

# Supporting Information

## **Enhanced antibacterial activity of Se nanoparticles upon coating with recombinant spider silk protein eADF4(κ16)**

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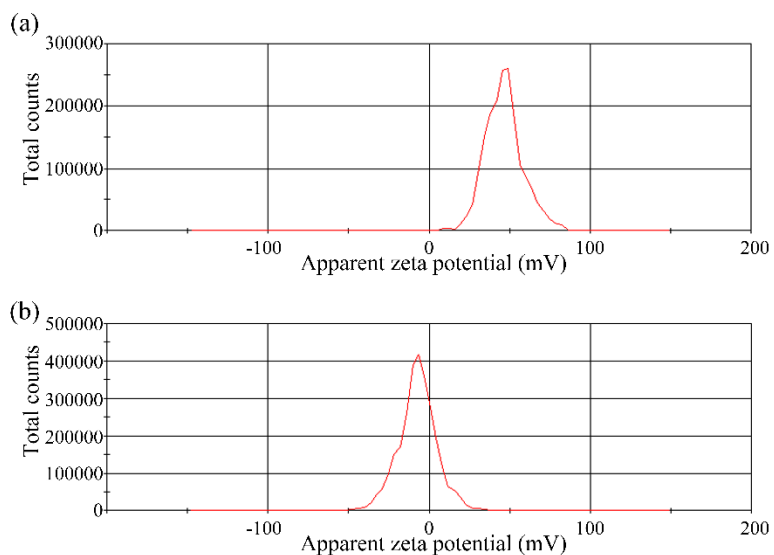
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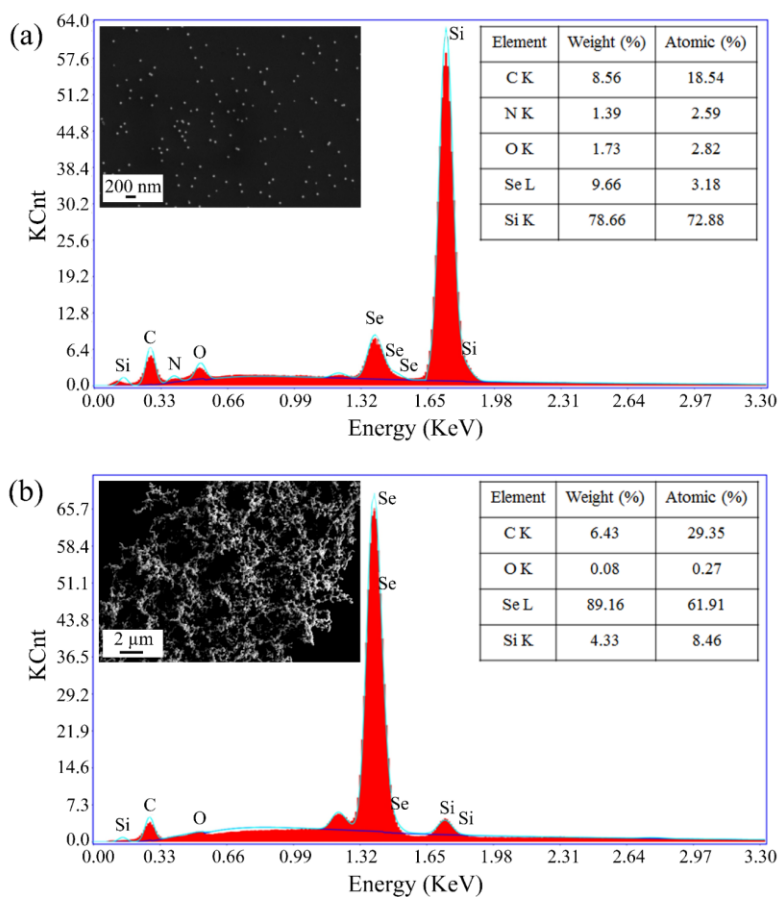
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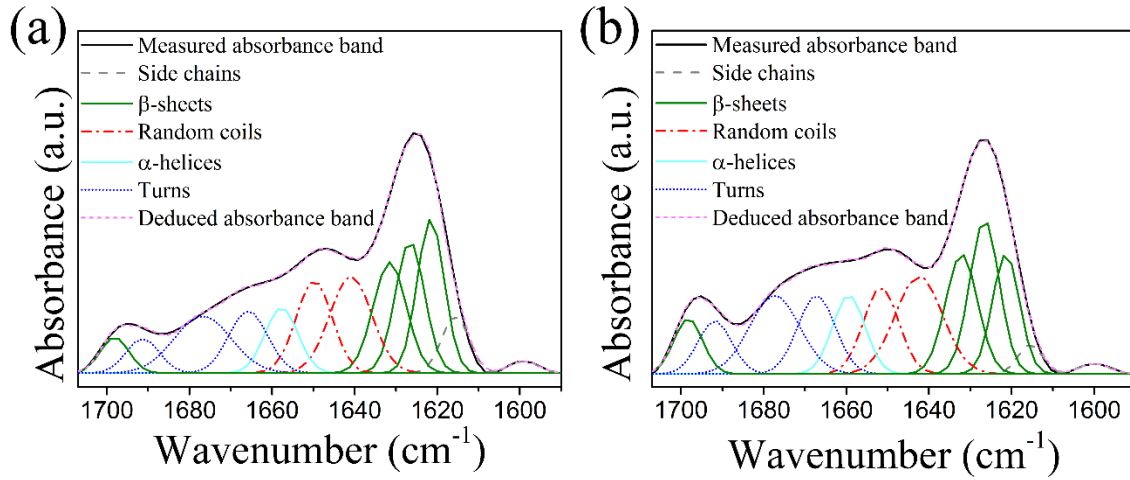


