

Supporting information for

# Zero-order release of polyphenolic drugs from dynamic, hydrogen-bonded LBL films

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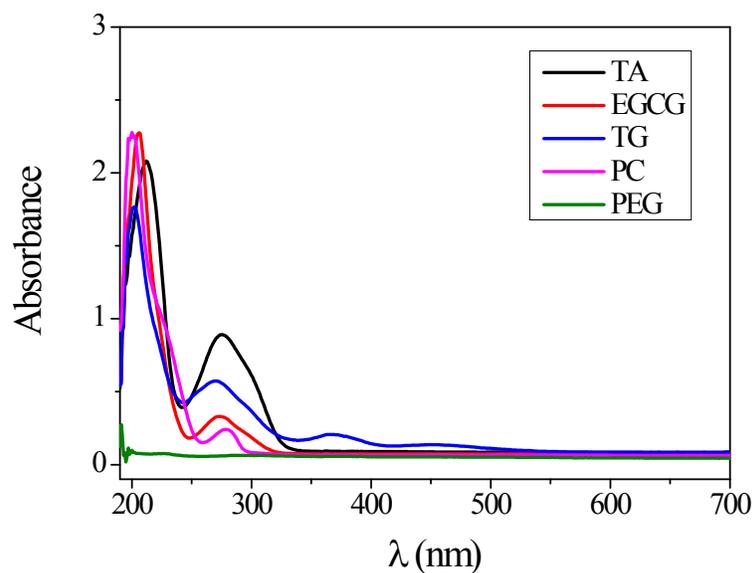


Fig. S1. UV-vis absorption spectra of PEG and 4 polyphenolic drugs. The concentrations are all 20  $\mu\text{g/mL}$ . pH=3.0.

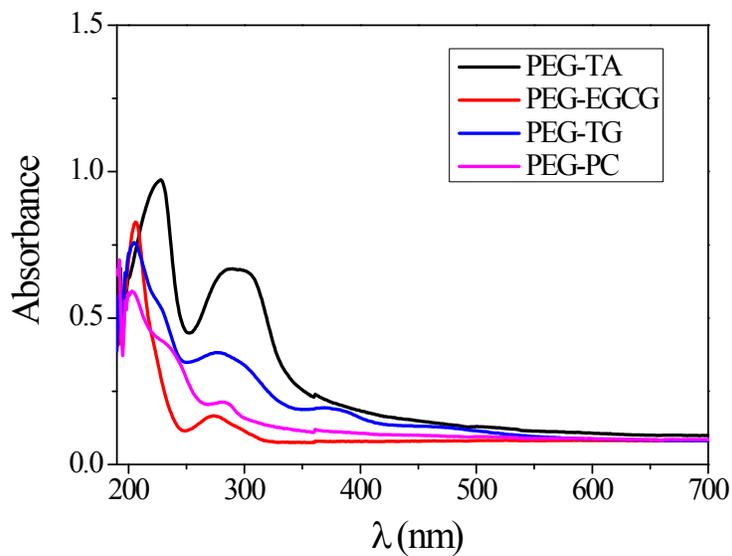


Fig. S2. UV-vis absorption spectra of mixed solutions of PEG and the polyphenolic drugs. The solutions were prepared by mixing equal volume of 20  $\mu\text{g/mL}$  PEG and 20  $\mu\text{g/mL}$  polyphenol. pH=3.0. The resulting solutions were turbid, indicating formation of insoluble complex.

