

Electronic Supplementary Information

Tunable emission of tetraphenylethylene copolymer via polymer matrix assisted and aggregation-induced emission†

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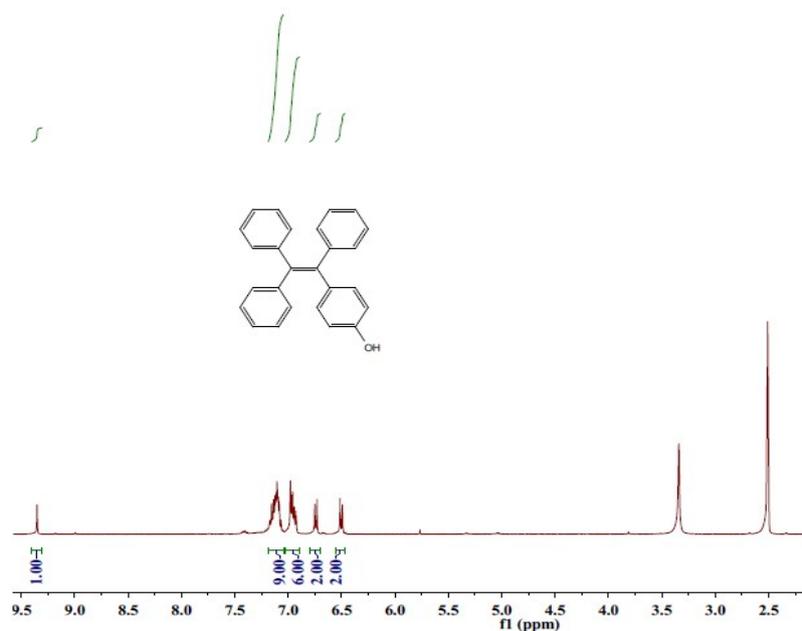


Figure S1. ¹H NMR spectra of compound **1** in DMSO-*d*₆.

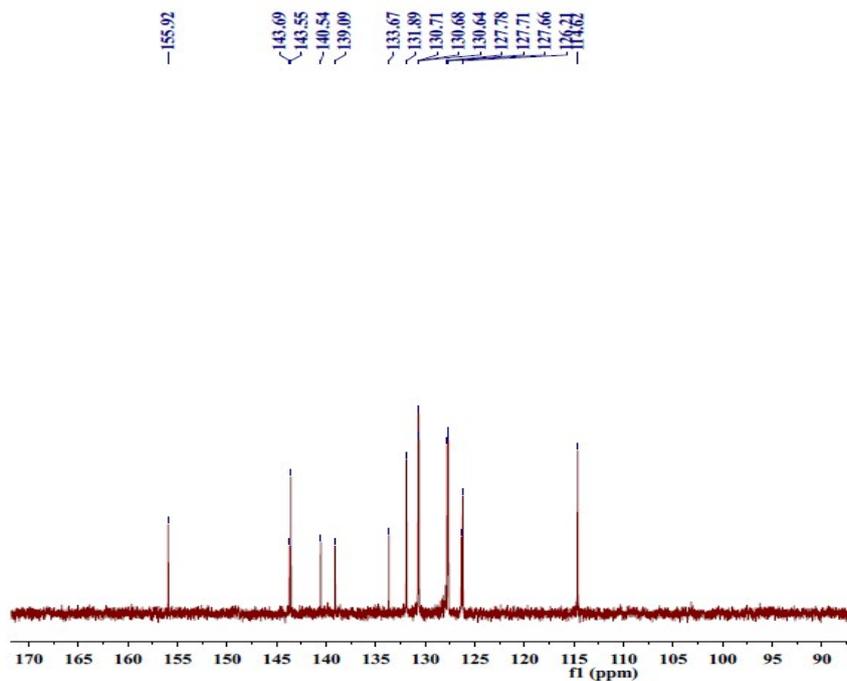


Figure S2. ^{13}C NMR spectra of compound **1** in $\text{DMSO-}d_6$.

Elemental Composition Report

Page 1

Single Mass Analysis

Tolerance = 50.0 PPM / DBE: min = -1.5, max = 100.0

Element prediction: Off

Number of isotope peaks used for i-FIT = 3

Monoisotopic Mass, Even Electron Ions

6 formula(e) evaluated with 1 results within limits (up to 1 best isotopic matches for each mass)

Elements Used:

C: 0-32 H: 0-19 O: 0-2

X-MA

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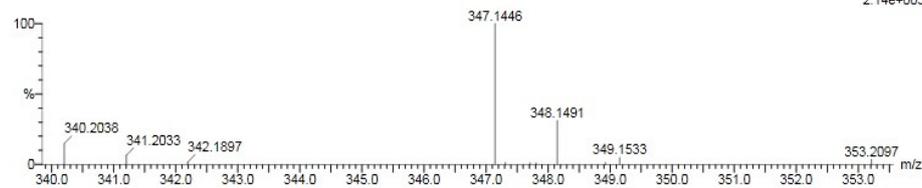
09-Mar-2017

22:43:34

2: TOF MS ES-

2.14e+003

MX-ZCJ-1001-1.7 (0.319) Cm (5:8)



Minimum:

Maximum: 30.0 50.0 -1.5 100.0

Mass	Calc. Mass	mDa	PPM	DBE	i-FIT	i-FIT (Norm)	Formula
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347.1446	347.1436	1.0	2.9	17.5	32.2	0.0	C ₂₆ H ₁₉ O
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Figure S3. Mass spectra of compound **1**

