

Supplementary Information:

Self-cleaning anatase nanorods: Photocatalytic removal of structure directing agents and subsequent surface modification

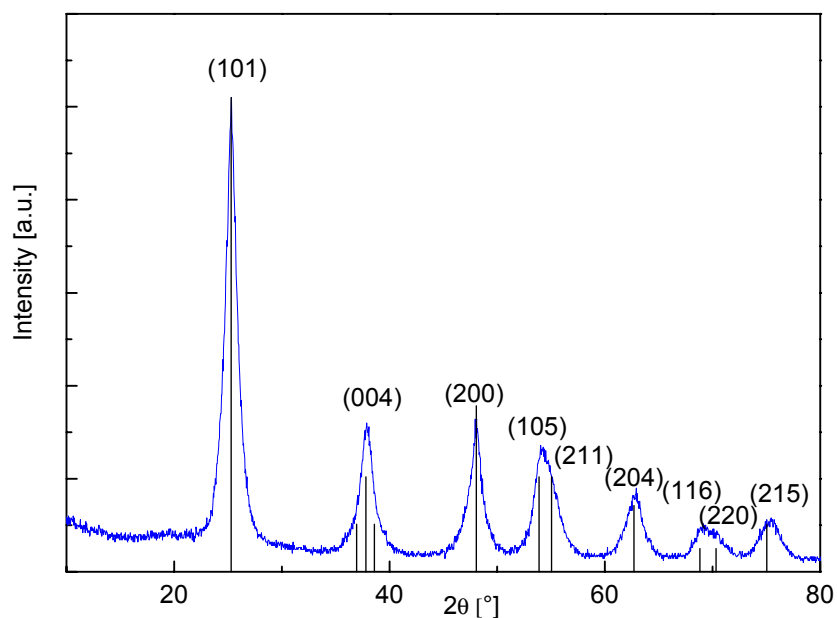


Fig. S1 – Powder XRD pattern of the as-prepared TiO₂ nanorods, with standard diffraction lines of anatase

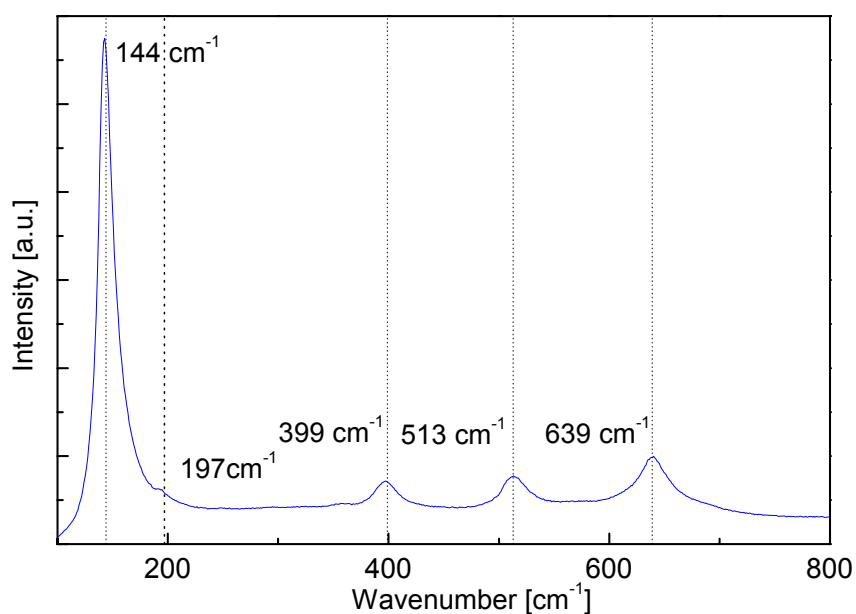


Fig. S2 – Raman spectra of the as-prepared TiO₂ nanorods, with standard anatase peaks annotated (144, 197, 399, 513 and 639 cm⁻¹)¹

