



Supplementary Materials

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Table S1. Particle diameter and zeta potential analyses of PS-NP, PS-NP + Mu, PS-NP + Phe, and PS-NP + Phe + Mu.

| | Diameter [nm] | Zetapotential [mV] |
|------------------|---------------|--------------------|
| PS-NP | 2132 ± 90.86 | -7.49 ± 1.12 |
| PS-NP + Mu | 3392 ± 129.90 | -3.37 ± 0.58 |
| PS-NP + Phe | 1614 ± 85.56 | -12.34 ± 1.95 |
| PS-NP + Phe + Mu | 7277 ± 277.3 | -5.13 ± 0.07 |

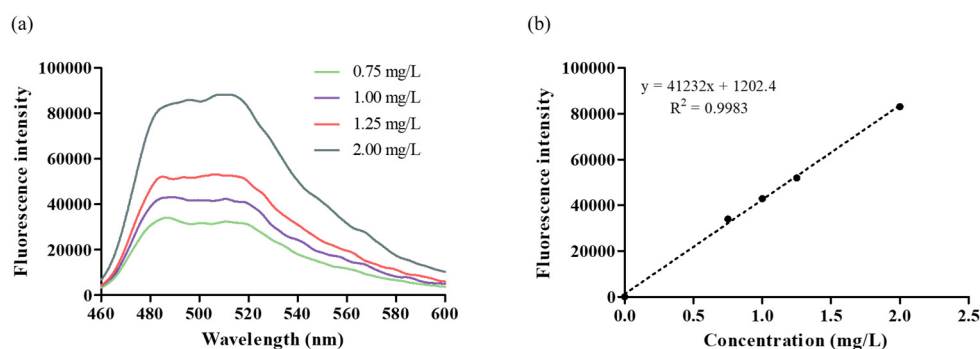


Figure S1. (a) Fluorescence intensity by concentration of PS-NP, (b) standard curve generated from the obtained fluorescence intensity. Linear relationship between fluorescence intensity and concentration of PS-NP.

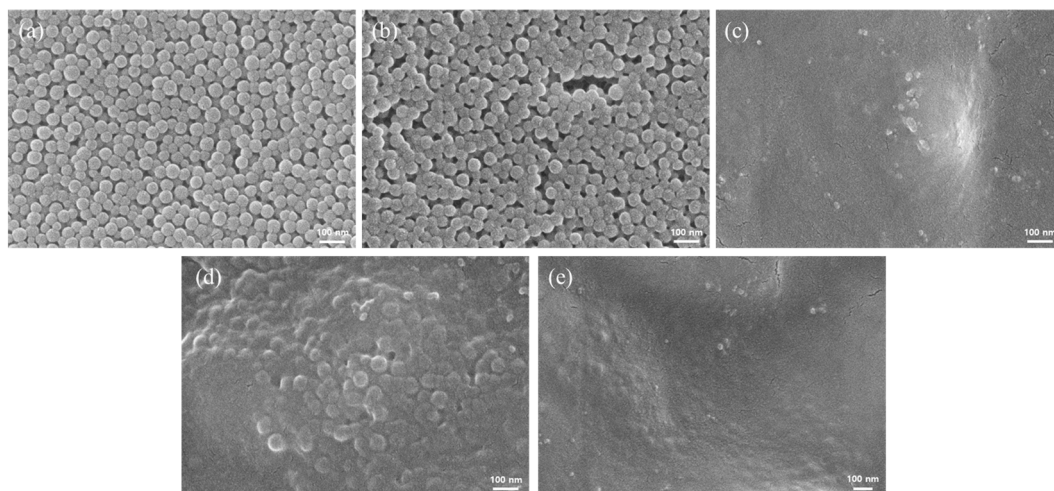


Figure S2. FE-SEM images of (a) PS-NP, (b) PS-NP + Phe, (c) Mu, (d) PS-NP + Mu, and (e) PS-NP + Phe + Mu.

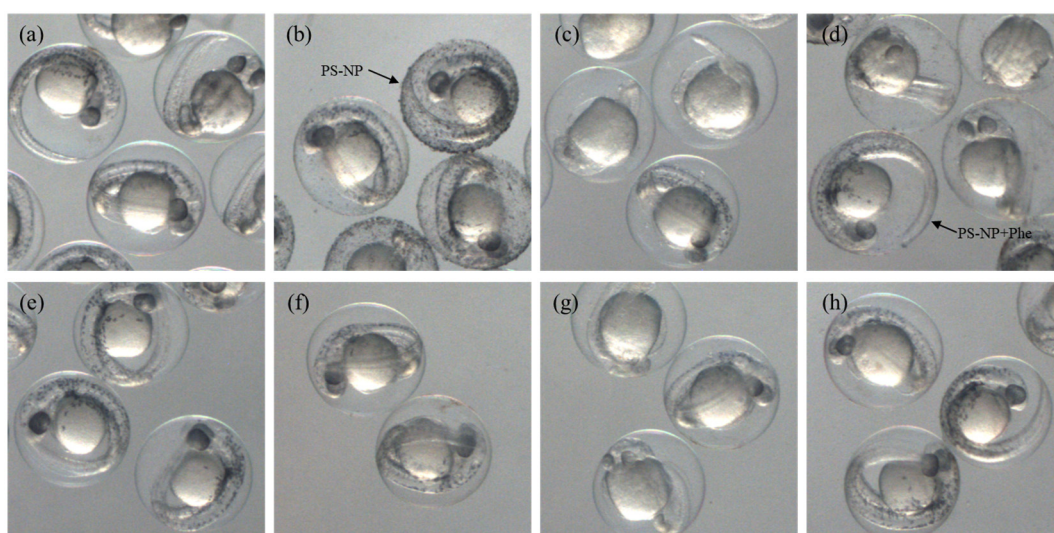


Figure S3. (a) Control, (b) PS-NP (5.0 mg/L), (c) Phe (1.0 mg/L), (d) PS-NP + Phe, (e) Mu (50 μ g/mL), (f) PS-NP + Mu, (g) Phe + Mu, and (h) PS-NP + Phe + Mu after exposure of 32 h; (arrow in (b) represents PS-NP, and arrow in (d) represents PS-NP + Phe).