pharmaceutics

Supplementary Materials: Doxorubicin-Loaded Delta Inulin Conjugates for Controlled and Targeted Drug Delivery: Development, Characterization, and In Vitro Evaluation

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Table S1. Reagents for preparing ALF (pH 4.5, 5.2 and 6.0) and SBF.

Material	ALF	SBF
	Concentration (g/L)	Concentration (g/L)
Sodium hydroxide	Varying with pH	-
Citric acid	20.8	-
Hydrochloric acid (1 M)	-	7.8 mL
Sodium chloride	3.21	8.04
Sodium bicarbonate	-	0.355
Calcium chloride.2H_2O	0.128	0.292
Potassium chloride	-	0.225
Potassium phosphate dibasic trihydrate	-	0.311
Sodium phosphate Na_2HPO_4.2H_2O	0.089	-
Sodium sulfate	0.039	0.072
Magnesium chloride.6H_2O	0.106	0.311
Glycerol	0.059	-
Sodium citrate dihydrate	0.077	-
Sodium tartrate dihydrate	0.090	-
Sodium lactate	0.085	-
Sodium pyruvate	0.086	-
Tris(hydroxymethyl) aminomethane	-	6.12

Table S2. Linearity of the developed assay method. Data are presented as the mean ± SD (n = 3).

	Linearity		
Equation	Y = 37498*X − 35344	Y = 34806*X − 32133	Y = 34280*X − 29717
Slope ± SD	37498 ± 312.8	34806 ± 182.3	34280 ± 188.7
Y-intercept ± SD	−35344 ± 4883	−32133 ± 2846	−29717 ± 2947
R square	0.9987	0.9995	0.9994

Table S3. Intra-day and Inter-day precision of the developed assay method.

Concentration added (μg/mL)	Intra-day			Inter-day		
	Mean peak area	% RSD	Mean RSD (%)	Mean peak area	% RSD	Mean RSD (%)
8 (n = 6)	249584.33	0.83		255885.33	1.07	
8 (n = 6)	246023.00	0.75	0.72	246014.11	0.72	0.86
8 (n = 6)	242435.00	0.58		241928.00	0.77	

Table S4. Analytical recovery of MPI by developed method.

Accuracy			
Concentration added (µg/mL)	**Concentration measured (mean ± SD)**	**% RSD**	**Recovery (%)**
10 (n = 3)	9.76 ± 0.12	1.25	97.56
20 (n = 3)	20.03 ± 0.02	0.11	100.15
30 (n = 3)	30.02 ± 0.02	0.06	100.08

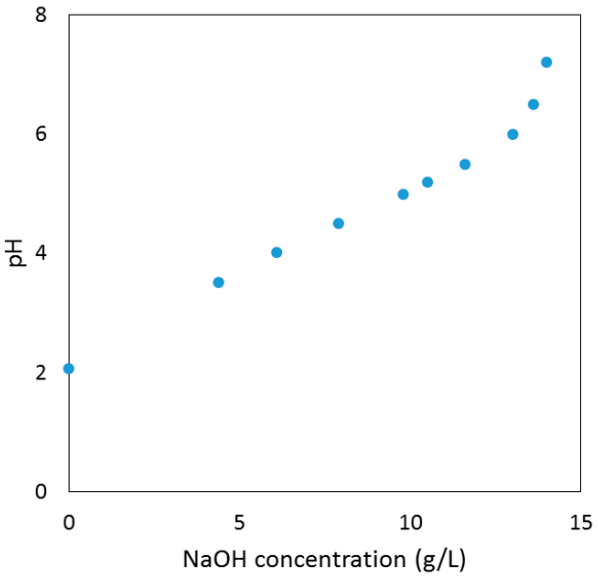

Figure S1. Sodium hydroxide titration in ALF.

