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Supplementary Materials

Hybrid Nanoparticles and Composite Hydrogel Systems for Delivery of Peptide Antibiotics

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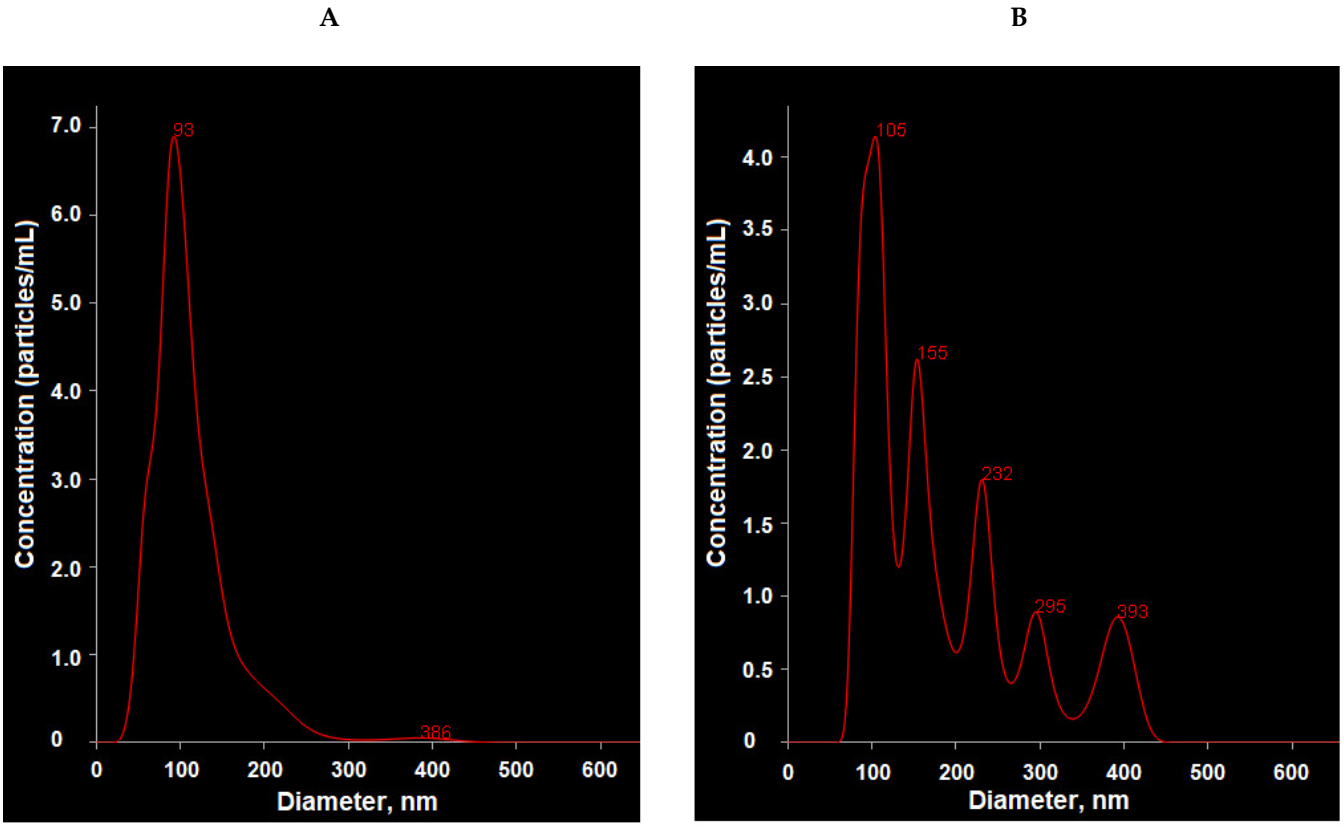
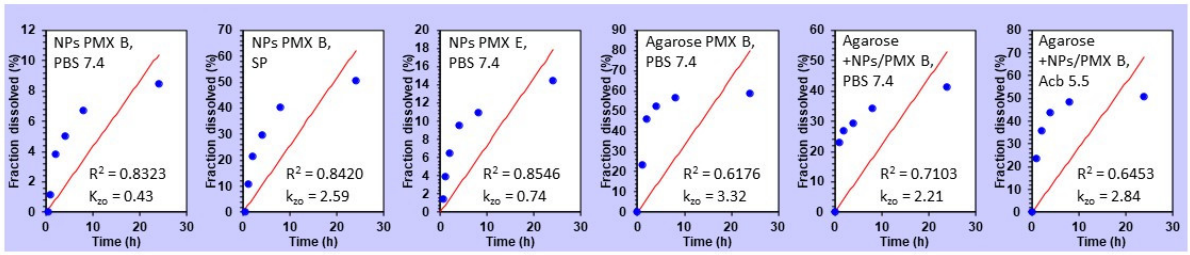