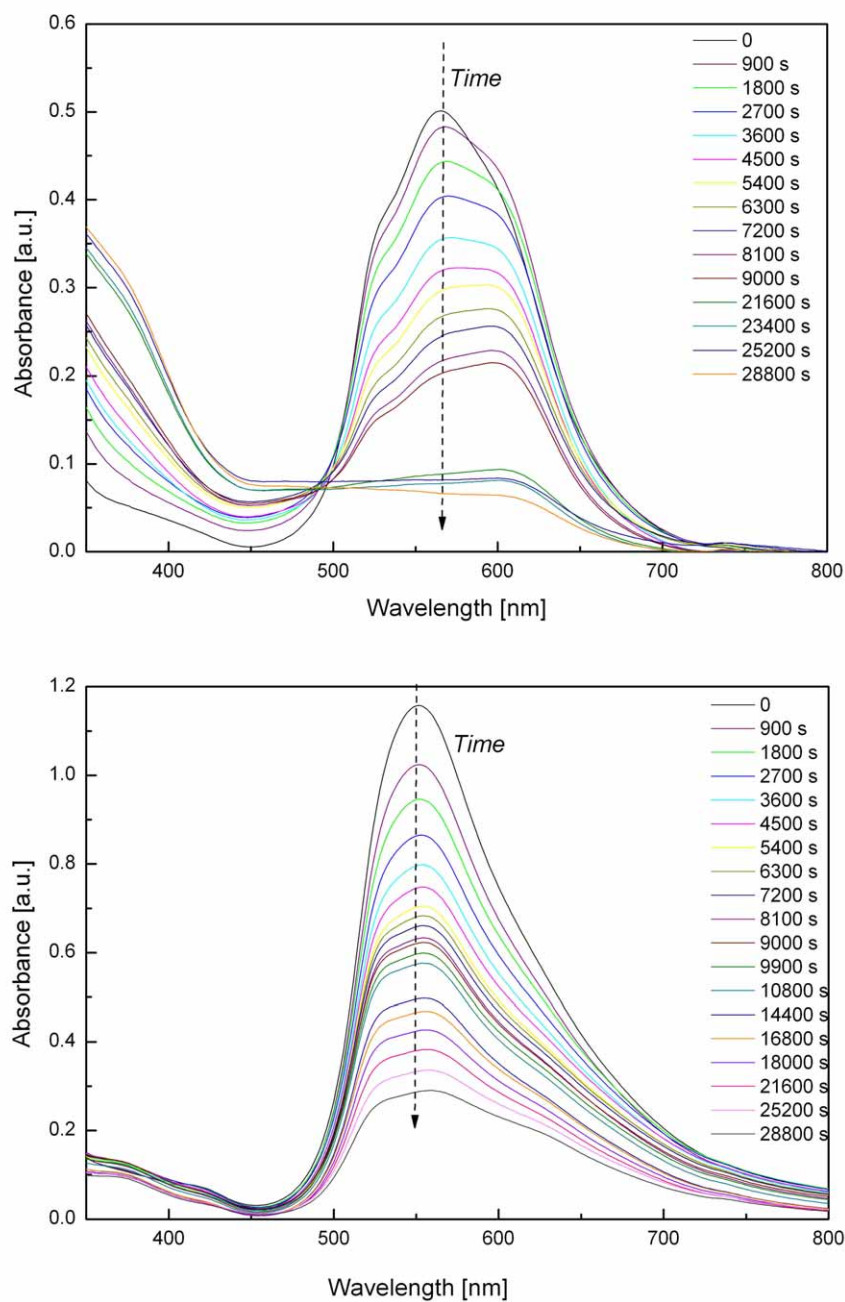


Fig. S3 - UV-Vis spectra of Brilliant Blue R solutions in water at (a) basic pH 12-13 and (b) acidic pH ≤ 2 , as function of UV-exposure time

