Electronic Supplementary Material (ESI) for Nanoscale.

SUPPORTING INFORMATION

Fluorescent Polymeric Nanovehicles for Neural Stem Cell Modulation

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In order to demonstrate that the incorporation of the fluorescent tag does not significantly impact on the morphology of the particles a thorough analysis and characterization was done with the nanogels without fluorescent tag.

Table S1. Physicochemical Characteristics of RM1 nanoparticles without fluorescent probe (figure B1) and with fluorescent probe covalently linked (figure B2) shown for comparison.

Sample	Monomer Acrylamide %	Crosslinker MBA %	Fluorescent Probe %	Yield (%)	Size (nm)	PD
RM1non fluorescent	80	20	-	60	11.8±1.9	0.22
RM1 with fluorescent tag	75	20	5	60	9.4±1.5	0.30

Figure S1: Dynamic Light Scattering measurements of non-fluorescent nanogels RM1 (figure B1) and fluorescent RM1 (figure B2) nanogels at 1mg/ml in water. Each graph shows three repeat runs.

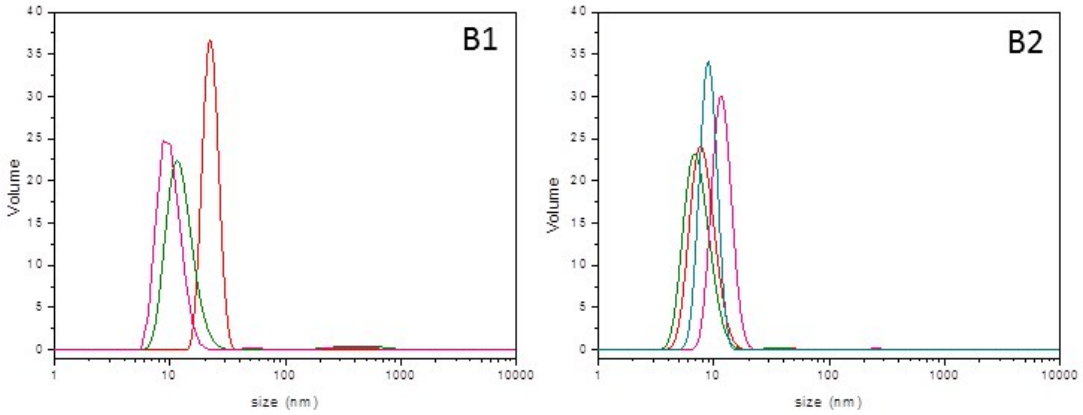


Figure S2: TEM image of nanogel RM1 without fluorescent tag.

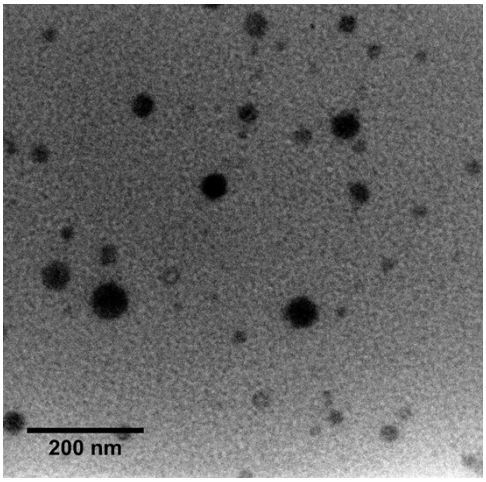


Figure S3: Zeta potential measurements of fluorescent nanogels (RM1) and fluorescent self-assembled block copolymer micelles (RM2).

