

Supplementary information

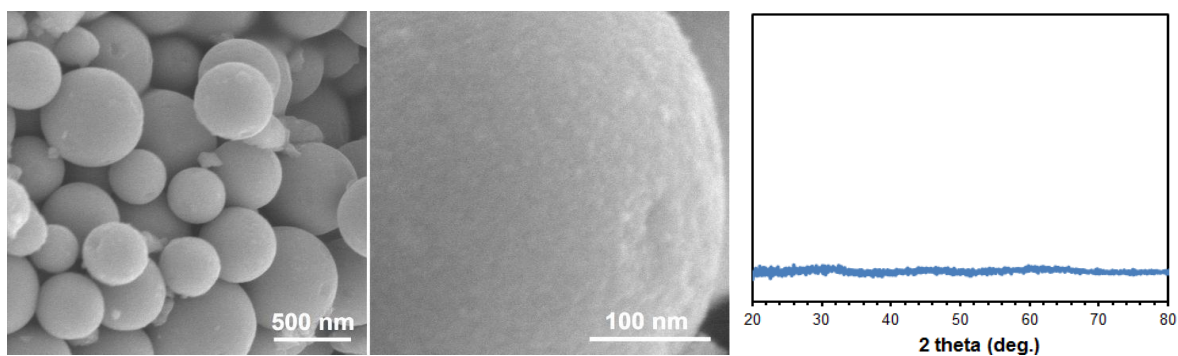


Figure S1. SEM images and corresponding XRD of precursor spheres before hydrothermal treatment and doping.

Table S1. LA ICPMS analysis results.

| W added in reaction | Unit | Ti | W | W in product |
|---------------------|---------|-------|---------|--------------|
| 0.26 wt% | % wt/wt | 37.57 | 0.09796 | 0.26 wt% |

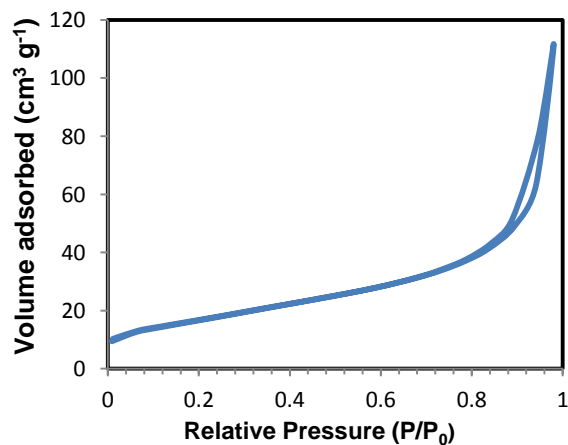


Figure S2. Nitrogen sorption isotherms of Degussa P25 nanoparticles.

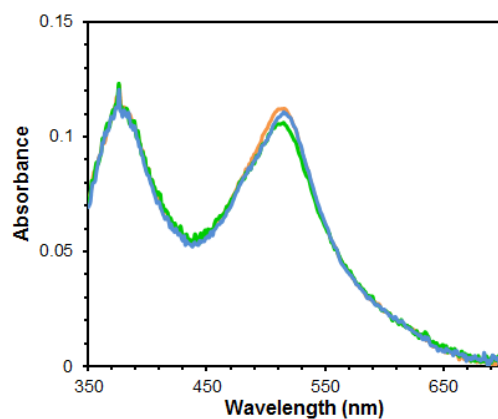


Figure S3. Absorbance spectra of the dye detached from sensitized photoanodes prepared using sample **W0**, **W1** and **W2**.

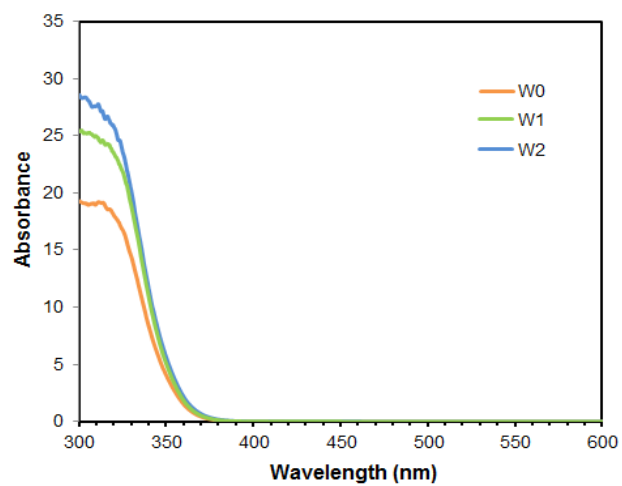


Figure S4. UV-vis absorbance spectra of the non-doped and W-doped spherical mesoporous TiO_2 .

