Electronic Supplementary Material (ESI) for Biomaterials Science.

Supporting information

Polyoxazoline Hydrogels fabricated by Stereolithography

Thomas Brossier, BelkacemTarek Benkhaled, Maxime Colpaert, Gael Volpi, Olivier Guillaume, Sébastien Blanquer, Vincent Lapinte

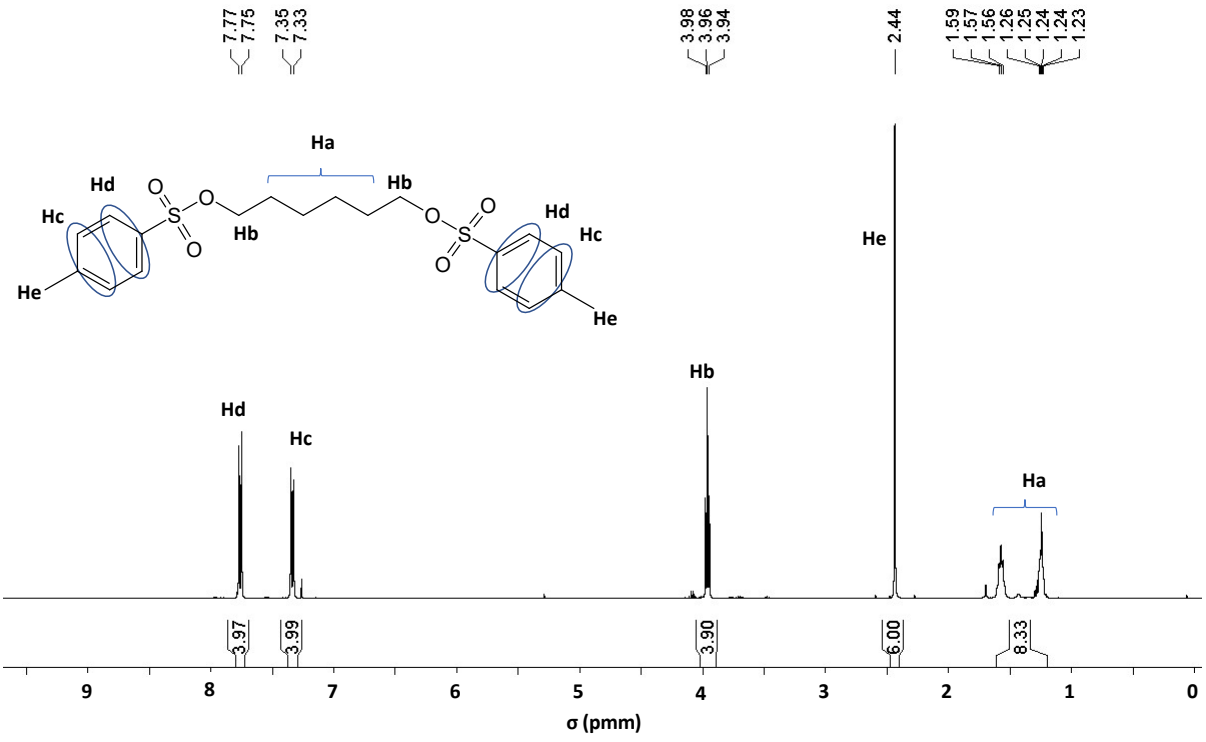

Figure S1. ^{1}H NMR spectrum of HDOTs ($CDCl_3$)