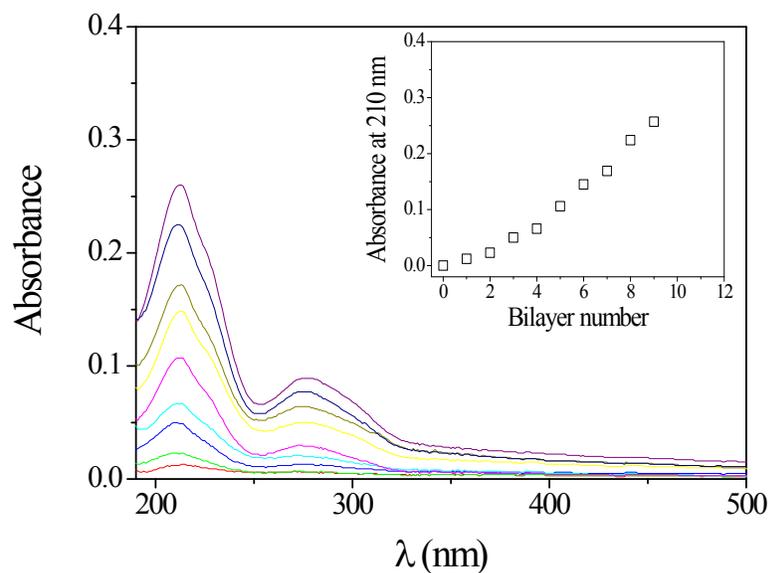


Fig. S3. UV-vis absorption spectra of PEG-4K/EGCG films with various bilayer numbers(1-9).

Inset: Plot of absorbance at 210 nm against bilayer number.

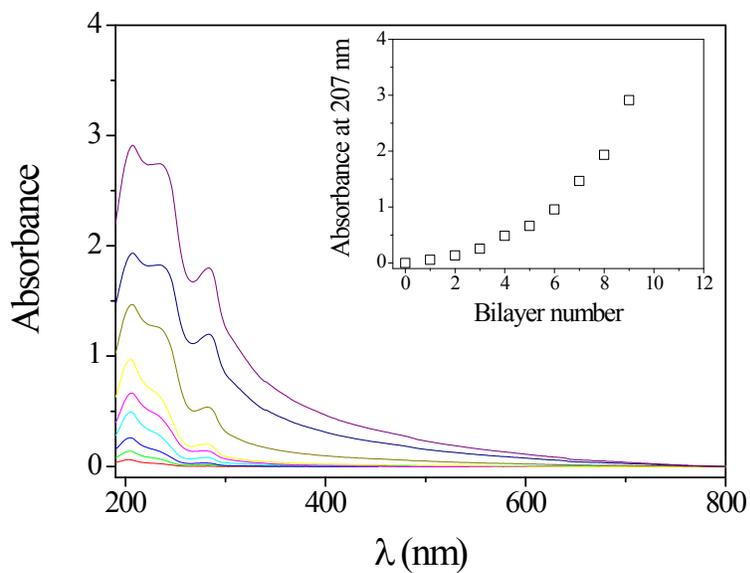


Fig. S4. UV-vis absorption spectra of PEG-20K/PC films with various bilayer numbers (1-9).

Inset: Plot of absorbance at 207 nm against bilayer number.

