

## Supporting Information

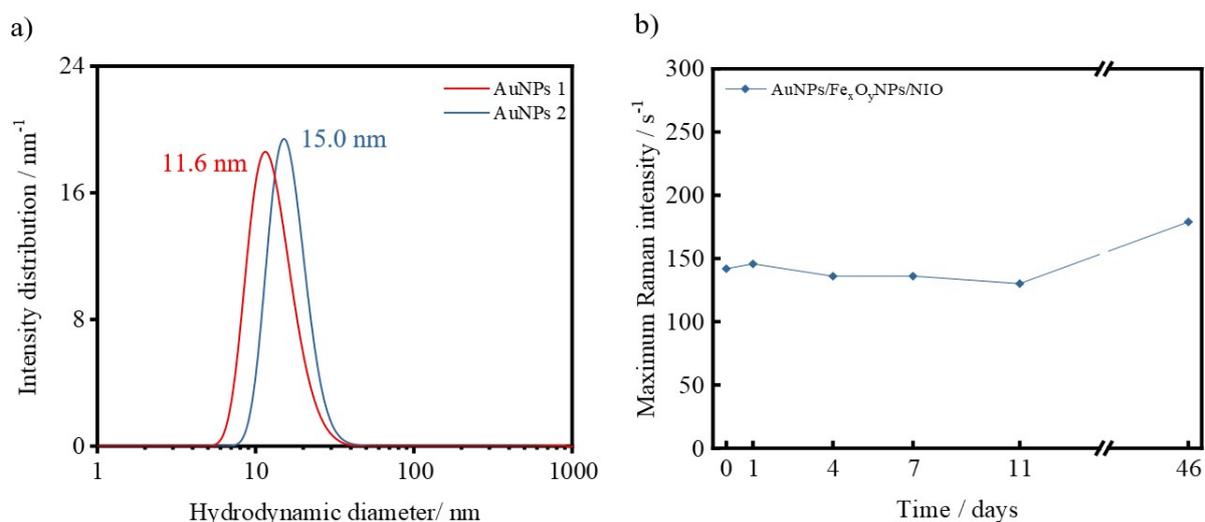
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### 3 All-in-one superparamagnetic and SERS-active niosomes for dual-targeted in vitro 4 detection of breast cancer cells

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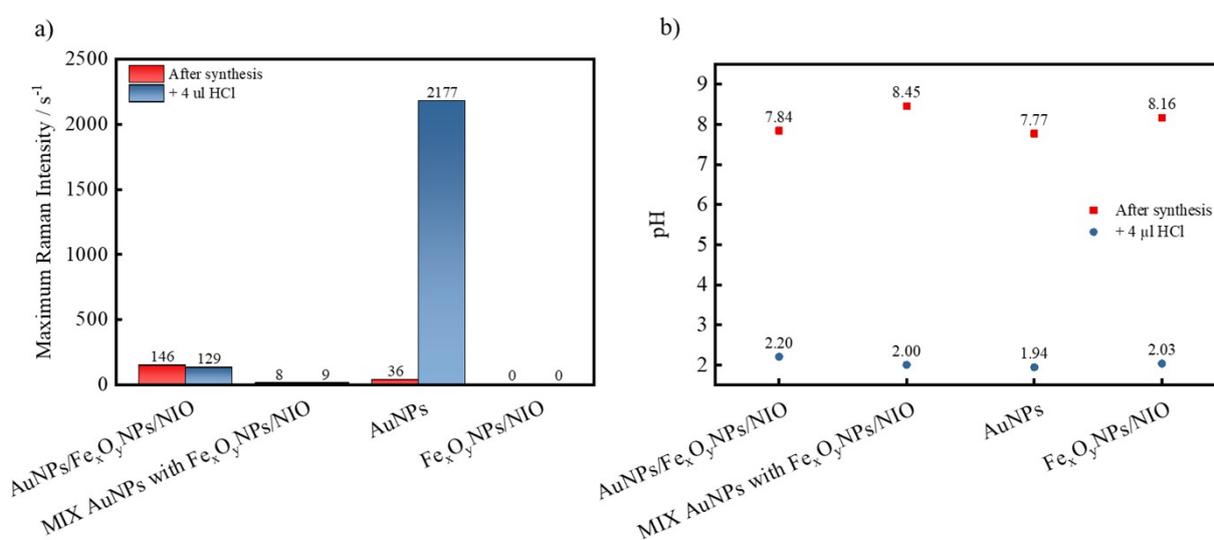
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10 Figure S1: a) Hydrodynamic diameters of the core colloids AuNPs 1 and AuNPs 2 measured via  
11 DLS and b) SERS-signal intensity of the AuNPs/Fe<sub>x</sub>O<sub>y</sub>NPs/NIO measured over a period of 46  
12 days.