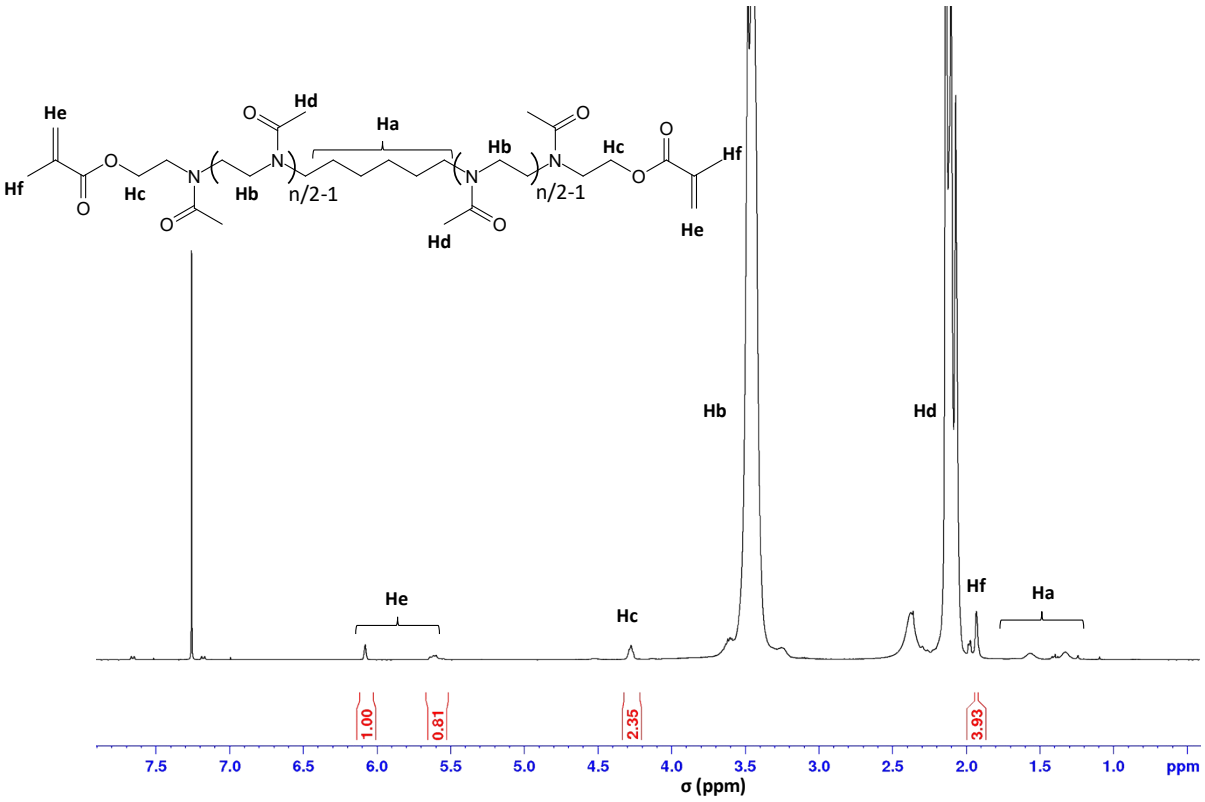

Figure S2. ^{1}H NMR spectrum of bis-methacrylated poly(2-methyl-2-oxazoline) (M_2POx_n) ($CDCl_3$)