**Figure S1.** Zeta potential distribution of (a) 46 nm eADF4( $\kappa$ 16) stabilized Se NPs and (b) 46 nm PVA stabilized Se NPs.



**Figure S2.** EDS of Se NPs: (a) eADF4( $\kappa$ 16) stabilized Se NPs, (b) eADF4( $\kappa$ 16) stabilized Se NPs after washing with guanidinium thiocyanate. High intensity for Se NPs in (b) shows aggregation of particles because of protein removal.

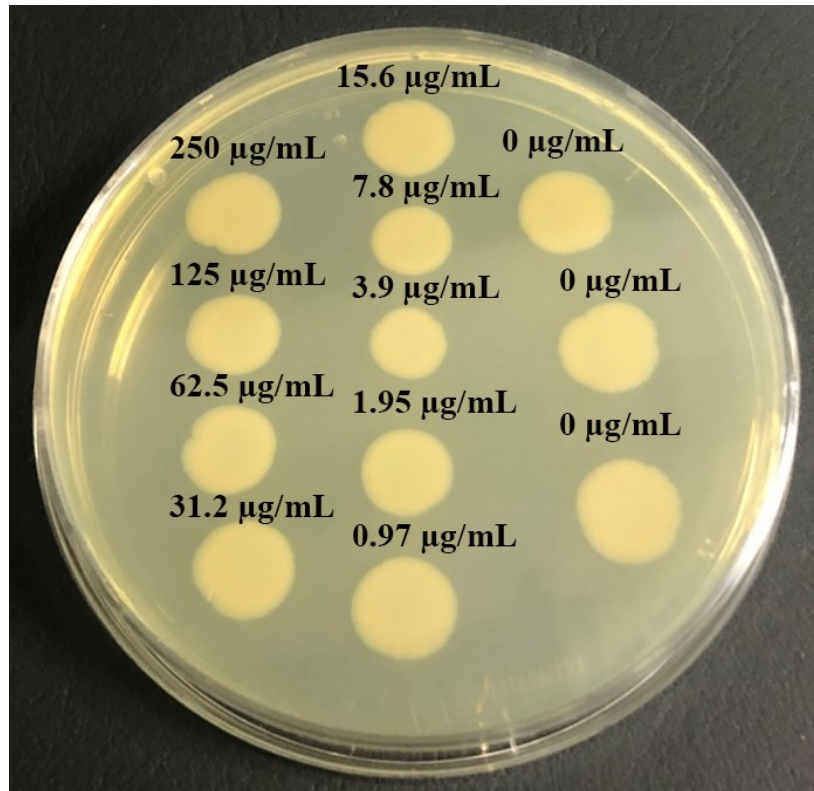
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39 **Figure S3.** Fourier self-deconvoluted absorbance spectra of the amide I band of (a) eADF4(κ16) particles  
40 and (b) 46 nm eADF4(κ16) coated Se NPs.

