Supplementary Data

Engineering probiotics-derived membrane vesicles for encapsulating fucoxanthin: Evaluation of stability, bioavailability and biosafety

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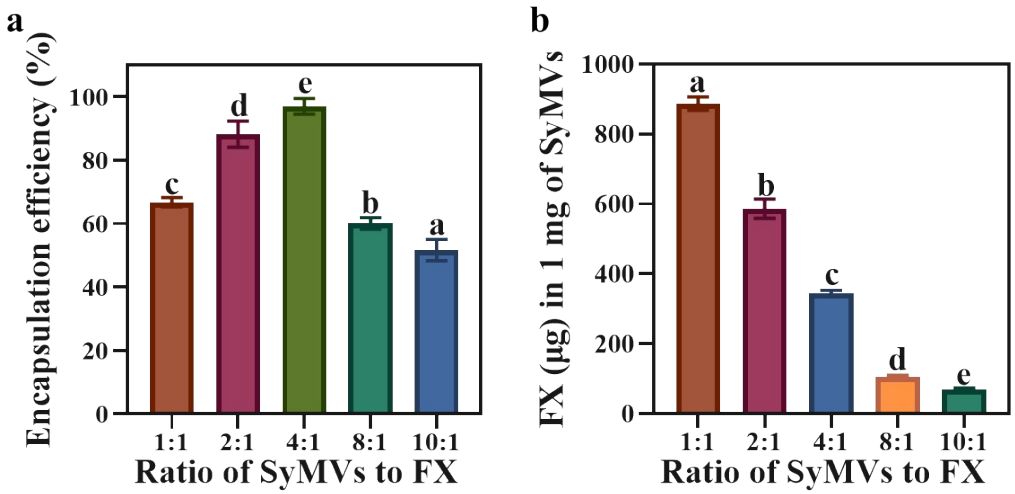

Fig. S1 (a) Encapsulation efficiency and (b) loading capacity of FX-MVs prepared by different proportions of SyMVs and FX. Different letters in a column indicate significant difference ($p < 0.05$).

Table S1 Grouping of *in vivo* biosafety experiments

Group	Control	L-SyMVs	M-SyMVs	H-SyMVs	L-FX-MVs	M-FX-MVs	H-FX-MVs
Samples	-	SyMVs	SyMVs	SyMVs	FX-MVs	FX-MVs	FX-MVs
Dosage	-	1 mg/kg body weight	10 mg/kg body weight	20 mg/kg body weight	1 mg/kg body weight	10 mg/kg body weight	20 mg/kg body weight

Table S2 Hematology values of mice

Parameter	Control	L-SyMVs	M-SyMVs	H-SyMVs	L-FX-MVs	M-FX-MVs	H-FX-MVs	Normal range
WBC (10^9/L)	4.02 ± 0.72ab	2.96 ± 1.02a	3.12 ± 0.54a	2.72 ± 0.59a	4.1 ± 1.30ab	5.96 ± 2.9b	4.34 ± 2.55ab	0.8-6.8
Lymph (10^9/L)	3.24 ± 0.65ab	2.40 ± 0.93a	2.46 ± 0.50a	2.06 ± 0.43a	3.00 ± 1.17ab	4.52 ± 1.54b	3.14 ± 2.04ab	0.7-5.7
Mon (10^9/L)	0.06 ± 0.05a	0.08 ± 0.04ab	0.08 ± 0.04ab	0.06 ± 0.05a	0.10 ± 0.00abc	0.18 ± 0.13bc	0.20 ± 0.14c	0.0-0.3
Gran (10^9/L)	0.72 ± 0.08ab	0.48 ± 0.05a	0.58 ± 0.13a	0.60 ± 0.21a	1.00 ± 0.19ab	1.26 ± 0.84b	1.00 ± 0.55ab	0.1-1.8
RBC (10^{12}/L)	9.82 ± 0.48c	8.73 ± 0.57a	9.97 ± 0.83c	9.60 ± 0.58bc	9.91 ± 0.55c	8.88 ± 0.46ab	8.90 ± 0.40a	6.36-9.42
HGB (g/L)	160.2 ± 11.45c	139.6 ± 9.42a	158.2 ± 7.09c	153.4 ± 8.53b	158.2 ± 12.13c	144.0 ± 5.52ab	140.2 ± 7.95a	110-143
HCT (%)	51.84 ± 4.2b	45.50 ± 2.92a	51.00 ± 2.23b	49.54 ± 2.43ab	50.74 ± 3.79b	46.40 ± 2.32a	45.70 ± 2.61a	34.6-44.6
MCV (fL)	52.82 ± 2.50a	52.16 ± 1.55a	51.36 ± 2.33a	51.64 ± 1.02a	51.22 ± 1.53a	52.32 ± 1.95a	51.42 ± 1.63a	48.2-58.3
MCH (pg)	16.26 ± 0.59a	15.92 ± 0.36a	15.88 ± 0.70a	15.90 ± 0.12a	15.70 ± 0.44a	16.18 ± 0.57a	15.70 ± 0.51a	15.8-19
MCHC (g/L)	308.6 ± 4.5a	306.4 ± 4.3a	310.0 ± 1.8a	309.2 ± 4.7a	311.4 ± 3.5a	310 ± 5.3a	306.4 ± 2.07a	302-353
PLT (10^9/L)	1362 ± 351b	977 ± 387ab	1199 ± 303b	622 ± 460a	1527 ± 532b	1168 ± 396ab	1026 ± 308ab	450-1590
MPV (fL)	4.68 ± 0.22a	4.78 ± 0.36a	4.96 ± 0.34a	5.54 ± 0.35b	4.94 ± 0.61a	5.20 ± 0.30ab	4.68 ± 0.56a	3.8-6

Values were given as mean ± SD (n = 5 in each group). WBC, white blood cells; Lymph, lymphocyte; MON, monocyte; Gran, granulocyte; RBC, red blood cells; HGB, hemoglobin; HCT, hematocrit; MCV, mean corpuscular volume; MCH, mean corpuscular hemoglobin; MCHC, mean corpuscular hemoglobin concentration; PLT, platelets; MPV, mean platelet volume. Different letters indicate statistically significant differences from each group ($p < 0.05$).