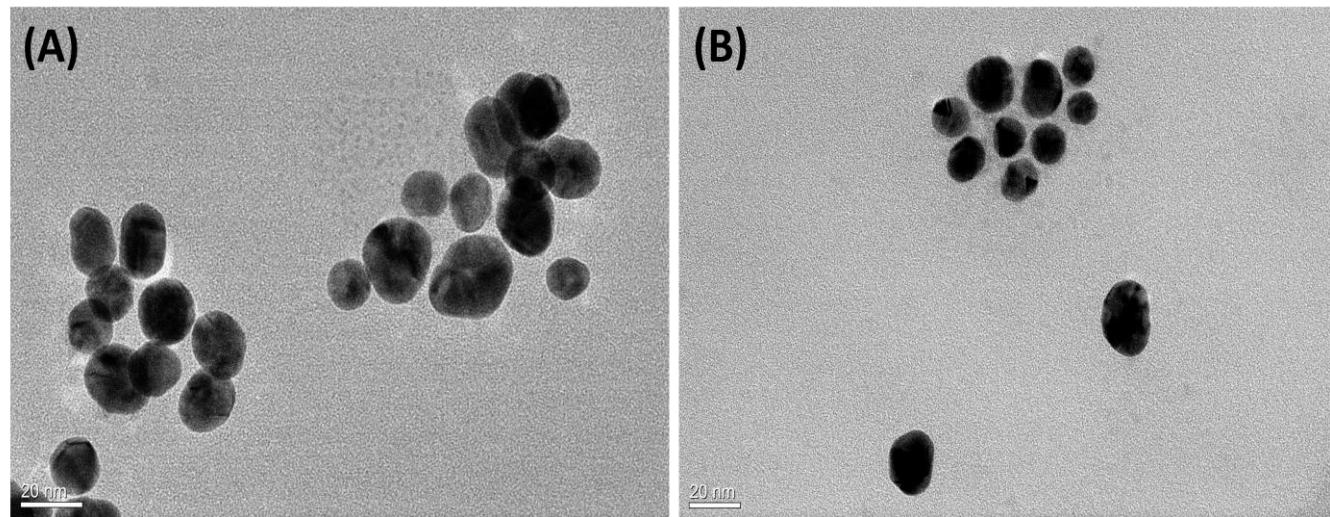
**Fig. S3** (A) DLS diagram and (B) TEM image of citrate-stabilized AuNPs



**Fig. S4** Typical UV-vis spectra of the redispersed AuNPs stabilized by different concentration of (A) PVA-Al<sub>14,1</sub>, (B) PVA-Al<sub>11,2</sub> and (C) PVA in deionized water (original concentration of Au atom is  $3 \times 10^{-4}$  mM)



**Fig. S5** Typical temperature dependent DLS of composites of AuNPs with PVA-AI<sub>15.9</sub> and PVA-VI<sub>11.2</sub> in deionized water (0.1 mg/mL)



**Fig. S6** TEM images of AuNPs stabilized by (A) PVA-AI<sub>14.1</sub> and (B) PVA-AI<sub>11.2</sub>