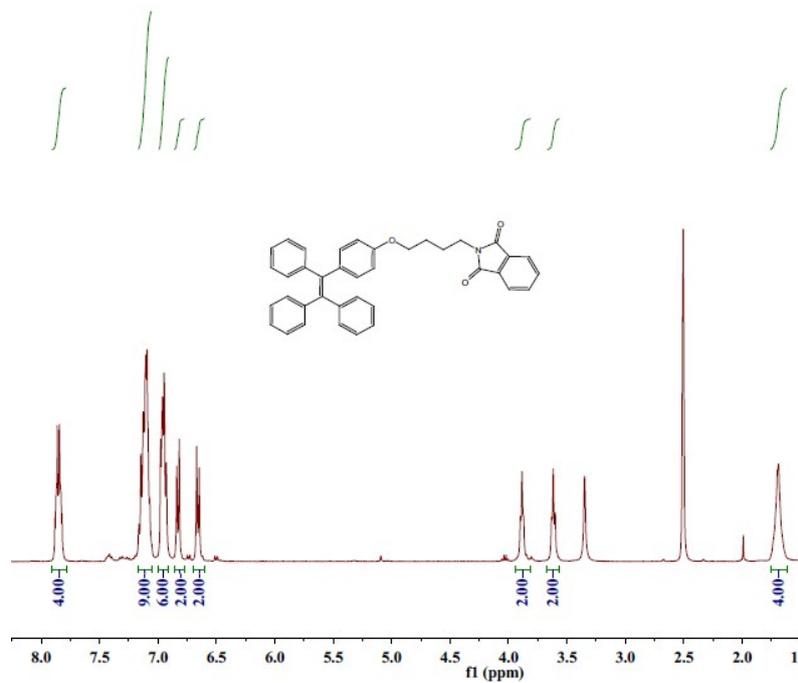


Figure S4. ¹H NMR spectra of Compound 2 in DMSO-*d*₆.

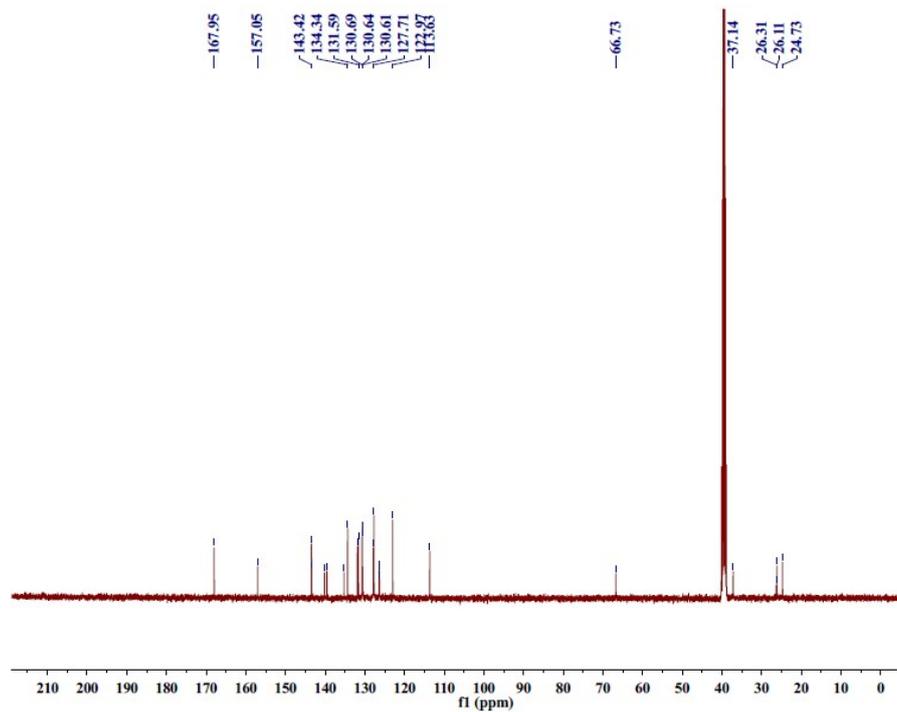


Figure S5. ¹³C NMR spectra of Compound 2 in DMSO-*d*₆.

Single Mass Analysis

Tolerance = 50.0 PPM / DBE: min = -1.5, max = 100.0

Element prediction: Off

Number of isotope peaks used for i-FIT = 3

Monoisotopic Mass, Even Electron Ions

5 formula(e) evaluated with 1 results within limits (up to 1 best isotopic matches for each mass)

Elements Used:

C: 0-38 H: 0-35 N: 0-1 O: 0-3 Na: 0-1

X-MA

ECUST institute of Fine Chem

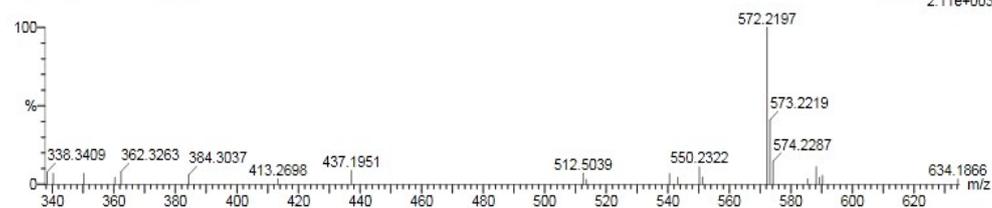
09-Mar-2017

22:30:13

1: TOF MS ES+

2.11e+003

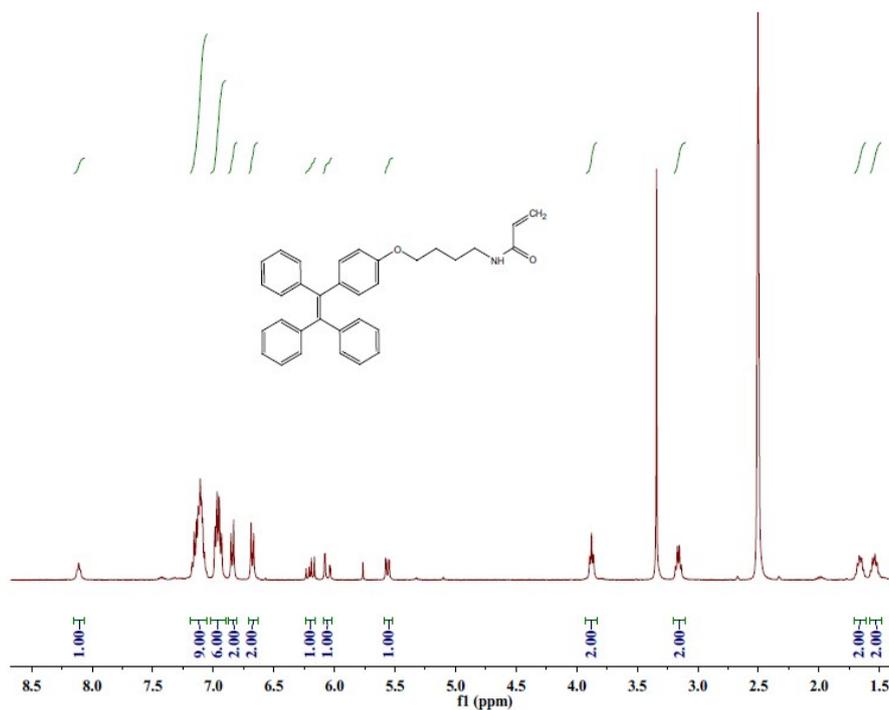
MX-ZCJ-1002 23 (0.791) Cm (22:23)

