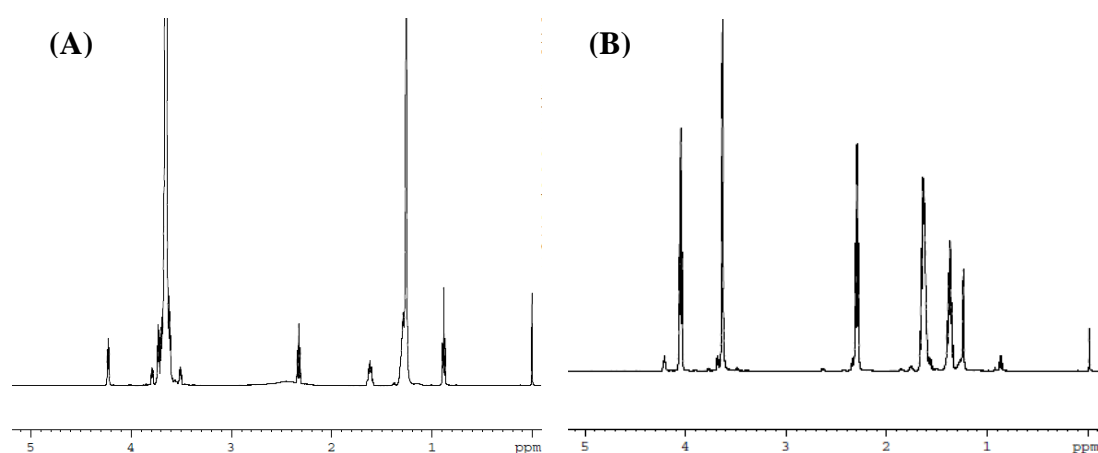


## Supplementary Materials:

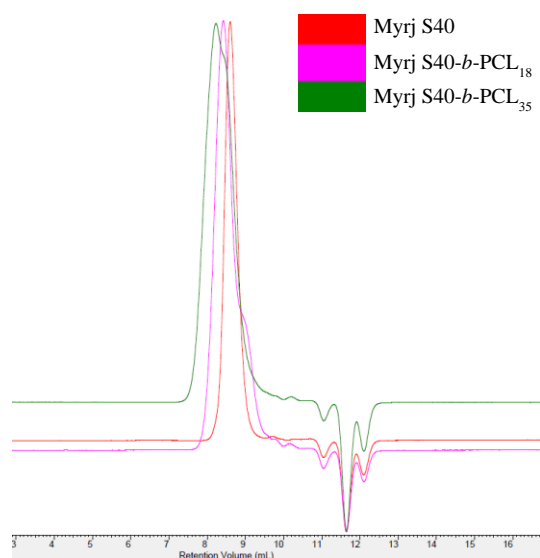
### Development and Characterization of PEGylated Fatty Acid-*block*-Poly( $\epsilon$ -Caprolactone) Novel Block Copolymers and Their Self-Assembled Nanostructures for Ocular Delivery of Cyclosporine A

Ziyad Binkhathlan\*, Abdullah H. Alomrani, Olsi Hoxha, Raisuddin Ali, Mohd Abul Kalam, and  
Aws Alshamsan

