

# Supporting Information

## Plasmonic nanoparticles assemblies templated by helical bacteria and resulting optical activity

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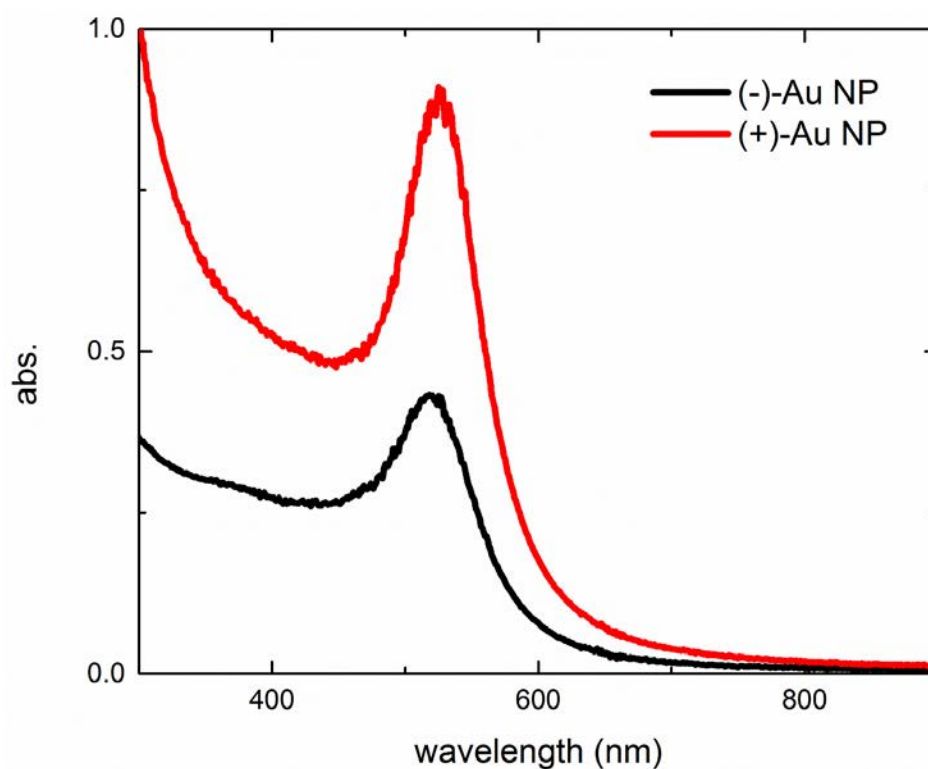
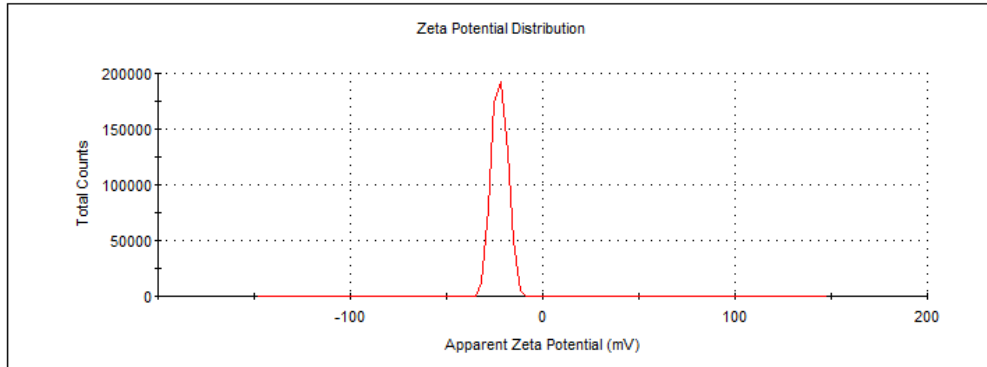


Figure S1. UV-Vis absorption spectra of Au NP solutions (both solutions were diluted 4 times).