Minimum:
Maximum:

			-1.5
30.0	50.0	100.0	

Mass	Calc. Mass	mDa	PPM	DBE	i-FIT	i-FIT (Norm)	Formula
572.2197	572.2202	-0.5	-0.9	23.5	12.5	0.0	C38 H31 N O3 Na

Figure S6. Mass spectra of compound 2

Figure S7. ¹H NMR spectra of Compound 4 in DMSO-*d*₆.

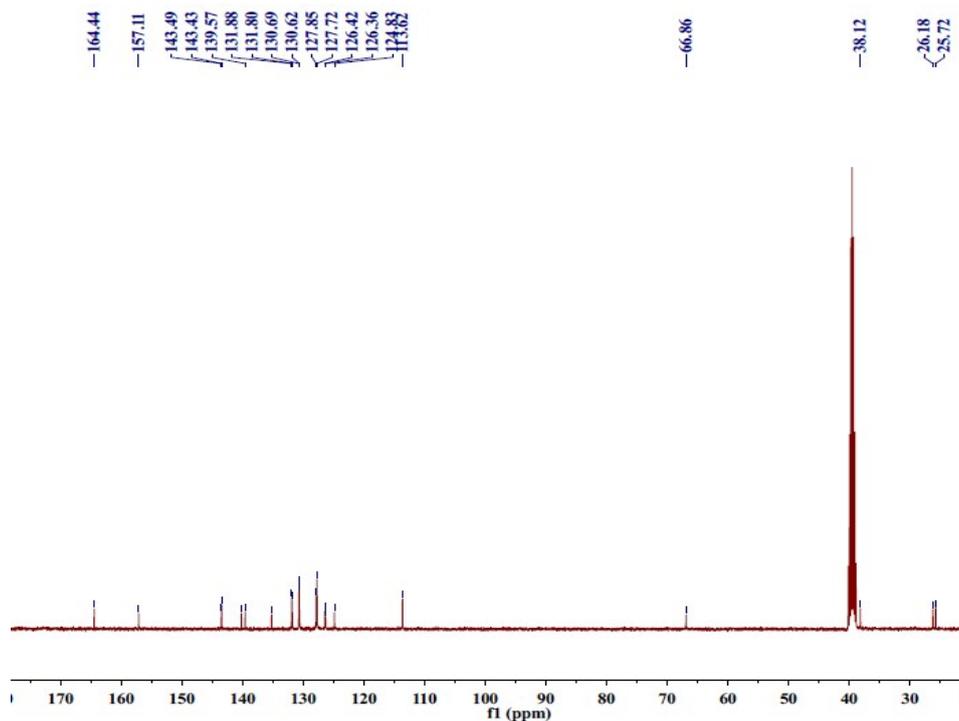


Figure S8. ^{13}C NMR spectra of Compound **4** in $\text{DMSO-}d_6$.

Elemental Composition Report

Single Mass Analysis

Tolerance = 50.0 PPM / DBE: min = -1.5, max = 100.0

Element prediction: Off

Number of isotope peaks used for i-FIT = 3

Monoisotopic Mass, Even Electron Ions

4 formula(e) evaluated with 1 results within limits (up to 1 best isotopic matches for each mass)

Elements Used:

C: 0-33 H: 0-35 N: 0-1 O: 0-2 Na: 0-1

X-MA

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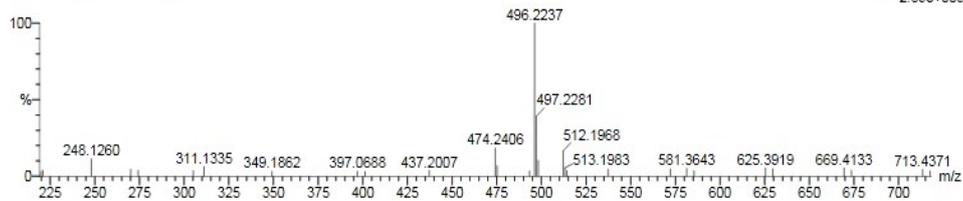
09-Mar-2017

22:34:37

1: TOF MS ES+

2.69e+003

MX-ZCJ-1003 6 (0.274) Cm (6:8)



Minimum:

Maximum: 30.0 50.0 -1.5 100.0

Mass	Calc. Mass	mDa	PPM	DBE	i-FIT	i-FIT (Norm)	Formula
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496.2237	496.2252	-1.5	-3.0	18.5	12.0	0.0	C33 H31 N O2 Na
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Figure S9. Mass spectra of compound **4**.