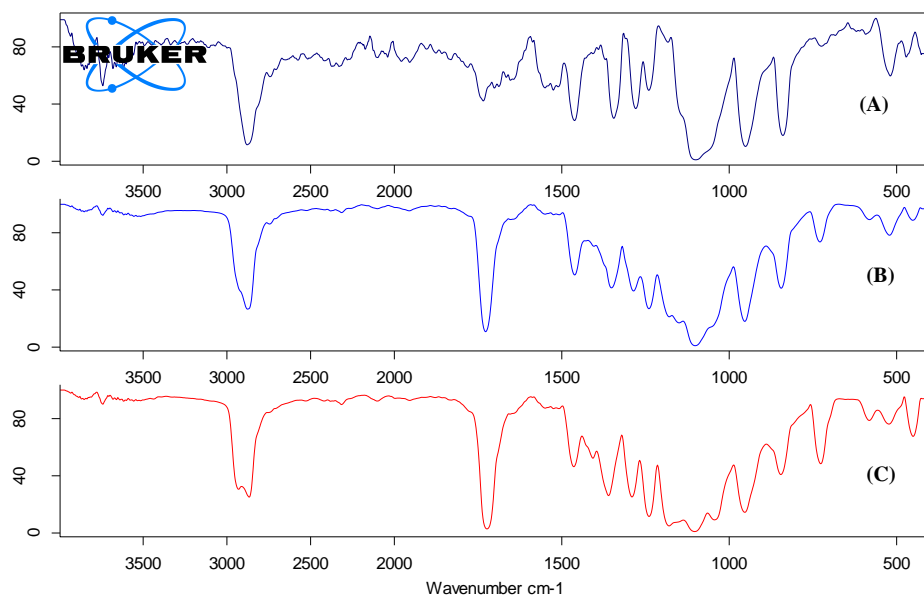
## Supplementary Figures



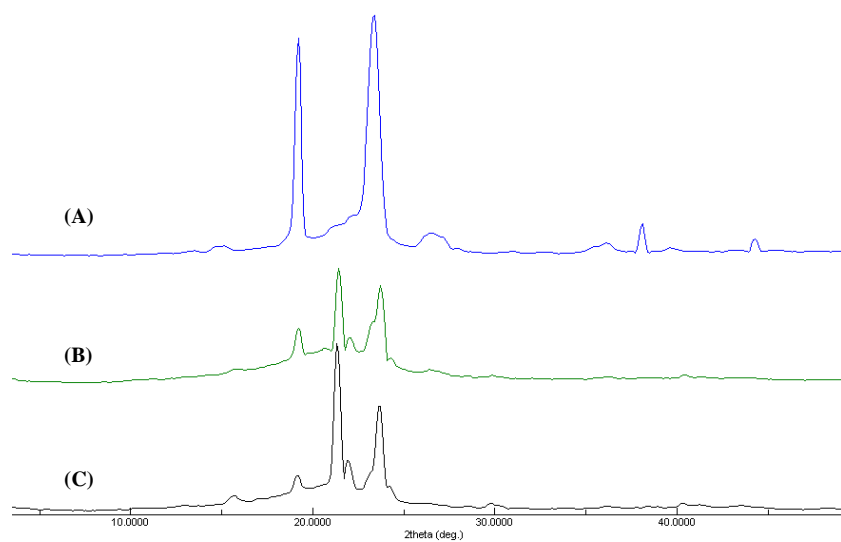
**Figure S1.** Representative  $^1\text{H}$  NMR spectra of Myrj S40 (A) and Myrj S40-*b*-PCL<sub>35</sub> (B).



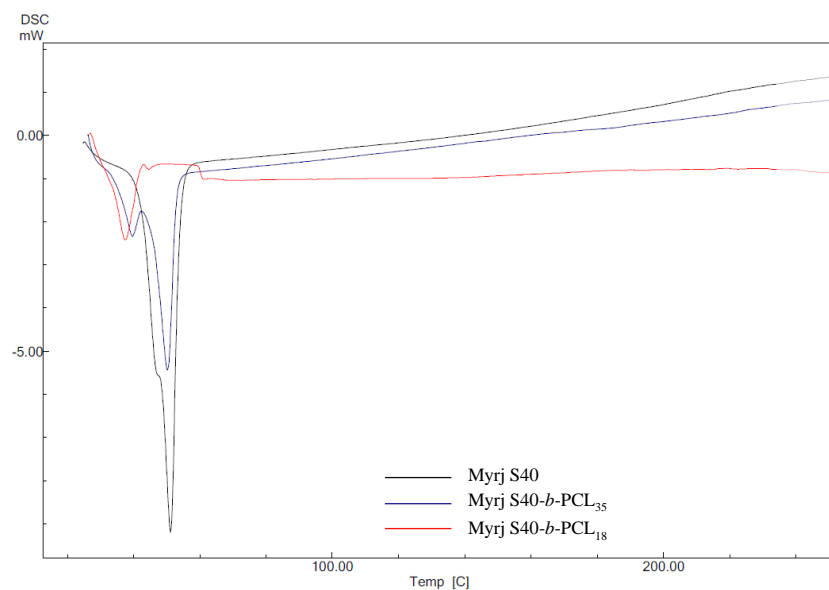
**Figure S2.** GPC chromatograms of unmodified Myrj S40 and the synthesized Myrj S40-*b*-PCL copolymers.



