Smart nanocarrier from norbornene based triblock copolymers for the sustained release of multi-cancer drugs.

Vijayakameswara Rao N¹, Himadri Dinda¹, Jayasri Das Sarma^{2*} and Raja Shunmugam^{1*}

¹Polymer Research Centre, Department of Chemical Sciences, ²Department of Biological Sciences, Indian Institute of Science Education and Research Kolkata. E-mail: sraja@iiserkol.ac.in

Supporting Information

Content	Page No
Scheme S1. Synthesis of compound 1	3
Scheme S2. Synthesis of Homopolymers	4
Figure S1. ¹ H NMR spectrum of Fmoc-DOX	5
Figure S2. ¹ H NMR spectrum of Exo-5-norbornene-2-carboxylic acid	6
Figure S3. ¹³ C NMR spectra of exo-5-norbornene-2-carboxylic acid	
Figure S4. ¹ H NMR spectrum of mono 1 Figure S5. ¹ H NMR spectrum of N-(hydroxyethyl)-cis-5-norbornene-exo-2,3 dicarboximide.	8 - 9
Figure S6. ¹³ C NMR spectrum of N-(hydroxyethyl)-cis-5-norbornene-exo-2,3 dicarboximide	3- 10
Figure S7. Mass spectrum of N-(hydroxyethyl)-cis-5-norbornene-exo-2,3-dicarboximide	11
Figure S8. ¹ H NMR spectrum of Mono2	12
Figure S9. ¹ H NMR spectrum of poly (ethyleneglycol)	13
Figure S10. Mass spectrum of poly (ethyleneglycol). Figure S11. ¹ H NMR spectrum of folic acid.	14 15
Figure S12. ¹ H NMR spectrum of poly (ethyleneglycol) grafte FOLATE)	d-folate (PEG

Figure S	13. ¹ H NM	R spectrum	of Mono 3				17
Figure 3)	S14. Mass	spectrum	of norbornene	e grafted	poly(ethy)	leneglycol)-Folate	(mono .18
Figure S (ethylene Folate	15. FTIR sj glycol) gra	pectra of 1 fted-folate	(a) Folic acid (b (PEG-FOLATE) poly (et 2) (d) norb	hyleneglyco ornene gra	ol) (c) poly fted poly(ethylene	glycol)- 19
Figure mono2	S16.	¹ H	NMR	spectrum	of	homopolymer	of 20



Scheme S1. Synthesis of compound 1.







Figure S1. ¹H NMR spectrum of Fmoc-DOX.



Figure S2. ¹H NMR spectrum of Exo-5-norbornene-2-carboxylic acid.



Figure S3. ¹³C NMR spectra of exo-5-norbornene-2-carboxylic acid.



Figure S4. ¹H NMR spectra of mono 1.



Figure S5. ¹H NMR spectrum of N-(hydroxyethyl)-cis-5-norbornene-exo-2,3-dicarboximide.



Figure S6. ¹³C NMR spectrum of N-(hydroxyethyl)-cis-5-norbornene-exo-2,3-dicarboximide.



Figure S7. Mass spectrum of N-(hydroxyethyl)-cis-5-norbornene-exo-2,3-dicarboximide.



Figure S8. ¹H NMR spectrum of Mono2.



Figure S9. ¹H NMR spectrum of poly (ethyleneglycol).



Figure S10. Mass spectrum of poly (ethyleneglycol).



Figure S11. ¹H NMR spectrum of folic acid.



Figure S12. ¹H NMR spectrum of poly (ethyleneglycol) grafted-folate (PEG-FOLATE).



Figure S13. ¹H NMR spectrum of Mono3.



Figure S14. Mass spectrum of norbornene grafted poly(ethyleneglycol)-Folate.



Figure S15. FTIR spectra of 1 (a) Folic acid (b) poly (ethyleneglycol) (c) poly (ethyleneglycol) grafted-folate (PEG-FOLATE) (d) norbornene grafted poly(ethyleneglycol)-Folate.



Fig S16. ¹H NMR spectrum of mono 3



Figure S17. Drug release studies of **DTBCP-1** polymer. UV response was measured with varying time intervals up to 700 minutes.