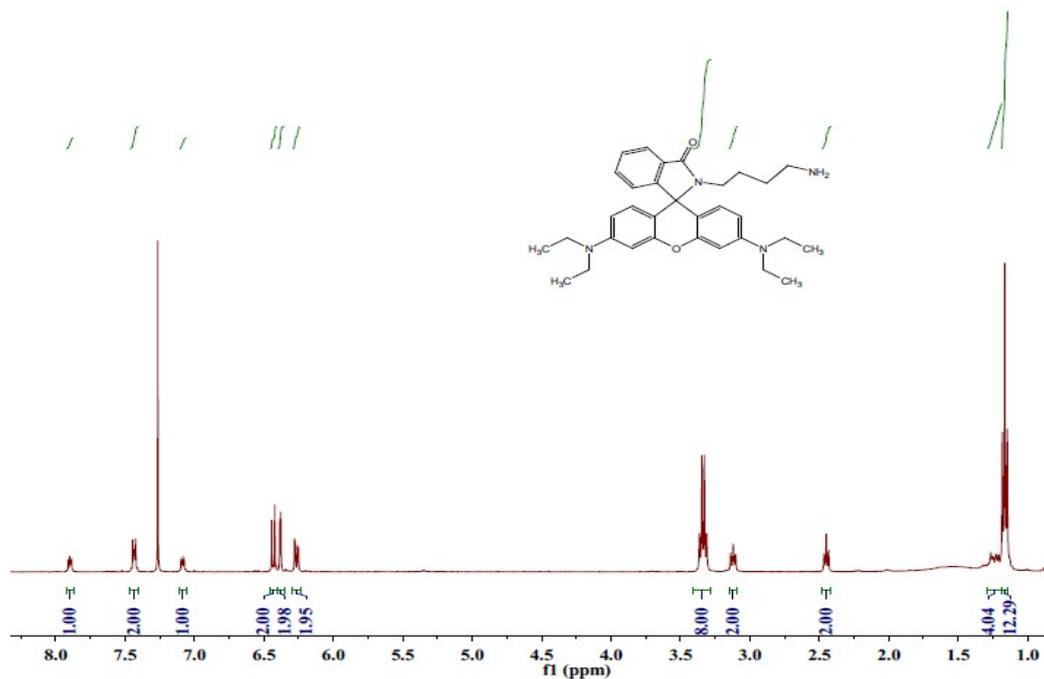


Figure S10. ¹H NMR spectra of Compound 5 in CDCl₃.

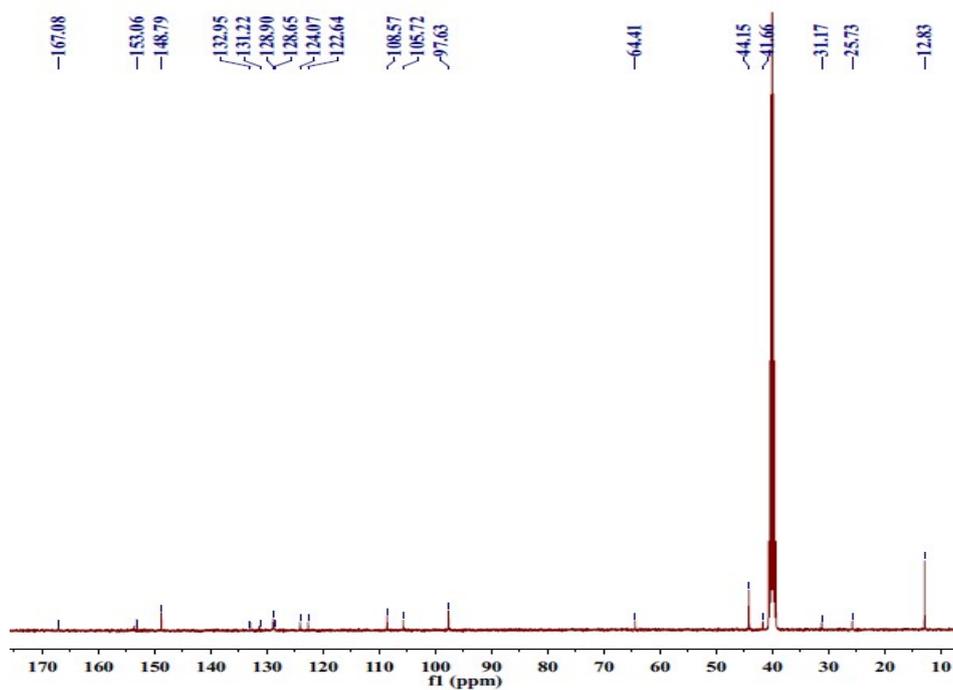


Figure S11. ¹³C NMR spectra of Compound 5 in DMSO-*d*₆.

Single Mass Analysis

Tolerance = 50.0 PPM / DBE: min = -1.5, max = 100.0

Element prediction: Off

Number of isotope peaks used for i-FIT = 3

Monoisotopic Mass, Even Electron Ions

19 formula(e) evaluated with 1 results within limits (up to 1 best isotopic matches for each mass)

Elements Used:

C: 0-32 H: 0-80 N: 0-4 O: 0-2

X-MA

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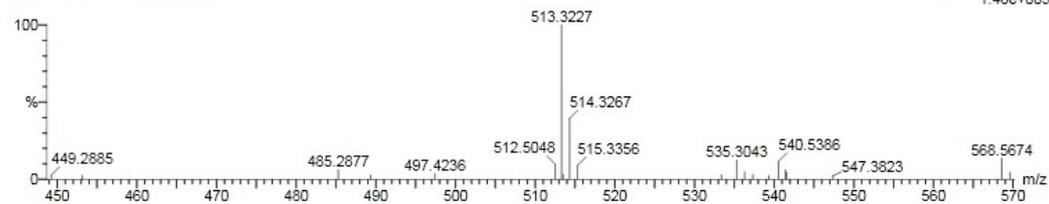
10-Mar-2017

