

Antitumoral Drug-Loaded Biocompatible Polymeric Nanoparticles Obtained by Non-Aqueous Emulsion Polymerization

Oana Maria Daraba ¹, Anca Niculina Cadinoiu ¹, Delia Mihaela Rata ¹, Leonard Ionut Atanase ^{1,*}, and Gabriela Vochita ²

¹ Department of Biomaterials, Faculty of Medical Dentistry, “Apollonia” University of Iasi, Pacurari Street, No. 11, Iasi 700511, Romania; maria.mary2019@yahoo.com (O.M.D.); jancaniculina@yahoo.com (A.N.C.); iureadeliamihaela@yahoo.com (D.M.R.)

² Department of Experimental and Applied Biology, NIRDBS—Institute of Biological Research Iasi, Lascar Catargi 47, Iasi 700107, Romania; gabriela.vochita@icbiiasi.ro

* Correspondence: leonard.atanase@yahoo.com

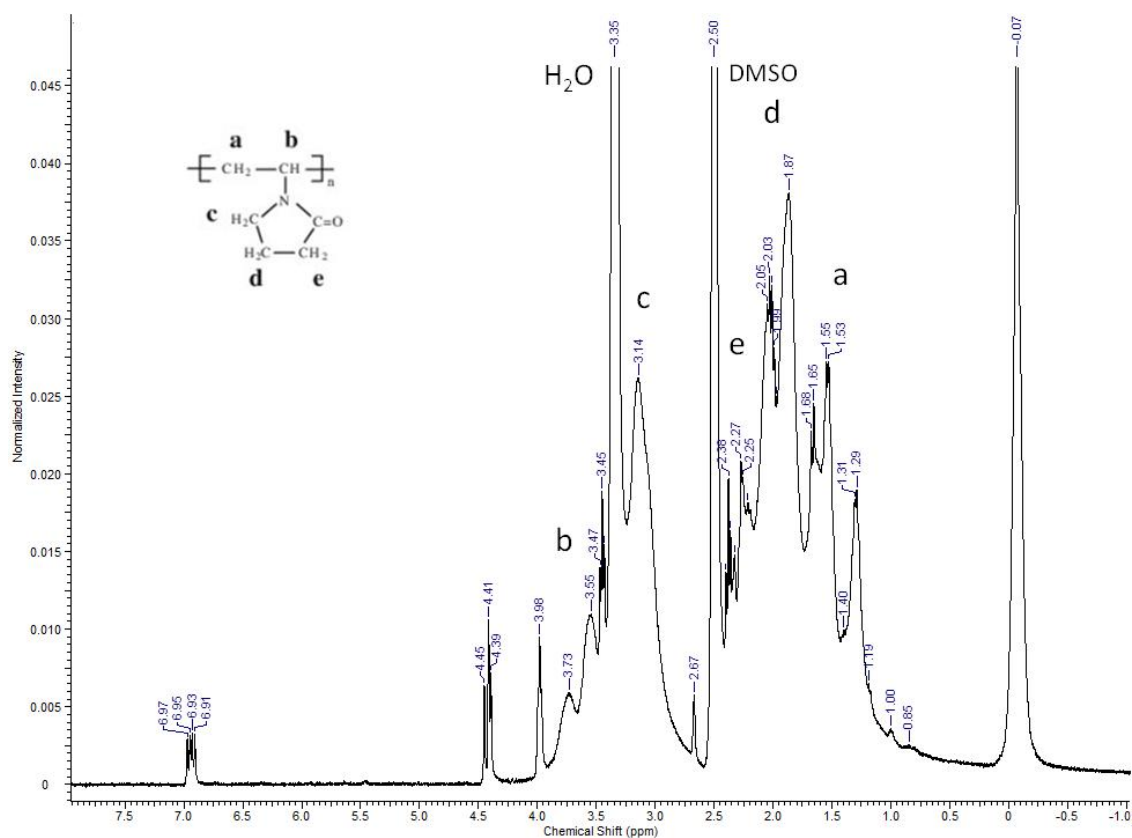


Figure S1: ¹H RMN spectrum in DMSO-d₆ for the PNVP-based sample (NPs1)

Table S1: Peak assignments from the FT-IR spectrum of the PNVP-based NPs

Wavelength (cm ⁻¹)	Groups
3433.15	O-H
2960.61	C-H asymmetrical
1651	C=O
1427.27	CH ₂
1261.39	C-N
1087.81	Si-O-Si
796.57	Si-(CH ₃) ₂

