

Supplementary materials

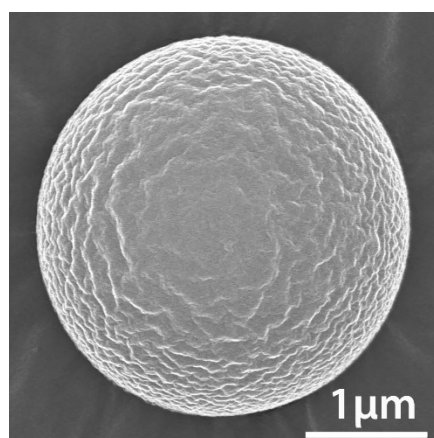


Figure S1. FEG-SEM image of the template.

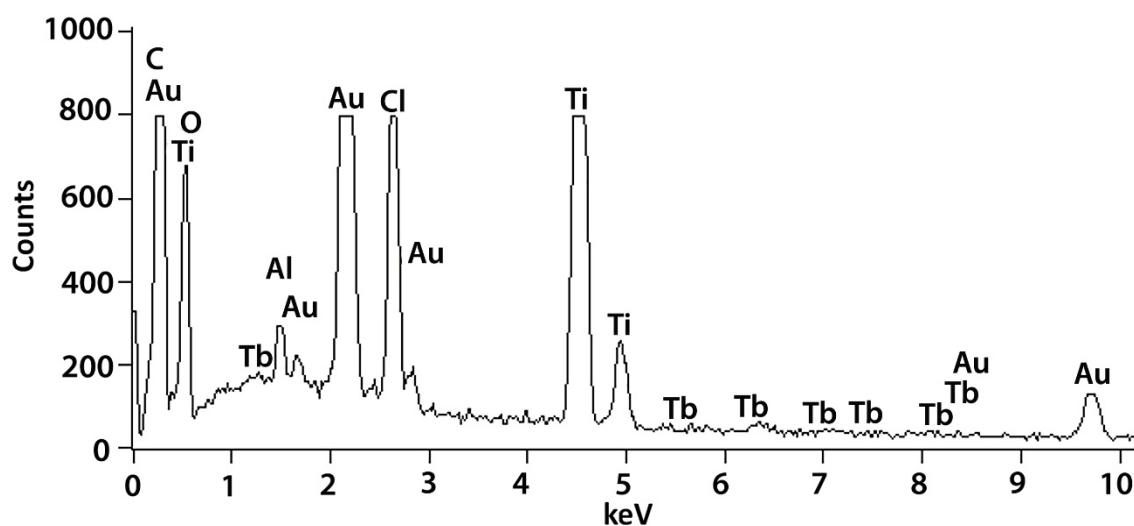