21:44:57

1: TOF MS ES+

1.48e+003

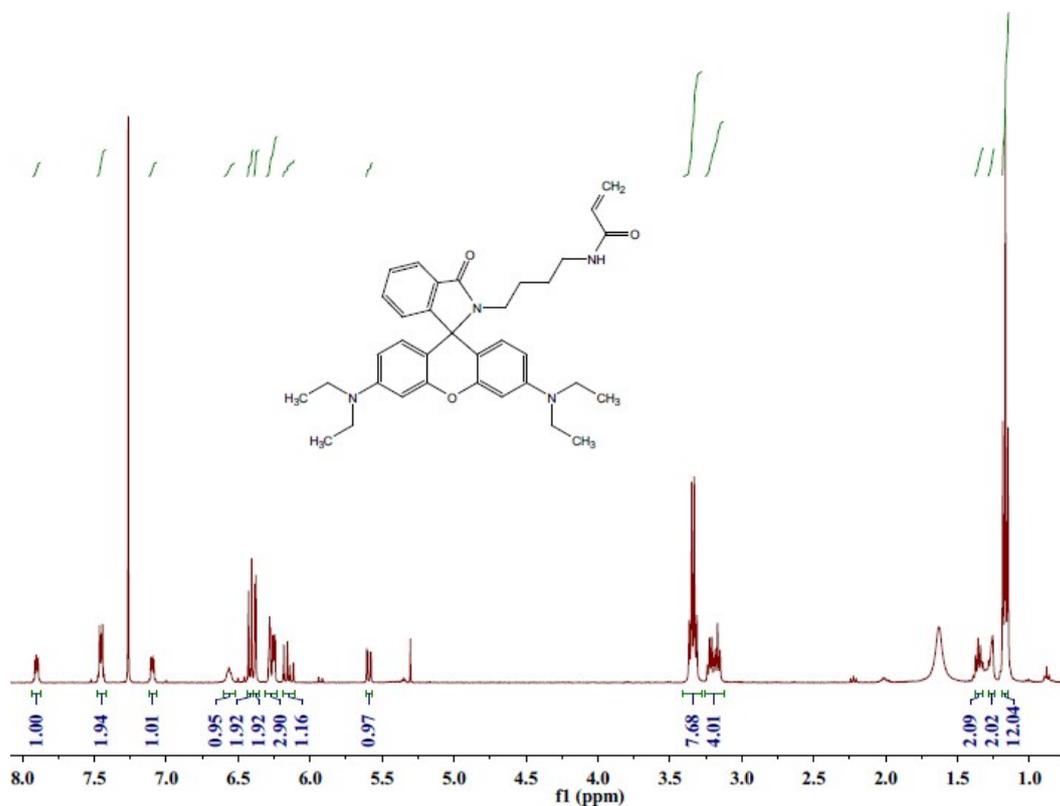
MX-ZCJ-2001 47 (0.681) Cm (47.49)



Minimum: -1.5
Maximum: 30.0 50.0 100.0

Mass	Calc. Mass	mDa	PPM	DBE	i-FIT	i-FIT (Norm)	Formula
513.3227	513.3230	-0.3	-0.6	14.5	17.3	0.0	C32 H41 N4 O2

Figure S12. Mass spectra of compound 5.

Figure S13. ¹H NMR spectra of Compound 6 in CDCl₃.

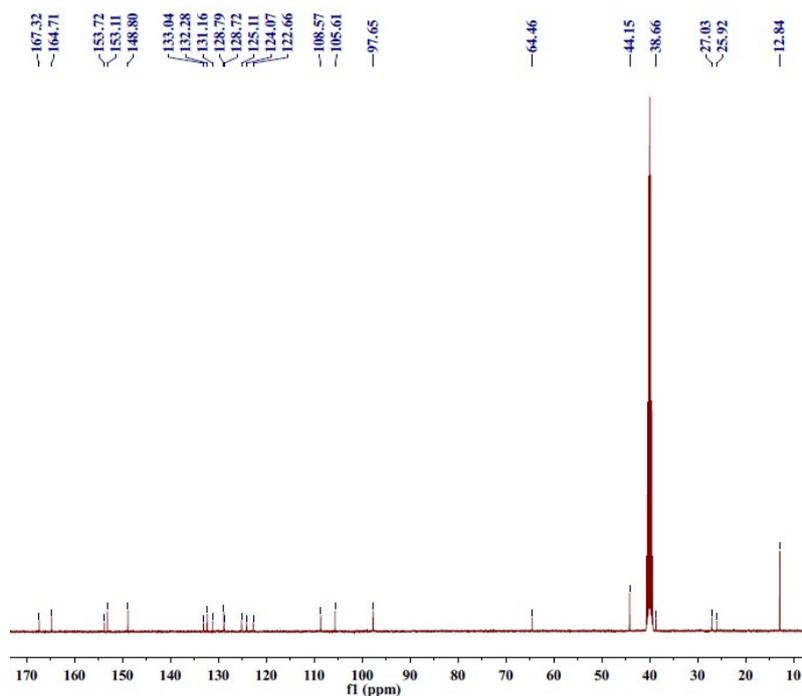


Figure S14. ^{13}C NMR spectra of Compound **6** in $\text{DMSO-}d_6$.

Elemental Composition Report

Page 1

Single Mass Analysis

Tolerance = 50.0 PPM / DBE: min = -1.5, max = 100.0

Element prediction: Off

Number of isotope peaks used for i-FIT = 3

Monoisotopic Mass, Even Electron Ions

15 formula(e) evaluated with 1 results within limits (up to 1 best isotopic matches for each mass)

Elements Used:

C: 0-35 H: 0-50 N: 0-4 O: 0-3

X-MA

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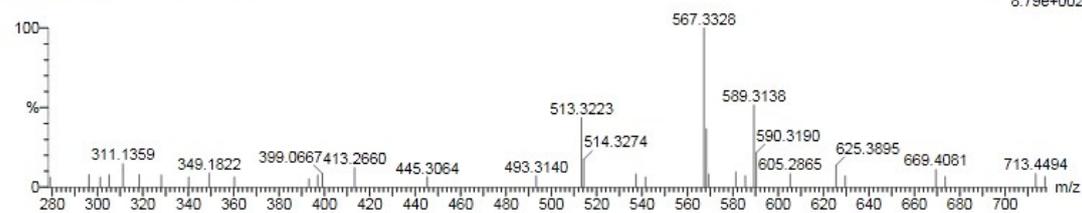
09-Mar-2017

22:47:38

1: TOF MS ES+

8.79e+002

MX-ZCJ-2002 7 (0.299) Cm (7:8)



Minimum: -1.5
Maximum: 30.0 50.0 100.0

Mass	Calc. Mass	mDa	PPM	DBE	i-FIT	i-FIT (Norm)	Formula
567.3328	567.3335	-0.7	-1.2	16.5	7.5	0.0	C35 H43 N4 O3

Figure S15. Mass spectra of compound **6**.