Figure S1. Nanoparticle tracking analysis (NTA) of PGlu@Ag NPs (**A**) and Cys@Ag NPs (**B**).

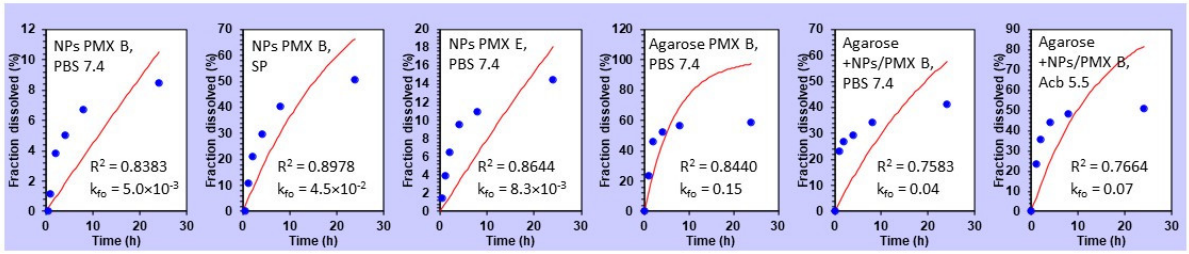
Table S1. Correlation coefficients and calculated parameters with different mathematical models of release.