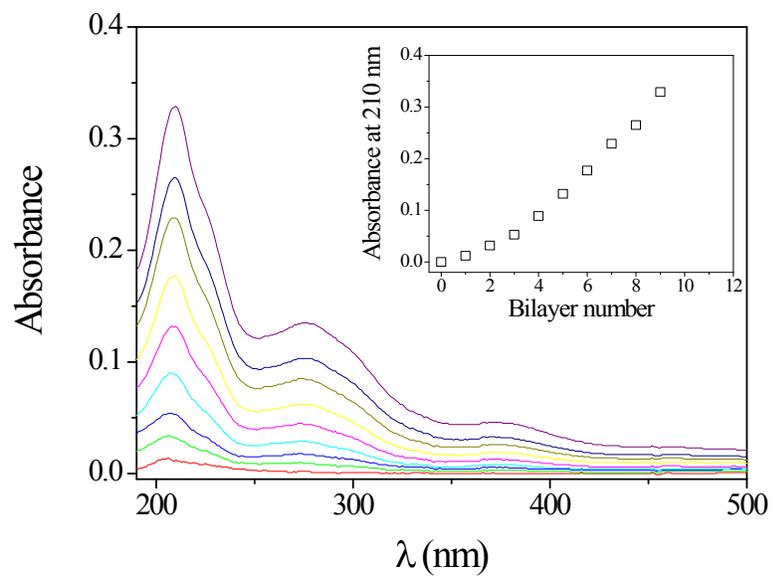
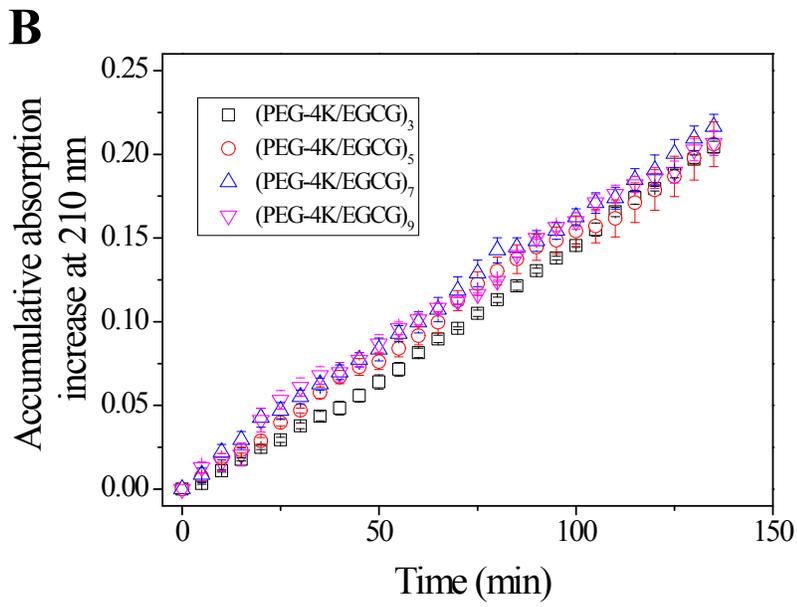
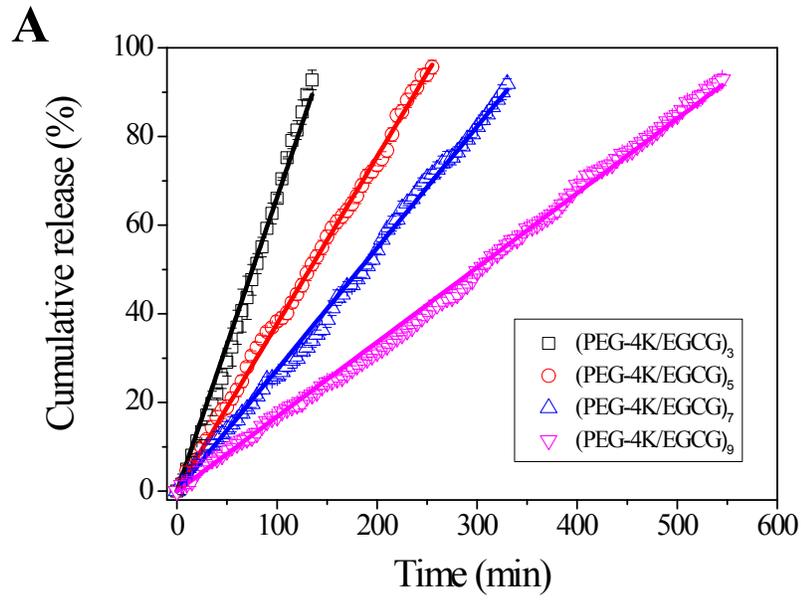


Fig. S5. UV-vis absorption spectra of PEG-4K/TG films with various bilayer numbers (1-9).

Inset: Plot of absorbance at 210 nm against bilayer number.