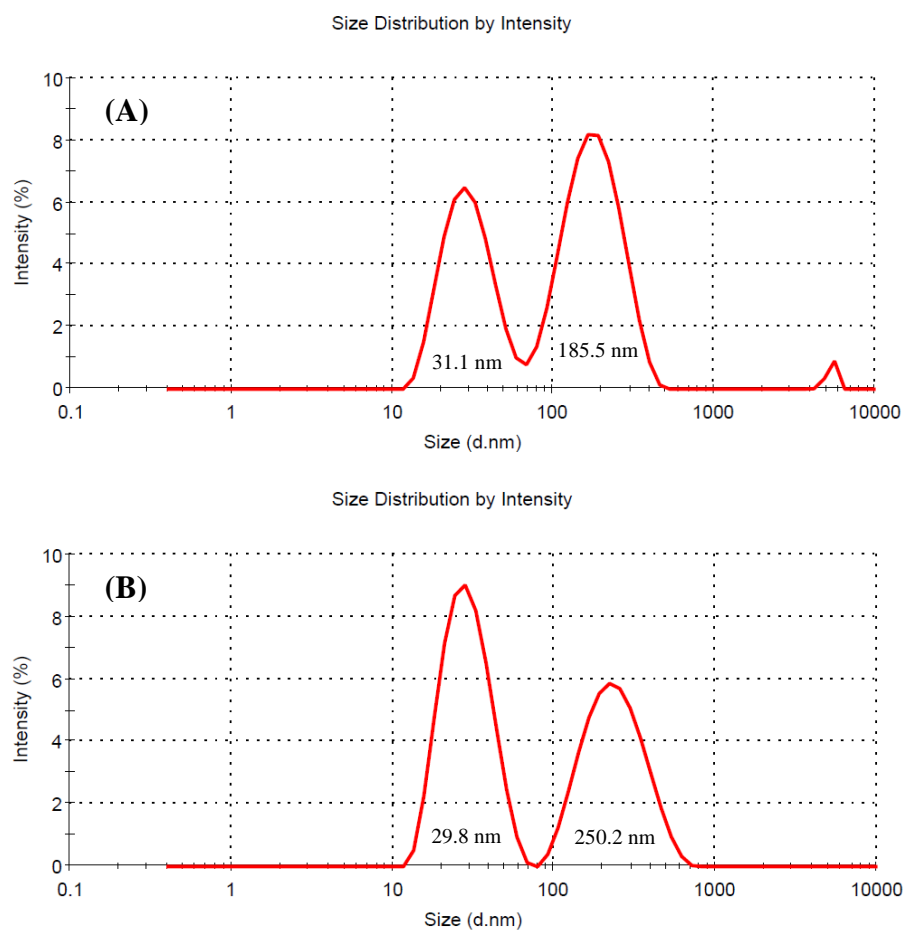
**Figure S3.** FTIR spectra of Myrj S40 (A), Myrj S40-*b*-PCL<sub>18</sub> (B), and Myrj S40-*b*-PCL<sub>35</sub> (C).



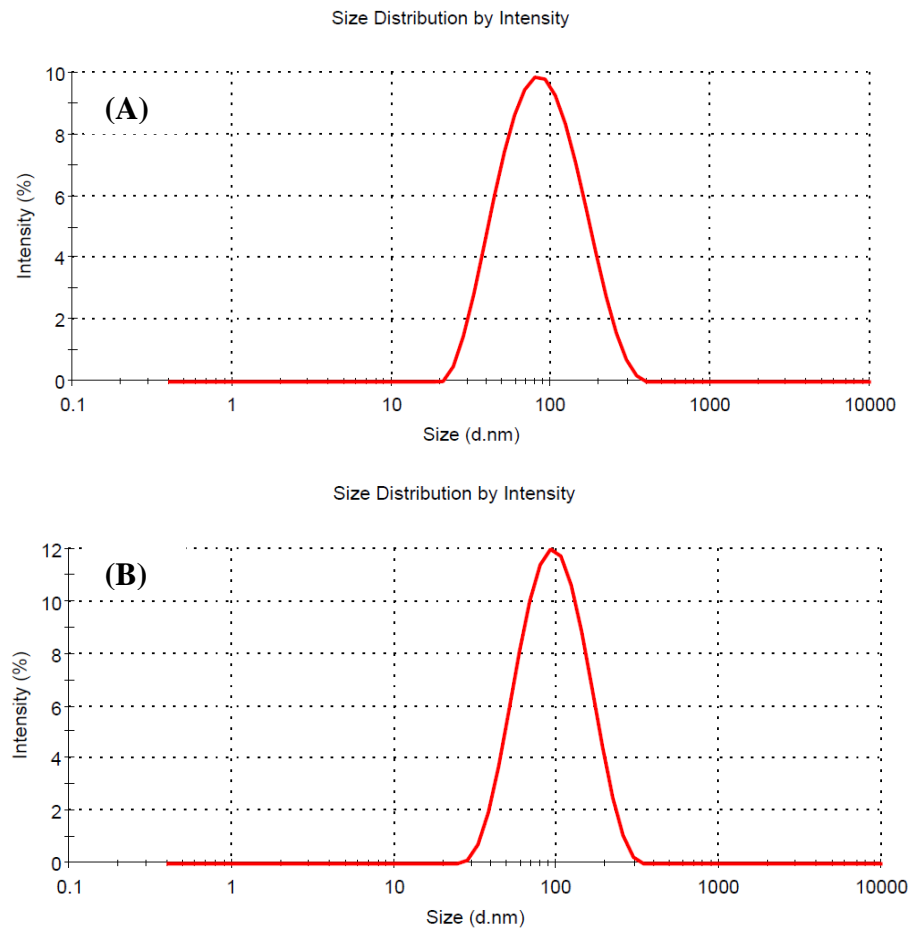
**Figure S4.** XRD diffractograms of Myrj S40 (A), Myrj S40-*b*-PCL<sub>18</sub> (B), and Myrj S40-*b*-PCL<sub>35</sub> (C).



