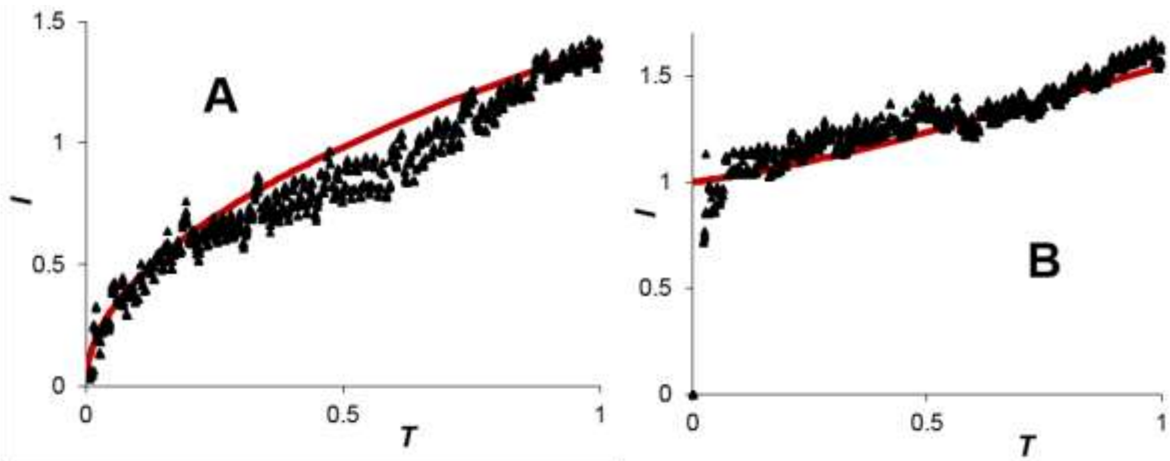

Figure S1. Experimental (symbols) and theoretical (solid line) potentiostatic transients of Hg electrodeposition at a 60 nm Pt nanoelectrode. Solution contained 100 μM $Hg_2(NO_3)_2$ and 0.125 M $HClO_4$. The electrode potential was stepped to -50 mV (A) and -200 mV (B) vs. Hg pool quasi-reference. Theoretical curves are for a single hemispherical nucleus (A) and spherical cap growth (B).

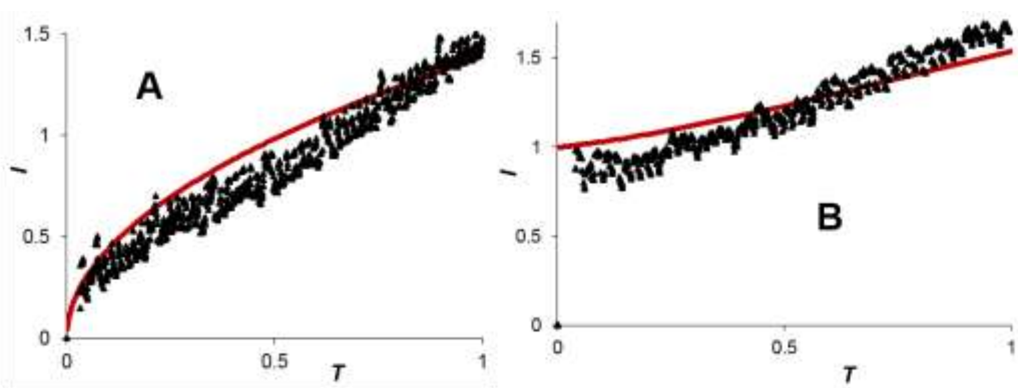

Figure S2. Experimental (symbols) and theoretical (solid line) potentiostatic transients of Hg electrodeposition at a 55 nm Pt nanoelectrode. Solution contained 100 μM $Hg_2(NO_3)_2$ and 0.125 M $HClO_4$. The electrode potential was stepped to -50 mV (A) and -200 mV (B) vs. Hg pool quasi-reference. Theoretical curves are for a single hemispherical nucleus (A) and spherical cap growth (B).