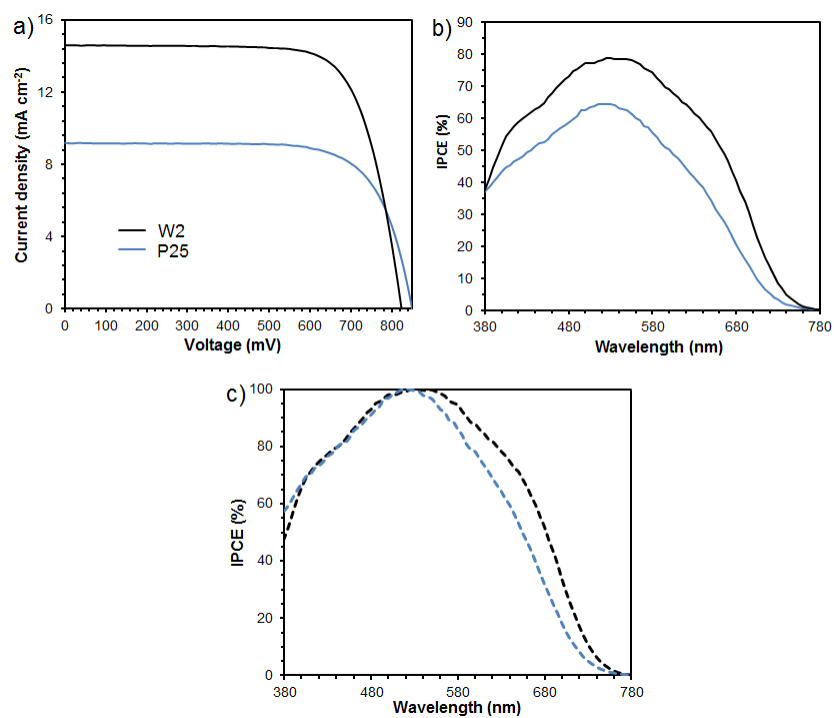


Figure S5. Comparisons of a) current – voltage curves, b) IPCE curves and c) normalized IPCE curves of sensitized photoanodes (12 μm) based Degussa P25 nanoparticles and sample W2.

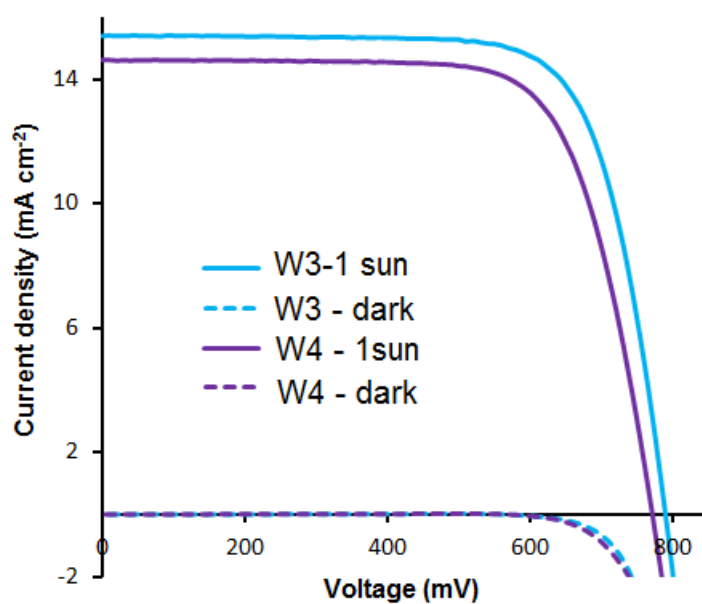


Figure S6. Current – voltage curves of sensitized photoanodes based on 0.25 at% (**W3**) and 0.5 at% (**W4**) W-doped spherical mesoporous TiO₂.