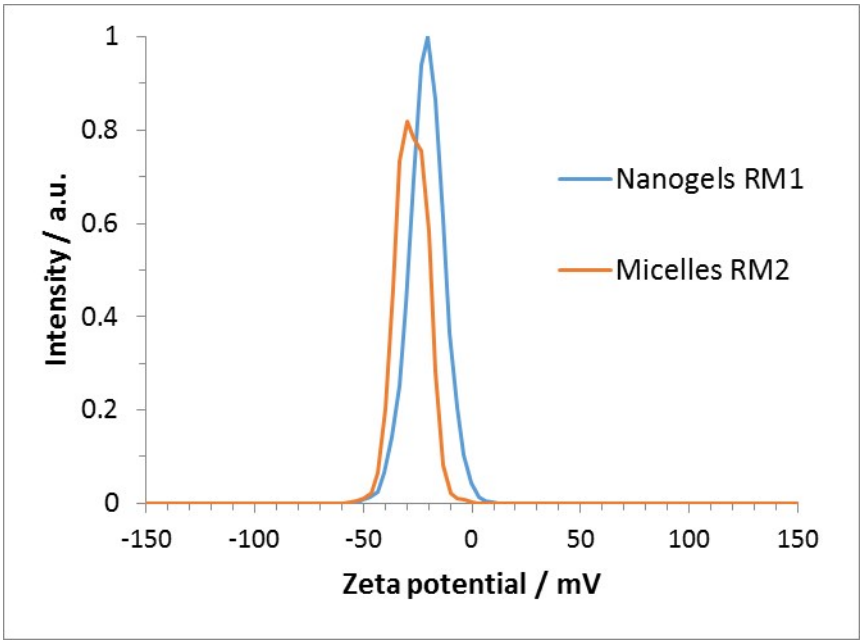


Figure S4: Dynamic Light Scattering measurements (five repeat runs) of fluorescent self-assembled block copolymer micelles (RM2) at 1mg/ml in water.

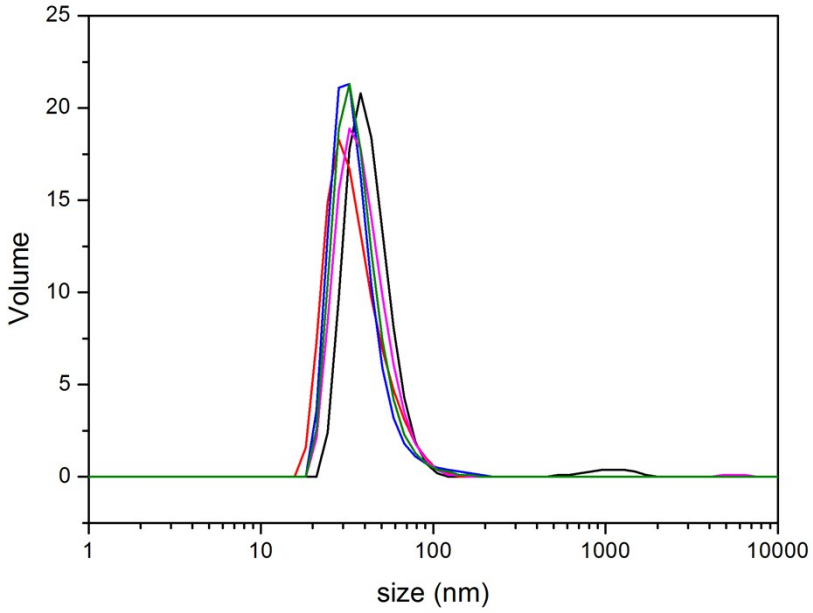
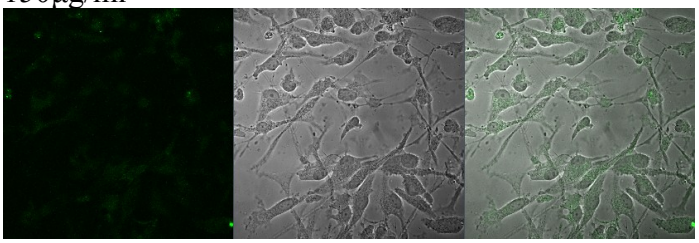


Table S2. Physico-chemical characteristics of fluorescent self-assembled block copolymer micelles (RM2).

Sample	Monomer D,L-Lactide wt%	Monomer TEGA wt%	DTM fluorophore wt%	Size (nm)	PD
RM2	17	82	1	51.0±0.4	0.20

Figure S5: Nanoparticles identification within the NSC 48 hours after treatment. Representative Pictures.

RM1
150µg/ml



RM2
150µg/ml

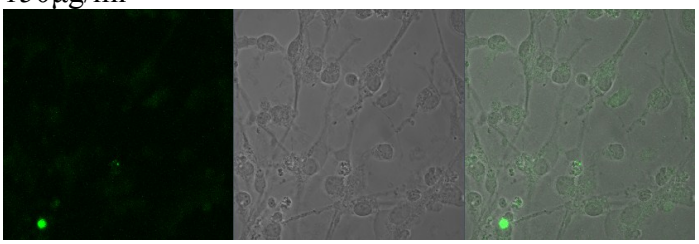
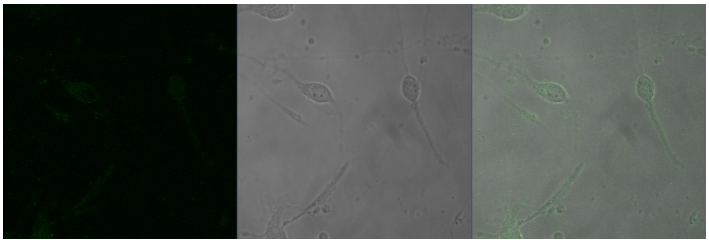
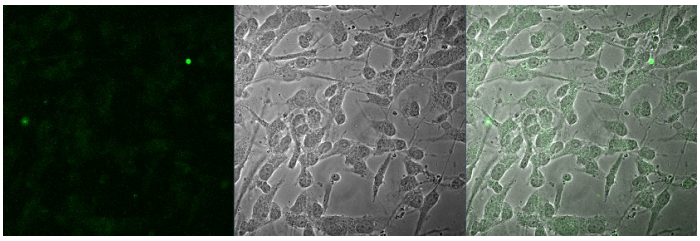