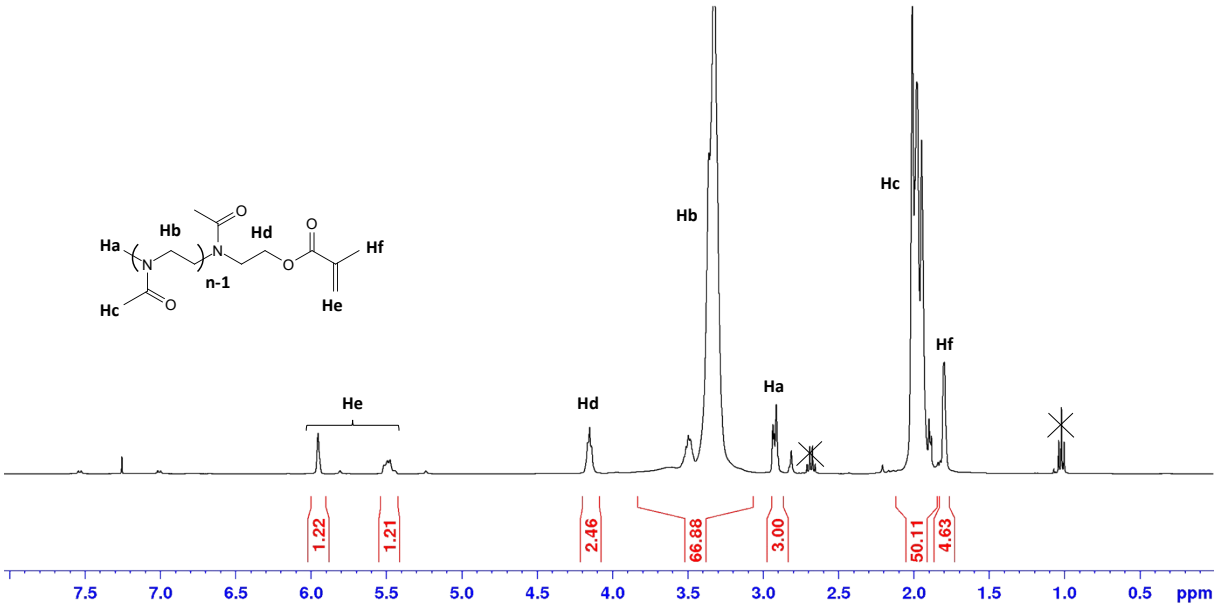

Figure S3. ^{1}H NMR spectrum of $MPOx_n$ in $CDCl_3$

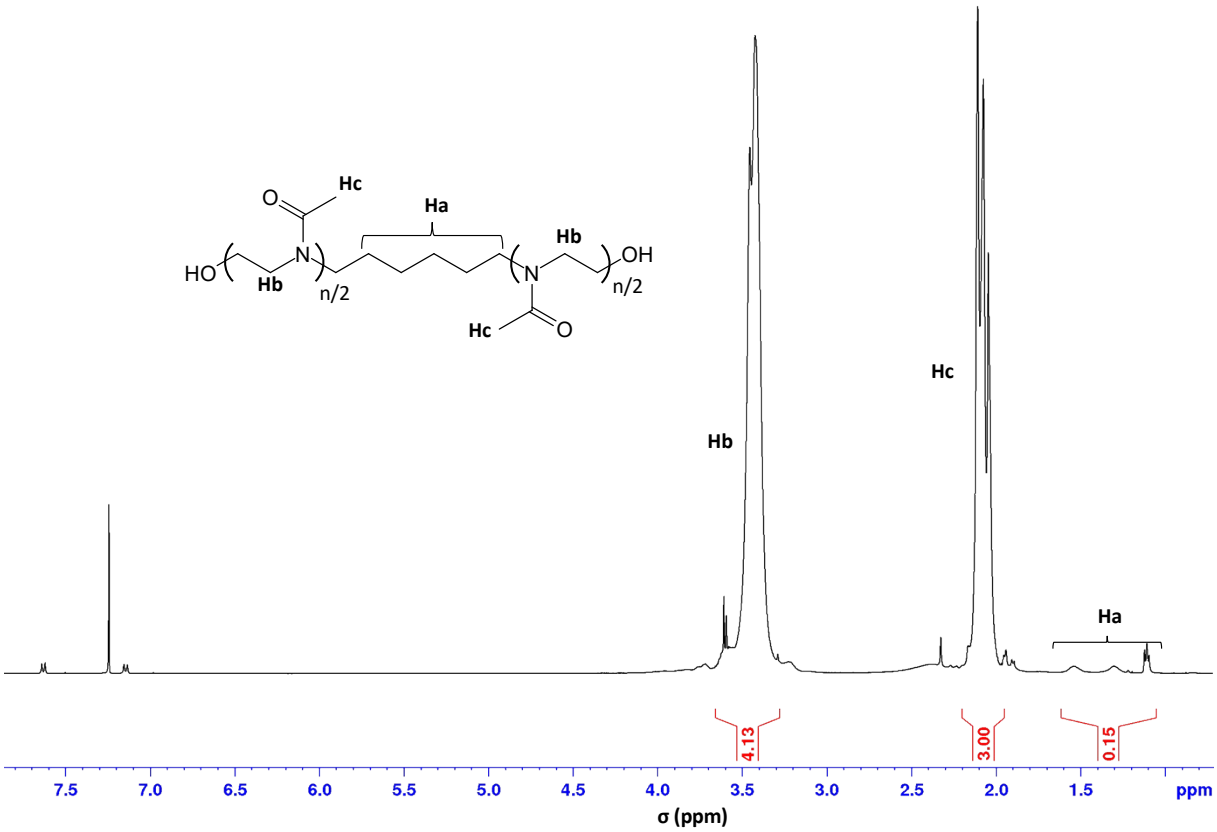

Figure S4. ^{1}H NMR spectrum of poly(2-methyl-2-oxazoline) POx_n