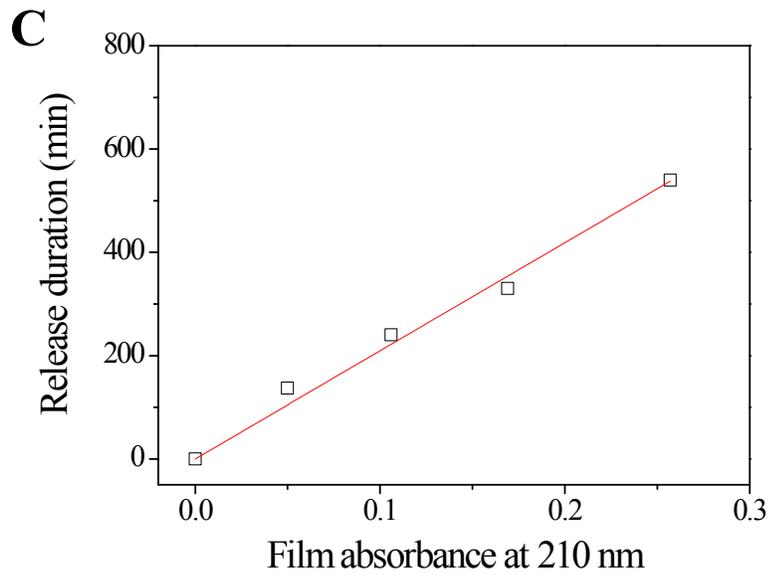
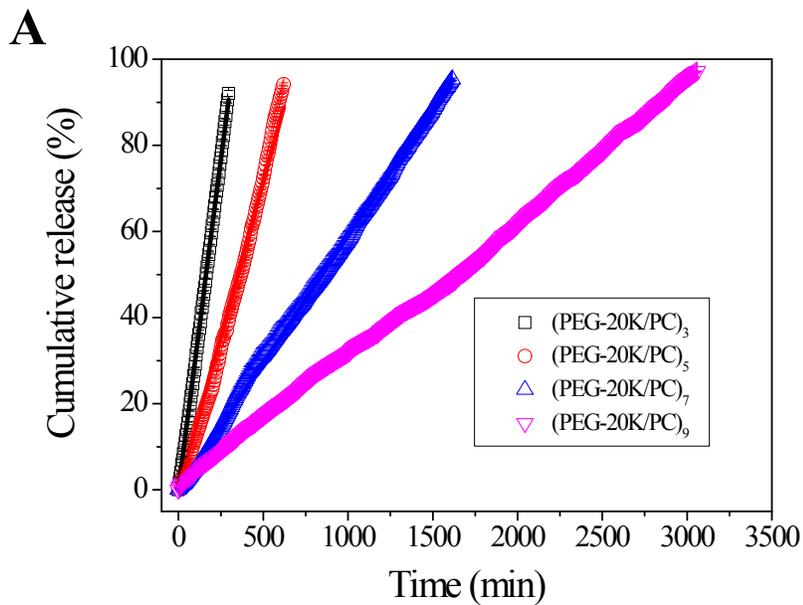


Fig. S6. (A, B) Release of EGCG from different bilayer number of PEG-4K/EGCG films drawn as percentage release (A) and cumulative released amount (B). (C) Release duration (represented as time for 90% release) as a function of film thickness (represented as the absorbance of the original film at 210nm). Release media: pH7.4 50 mM PBS. T= 37 °C.