**Figure S5.** DSC thermograms of Myrj S40, Myrj S40-*b*-PCL<sub>18</sub>, and Myrj S40-*b*-PCL<sub>35</sub>.



**Figure S6.** Representative size distribution profiles of (A) unloaded Myrj S100-*b*-PCL<sub>44</sub> micelles and (B) CyA-loaded Myrj S100-*b*-PCL<sub>44</sub> nanocarriers obtained by dynamic light scattering (Zetasizer Nano ZS, Malvern Instrument Ltd., UK) showing bimodal size population.



**Figure S7.** Representative size distribution profiles of (A) unloaded Myrj S100-*b*-PCL<sub>88</sub> micelles and (B) CyA-loaded Myrj S100-*b*-PCL<sub>88</sub> nanocarriers obtained by dynamic light scattering (Zetasizer Nano ZS, Malvern Instrument Ltd., UK) showing bimodal size population.

## Supplementary Tables

**Table S1. Grading system for ocular lesions in irritation tests**

Cornea		
Lesion		Score
<b>I. Opacity-Degree of density (area which is most dense is taken for reading)</b>		
No ulceration or opacity		0
Scattered or diffuse area – details of iris clearly visible		1
Easily discernible translucent areas, details of iris slightly obscured		2
Opalescent areas, no details of iris visible, size of pupil barely discernible		3
Opaque, iris invisible		4
<b>II. Area of cornea involved</b>		
One quarter (or less) but not zero		1
Greater than one quarter but less than one half		2
Greater than one half but less than three quarters		3
Greater than three quarters up to whole area		4
<b>Score equals (I x II x 5):</b>	<b>Total maximum =</b>	<b>80</b>
Iris		
Lesion		Score
<b>I. Values</b>		
Normal		0
Folds above normal, congestion, swelling, circumcorneal injection (any one or all of these or combination of any thereof), iris still reacting to light (sluggish reaction is positive)		1
No reaction to light, hemorrhage; gross destruction (anyone/ all of these)		2
<b>Score equals (I x 5):</b>	<b>Total maximum =</b>	<b>10</b>
Conjunctiva		
Lesion		Score
<b>I. Redness (refers to palpebral conjunctiva only)</b>		
Vessels normal		0
Vessels definitely injected above normal		1
More diffuse, deeper crimson red, individual vessels not easily discernible		2
Diffuse beefy red		3
<b>II. Chemosis</b>		
No swelling		0
Any swelling above normal (includes nictitating membrane)		1
Obvious swelling with partial eversion of the lids		2
Swelling with lids about half closed		3
Swelling with lids about half closed to completely closed		4
<b>III. Discharge</b>		
No discharge		0
Any amount different from normal (does not include small amount observed in inner canthus of normal animals)		1
Discharge with moistening of the lids and hairs just adjacent to the lids		2
Discharge with moistening of the lids and considerable area around the eye		3
<b>Score equals (I + II + III) x 2:</b>	<b>Total maximum =</b>	<b>20</b>

**Table S2.** Classification of eye irritation scoring system

<b>MMTS*</b>	<b>Irritation classification</b>
0.0-0.5	None
0.6-2.5	Practically none
2.6-15.0	Minimally
15.1-25.0	Mildly
25.1-50.0	Moderately
50.1-80.0	Severely
80.1-100.0	Extremely
100.1-110.0	Maximally

\* MMTS: Maximum Mean Total Score