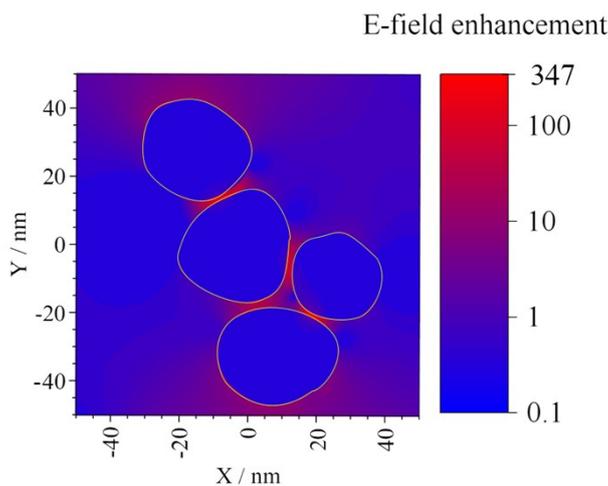
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15 Figure S2: a) Maximum Raman intensity variations after a post-synthetic HCl addition and b)  
16 pH values of different AuNPs/Fe<sub>x</sub>O<sub>y</sub>NPs/NIO hybrid NPs and negative controls after synthesis  
17 as well as subsequent HCl addition.

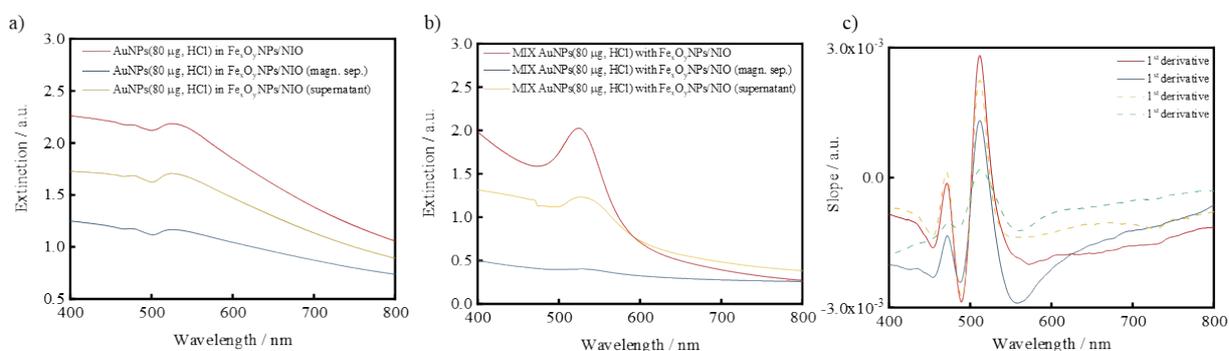
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20 Figure S3: FDTD simulated E-field enhancement of AuNPs/NIO from the Figure 5 b) TEM image.

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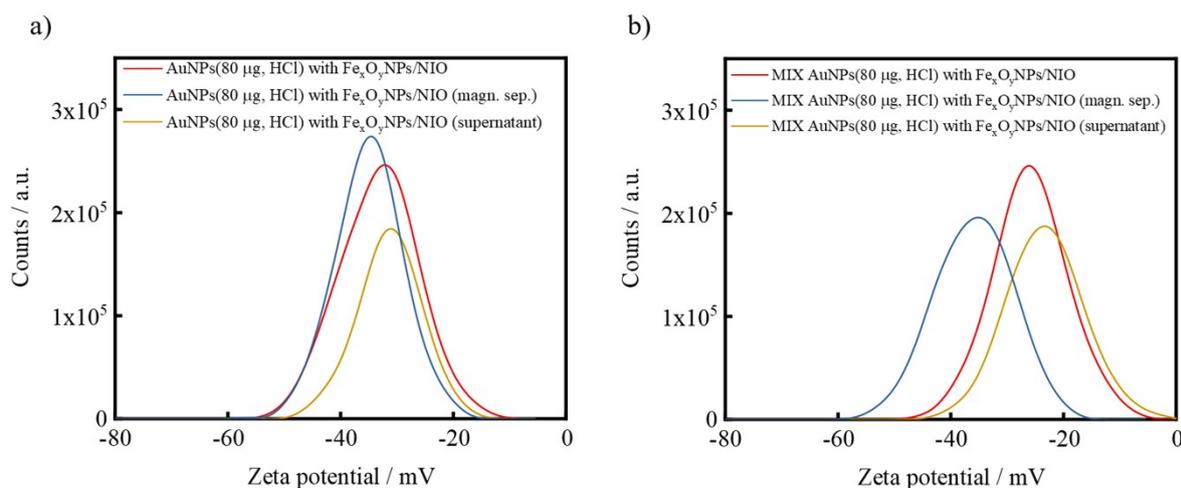
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23 Figure S4: Measured UV/Vis spectra before and after magnetic purification obtained from a) hybrid niosomes, b) MIX negative control, c) first derivatives of the spectra in Figure 7 c).