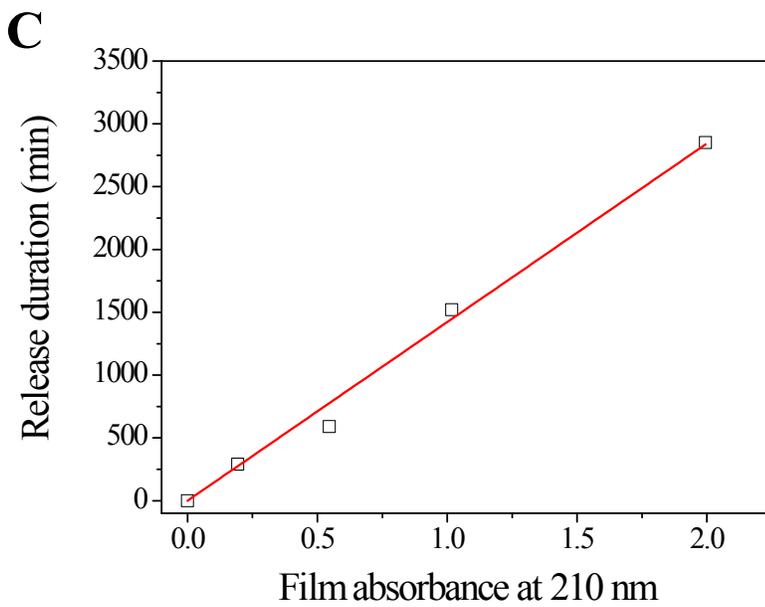
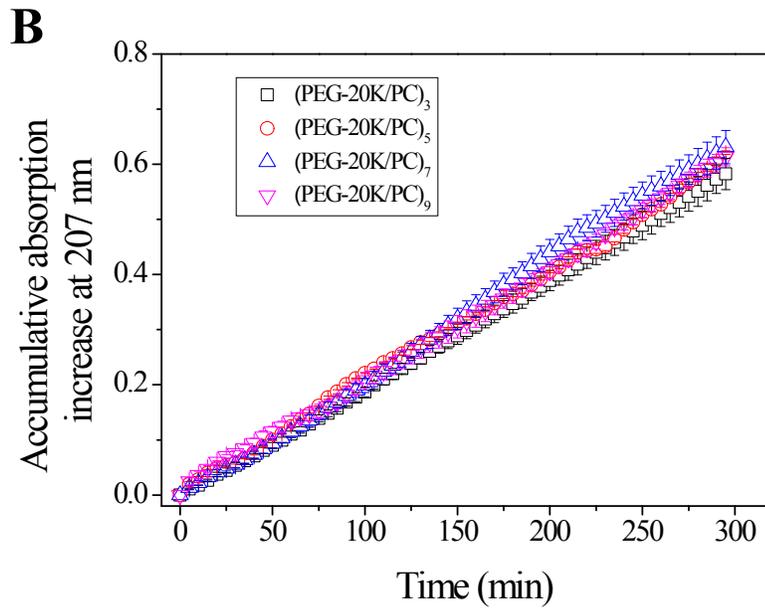
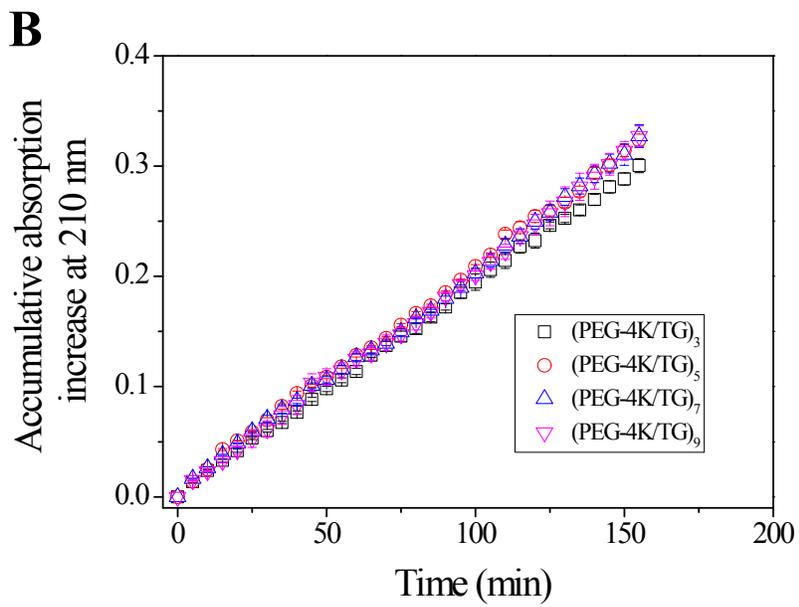
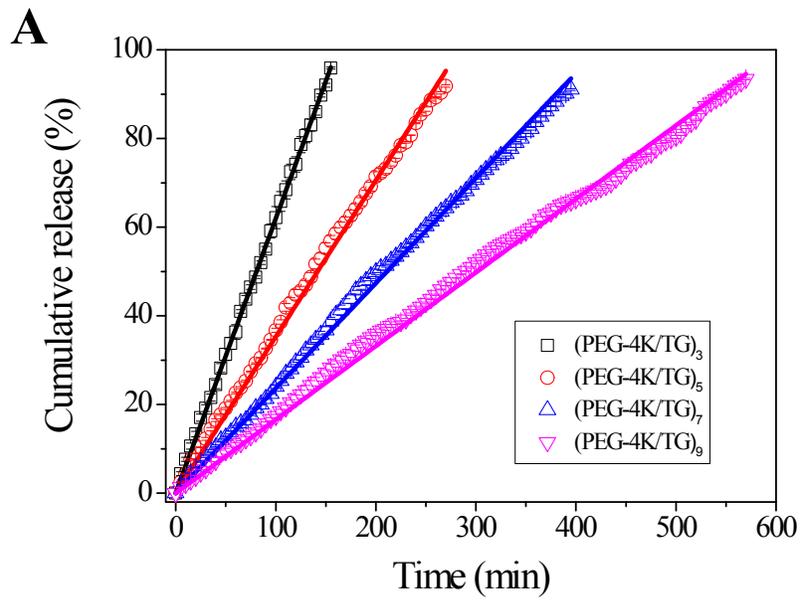


