Experimental Section

ZnPO-SOD substrate crystals were synthesised following the recipe of Gier and Stucky,[1] except that the crystallisation was performed at a lower temperature of 4°C compared to the synthesis temperatures ranging from RT to 50°C reported.[2] Analysis of the resulting crystals by powder x-ray diffraction found two phases present, SOD and CZP. However, due to their very different morphologies, the SOD crystals could be easily identified and selectively scanned with the AFM. Some of these crystals were then set in a resin in order to secure for the AFM measurements. Atomic force micrographs were recorded using a NanoWizard Pro JPK AG AFM operating in contact mode. Silicon nitride cantilevers with a force constant of 0.06 Nm^{-1} were used with a 4.5 Hz scan rate. The growing solutions were obtained by filtration of approximately 0.5mL of solution from the clear growing layer that formed during the reaction performed following the standard ZnPO-SOD synthesis recipe. All experiments were conducted at room temperature (*ca.* 23°C). Crystals were identified using an optical microscope, before a supersaturated solution was added to them and AFM observation initiated.

1. T. E. Gier and G. D. Stucky, *Nature*, 1991, **349**, 508-510.
2. T. M. Nenoff, W. T. A. Harrison, T. E. Gier and G. D. Stucky, *Journal of the American Chemical Society*, 1991, **113**, 378-379.