Electronic Supplementary Information (ESI)

Different drug loading method and antibiotic structure modulate the efficacy of polydopamine nanoparticles as drug nanocarriers

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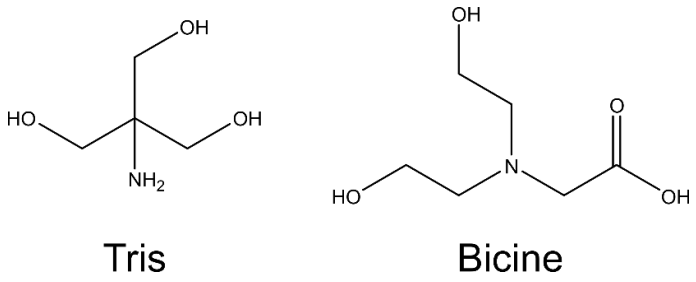

Figure S1 Structures of Tris and Bicine. Tris has an amine (–NH_2) group that can covalently react with the growing dopamine polymer, whereas Bicine does not have that amine group present.

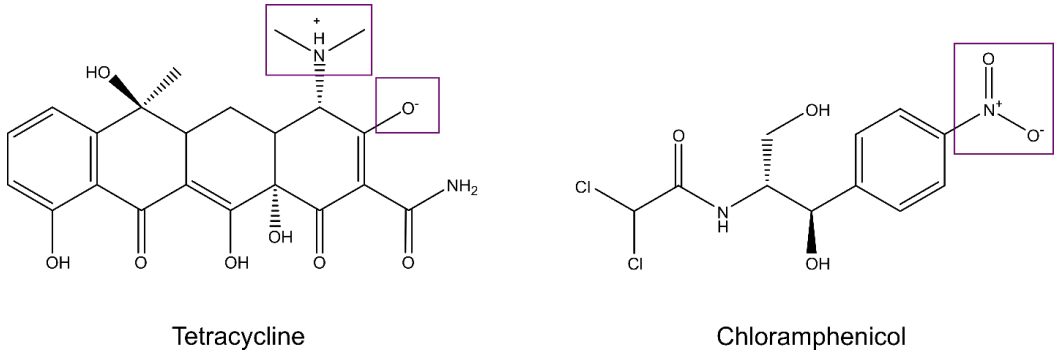

Figure S2 Zwitterionic structures of Tetracycline (Tet) and Chloramphenicol (Chl) at pH 7.

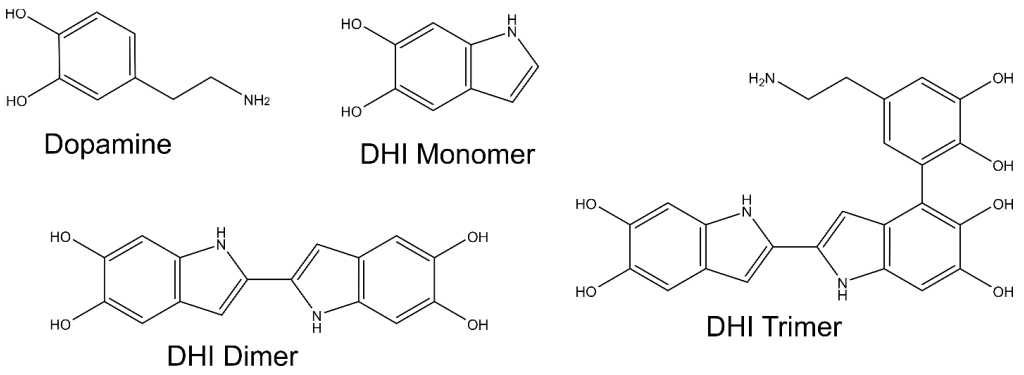

Figure S3 Structures of dopamine, 5,6-dihydroxyindole (DHI) monomer, DHI dimer, and DHI trimer. These oligomeric structures of dopamine are proposed to be formed during the initial stages of polydopamine nanoparticle (PDNP) formation.