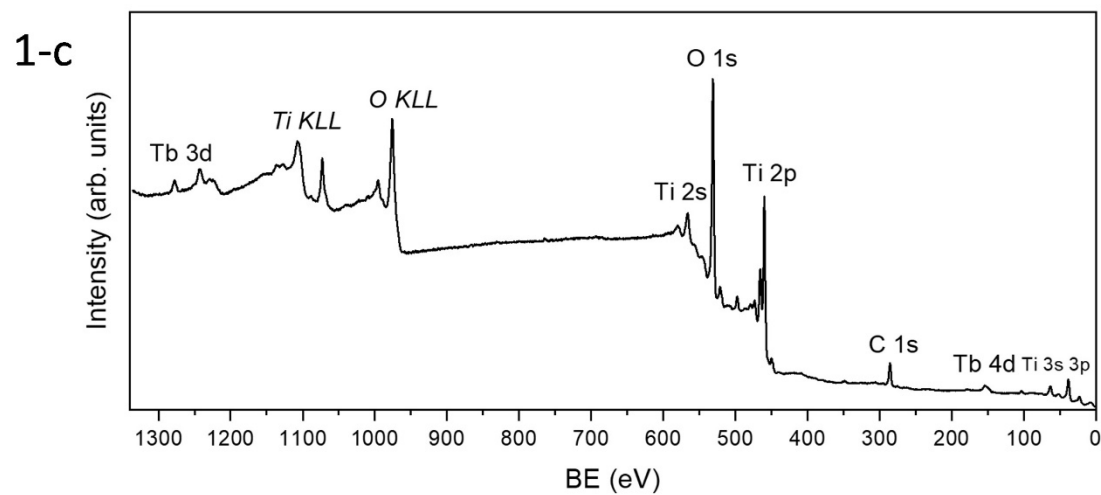
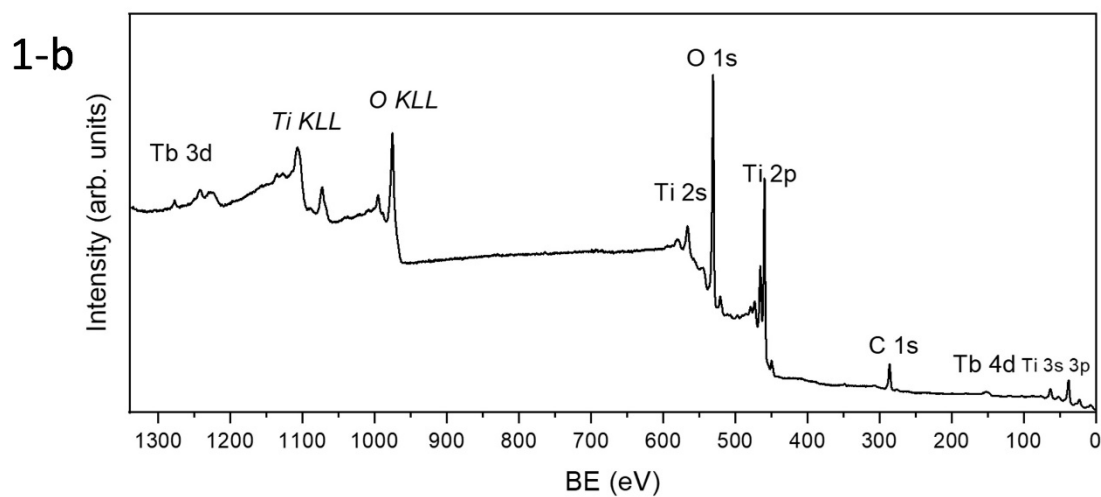
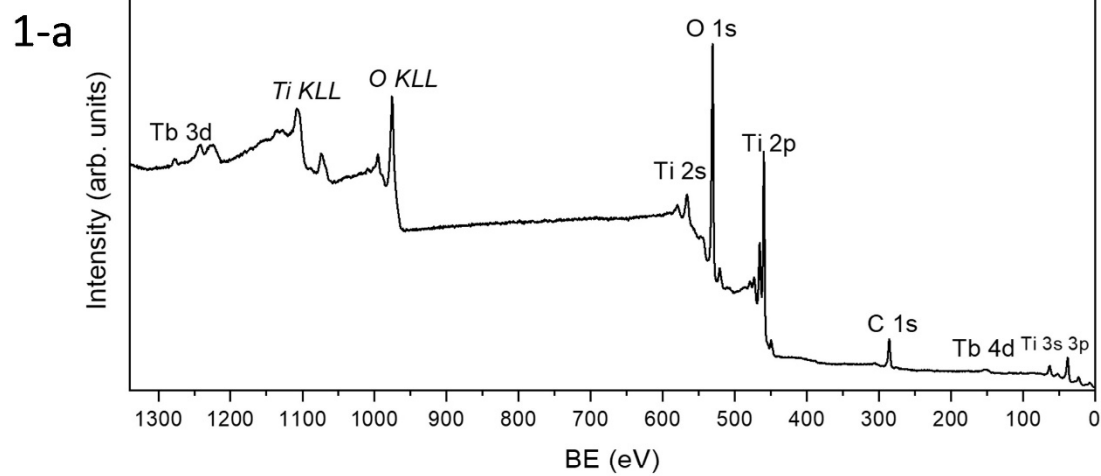


