Supporting Information

Self-Cleaning Cotton by Porphyrin-sensitized Visible-Light Photocatalysis

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1. UV-Vis absorption spectroscopy of TCPP

![UV-Vis spectra of TCPP for Soret band](Fig. S1)

**Fig. S1** UV-Vis spectra of TCPP for Soret band
2. UV-Vis Spectroscopy for evaluation of coating stability

a. Detergent washing

Fig. S2a  UV-Vis spectra TiO$_2$/TCPP-coated cotton (a) before washing with detergent, (b) after washing with detergent for 45 min.

b. Petroleum ether washing

Fig. S2b  UV-Vis spectra TiO$_2$/TCPP-coated cotton (a) before washing with petroleum ether, (b) after washing with petroleum ether for 45 min.
c. Water washing

![Fig. S2c UV-Vis spectra TiO$_2$/TCPP-coated cotton (a) before washing with water, (b) after washing with water for 45 min.](image)

2. UV-Vis spectroscopy for evaluation of coating photostability

![Fig. S3 UV-Vis spectra of TiO$_2$/TCPP-coated cotton before and after light irradiation at different time intervals.](image)