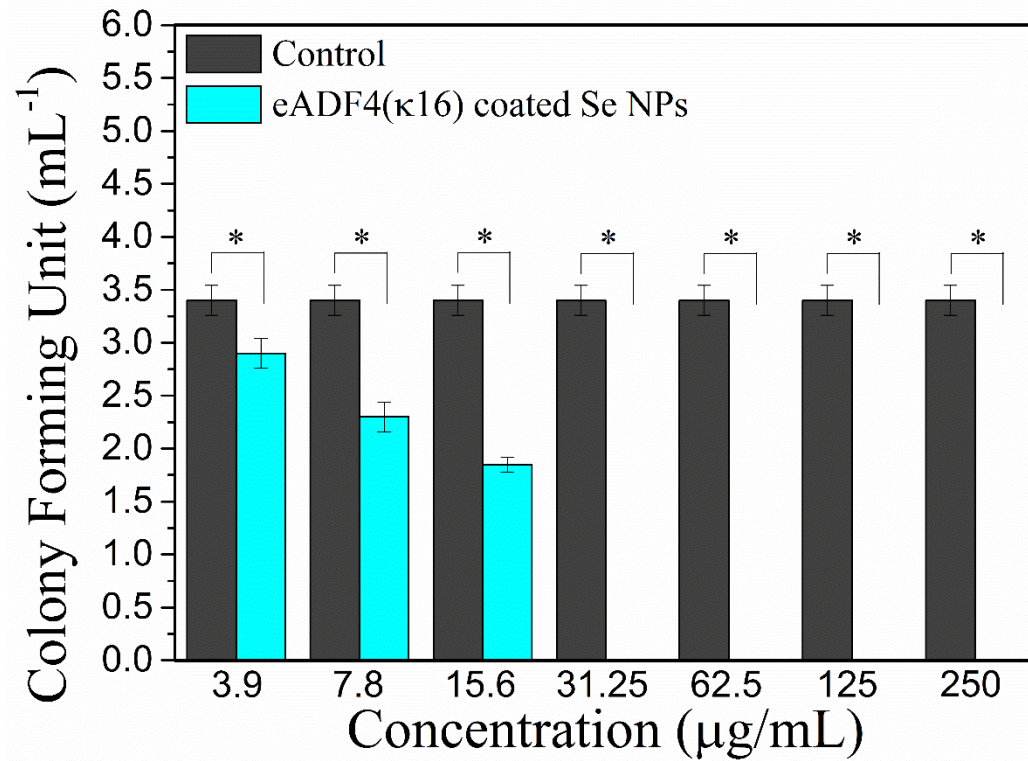
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43 **Figure S4.** Colony forming units (CFU) assay using *E. coli* after treatment with eADF4(κ16) particles. No  
44 antibacterial activity was observed at concentrations from 0.97 µg/mL to 250 µg/mL.

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**Figure S5.** Colony forming units (CFU) assay using *S. aureus* (ATCC 29213) after treatment with eADF4(κ16) with varying concentrations from 3.9 μg/mL to 250 μg/mL. Student's t-test was used to compare means of experimental groups at each concentration, \* p-value < 0.05.