Fig. S7. (A, B) Release of PC from different bilayer number of PEG-20K/PC films drawn as percentage release (A) and cumulative released amount (B). (C) Release duration (represented as time for 90% release) as a function of film thickness (represented as the absorbance of the original film at 207nm). Release media: pH8.5 50 mM PBS. T= 37 °C.



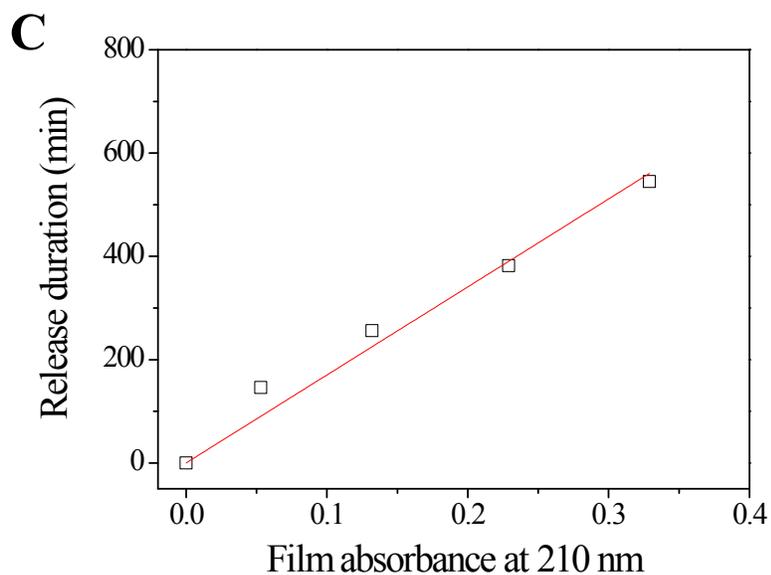


Fig. S8. (A, B) Release of TG from different bilayer number of PEG-4K/TG films drawn as percentage release (A) and cumulative released amount (B). (C) Release duration (represented as time for 90% release) as a function of film thickness (represented as the absorbance of the original film at 210nm). Release media: pH7.4 50 mM PBS. T= 37 °C.