

Composite Coatings of Chitosan and Silver Nanoparticles Obtained by Galvanic Deposition for Orthopedic Implants

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Supplementary

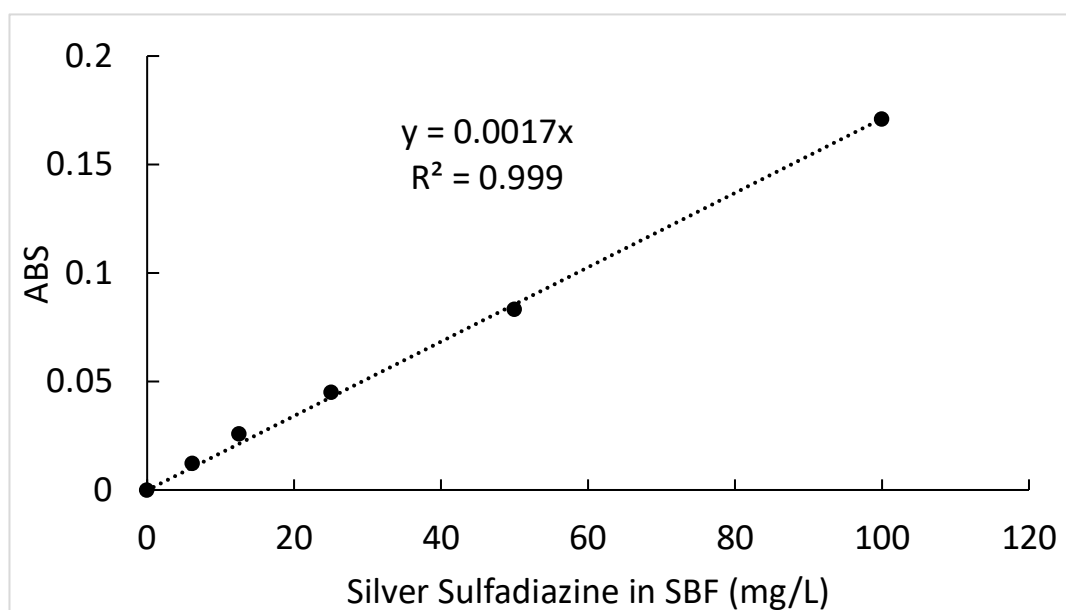


Figure S1. Calibration line of Silver Sulfadiazine in SBF obtained via UV-Vis absorbance spectra at 262 nm

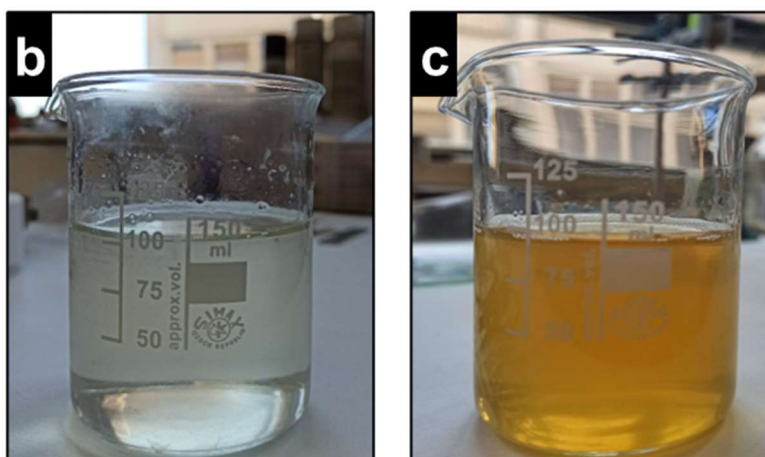
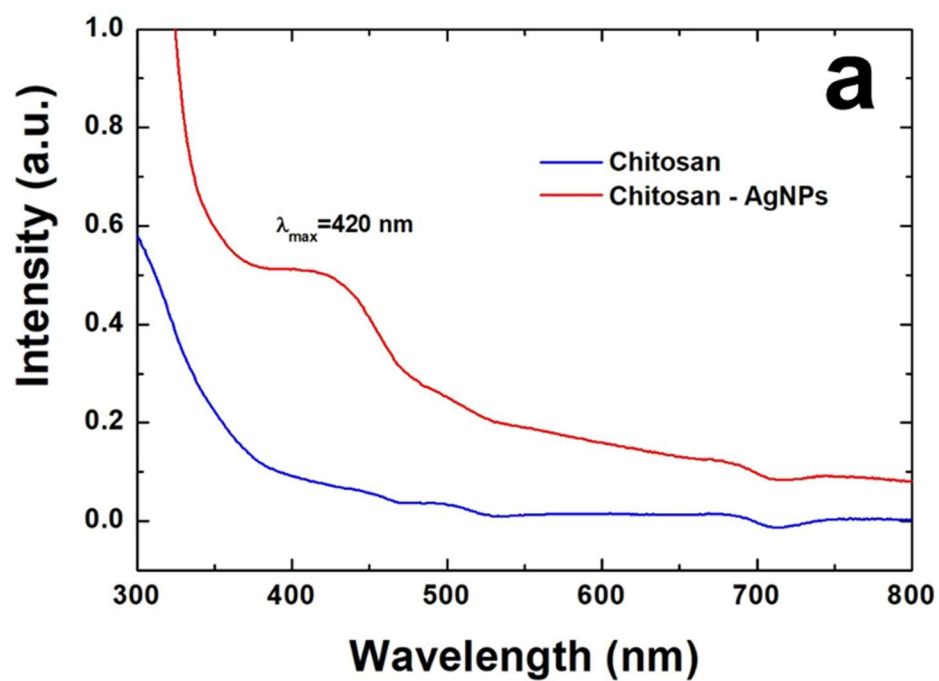