### (a) Prior to PDDA coating

	Mean (mV)	Area (%)	St Dev (mV)
<b>Zeta Potential (mV):</b> -22.4	<b>Peak 1:</b> -22.4	100.0	4.05
<b>Zeta Deviation (mV):</b> 4.05	<b>Peak 2:</b> 0.00	0.0	0.00
<b>Conductivity (mS/cm):</b> 0.0196	<b>Peak 3:</b> 0.00	0.0	0.00

**Result quality:** Good



### (b) After PDDA coating

	Mean (mV)	Area (%)	St Dev (mV)
<b>Zeta Potential (mV):</b> 29.9	<b>Peak 1:</b> 29.9	100.0	4.13
<b>Zeta Deviation (mV):</b> 4.13	<b>Peak 2:</b> 0.00	0.0	0.00
<b>Conductivity (mS/cm):</b> 0.0224	<b>Peak 3:</b> 0.00	0.0	0.00

**Result quality:** Good

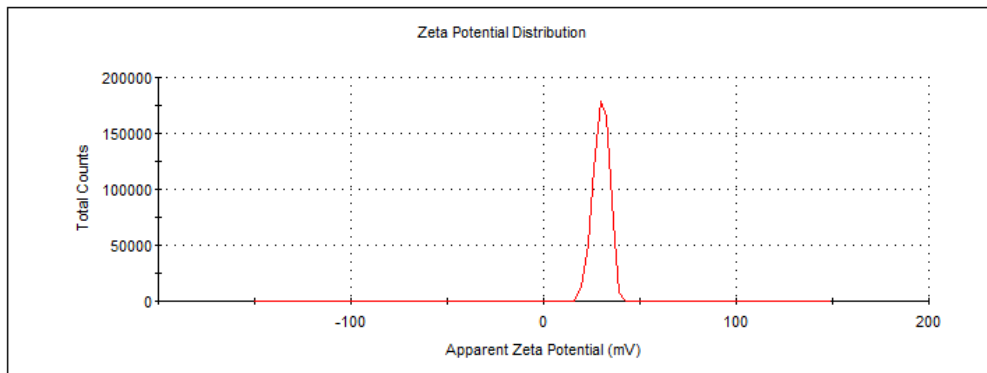


Figure S2. Zeta potential measurements of (a) pre- and (b) post-PDDA coating

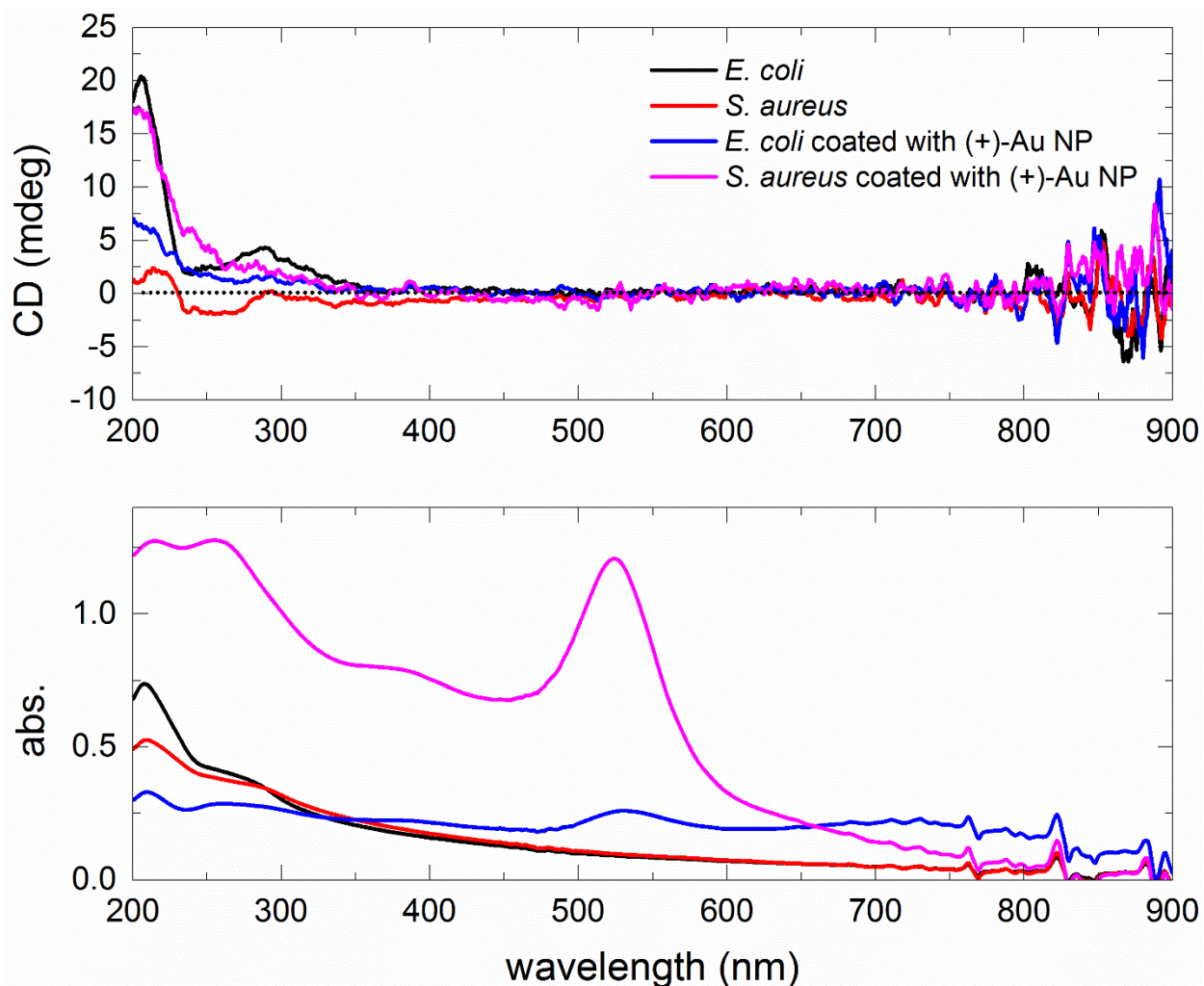


Figure S3. CD and absorbance spectra of original *E. coli* and *S. aureus* before and after being coated with positively charged Au NPs. The high absorbance peak at ~525 nm for *S. aureus* sample coated with Au NPs is due to residual Au NPs during the precipitation and redispersion steps. This is to prevent a significant loss of the precipitate during removal of the supernatant.