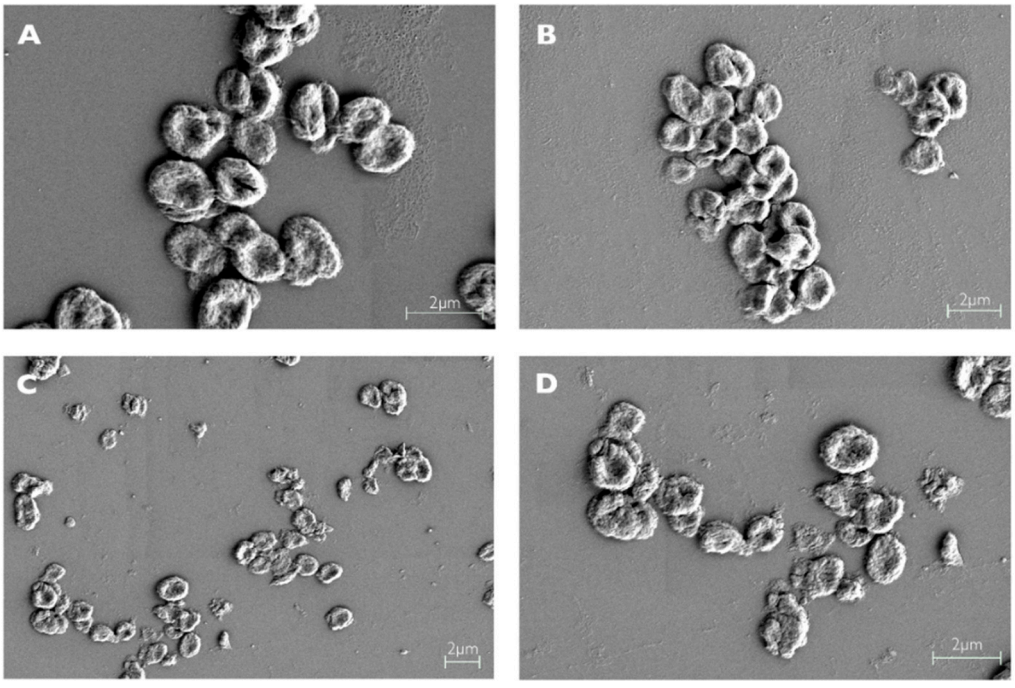

Figure S2. (**A–B**) SEM MPI; (**C–D**) SEM MPI-doxorubicin conjugate.

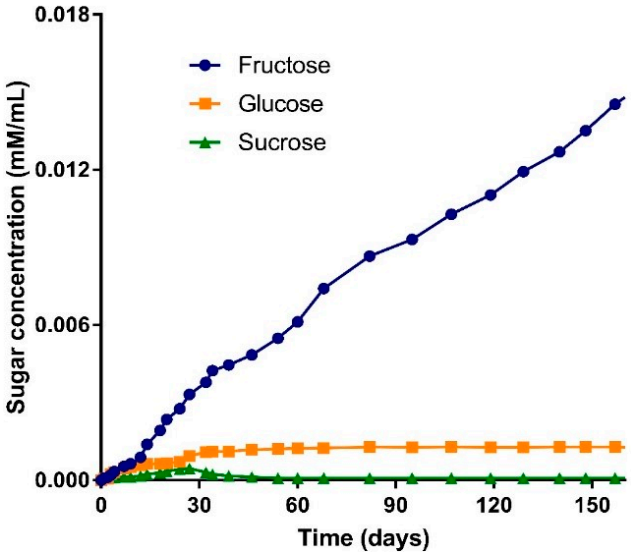

Figure S3. Concentration of (blue ●) fructose, (orange ■) glucose and (green ▲) sucrose as a function of time during MPI hydrolysis in acidic ALF (pH 4.5) over an extended cleavage period.