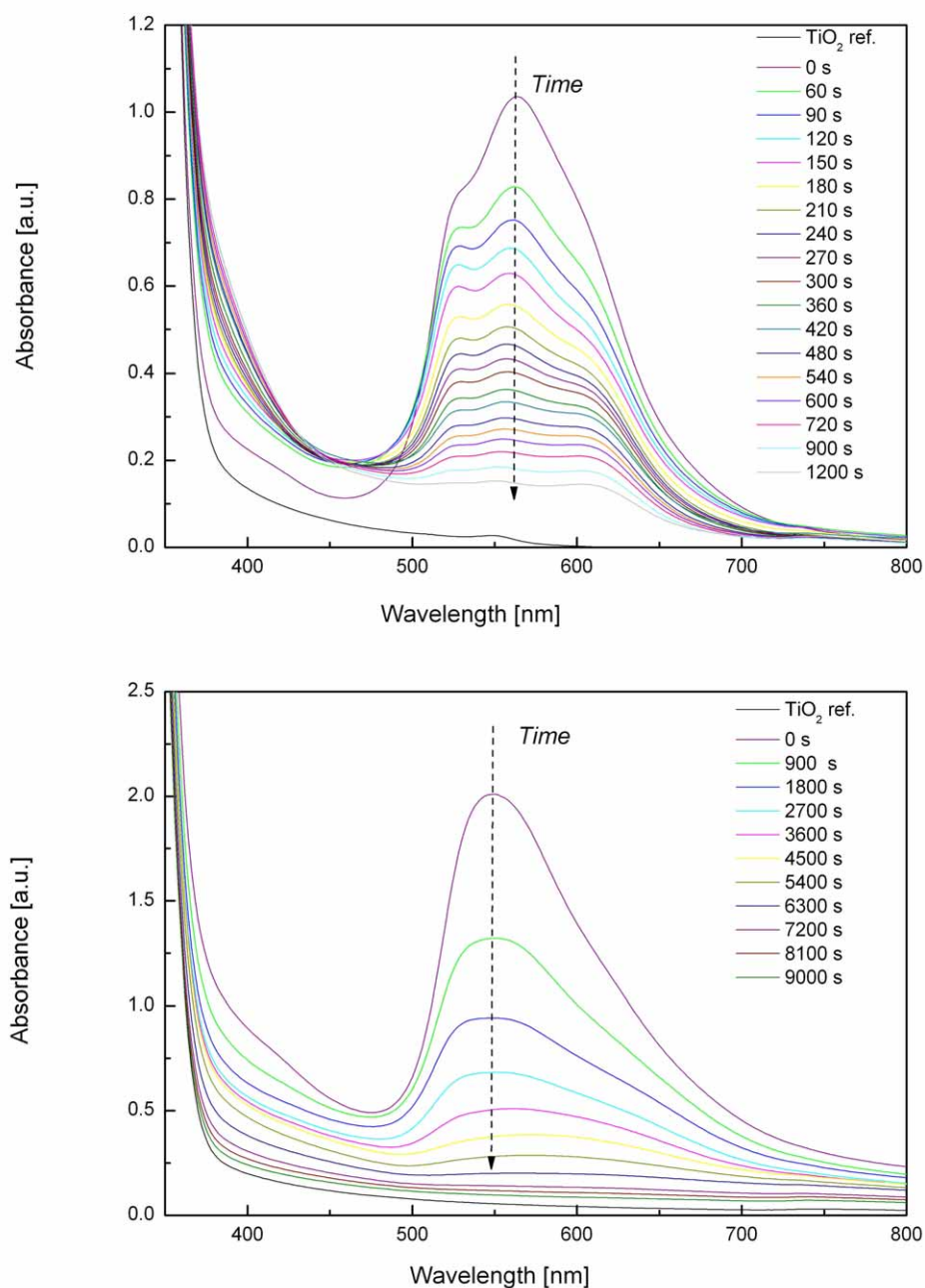


Fig. S4 – UV-Vis spectra of the dye solutions containing (a) pristine, UV-treated TiO₂ nanorods (3 mg ml⁻¹) and (b) APTS-coated TiO₂ nanorods (3 mg ml⁻¹) as a function of irradiation time

Organic-capped TiO₂ nanorods, with higher aspect ratio to those discussed in the paper were also prepared by high temperature, nonhydrolytic routes using TiCl₄ and Ti(OPr)₄ as titania precursors. The surfactant is oleic acid dissolved in heptadecane and the setup and reaction conditions are identical to those for synthesis of TOPO-dodecylamine rods, except that the reaction is split into two 4h segments – a pre-nucleation step at 110°C and a high temperature step at 300°C. The results below are for TiO₂ nanorods grown with oleic acid as SDA (TNR_{OLEA}).

