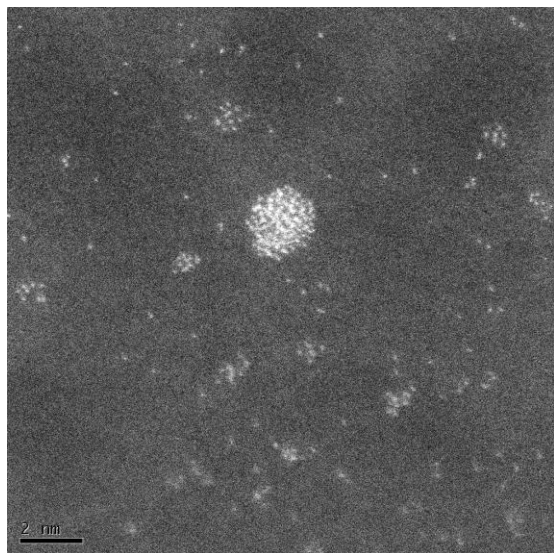
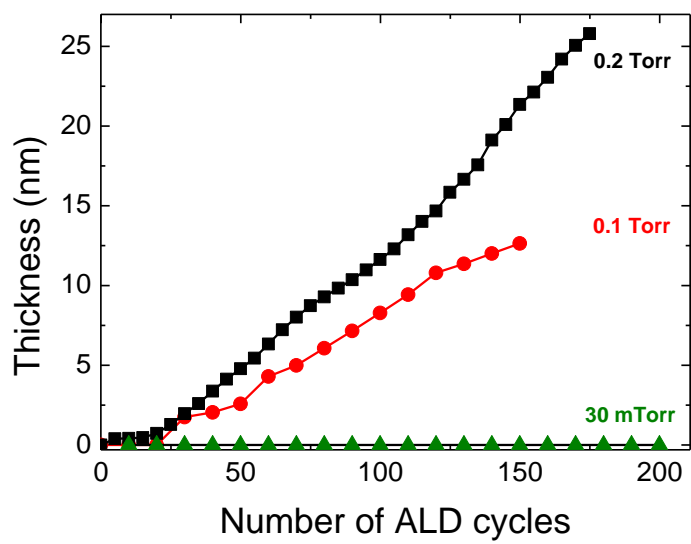


## Supporting information



**Figure S1.** Probe-corrected TEM image for the sample also depicted in Fig. 4b (0.3 Torr O<sub>2</sub>).

The image reveals the presence of single atoms and island of a few atoms in size, in addition to the islands that are visible in Fig. 4b. This image was recorded with a Cs probe-corrected JEOL ARM200F TEM.



**Figure S2.** Thickness as a function of the number of cycles for Ru ALD from  $\text{CpRu}(\text{CO})_2\text{Et}$  and  $\text{O}_2$  gas at 325 °C for different  $\text{O}_2$  pressures. The substrates were Si with a thin layer of native oxide.