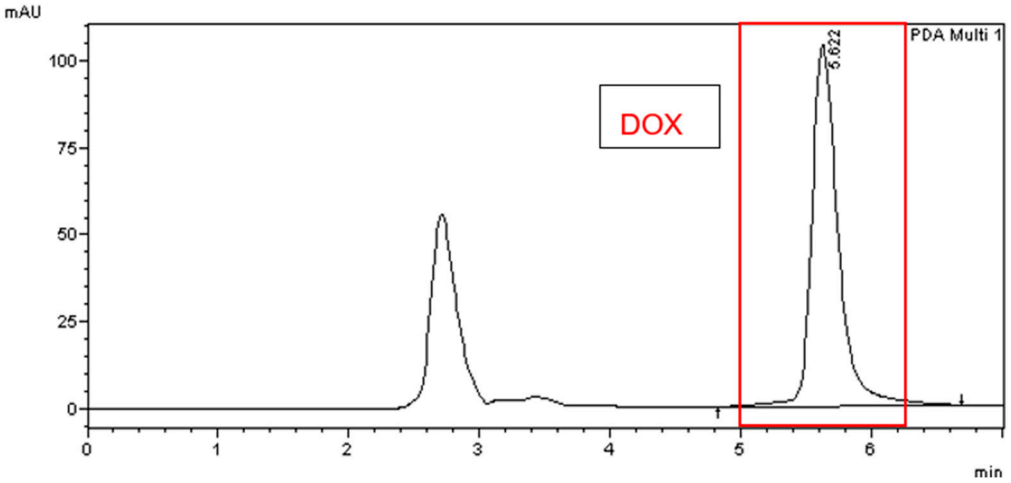

Figure S4. Chromatographic determination of doxorubicin, using HPLC (Shimadzu Corporation, C18 column (250 × 460 mm) and a PDA detector.

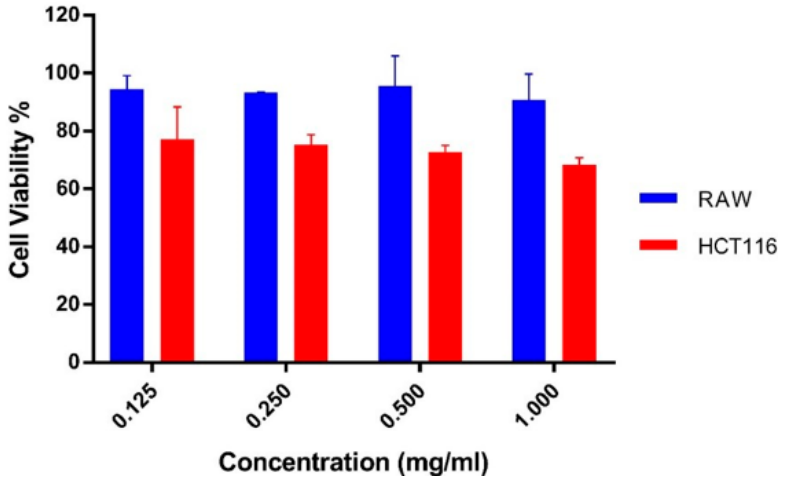

Figure S5. Cytotoxicity of MPI at carrying concentrations of 0.125, 0.25, 0.5, 1 mg/mL. RAW and HCT 116 tumour cells were incubated with MPI for 24 h. the cell viability was determined by MTT assay (n = 3).

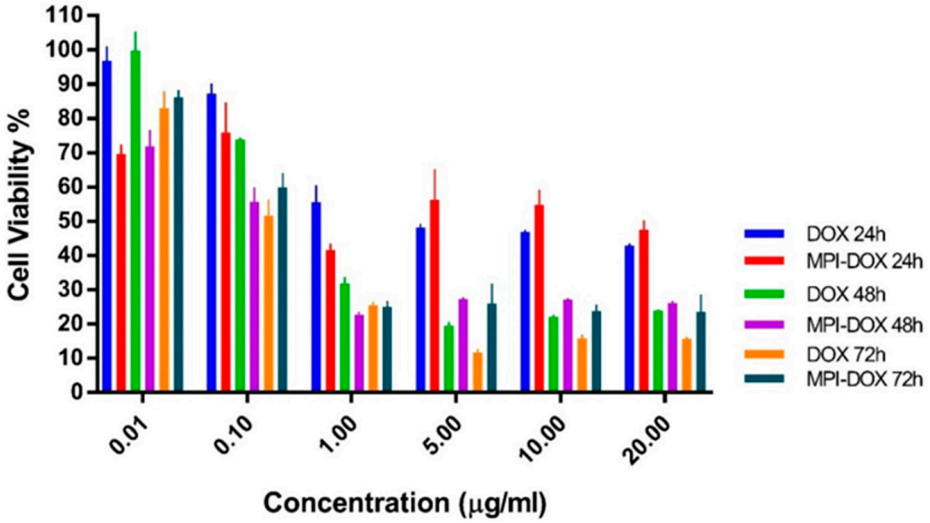

Figure S6. Cell viability % (MTT assay) of free doxorubicin and MPI-doxorubicin at doxorubicin or equivalent concentrations of 0.01,0.1,1,5,10,20 mg/mL; free doxorubicin and MPI-doxorubicin on RAW Blue cells with 24, 48 and 72 h incubation time.