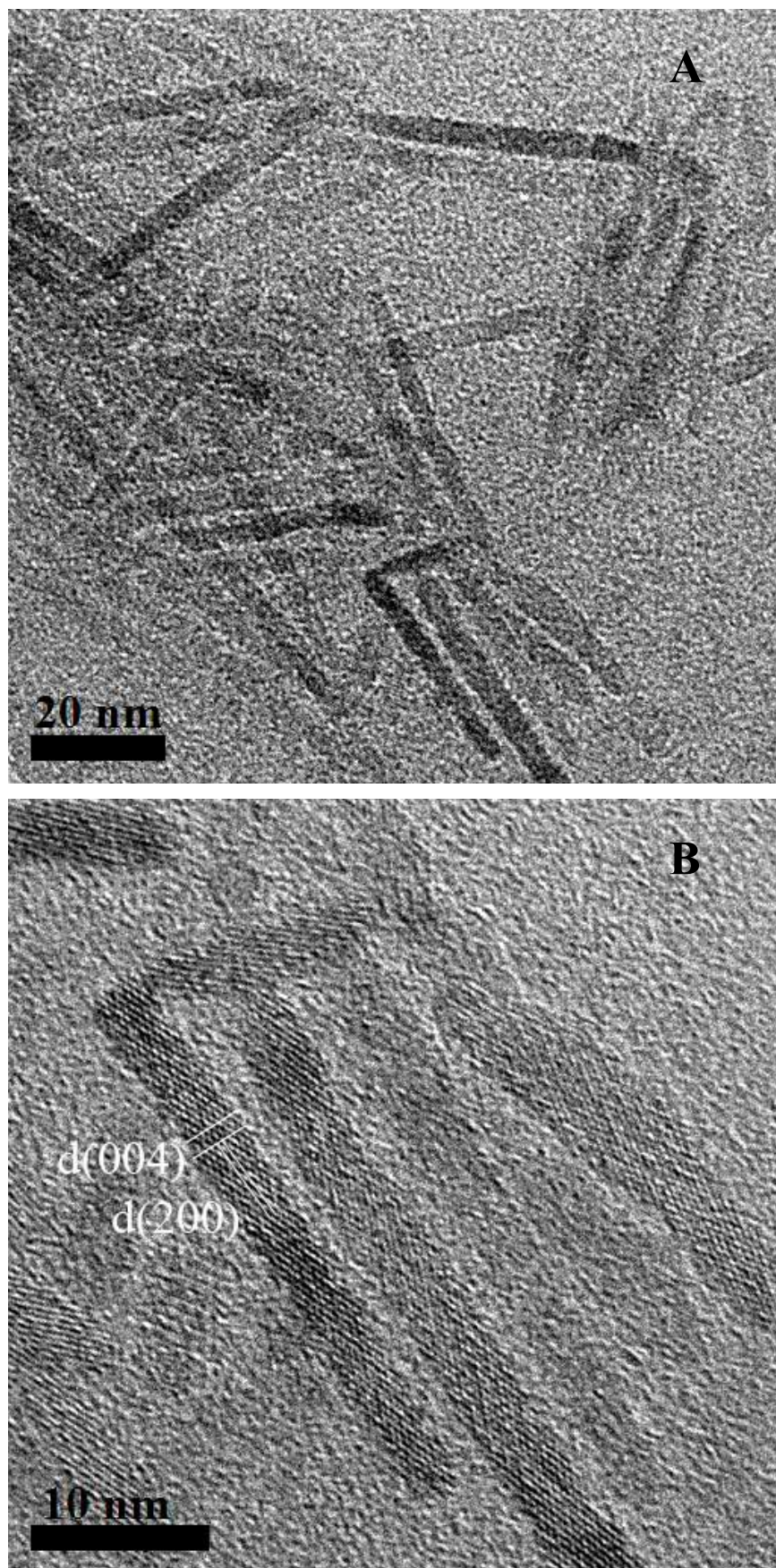


Figure S5 - TEM of TNR_{OLEA}:

