

## SUPPLEMENTARY INFORMATION

### **Role of PEG 2000 in the surface modification and physicochemical characteristics of pyrazinamide loaded nanostructured lipid carriers**

GOURAB KARMAKAR<sup>1</sup>, PRASANT NAHAK<sup>1</sup>, PRITAM GUHA<sup>1</sup>, BIPLAB ROY<sup>1</sup>,  
RANENDU KUMAR NATH<sup>2</sup> and AMIYA KUMAR PANDA<sup>3,\*</sup>

<sup>1</sup>Department of Chemistry, University of North Bengal, Darjeeling, West Bengal, 734 013 India

<sup>2</sup>Department of Chemistry, Tripura University, Suryamaninagar, Tripura, 799 022 India

<sup>3</sup>Department of Chemistry and Chemical Technology, Vidyasagar University, Midnapore, West Bengal, 721 102 India

Email: akpanda@mail.vidyasagar.ac.in

#### **Mathematical equations of different release models:**

Higuchi model:  $M_t = k_h t^{1/2}$  (1)

Korsmeyer–Peppas model:  $M_t/M_\infty = k_k t^n$  (2)

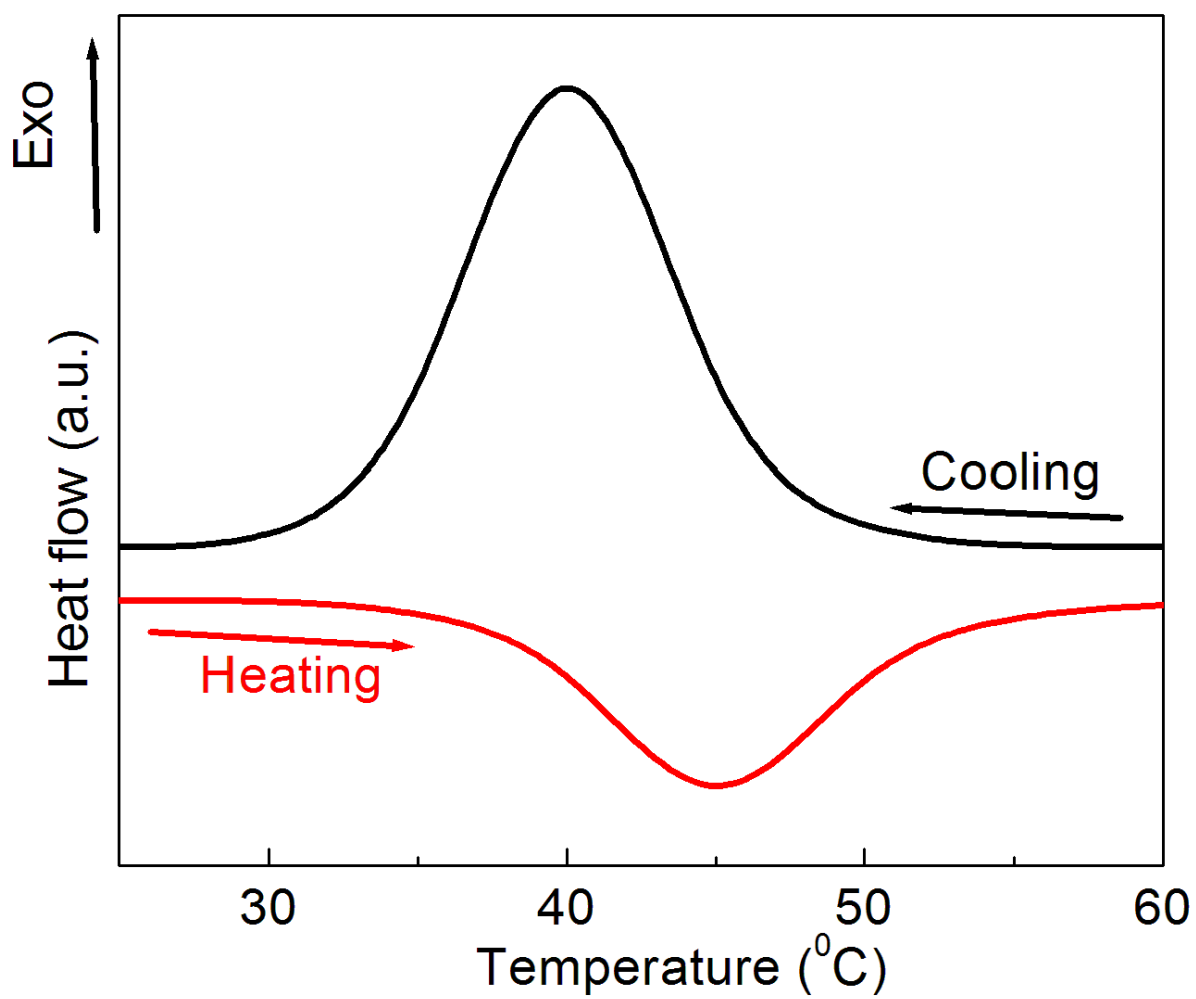
Weibull model:  $M_t/M_\infty = 1 - \exp\left[\frac{-(t-T_i)^\beta}{a}\right]$  (3)

where,  $M_t$  is the amount of drug released in time (t),  $M_t / M_\infty$  is the fraction of drug released, 'n' is the release exponent that characterizes the mechanism of drug release,  $k_h$  and  $k_k$  are release constants for Higuchi and Korsmeyer–Peppas equation respectively, 't' accounts for the time lag of the dissolution process. 'a' denotes a scale parameter that describes the time dependence; 'β' describes the shape of the dissolution curve progression.

**Table S1.** Release kinetic data of PYZ from NLC (HSPC : TS : OA, 2 : 2 : 1 ) and NLC<sub>PEG</sub> (HSPC : TS : OA, 2 : 2 : 1) having 0.01 (W/V)% of PEG 2000.

Different formulations	First order		Zero order		Weibull		Korsmeyer-Peppas			Higuchi		
	$k_1/ h^{-1}$	$R^2$	$k_0/ mol$	$R^2$	$k_w/ h^{-1}$	$R^2$	$\beta$	$k_k/ h^{-n}$	$R^2$	N	$k_h/ h^{-0.5}$	$R^2$
			$lit^{-1}.h^{-1}$									
<b>NLC</b>	0.03	0.969	2.19	0.873	2.24	0.997	0.465	7.21	0.997	0.40	8.30	0.965
<b>NLC<sub>PEG</sub></b>	0.02	0.987	1.05	0.898	1.15	0.996	0.423	4.64	0.996	0.39	4.90	0.976

[NLC] and [NLC<sub>PEG</sub>]: 1 mM, and [PYZ]: 10  $\mu$ M.



**Figure S1.** DSC heating cooling thermogram of NLC<sub>PEG</sub> formulation (HSPC : TS : OA, 2 : 2 : 1) having 0.01 (W/V)% of PEG 2000. Heating rate: 2 °C min<sup>-1</sup>