

**Supplementary Materials:**

**Polymeric nano-vesicles via intermolecular action to load and orally deliver insulin with enhanced hypoglycemic effect**

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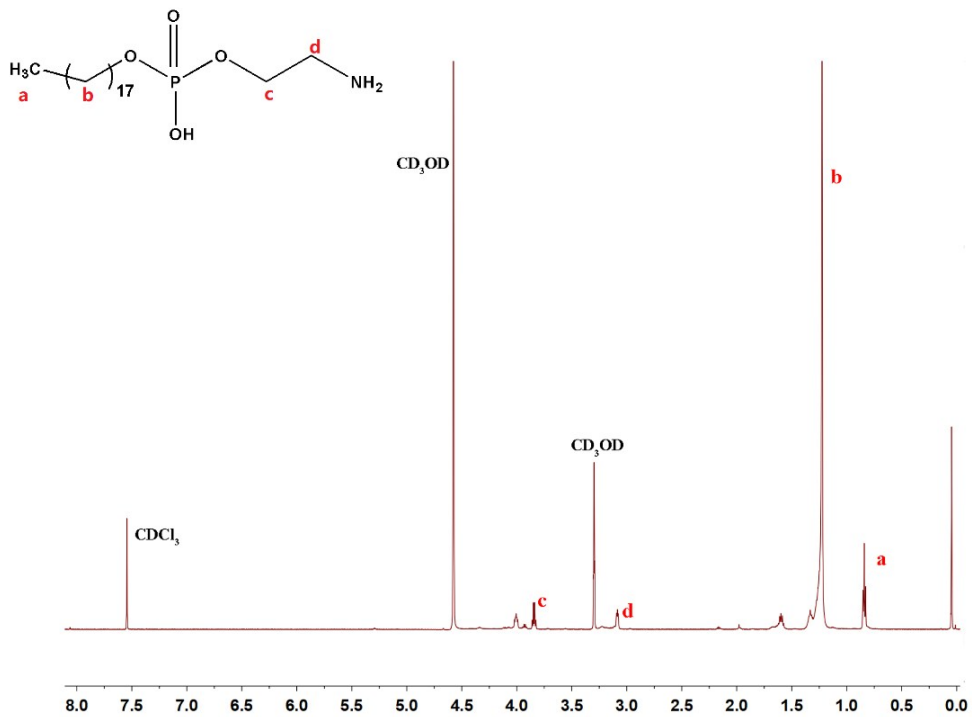
Supplementary Fig. 1 Characterization of OPA by <sup>1</sup>H-NMR spectroscopy.

Supplementary Fig. 2 GPC spectrum of PEOP.

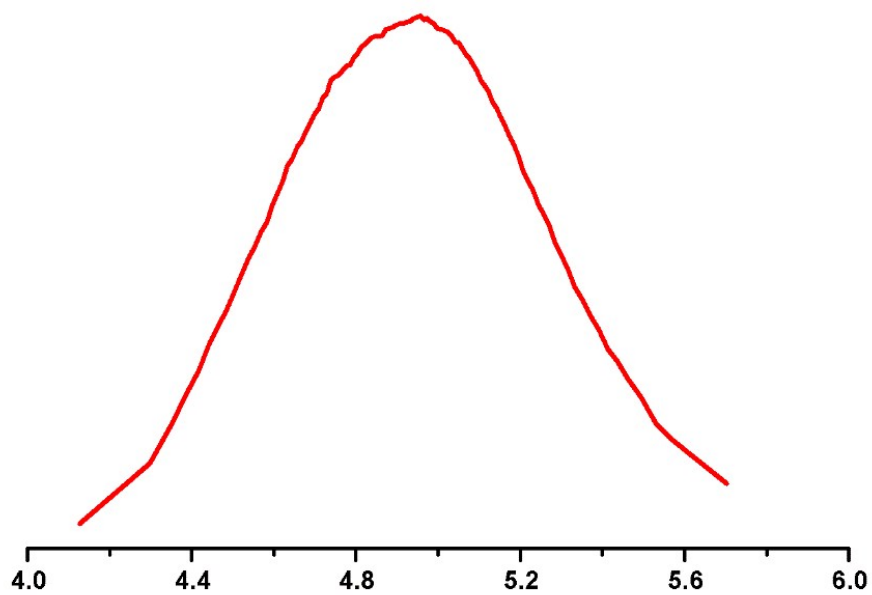
Supplementary Fig. 3 <sup>1</sup>H-NMR spectrum of Insulin.