(a) low-resolution micrograph and (b) high-resolution micrograph

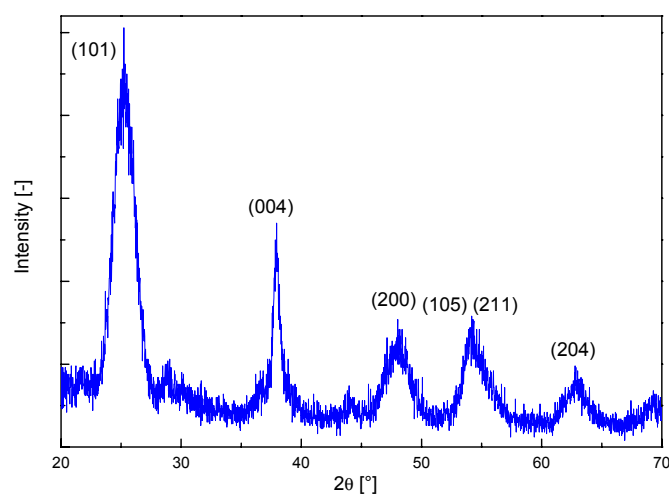


Figure S6 - XRD pattern of TNROLEA

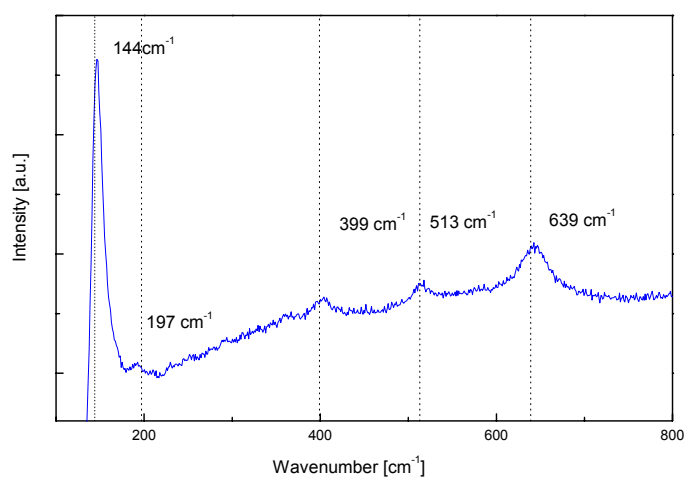
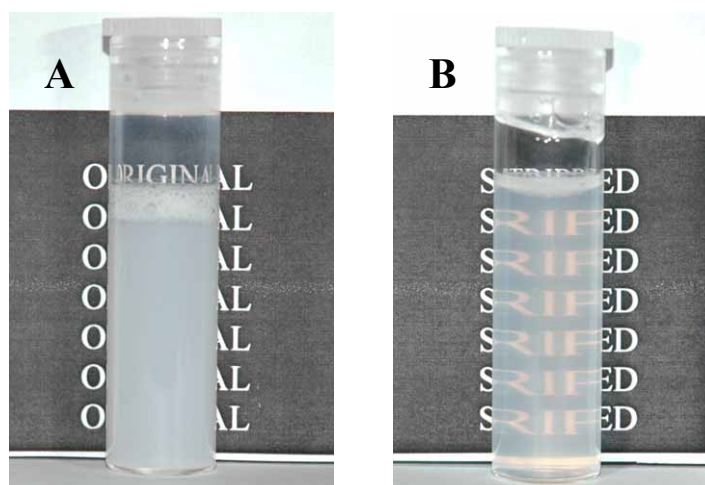


Figure S7 - Raman spectrum of TNROLEA



**Figure S8 – TNROLEA suspensions in water (1mg ml^{-1} TiO_2):
(a) stripped (b) stripped with 200 mM TMAH**

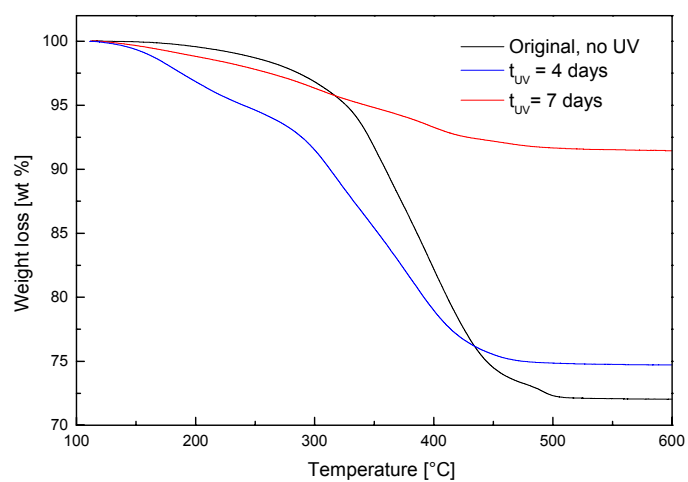
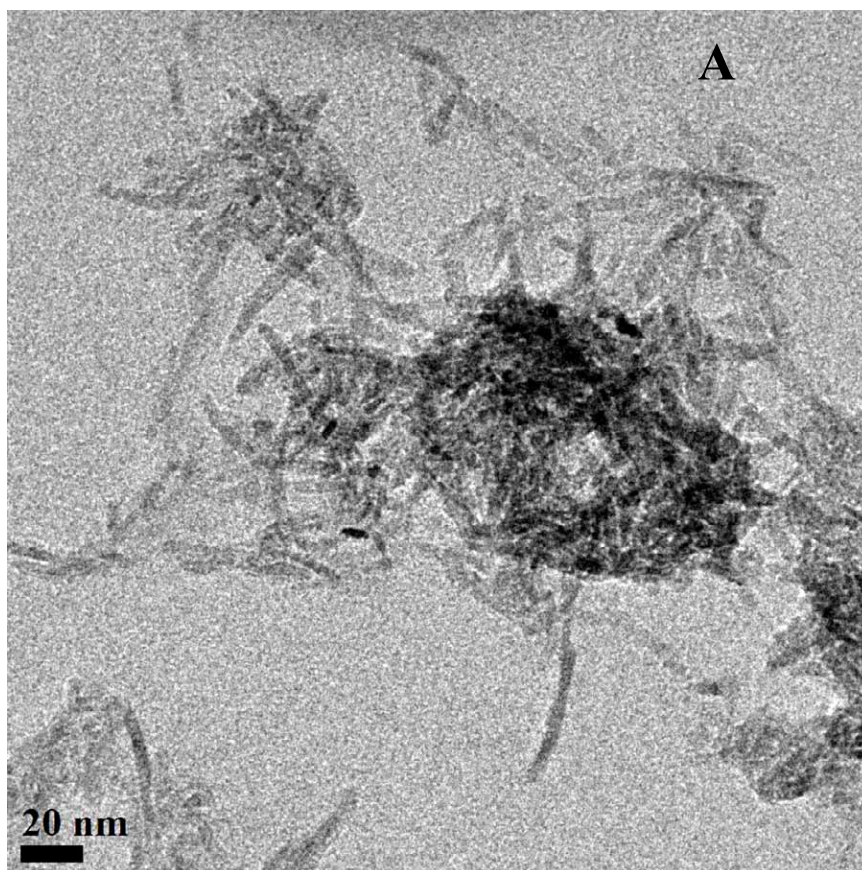


