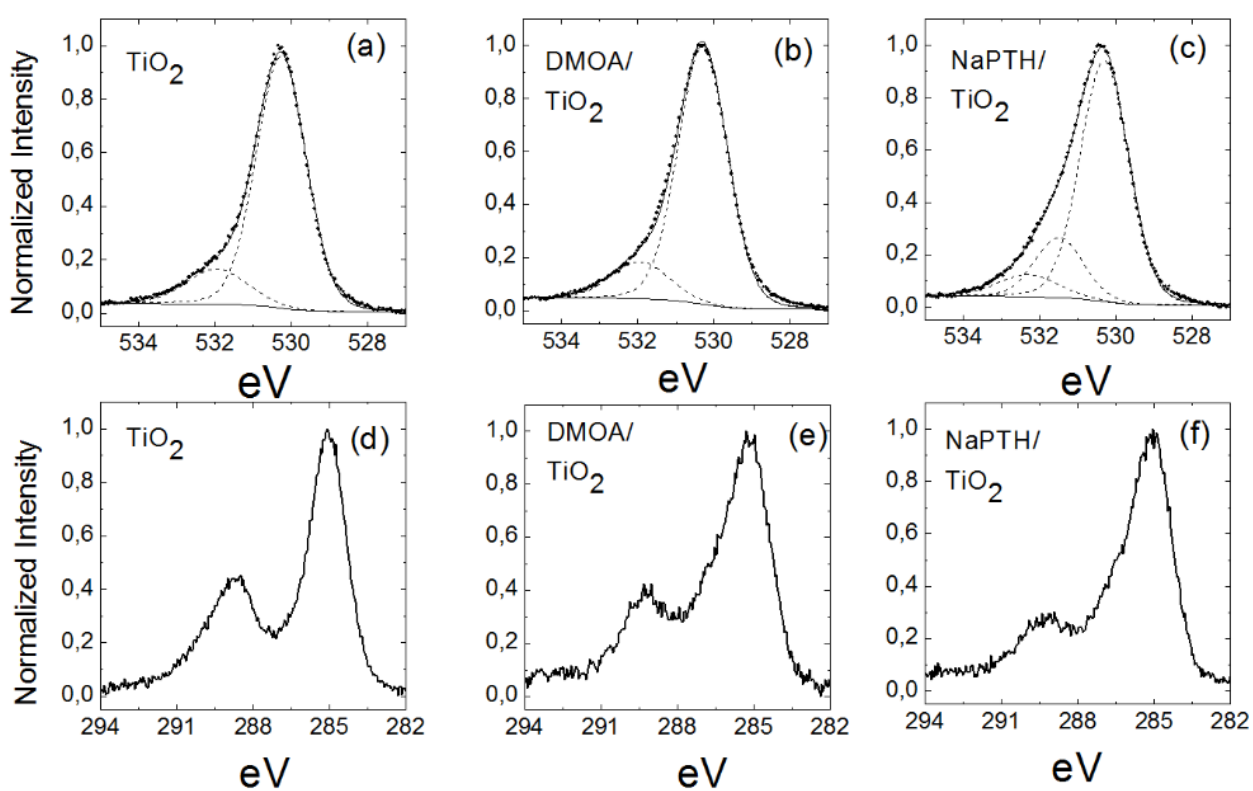
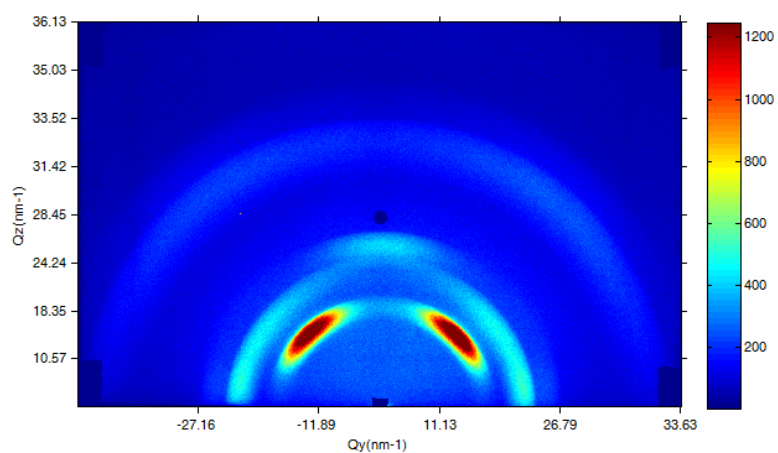