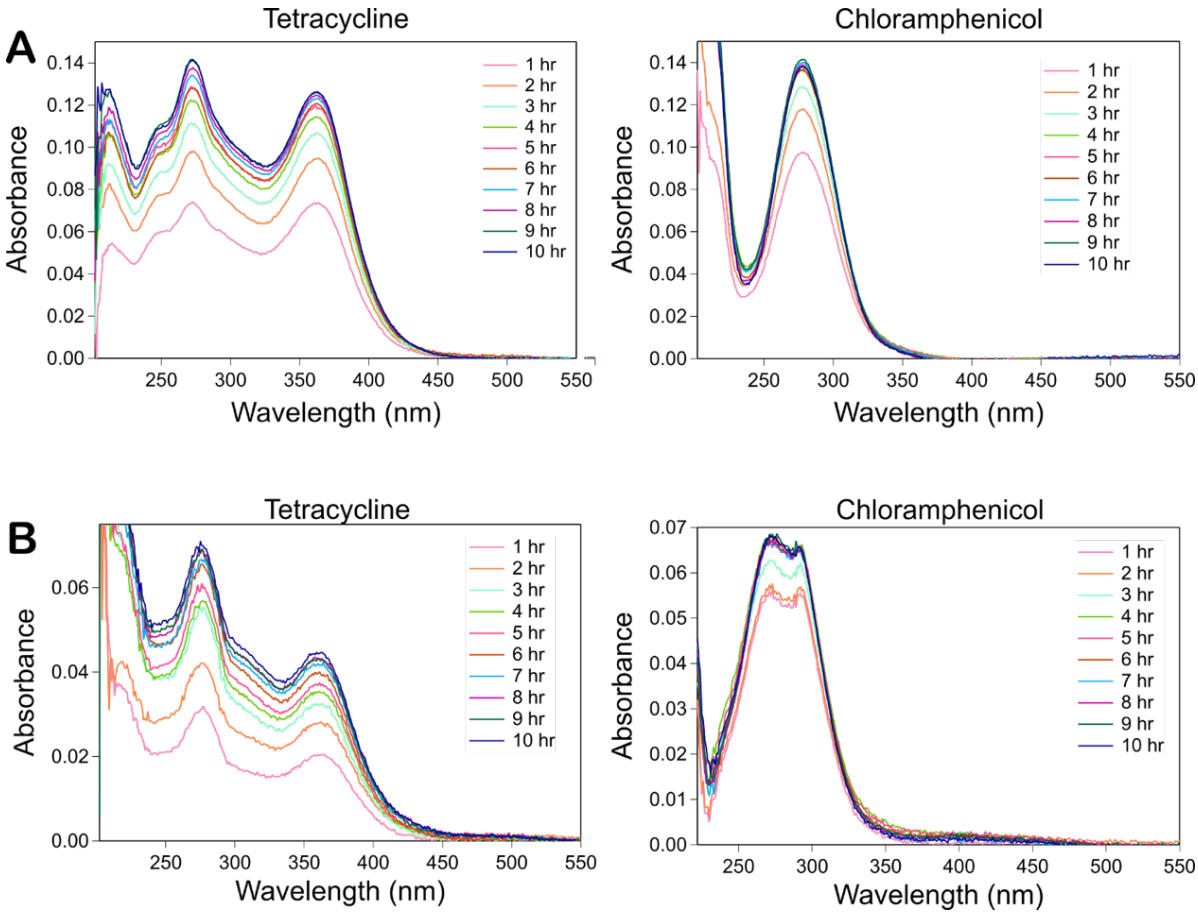

Figure S4 Absorbance spectra for passive drug release for drugs loaded (A) after and (B) during PDNP synthesis for 10 hours. The background absorption for PDNP oxidation by-products has been corrected for.

