Detection of gold cysteine thiolate complexes on gold nanoparticles with time-of-flight secondary ion mass spectrometry

Running title: ToF-SIMS of nano-gold cysteine thiolate
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FIG. S1. Images of (a) AuS\(^-\), (b) AuM\(^-\), (c) Au\(_2\)[M-H]\(^-\) and Au[M-H]\(_2\)\(^-\) of the 5-nm Au NPs loaded Al foil immersed for 1 day in 5 mM L-cysteine solution and rinsed with ultrapure water, where M represents cysteine molecule SC\(_3\)H\(_7\)NO\(_2\).
**Fig. S2.** Negative secondary ion mass spectra that are (a) isolated from the gold-rich areas and (b) the entire rastered area shown in Fig. 5. The red broken line shows $m/z$ 120.02 for dehydrogenated cysteine molecular ion $\text{SC}_3\text{H}_6\text{NO}_2^-$. The two blue lines in (b) indicate the area used to map the $\text{SC}_3\text{H}_6\text{NO}_2^-$ image shown in Fig. 5c.
FIG. S3. Images of two cysteine ions $\text{C}_2\text{H}_8\text{N}^+$ (a and c) and $\text{SC}_2\text{H}_3^+$ (b and d) with (a and b) and without (c and d) rinse with ultrapure water for the 5-nm Au NPs loaded Al foil immersed for 1 day in 5 mM L-cysteine solution.
FIG. S4. Images of Au₃⁻ (a), Au₃S⁻ (b), SC₃H₆NO₂⁻ (c), S₂C₆H₁₁N₂O₄⁻ (d), Au₃⁺ (e), AuSC₃H₇NO₂⁺ (f), SC₃H₈NO₂⁺ (g) and S₂C₆H₁₃N₂O₄⁺ (h) of the 50-nm Au NPs-loaded Al foil immersed in 5 mM L-cysteine solution followed by rinsing for the removal of excessive cysteine molecules. The rastered area for (a)-(h) is 100 μm × 100 μm.