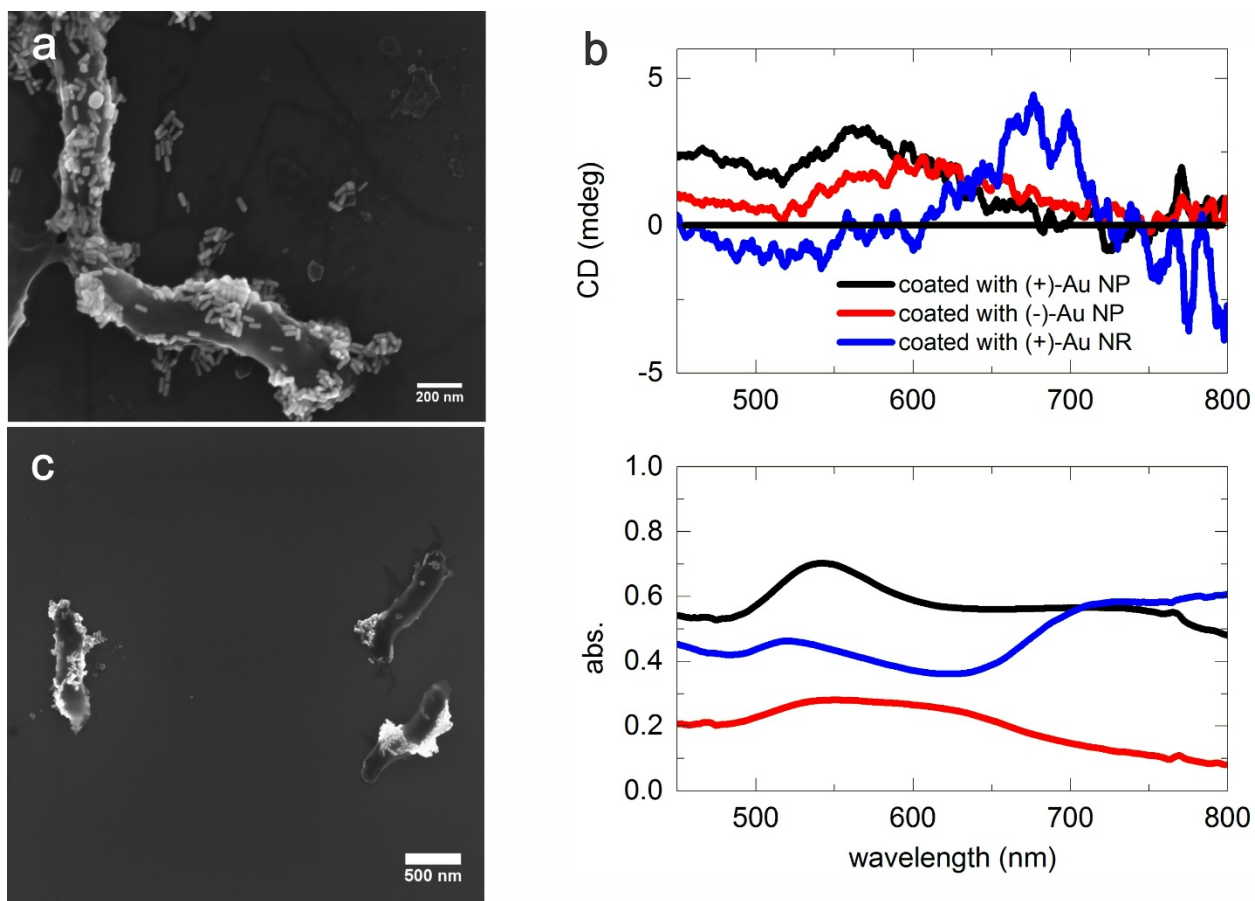


Figure S4. (a) SEM image of *C. jejuni* coated with positively charged Au NRs (50 nm in length and 17 nm in diameter, CTAB surface ligands). (b) Comparison of CD and absorption spectra of Au NP and NR coated samples. (c) SEM image showing several *C. jejuni* with elongated morphology.