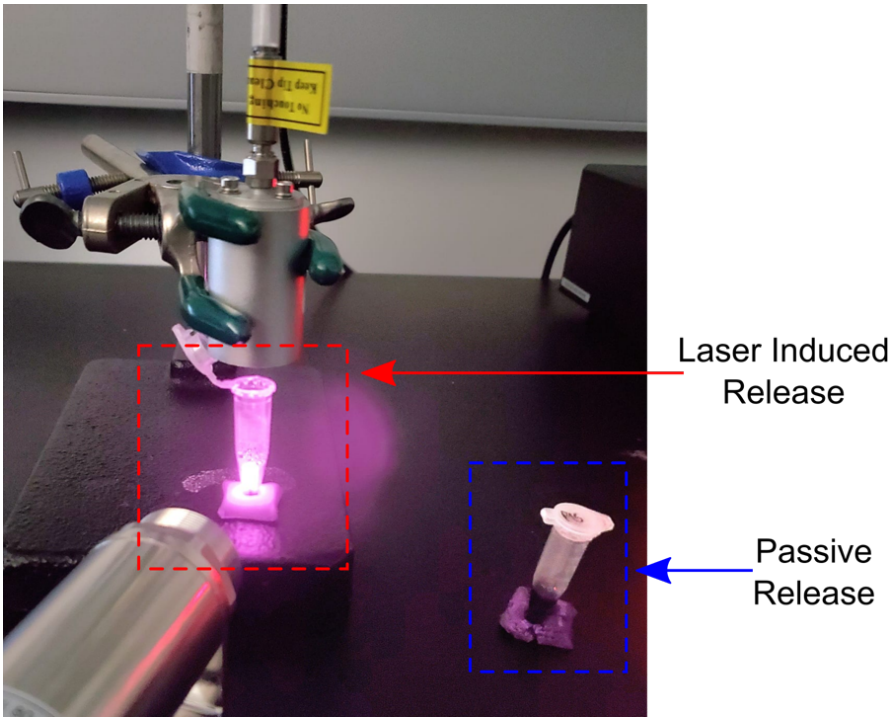

Figure S5 Experimental set-up for laser-induced (441 mW, 808 nm) vs passive drug release for both drugs loaded post- and in- PDNP synthesis.

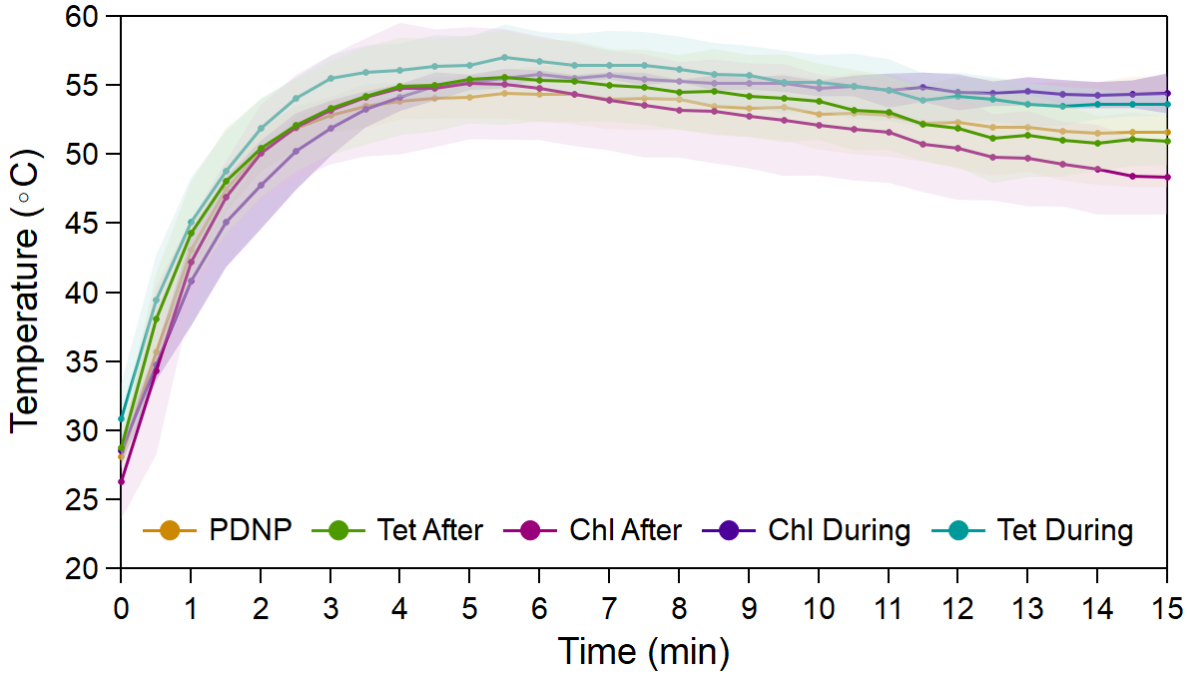

Figure S6 Temperature of PDNP increases upon laser irradiation due to photothermal effect.