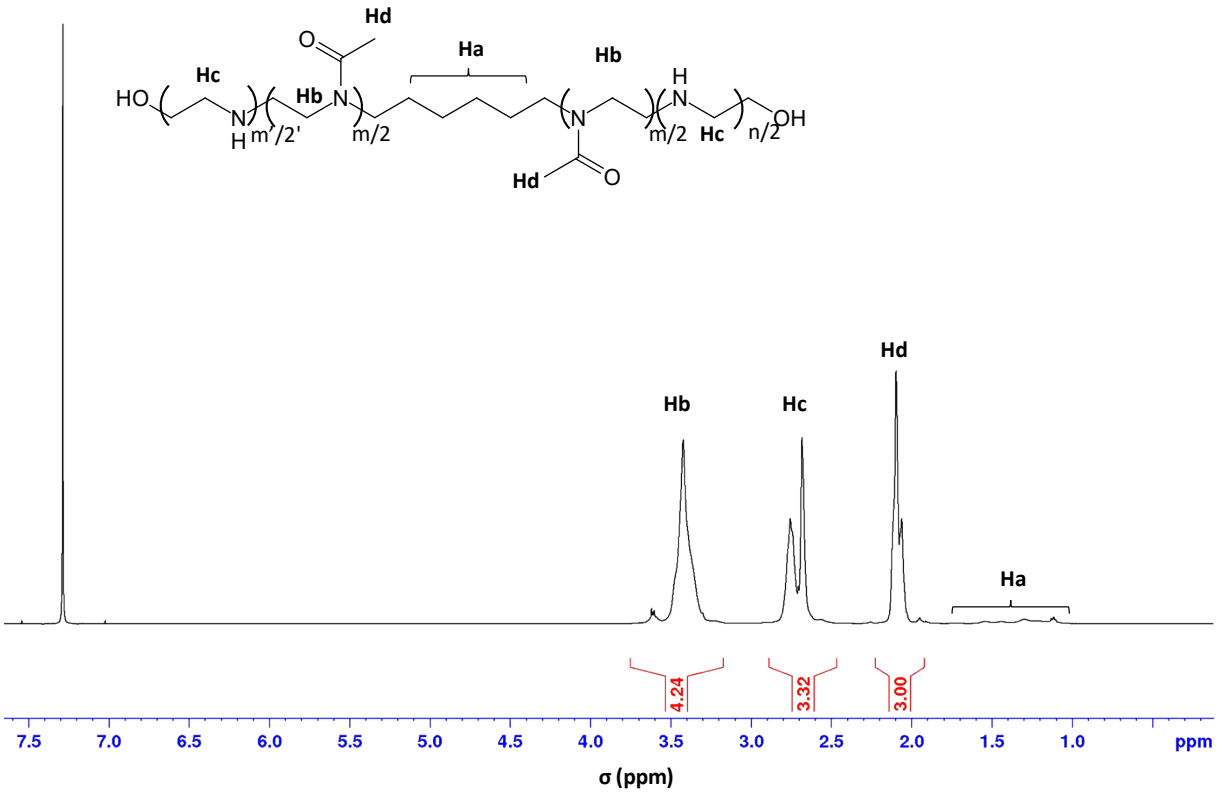

Figure S5. ^{1}H NMR spectrum of POx_m-PEI_p in $CDCl_3$

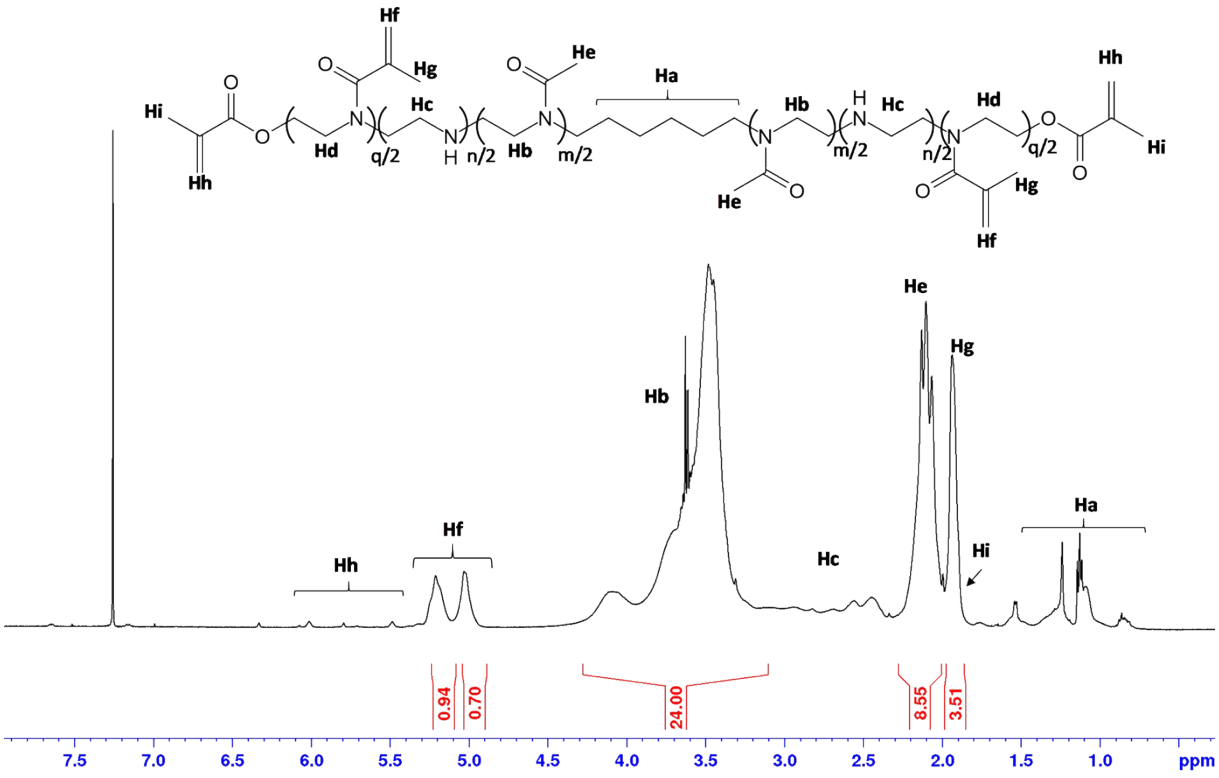

Figure S6. ^{1}H NMR spectrum of MA_oPOx_m-PEI_p in $CDCl_3$

Table S1. Molecular weight of POx precursors determined by SEC in DMAc using PMMA standards.

Name	M_n (g/mol)	Đ
MA_2POx_{10}	4 200	1.2_9
MA_2POx_{75}	9 800	1.2_3
MA_2POx_{120}	20 000	1.2_6
$MA_{40}POx_{66}$-PEI_4	nd	nd

nd: Not determined.