Model	Hybrid NPs			Gels		
	PMX B		*PMX E*	*PMX B*		
	0.01 M PBS (pH 7.4)	Simulated Plasma	0.01 M PBS (pH 7.4)	Agarose in 0.01 M PBS (pH 7.4)	Agarose+Hybrid NPs in 0.01 M PBS (pH 7.4)	Agarose+Hybrid NPs in 0.01 M AcOH/AcONa (pH 5.5)
Zero-order*	R^2 = 0.8323 K_{zo} = 0.43	R^2 = 0.8420 k_{zo} = 2.59	R^2 = 0.8546 k_{zo} = 0.74	R^2 = 0.6176 k_{zo} = 3.32	R^2 = 0.7103 k_{zo} = 2.21	R^2 = 0.6453 k_{zo} = 2.84
First-order *	R^2 = 0.8383 $k_{fo} = 5.0\times10^{-3}$	R^2 = 0.8978 $k_{fo} = 4.5\times10^{-2}$	R^2 = 0.8644 $k_{fo} = 8.3\times10^{-3}$	R^2 = 0.8440 k_{fo} = 0.15	R^2 = 0.7583 k_{fo} = 0.04	R^2 = 0.7664 k_{fo} = 0.07
Higuchi *	R^2 = **0.9274** K_H = 1.95	R^2 = **0.9348** K_H = 11.72	R^2 = **0.9415** K_H = 3.42	R^2 = 0.8184 K_H = 16.50	R^2 = 0.8801 K_H = 10.74	R^2 = 0.8436 K_H = 14.02
Korsmeyer-Peppas **	R^2 = **0.9524** K_{KP} = 1.76 n = 0.67	R^2 = **0.9635** K_{KP} = 11.07 n = 0.65	R^2 = **0.9624** K_{KP} = 4.09 n = 0.51	R^2 = **0.9676** K_{KP} = 31.48 n = 0.31	R^2 = **0.9992** K_{KP} = 23.18 n = 0.19	R^2 = **0.9894** K_{KP} = 27.03 n = 0.30
Hixon-Crowell ***	R^2 = 0.7971 $K_{HC} = 8.5\times10^{-4}$	R^2 = **0.9019** $K_{HC} = 8.5\times10^{-3}$	R^2 = 0.8691 $K_{HC} = 1.6\times10^{-3}$	R^2 = 0.7463 K_{HC} = 0.03	R^2 = 0.7434 $K_{HC} = 5.6\times10^{-3}$	R^2 = 0.6589 $K_{HC} = 8.2\times10^{-3}$
Hopfenberg ***	R^2 = 0.7994 $K_{Hb} = 9.9\times10^{-6}$	R^2 = **0.9195** $K_{Hb} = 2.7\times10^{-5}$	R^2 = 0.8726 $K_{Hb} = 2.1\times10^{-5}$	R^2 = 0.8459 $K_{Hb} = 6.6\times10^{-5}$	R^2 = 0.7599 $K_{Hb} = 7.9\times10^{-5}$	R^2 = 0.6976 $K_{Hb} = 2.3\times10^{-5}$
Baker-Lonsdale ***	R^2 = **0.9014** $K_{BL} = 4.4\times10^{-5}$	R^2 = **0.9599** $K_{BL} = 2.5\times10^{-3}$	R^2 = **0.9478** $K_{BL} = 1.5\times10^{-4}$	R^2 = 0.8134 $K_{BL} = 4.8\times10^{-3}$	R^2 = 0.8843 $K_{BL} = 1.6\times10^{-3}$	R^2 = 0.8267 $K_{BL} = 2.9\times10^{-3}$
Weibull ******	R^2 = **0.9954** α = 22.85 β = 0.20	R^2 = **0.9937** α = 5.62 β = 0.48	R^2 = **0.9961** α = 16.40 β = 0.30	R^2 = **0.9983** α = 1.52 β = 0.10	R^2 = **0.9991** α = 3.54 β = 0.19	R^2 = **0.9959** α = 2.05 β = 0.11
Gompertz ******	R^2 = **0.9598** α = 3.66 β = 0.24	R^2 = **0.9833** α = 2.46 β = 1.12	R^2 = **0.9915** α = 3.12 β = 0.35	R^2 = **0.9582** α = 1.05 β = 0.49	R^2 = **0.9993** α = 1.48 β = 0.36	R^2 = **0.9773** α = 1.20 β = 0.40
Peppas-Sahlin ******	R^2 = **0.9667** K_1 = 2.64 K_2 = 0.17 m = 0.44	R^2 = **0.9887** K_1 = 14.73 K_2 = 0.53 m = 0.44	R^2 = **0.9882** K_1 = 5.02 K_2 = 0.23 m = 0.38	R^2 = **0.9701** K_1 = 40.18 K_2 = 6.36 m = 0.33	R^2 = **0.9977** K_1 = 26.51 K_2 = 3.58 m = 0.25	R^2 = **0.9867** K_1 = 34.13 K_2 = 5.35 m = 0.32