Figure S2. XEDS analysis of the template + TiCl_4 and TbCl_3 mixture + HCl (aq) after 5 h of reaction for the 0.12 at.% Tb (Fig. 4 (a) is the corresponding FEG-SEM picture of the sample).



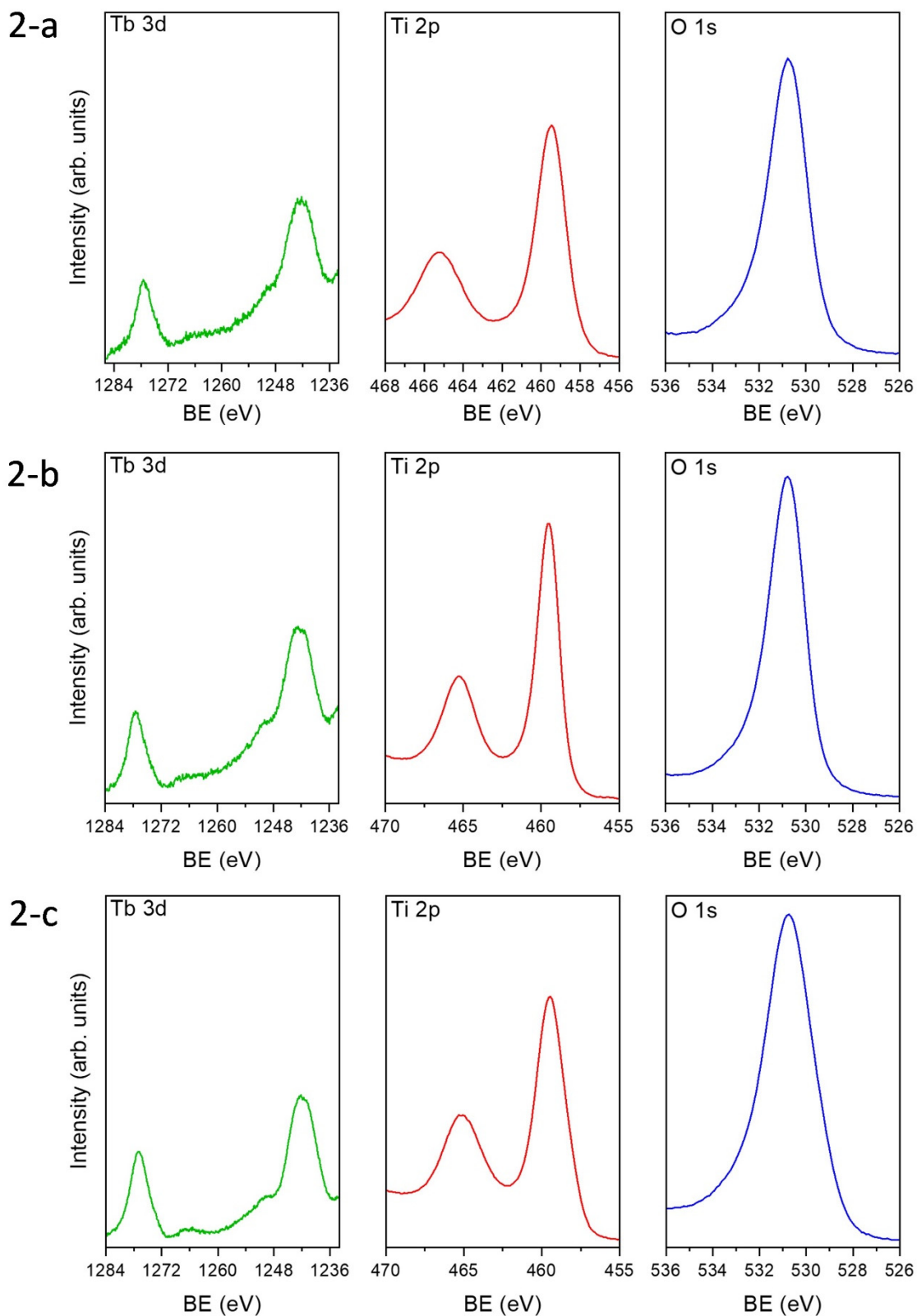


Figure S3. Survey photoemission spectra of 3.00%_550 (1-a), 1.70%_800 (1-b) and 1.70%_1000 (1-c), respectively. Detailed X-ray photoelectron spectral regions of the main signals for the Tb 3d, Ti 2p and O 1s elements in 3.00%_550 (2-a), 1.70%_800 (2-b) and 1.70%_1000 (2-c), respectively.

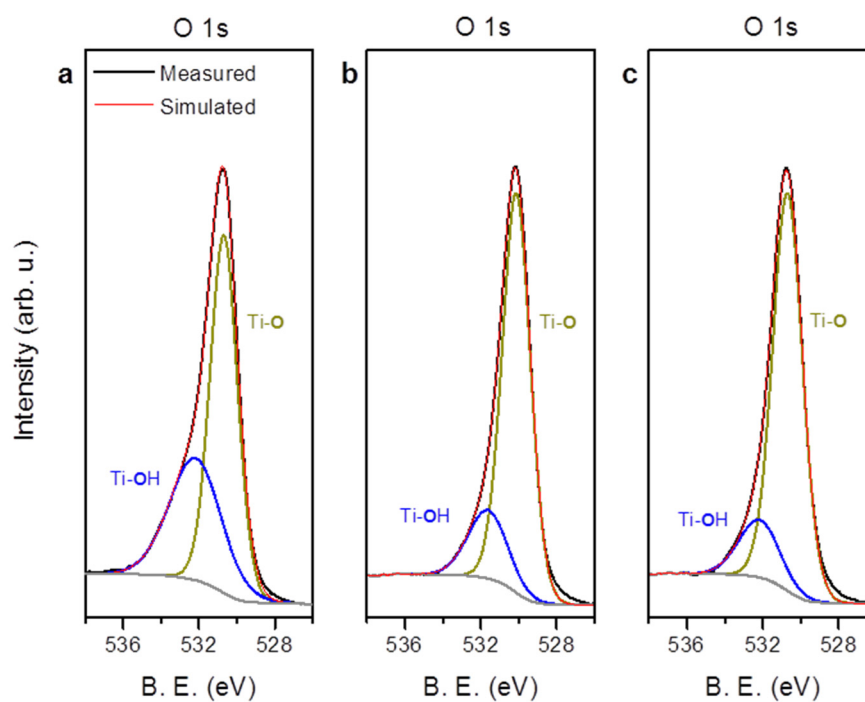


Figure S4. Experimental and fitted O 1s X-ray photoelectron spectral region of the samples calcined at 550 °C that shows two different bounded oxygen ((a): 0.00%_550; (b): 1.70%_550 and (c): 3.00%_550).