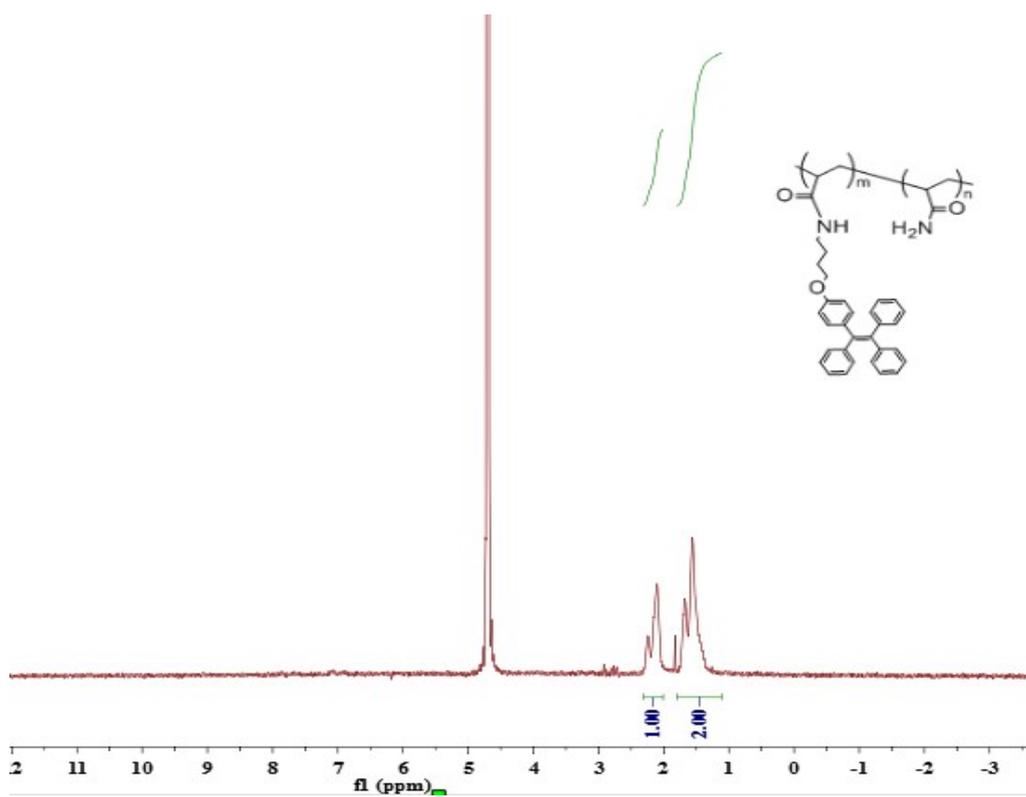


Figure S16. ^1H NMR spectra of TPE-PAM in D_2O .

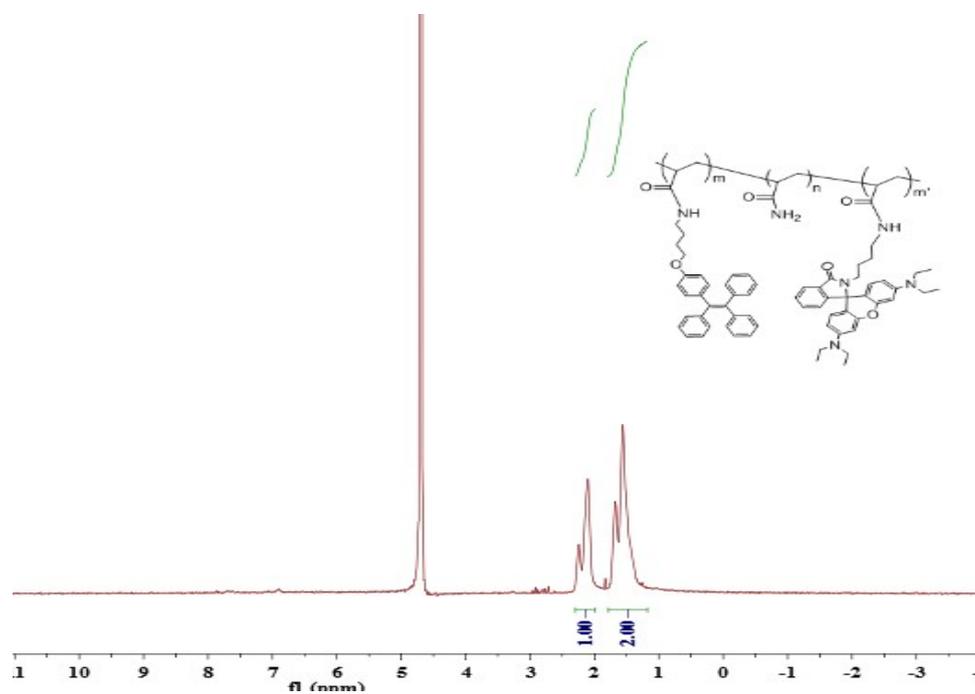


Figure S17. ^1H NMR spectra of TPE-RhB-PAM in D_2O .