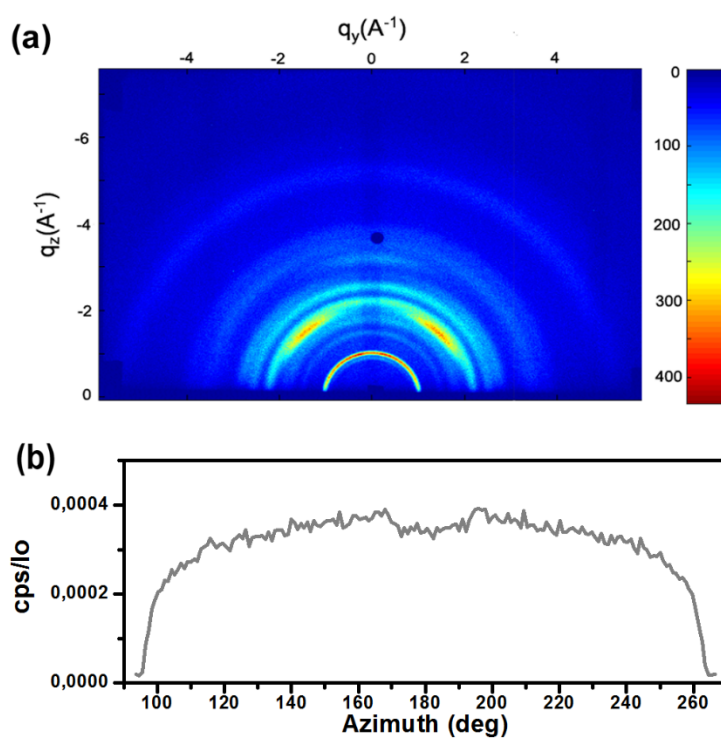
**Figure S1** Contact angle measurement of water on (a) bare  $\text{TiO}_2$  ( $30^\circ \pm 5$ ) and onto functionalized  $\text{TiO}_2$  with either (b) DMOA ( $6^\circ \pm 5$ ) or (c) NaPTH ( $12^\circ \pm 5$ ).



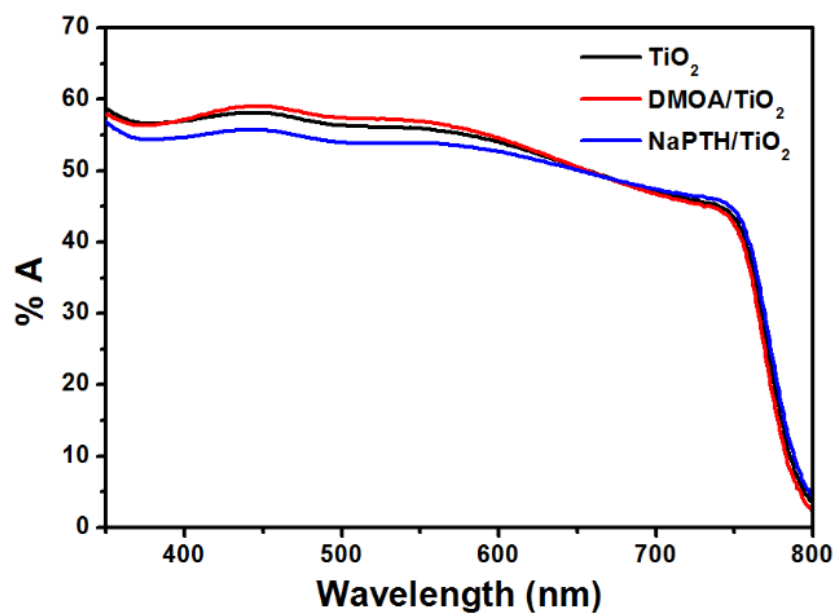
**Figure S2** Top panel: O1s XPS region of (a)  $\text{TiO}_2$ , (b) DMOA/ $\text{TiO}_2$  and (c) NaPTH/ $\text{TiO}_2$ ; Bottom panel: C1s XPS region of (d)  $\text{TiO}_2$ , (e) DMOA/ $\text{TiO}_2$  and (f) NaPTH/ $\text{TiO}_2$ .