Figure S6: Representative pictures of internalization with green channel

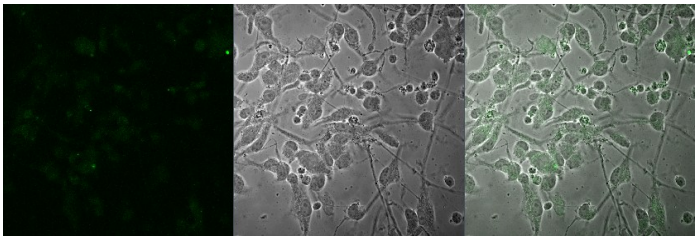
RM1



a

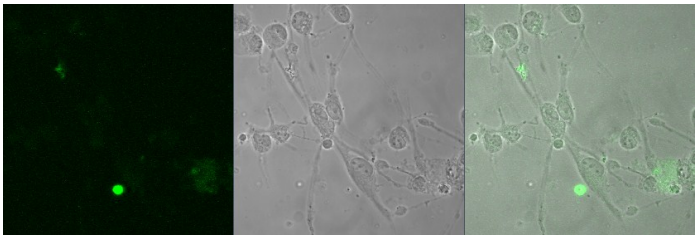


b



c

RM2



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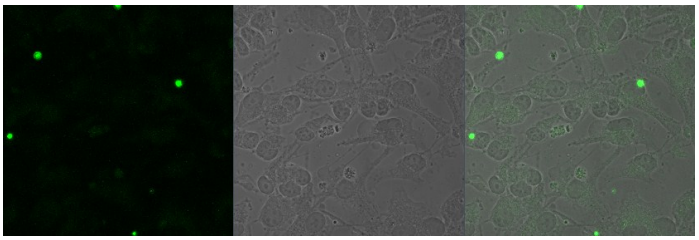

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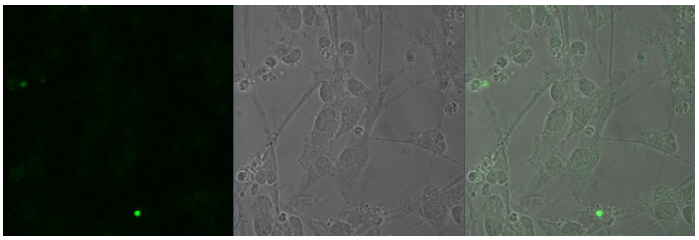

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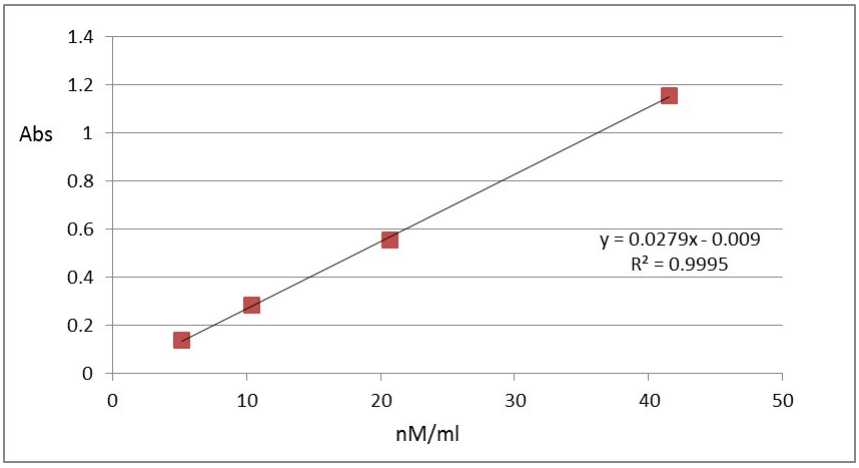
Figure S7: Calibration curve for retinoic acid (A) and

(A)



(B) UV-Vis absorption spectra of solutions of retinoic acid with concentrations ranging from 5.15nM to 41.5nM