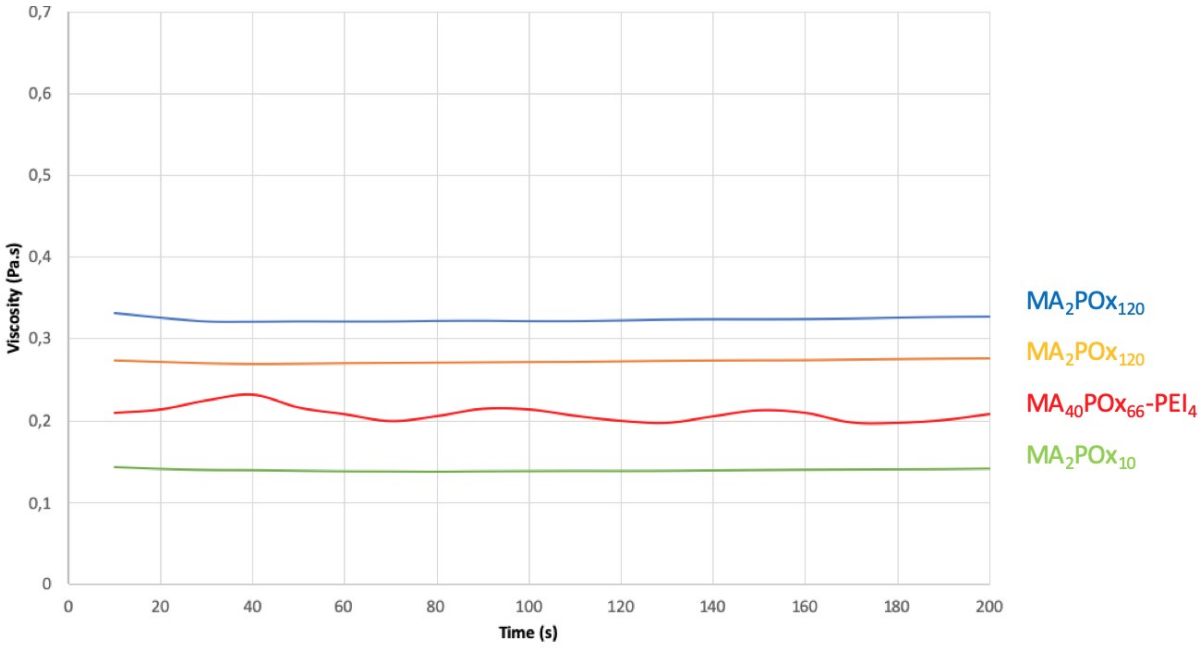

Figure S7. Viscosity versus time for formulations of POx precursors.

Table S2. Viscosity of the POx precursor solution for SLA.

POx precursor	wt/wt%	viscosity (Pa.s)	Time of irradiation [a] (s/layer)
MA_2POx_{10}	40	0.15	20
MA_2POx_{75}	45	0.21	30
MA_2POx_{120}	50	0.32	35
$MA_{40}POx_{66}$-PEI_4	60	0.27	40

[a]: power of 20 mW/cm^2.

Table S3. Characteristics of hydrogels based on MA_2POx_{10} / $MAPOx_{10}$ blend.

Formulation	Q (%)	EWC (%)	E (MPa)	σ_{max} (MPa)	ε_{max} (%)
MA_2POx_{10} + $MAPOx_{10}$	759	88	0.159	0.063	27.4

Table S4. Network characteristic of hydrogels based on MA_2POx_n and $MA_2POx_{66}PEI_4$.

Name	w_s (g)	w_d (g)	Vs[a] ($mL.mol^{-1}$)	$\bar{M}_{c}$[b] (kDa)	q[c]
MA_2POx_{10}	0.4727	0.1652	0.320	28.4	28.4
MA_2POx_{75}	0.6540	0.1642	0.227	49.86	49.86
MA_2POx_{120}	1.4457	0.2147	0.1327	139.1	139.1
$MA_{40}POx_{66}$-PEI_4	0.9037	0.1197	0.1181	-[d]	-[d]

[a]: Calculated with equation 8. [b]: Calculated with equation 7. [c]: Calculated with equation 10. [d]: not determined.