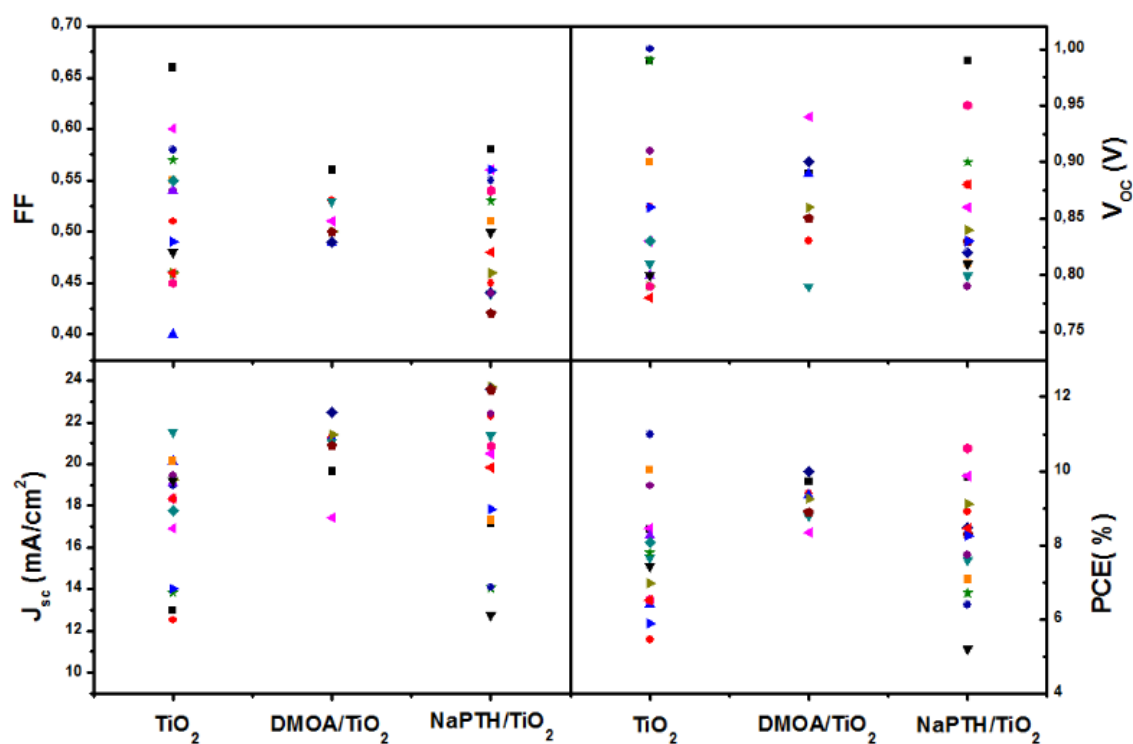
**Figure S3** GIWAXS 2D maps for the  $\text{TiO}_2$  substrate.