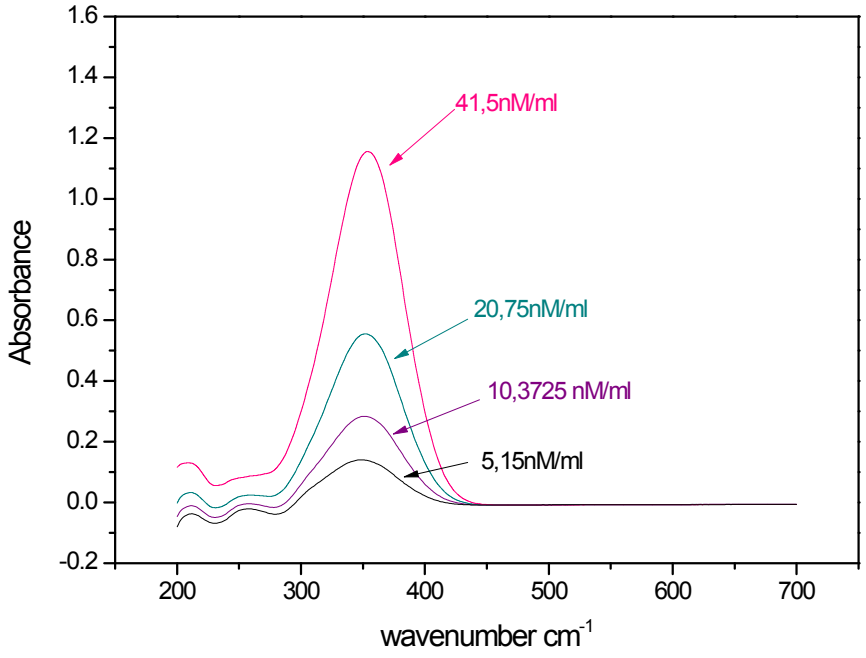
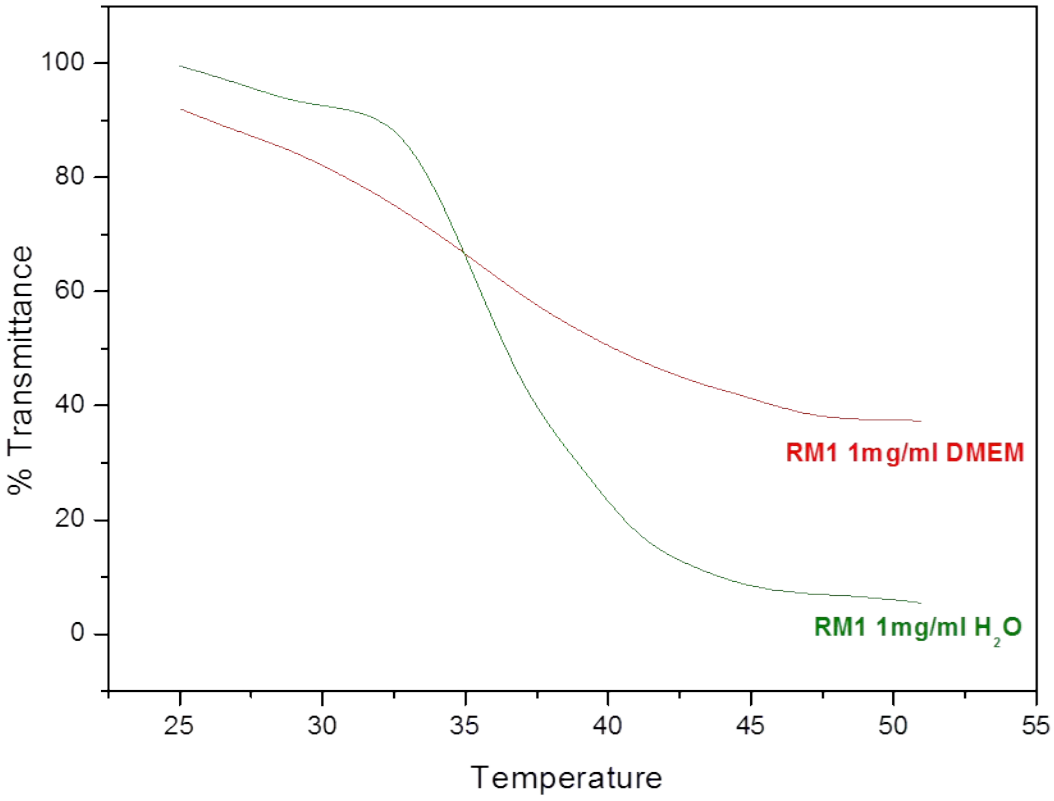


Figure S8: Thermoresponsive curve for NIPAM based nanogel RM1 carried out in water as well as medium.



The scattering intensity depends on the 6th power of the size, therefore with a bimodal distribution, even if you have the same number of small and large particles, the scattering intensity of the larger particles is always much much greater.
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In this particular work the size of the particles is very small, therefore the presence of even very very small quantities of larger particles will results in a disproportionate impression. We have now included in the supplementary information the image here below showing the intensity data for RM1 (equal to B2)