

Supporting Information

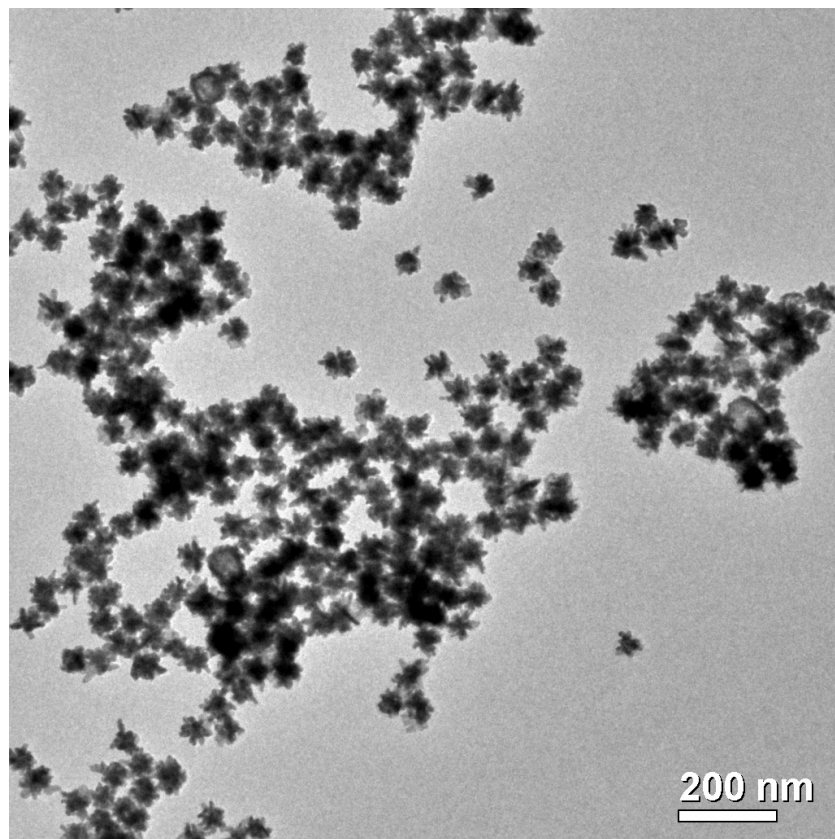


Fig. S1 TEM images of $\sim (61 \pm 7)$ nm gold nanostars ($N = 30$ particles) prepared from 10 nm gold seeds (cf. manuscript Figure 1).

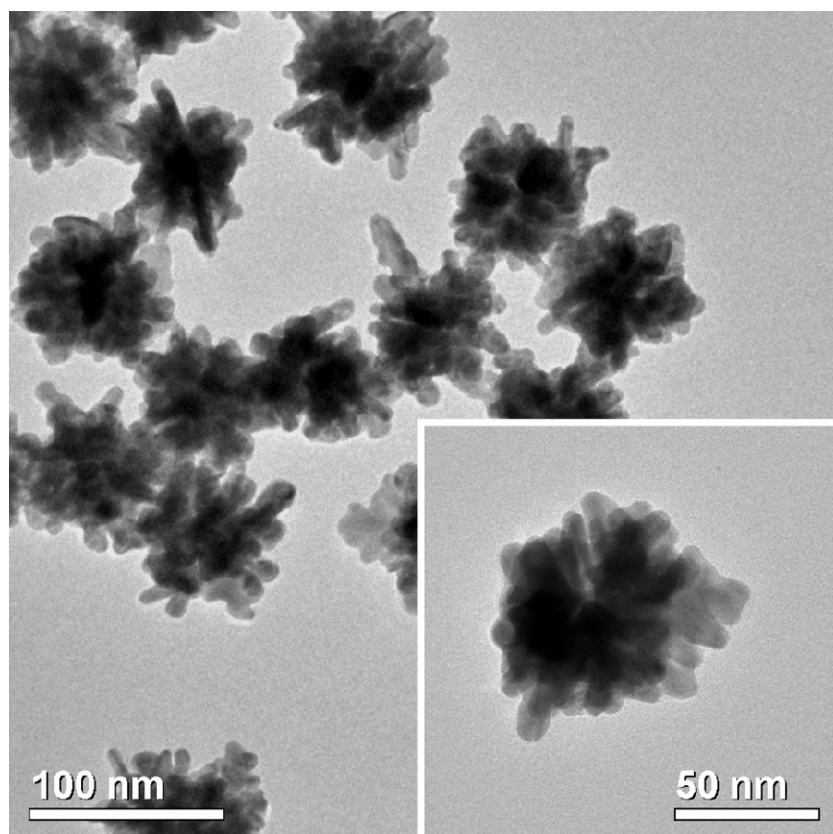


Fig. S2 TEM images of ~ 85 nm gold nanostars prepared from 20 nm gold seeds.