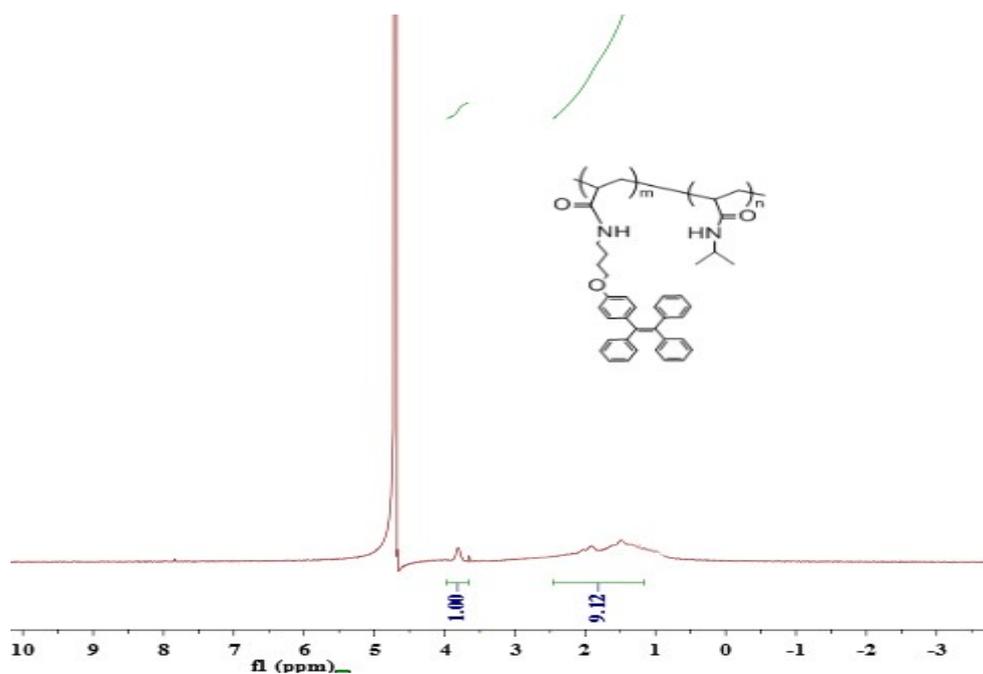


Figure S18. ^1H NMR spectra of TPE-PNIPAM in D_2O

Table S1. The C, H and N content of TPE-PAM, TPE-PNIPAM and TPE-RhB-PAM.

Sample	N%	C%	H%
TPE-PAM	15.53	41.88	7.26
TPE-PNIPAM	10.21	54.28	9.83
TPE-RhB-PAM	15.12	41.99	7.30

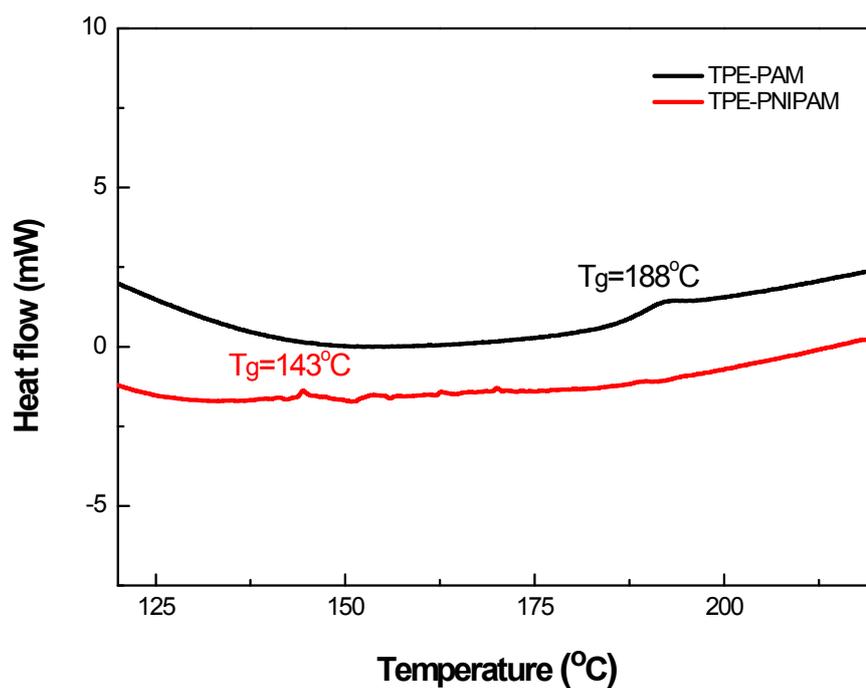


Figure S19. DSC thermogram of the **TPE-PAM** (black) and **TPE-PNIPAM** (red).

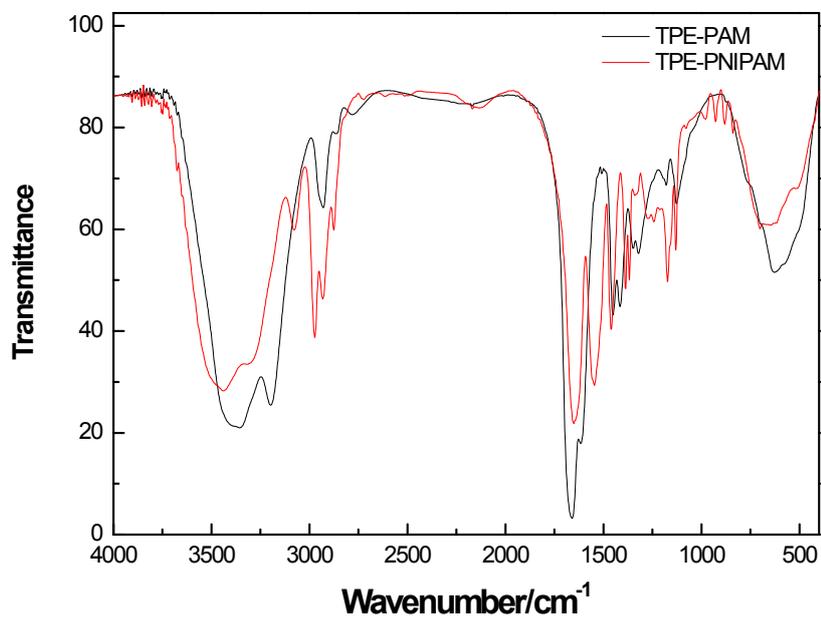


Figure S20. Infrared Spectroscopy of **TPE-PAM** and **TPE-PNIPAM**.

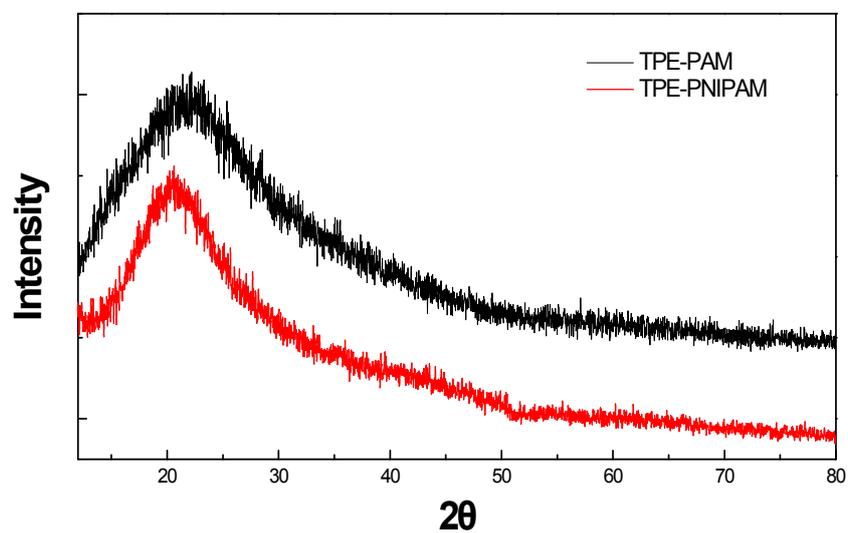


Figure S21. XRD patterns of **TPE-PAM** (black) and **TPE-PNIPAM** (red).

