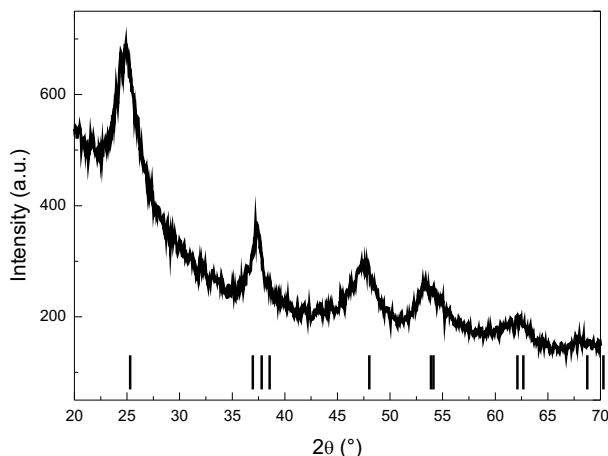


Supplementary Information

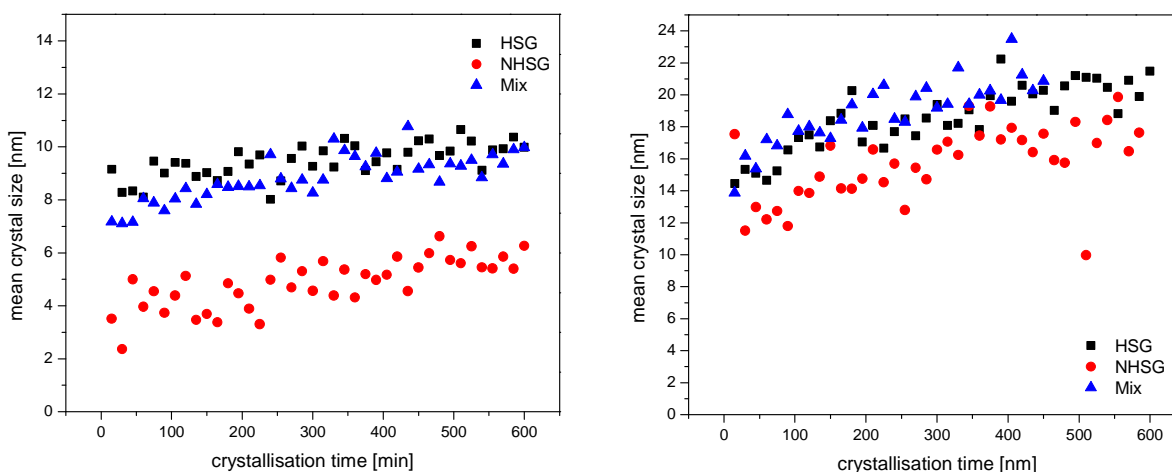
Low temperature crystallisation of mesoporous TiO₂