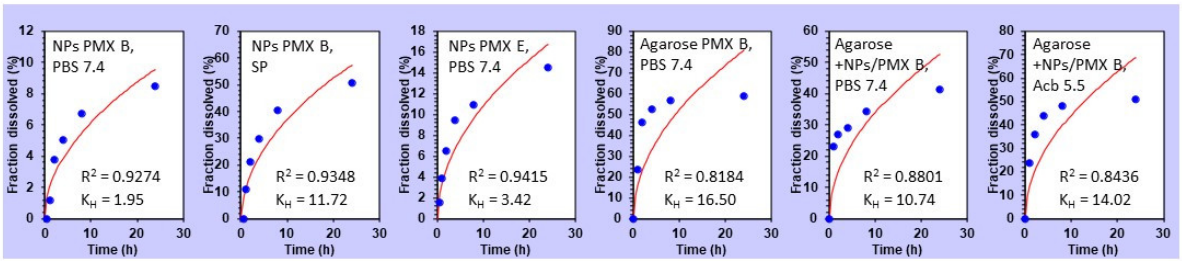
Zero-order $F=k_{zo}*t$



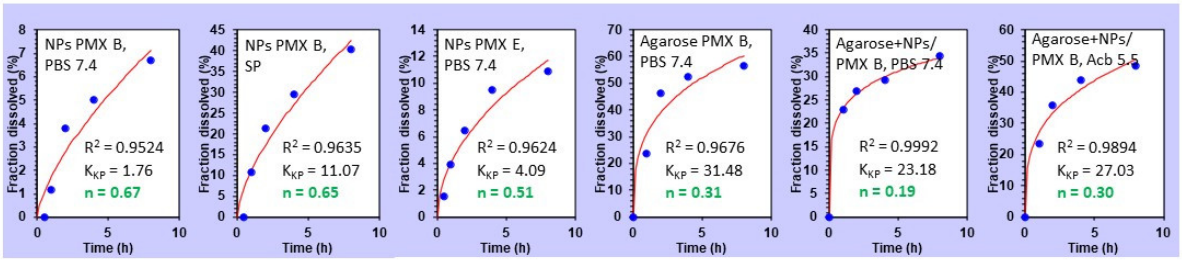
First-order $F=100*[1-Exp(-k_{fo}*t)]$



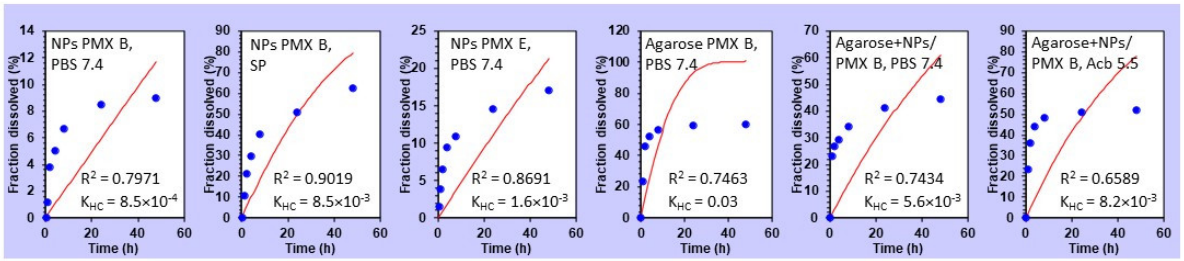
Higuchi $F=k_H*t^{0.5}$



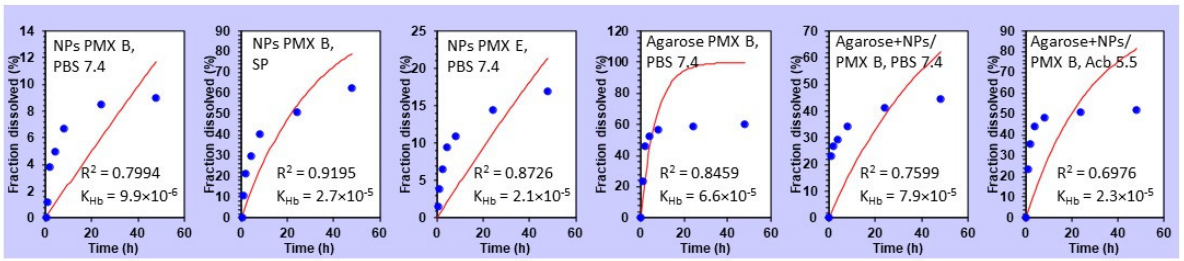
Korsmeyer-Peppas $F=k_{KP}*t^n$



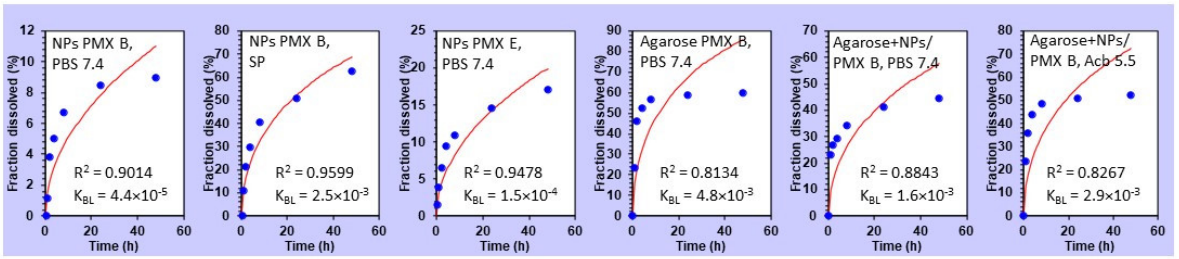
Hixson-Crowell $F=100*[1-(1-k_{HC}*t)^3]$



