

Temperature-Dependent Cytokine Neutralization Induced by Magnetoelectric Nanoparticles: An In Silico Study

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Table S1. MENPs core properties

	Symbol	Value	Reference
Magnetic Saturation [A/m]	M_s	$3.69 \cdot 10^5$	Chinnasamy <i>et al.</i> ¹
Saturation magnetostriction [ppm]	λ_s	-200	Betal <i>et al.</i> ² , Zhao <i>et al.</i> ³ 19/12/2024 14:59:00
Density [kg/m ³]	ρ	5200	Kurian <i>et al.</i> ⁴ , COMSOL Library
Initial magnetic susceptibility	χ_0	3	Betal <i>et al.</i> ² , Fiocchi <i>et al.</i> ⁵
Electrical conductivity [S/m]	σ	$5.2 \cdot 10^6$	COMSOL Library
Poisson ratio	ν	0.48	Zhao <i>et al.</i> ³
Young's modulus [GPa]	E	230	Zhao <i>et al.</i> ³
Relative permeability	μ_r	1	COMSOL Library
Thermal conductivity [W/mK]	K	3.7	Subray <i>et al.</i> ⁶
Tissue-specific heat capacity [J/(kgK)]	C_p	700	Subray <i>et al.</i> ⁶

Table S2. MENPs shell properties (from COMSOL library)

	Symbol	Value
Density [kg/m ³]	ρ	5700
Thermal conductivity [W/mK]	k	2.61
Tissue-specific heat capacity [J/(kgK)]	C_p	400
Relative permittivity	$\{\epsilon r_{11}; \epsilon r_{22}; \epsilon r_{33}\}$	{1115.1; 1115.1; 1251.3}
Electrical conductivity [Sm ⁻¹]	σ	178.5
Elasticity matrix, Voigt notation [GPa]	$\{cE11; cE12; cE22; cE13; cE23; cE33; cE14; cE24; cE34; cE44; cE15; cE25; cE35; cE45; cE55; cE16; cE26; cE36; cE46; cE56; cE66\}$	{150.4; 65.6; 150.4; 65.; 65.9; 145.5; 0; 0; 0; 43.9; 0; 0; 0; 0; 0; 43.9; 0; 0; 0; 0; 0; 42.4}
Piezoelectric coupling matrix, Voigt notation [C/m ²]	$\{eES11; eES21; eES31; eES12; eES22; eES32; eES12; eES23; eES33; eES14; eES24; eES34; eES15; eES25; eES35; eES16; eES26; eES36\}$	{0; 0; -4.32; 0; 0; -4.32; 0; 0; 17.4; 0; 11.4; 0; 11.4; 0; 0; 0; 0; 0}

References

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