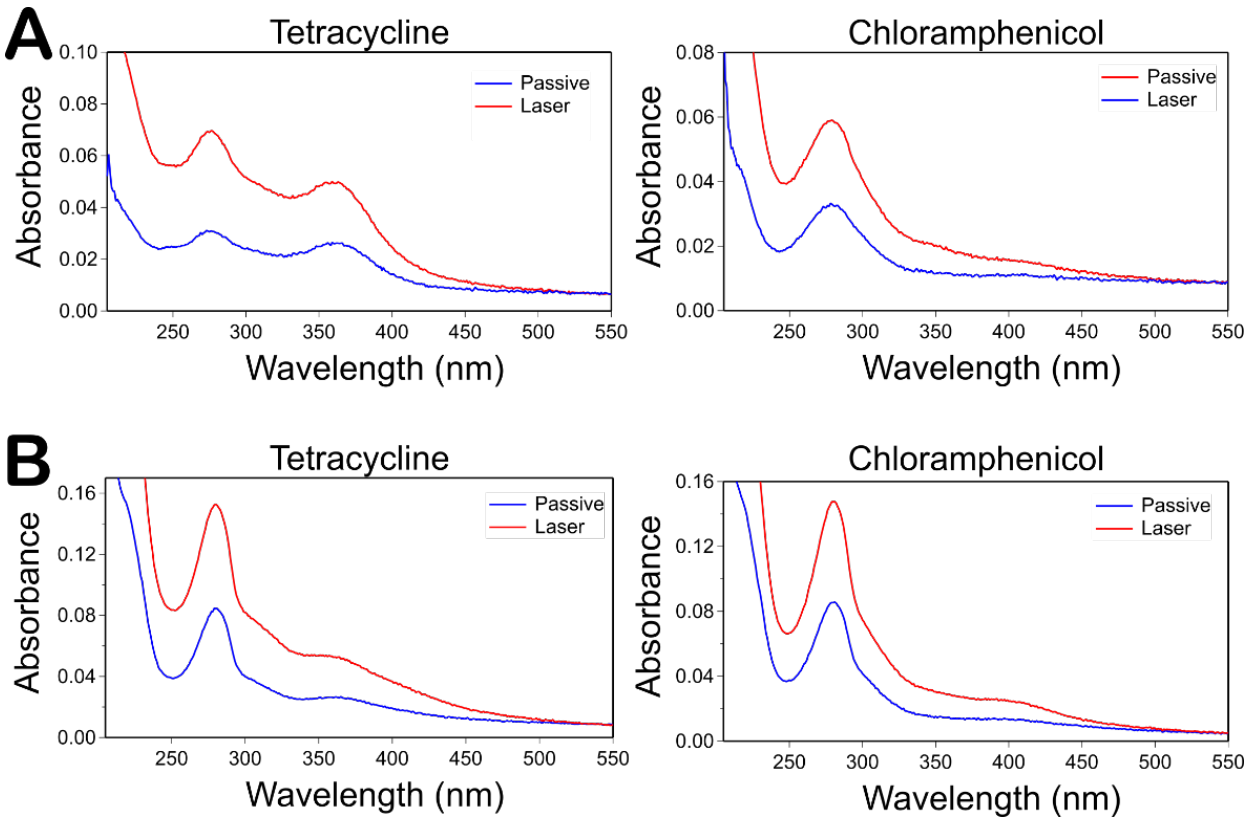

Figure S7 Absorbance spectra for passive vs laser-induced drug release for drug loaded (A) post- and (B) in- PDNP synthesis after 15 minutes. The background absorption for PDNP oxidation by-products has not been corrected for. Laser-induced drug release (441 mW, 808 nm; red) is higher than passive drug release (blue).

