Supporting Information

Understanding the Growth and Photoelectrochemical Properties of Mesocrystals and Single Crystals: A Case of Anatase TiO₂

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Fig. S1 N₂ adsorption-desorption isotherms of the TiO₂ mesocrystals. The insets show the BJH pore size distribution.

Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics. This journal is © The Royal Society of Chemistry 2014
**Fig. S2** XRD patterns of the precipitates obtained at different reaction times under (a) solvothermal and (b) hydrothermal conditions. The JCPDS patterns in (a) and (b) are anatase TiO$_2$ and TiO$_2$-B, respectively.
**Fig. S3** FTIR patterns of titanate precursor and the precipitates obtained at different reaction times under solvothermal conditions, as well as the precipitate obtained after 48 h of reaction and 30 min of calcination at 400 °C.

**Fig. S4** TGA curves of the as-precipitated TiO$_2$ mesocrystals (a) and single crystals (b) synthesized at 200 °C under solvothermal and hydrothermal conditions.