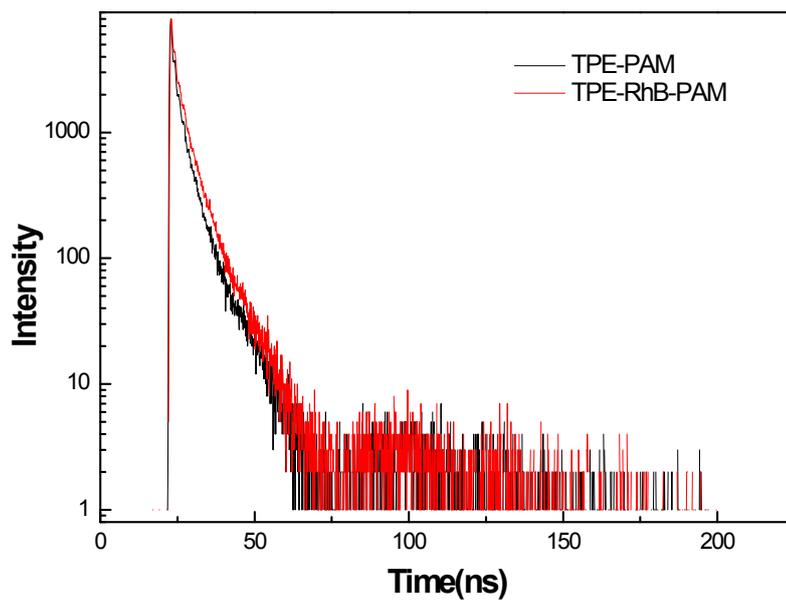


Figure S22. Fluorescence lifetime of **TPE-PAM** and **TPE-RhB-PAM** in 100% water-fraction.

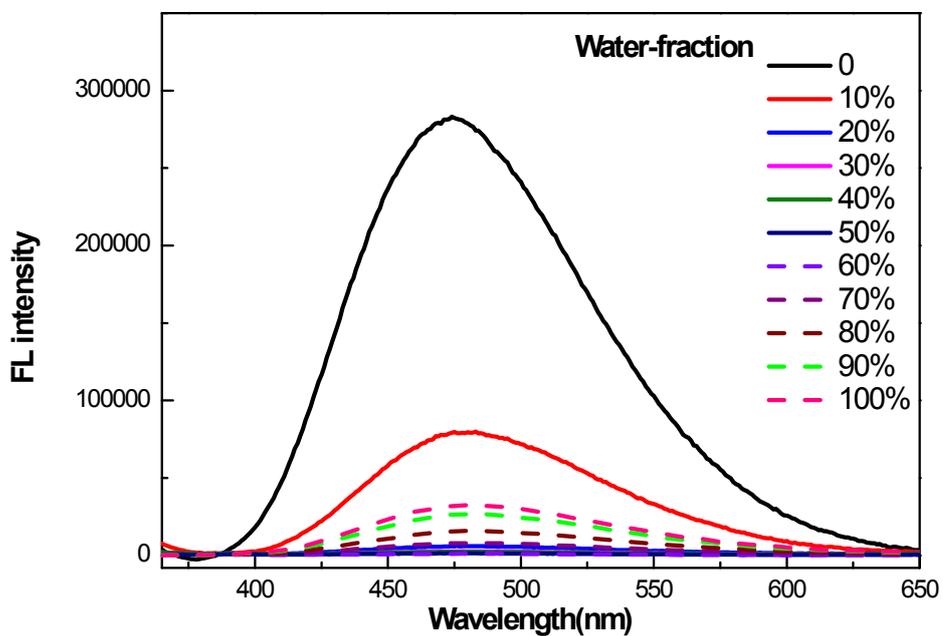


Figure S23. Fluorescence spectra of copolymer **TPE-PAM** in H₂O/Ethanol mixtures with different H₂O contents ($\lambda_{\text{ex}} = 350 \text{ nm}$, $[\text{TPE-PAM}] = 1 \text{ mg mL}^{-1}$).

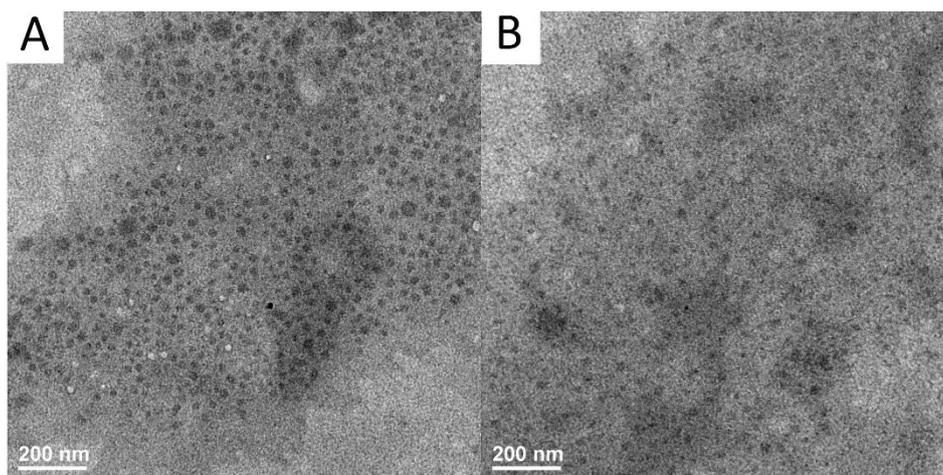


Figure S24. TEM images of **TPE-PAM** sampled with the water-fraction of 40% (A) and 50% (B)