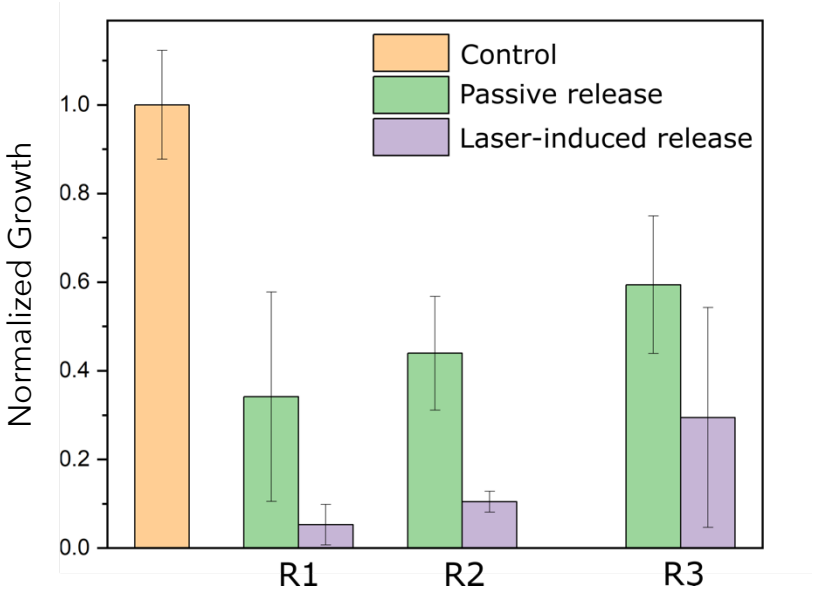

Figure S8 Laser-induced drug release from hydrogels with Chloramphenicol-loaded PDNP. Growth of *E. coli* in LB-media (control) and in media exposed to hydrogel without (passive release) and with laser treatment (laser-induced release). Hydrogels (n = 3) were treated with laser for 10 min (R1) and repeated two times with fresh LB media (R2 and R3).

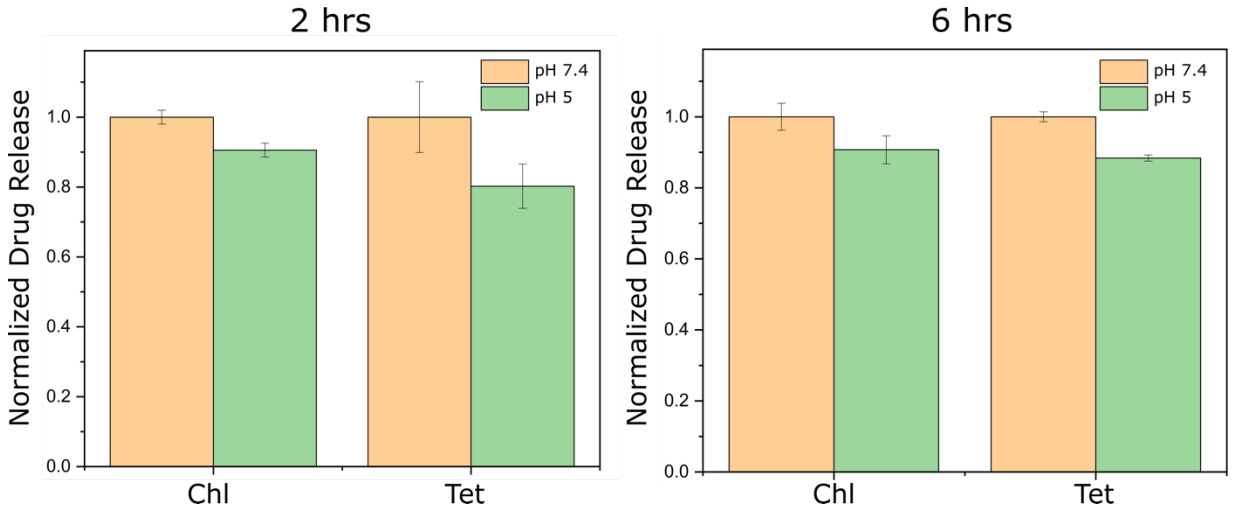

Figure S9 pH-dependent drug release. The amount of drug release at lower pH (pH 5) is lower than at higher pH (pH 7.5), for both Chloramphenicol (Chl) and Tetracycline (Tet), n = 4 for each drug and each pH.