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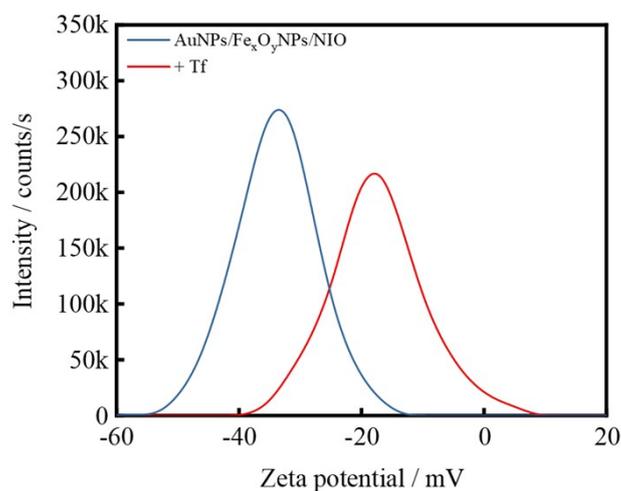


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28 Figure S5: Zeta potentials of the a) hybrid niosomes and b) negative control before and after magnetic purification.

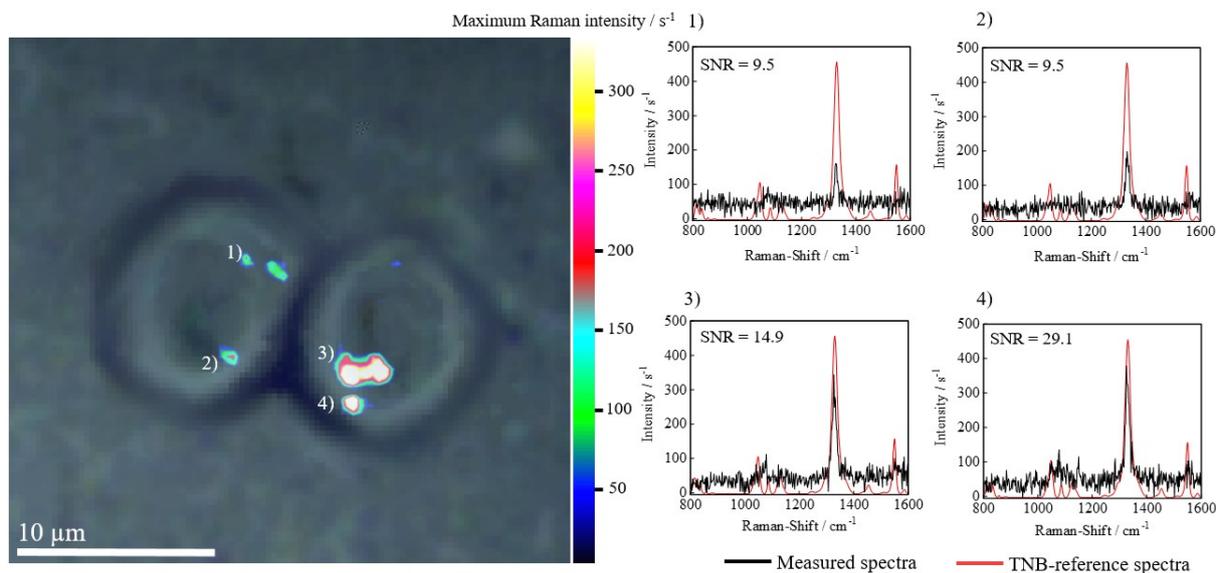
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Figure S6: Zeta potential measurements of AuNPs/Fe<sub>x</sub>O<sub>y</sub>NPs/NIO before and after Tf-functionalization.



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Figure S7: Merged bright field and 2D-SERS mapping images of HeLa-cells incubated with AuNPs/Fe<sub>x</sub>O<sub>y</sub>NPs/NIO with the SERS-spectra and the respective signal-to-noise ratios (SNR).