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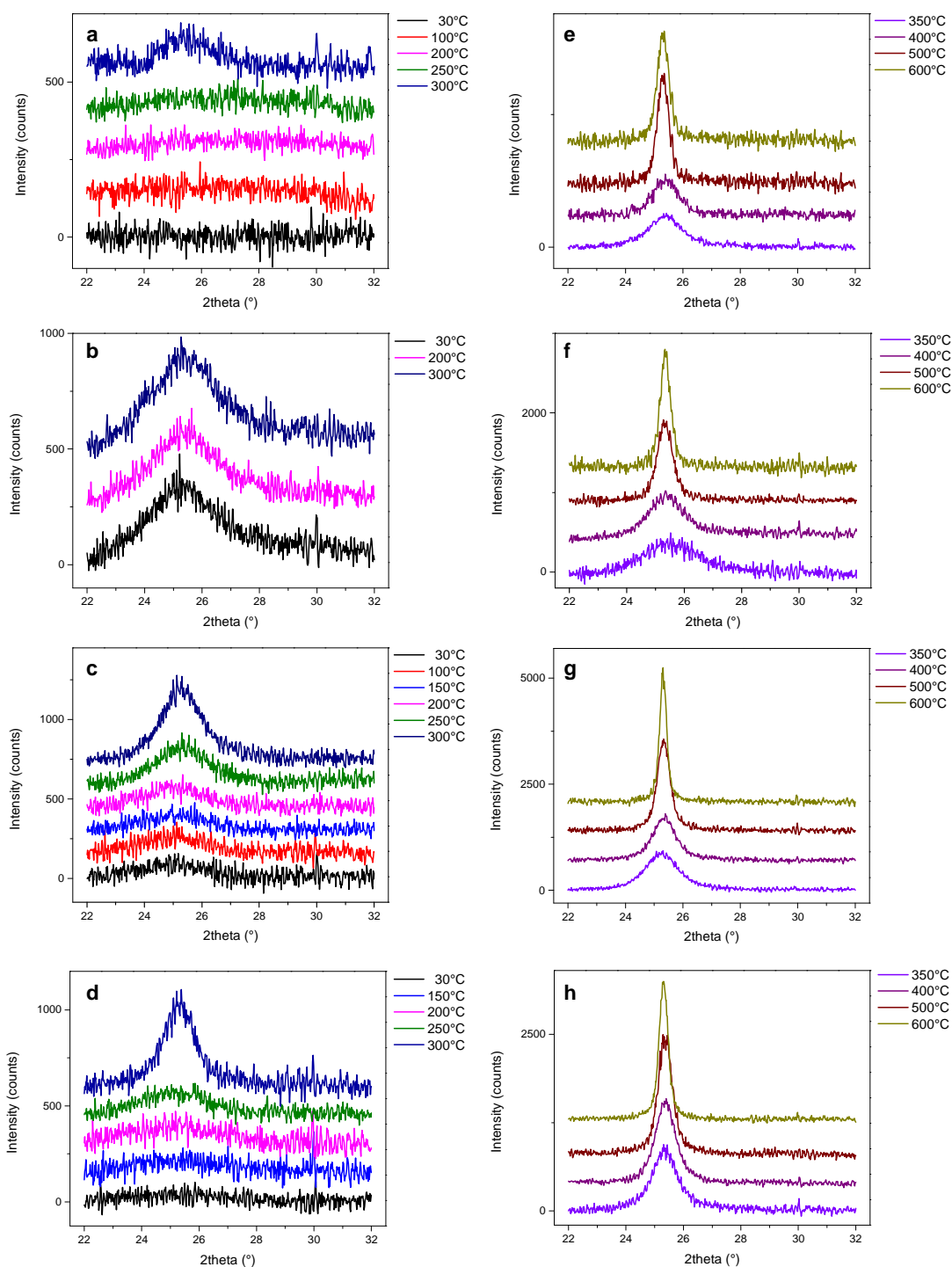
Supplementary Figure S1 | WAXS pattern of the dried precipitate from nanocrystal synthesis. The black bars indicate expected reflection positions of anatase TiO₂ (PDF 71-1167).



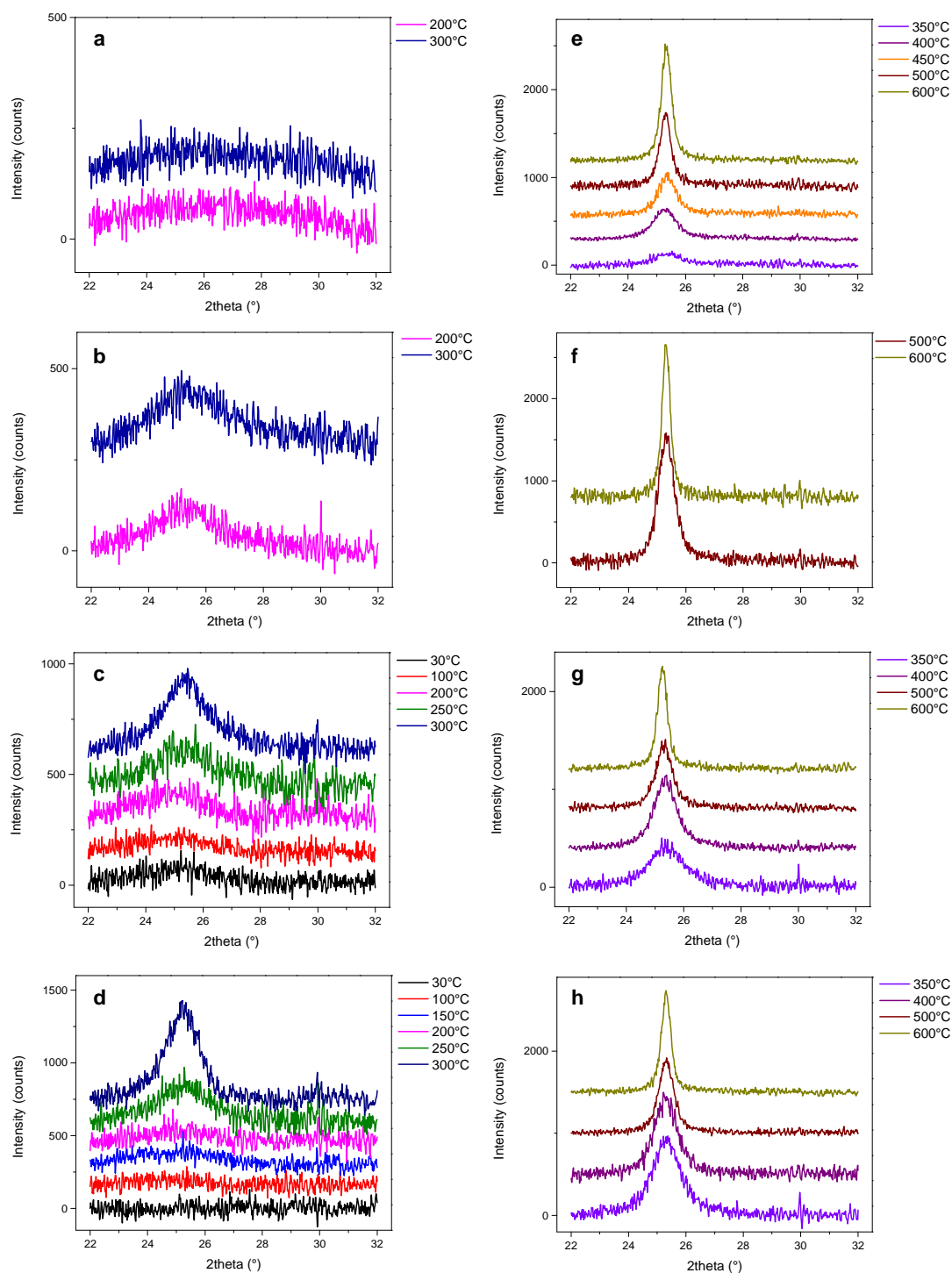
Supplementary Figure S2 | XRD kinetics. Mean crystallite size determined from *in situ* WAXS during the annealing process at a fixed temperature of (a) 350°C and (b) 500°C.