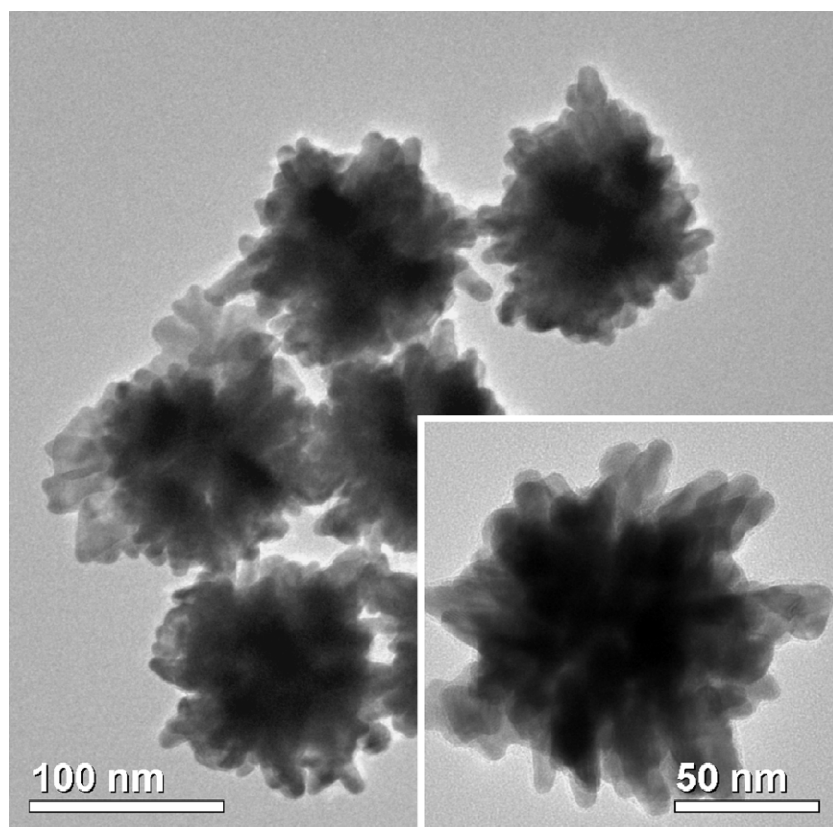


Fig. S3 TEM images of ~ 125 nm gold nanostars prepared from 30 nm gold seeds.

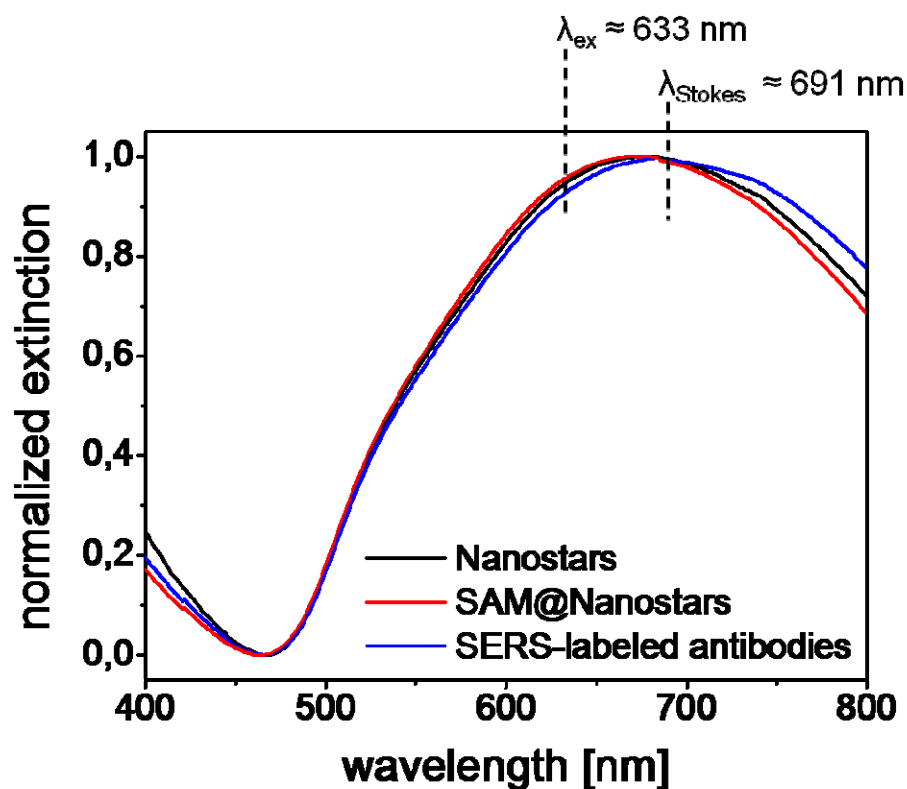


Fig. S4 Extinction spectra recorded during the synthesis of the SERS-labeled antibodies, starting from gold nanostars. Both, incident laser radiation (632.8 nm-line from a HeNe laser) and Stokes-Raman scattering (Raman marker band at $\sim 1340 \text{ cm}^{-1}$ or $\sim 691 \text{ nm}$) are in resonance with the broad plasmon band of the gold nanostars.