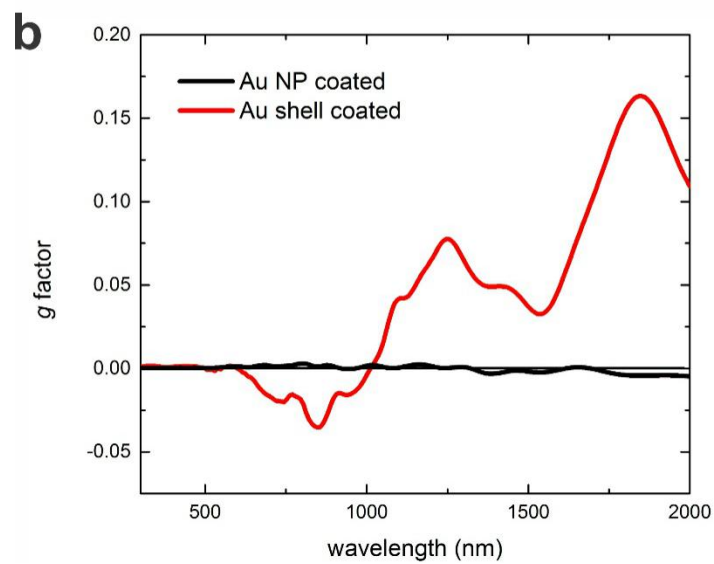
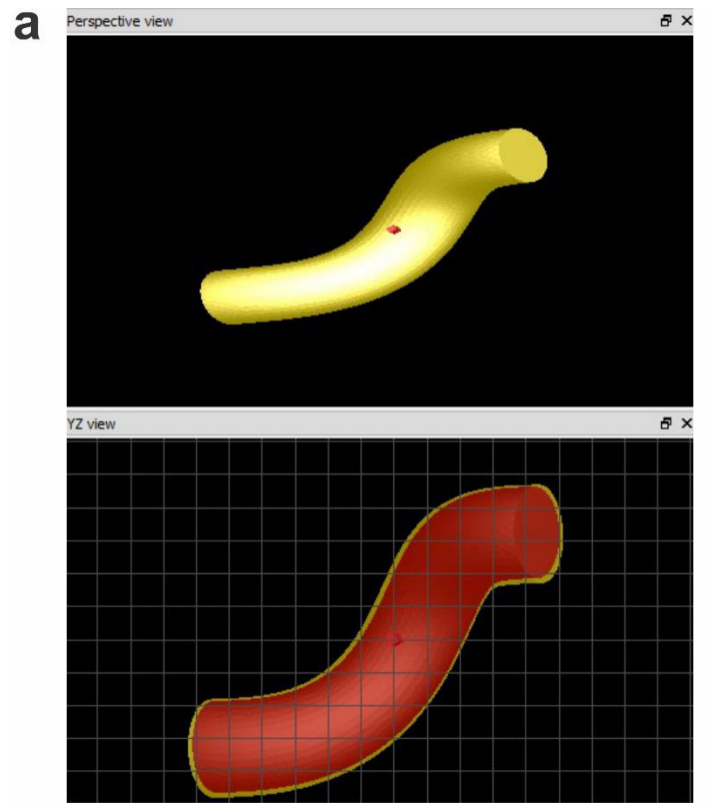


Figure S5. (a) Perspective view and YZ view of Au shell coated bacteria. The gold shell is 11 nm thick. (b) g-factor spectra of Au NP and Au shell coated bacteria.