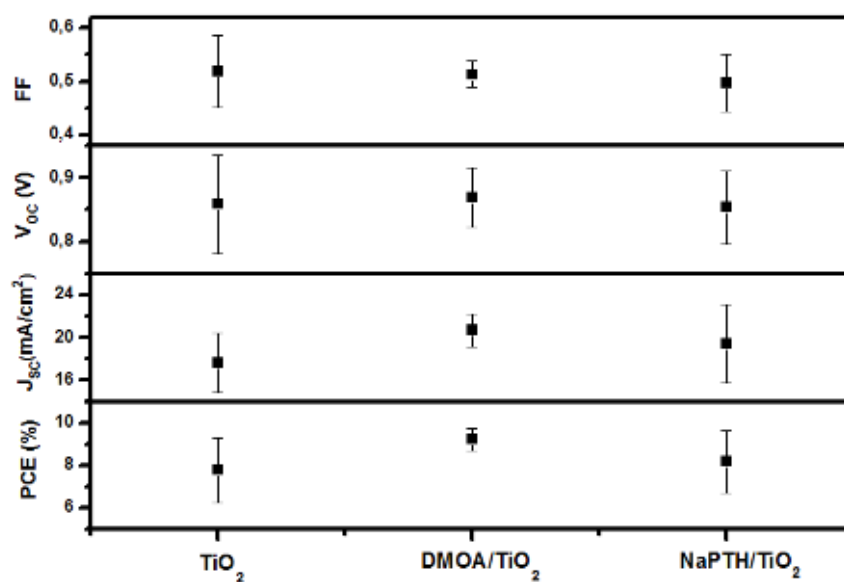
**Figure S4** GIWAXS 2D map for the  $\text{MAPbI}_3$  perovskite film prepared on naked  $\text{TiO}_2$  (a) and relevant intensity distributions along the (110) ring (b);



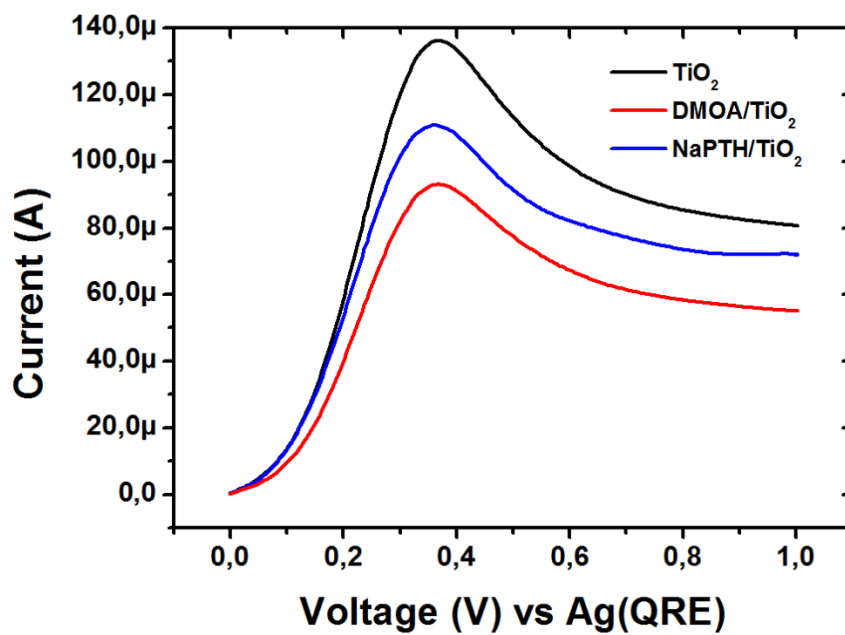
**Figure S5** Absorption spectra obtained from the diffused reflectance and transmittance measurements of  $\text{CH}_3\text{NH}_3\text{PbI}_{3-x}\text{Cl}_x$  onto bare  $\text{TiO}_2$  (black line) and onto functionalized  $\text{TiO}_2$  with either DMOA (red line) or NaPTH (blue line).



**Figure S6** Photovoltaic parameters for all the planar devices made on naked  $\text{TiO}_2$  and on DMOA and NaPTH functionalized  $\text{TiO}_2$ . Each symbol correspond to a device.



**Figure S7** Mean values and standard deviations of photovoltaic parameters for all the planar devices made on naked  $\text{TiO}_2$  and on DMOA and NaPTH functionalized  $\text{TiO}_2$ .



**Figure S8** Single scan voltammograms of 0.5 mM Fe(C<sub>5</sub>H<sub>5</sub>)<sub>2</sub> at a bare TiO<sub>2</sub> electrode (black line) at TiO<sub>2</sub> functionalized NaPTH (blue line) and at TiO<sub>2</sub> Functionalized DMOA (red line) in 0.1 M LiClO<sub>4</sub> at V=20mVs<sup>-1</sup>.