Supplementary Fig. 4 Size distribution of (A) blank PEOP vesicles, (B) insulin-PEOP vesicles.

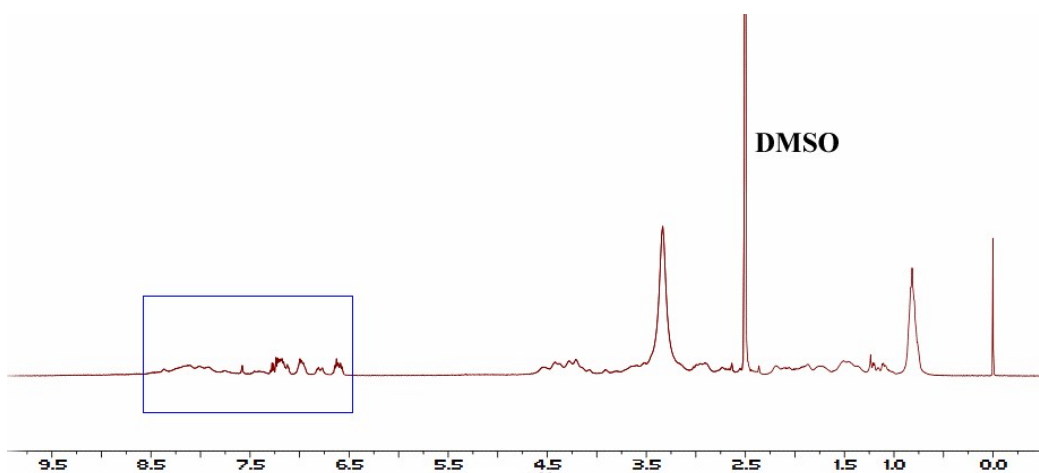
Supplementary Table 1 The changes of TEER of model cell monolayers.



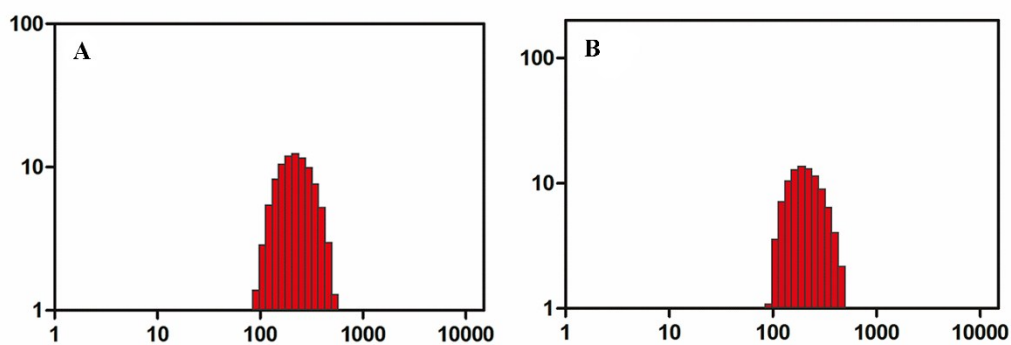
**Fig. S1 Characterization of octadecylphosphoethanolamine (OPA) by <sup>1</sup>H-NMR spectra.**



**Fig. S2 GPC spectrum of PEOP.**



**Fig. S3**  $^1\text{H}$  NMR spectrum of Insulin.



**Fig. S4** Size distribution of (A) blank PEOP vesicles, (B) insulin-PEOP vesicles.

**Table S1.** The changes of TEER of model cell monolayers.

Sample	TEER ( $\Omega \cdot \text{cm}^2$ )	
	0 h	2 h
Free FITC-INS	$327 \pm 18$	$277 \pm 5$
FITC-INS-PEOP vesicles	$304 \pm 5$	$280 \pm 7$