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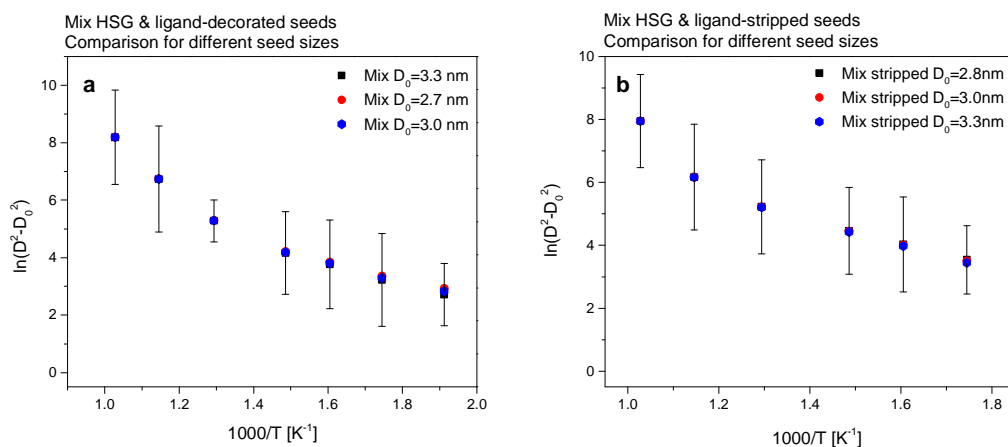
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Supplementary Figure S3 | Exemplary WAXS pattern of non-templates samples after annealing at various temperatures. (a)-(d) Overview of low temperature crystallisation for (a) HSG, (b) NHSG, (c) HSG with ligand-decorated nanocrystal seeds and (d) ligand-stripped seeds, respectively. (e)-(h) Overview for higher crystallisation temperatures. For clarity the scans were superimposed by an offset in y-direction.



Supplementary Figure S4 | Exemplary WAXS pattern of BCP-templated samples after annealing at various temperatures. (a)-(d) Overview of low temperature crystallisation for (a) HSG , (b) NHSG, (c) HSG with ligand-decorated nanocrystal seeds and (d) ligand-stripped seeds, respectively. (e)-(h) Overview for higher crystallisation temperatures. For clarity the scans were superimposed by an offset in y-direction.



Supplementary Figure S5 | Activation energy vs. different seed diameters for ligand-decorated and ligand-stripped seeds. (a) In the case of ligand decorated seeds $D_0 = 3.3$ nm (mean statistical value) is compared to a seed diameter of 2.7 nm and 3 nm. For ligand-stripped seeds the mean value of 2.8 nm is plotted against an initial size of 3.0 nm and 3.3 nm, respectively. This comparison illustrates the robustness of the activation energy determination irrespective of an uncertainty in the seed diameter, yielding from a weak crystalline footprint (15 w%) in the initial sample.