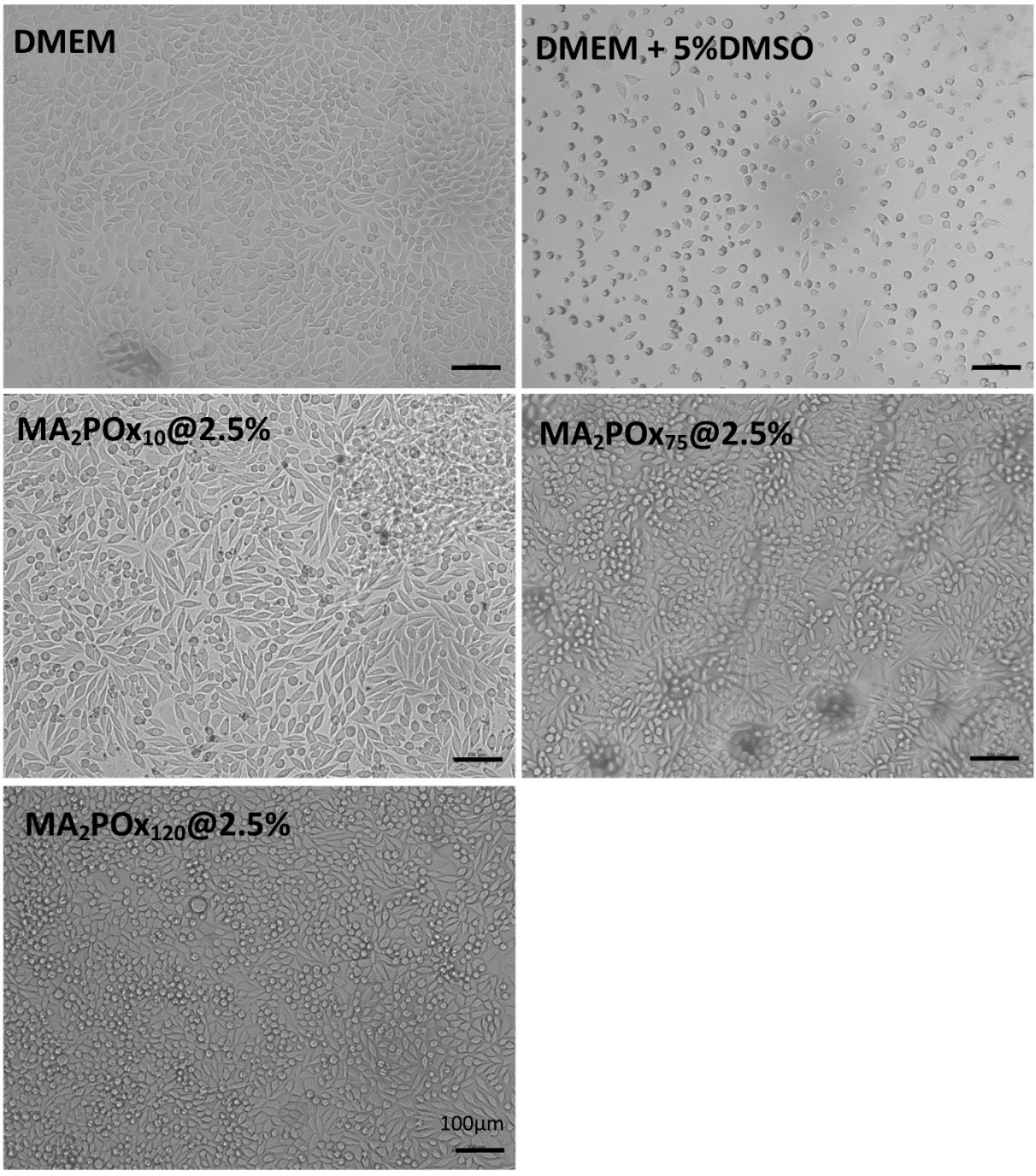

Figure S8. Morphology of the L929 incubated with 2.5% of the polymers after 48 hours of incubation.

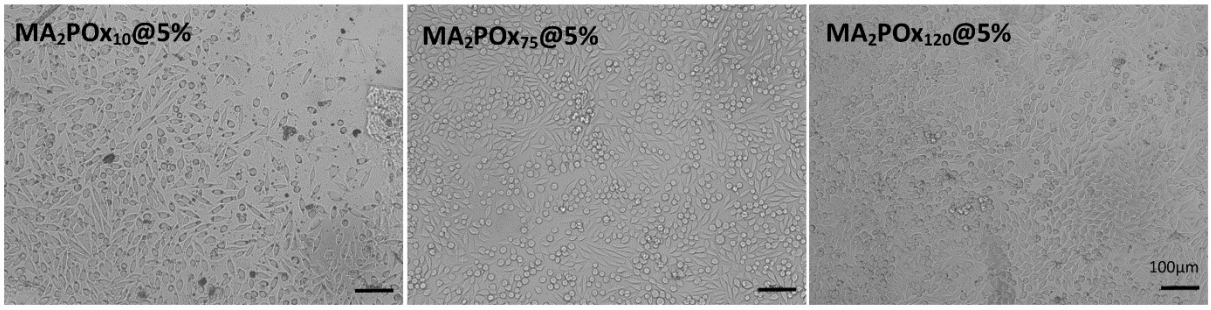

Figure S9. Morphology of the L929 incubated with 5% of the polymers after 48 hrs of incubation.