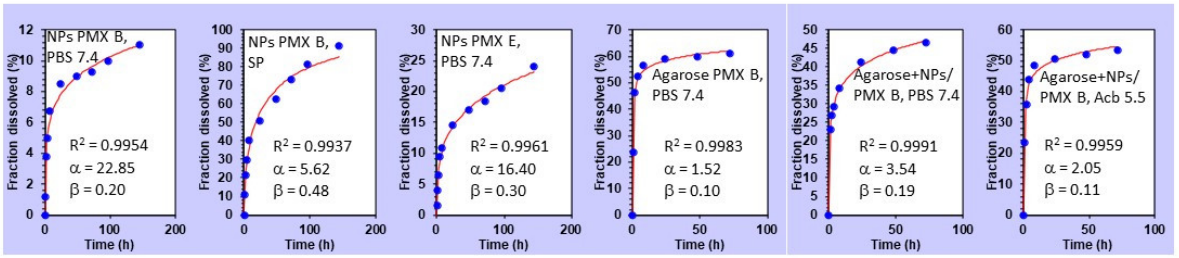
Hopfenberg $F=100*[1-(1-k_{HB}*t)^n]$

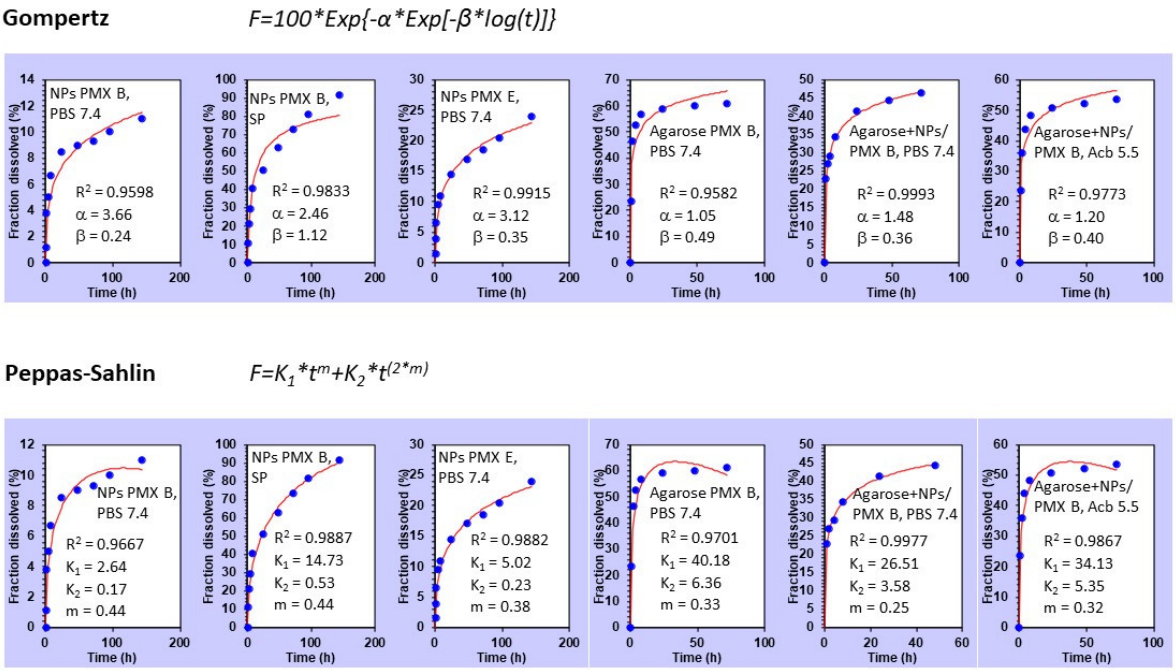


Baker-Lonsdale $3/2*[1-(1-F/100)^{(2/3)}]-F/100=k_{BL}*t$



Weibull $F=100*\{1-Exp[-(t-Ti)^{\beta}/\alpha]\}$





Figures S2. Regression curves, correlation coefficients and calculated parameters for different mathematical models of release.