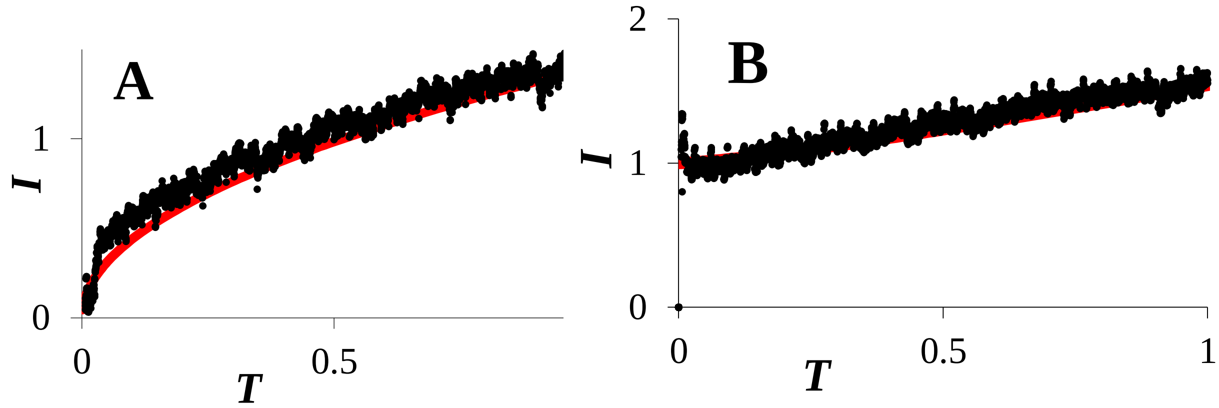

Figure S3. Experimental (symbols) and theoretical (solid line) potentiostatic transients of Hg electrodeposition at a 90 nm Pt nanoelectrode. Solution contained 100 μM $Hg_2(NO_3)_2$ and 0.125 M $HClO_4$. The electrode potential was stepped to -50 mV (A) and -200 mV (B) vs. Hg pool quasi-reference. Theoretical curves are for a single hemispherical nucleus (A) and spherical cap growth (B).

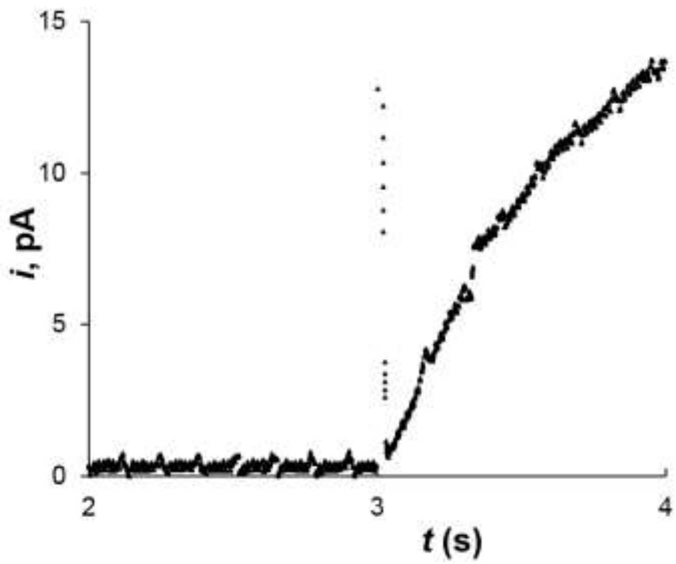

Figure S4. Potentiostatic transient of a single Hg nucleus growth at a 55 nm Pt electrode. Solution contained 100 μM $Hg_2(NO_3)_2$ and 0.125 M $HClO_4$. The electrode potential was stepped to -100 mV) vs. Hg pool quasi-reference.

Electronic Supplementary Material (ESI) for Chemical Science

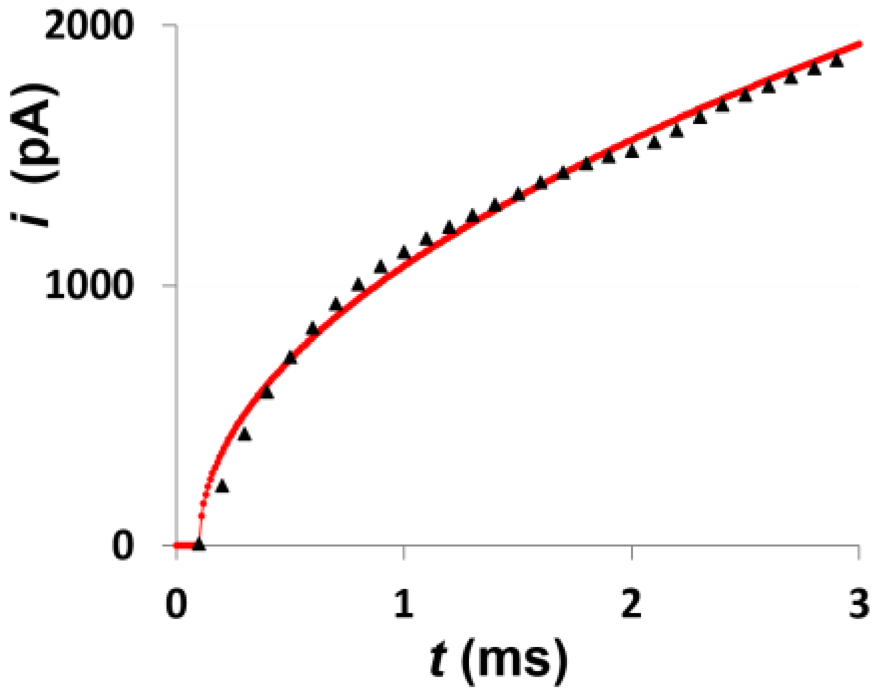

Figure S5. Experimental short-time transient (symbols) of Hg deposition at a 50 nm Pt electrode obtained with high concentration of mercury in solution. η = -50 mV and fitted to the theory (solid red line). Solution contained 25 mM $Hg_2(NO_3)_2$ and 0.125 M $HClO_4$.