Figure S9 - TGA curves for TNR_{OLEA} - effect of UV irradiation time



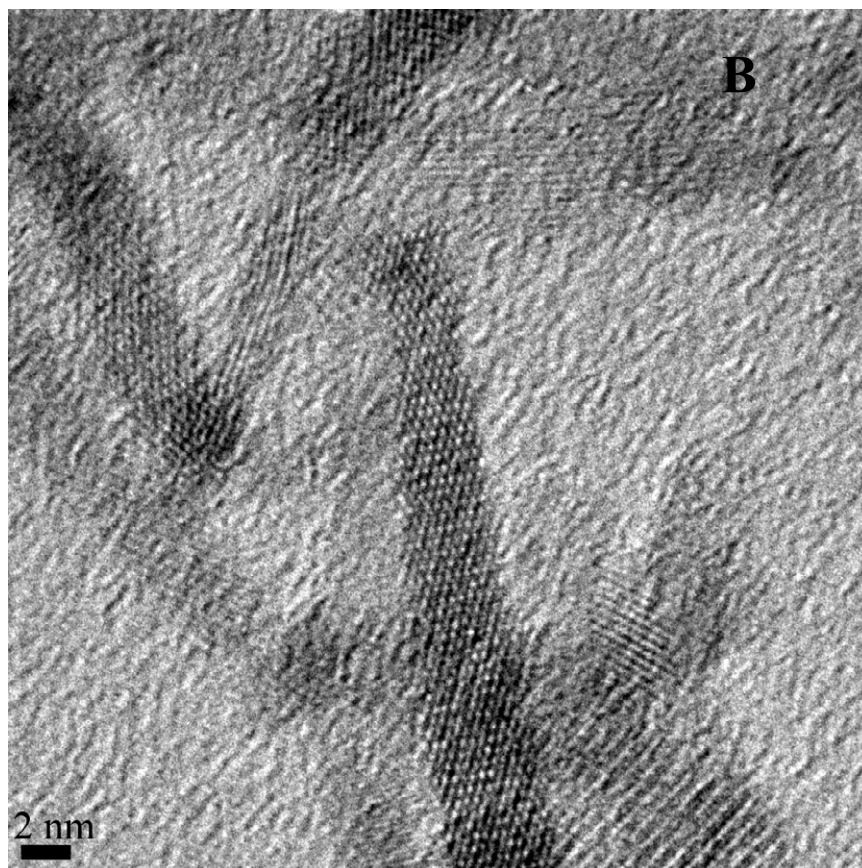


Figure S10 - TEM of stripped TNR_{OLEA}:
(a) low-resolution and (b) high resolution micrograph

References

1. L. Qian, Z. L. Du, S. Y. Yang, and Z. S. Jin, *Journal of Molecular Structure*, 2005, **749**, 103;