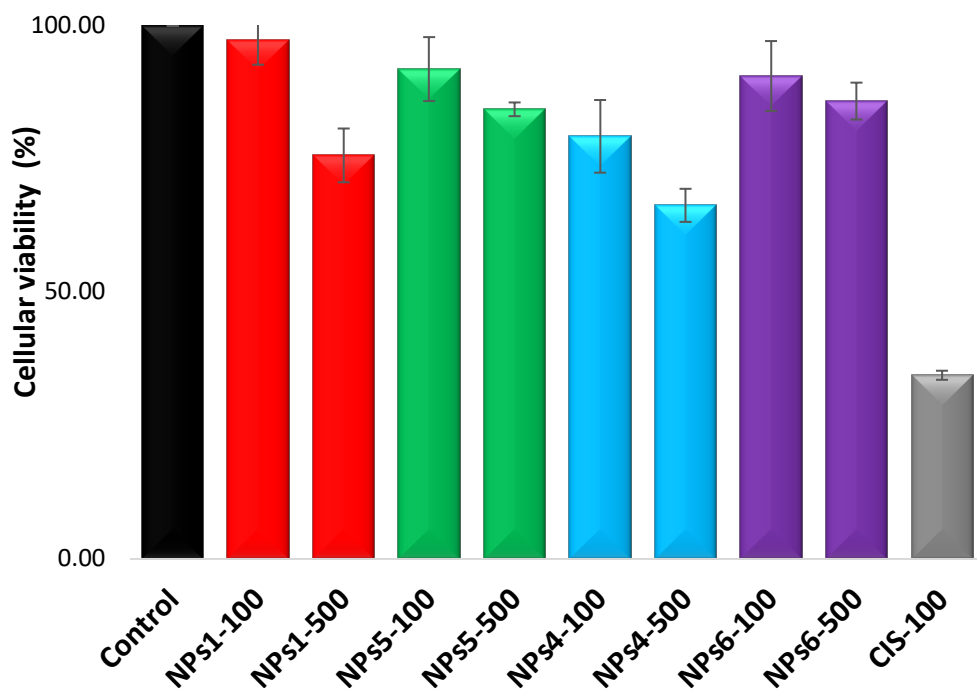
Table S2: Peak assignments from the FT-IR spectrum for the PCL-based NPs

Wavelength (cm ⁻¹)	Groups
3433.15	O-H
2864-2944	C-H
1721	C=O
961-1471	CH ₂

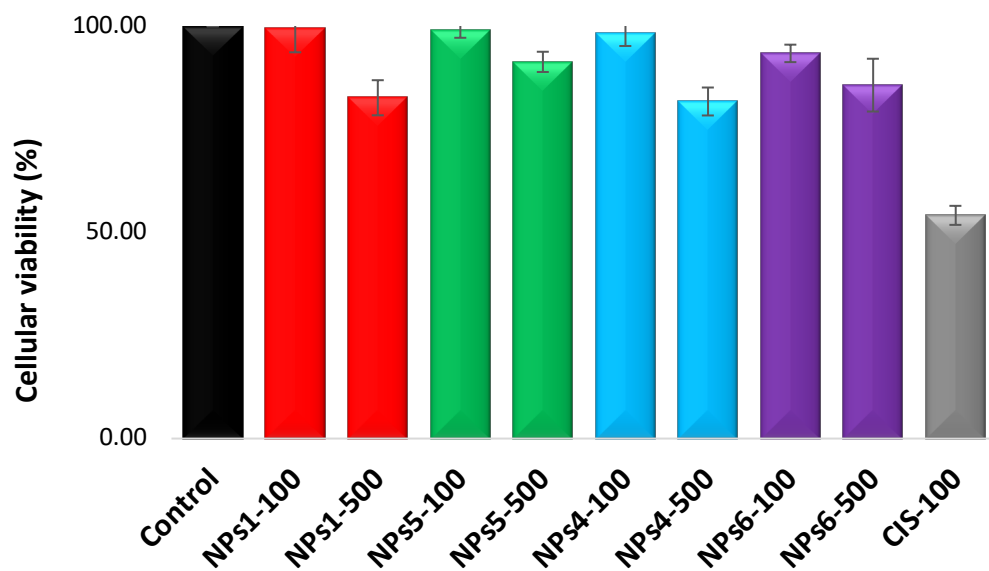
Table S4: Molar mass and T_m of the PNVP and PCL-based NPs

Sample	Dispersed phase	Cross-linking agent (wt%) ^a	M _n (SEC) (g/mol) ^a	T _m (°C)
NPs1	VP	1	n.d	79
NPs2	VP	2	n.d	82
NPs3	VP	3	n.d	88
NPs4	VP+Cis	1	n.d	80
NPs5	CL	-	8600	63.7
NPs6	CL+Cis	-	5900	61.2

^a PS equivalents



(a)



(b)

Figure S2: Evolution of the cellular viability after a treatment of 24h with different NPs samples at two concentrations, 100 and 500 $\mu\text{g/mL}$. (a) A375 and (b) MCF7 tumor cells

Table S4: The effect of 48h of treatment, with different concentrations ($\mu\text{g/ml}$) of the NPs1, NPs4, NPs5 and NPs6 samples, as well as of the cytostatic Cis on the frequency distribution of viable, dead, preapoptotic and apoptotic cells corresponding to each batch, in the case of A375 and MCF7 neoplastic cell cultures.

A375	Control	NPs1-250	NPs1-500	NPs5-250	NPs5-500	NPs4-250	NPs4-500	NPs6-250	NPs6-500	CIS 100
% Viable cells	91.99	92.45	92.31	89.16	80.11	67.39	59.86	67.43	52.32	37.84
% Dead cells	6.33	5.25	6.16	9.40	19.28	25.62	30.79	29.81	47.19	35.09
% Apoptotic cells	1.66	2.25	1.45	1.42	0.60	7.42	9.24	2.72	0.96	25.01
% Preapoptotic cells	0.02	0.06	0.09	0.03	0.02	0.08	0.12	0.04	0.02	2.07
MCF7	Control	NPs1-250	NPs1-500	NPs5-250	NPs5-500	NPs4-250	NPs4-500	NPs6-250	NPs6-500	CIS 100
% Viable cells	95.67	96.15	96.00	91.83	83.31	70.08	62.25	70.12	54.41	39.35
% Dead cells	3.52	2.92	3.42	7.55	16.00	26.23	28.06	28.00	40.56	38.98
% Apoptotic cells	0.92	1.25	0.80	0.79	0.66	3.98	9.56	1.84	3.77	19.49
% Preapoptotic cells	0.02	0.06	0.09	0.03	0.02	0.08	0.13	0.04	1.26	2.17