Figure S2. (a) UV-VIS spectra of cathodic solution. (b) Solution with CS and (c) CS/AgNPs

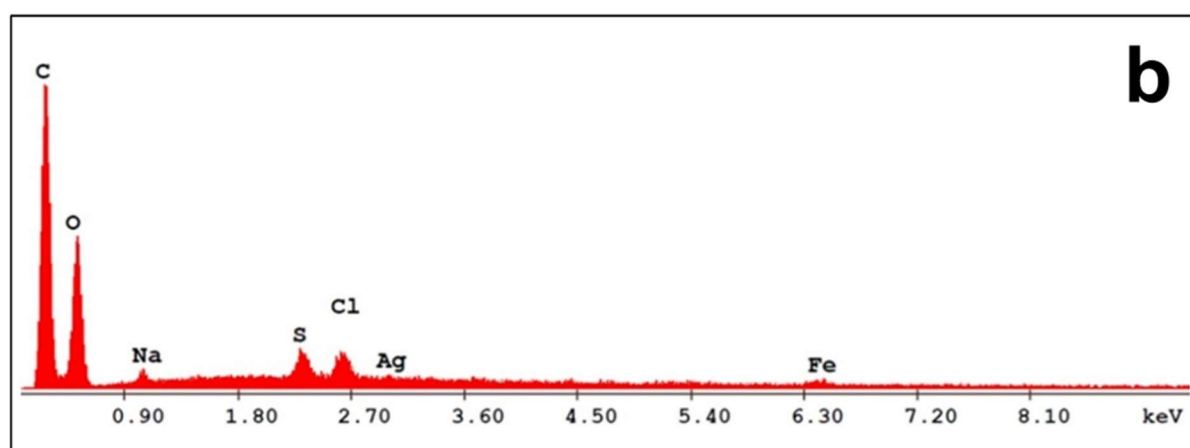
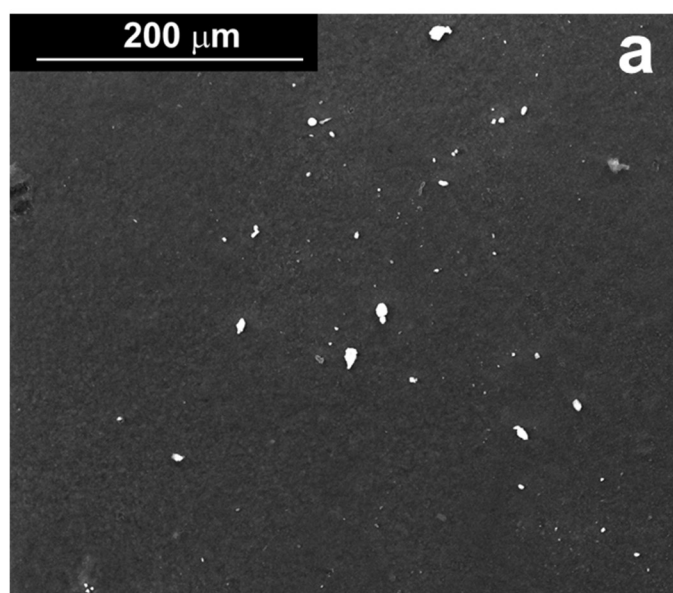


Figure S3 (a) SEM image of coating and (b) relative EDS spectrum of the coating obtained using a solution of 10gL^{-1} of CS after immersion in SBF for 21 days.

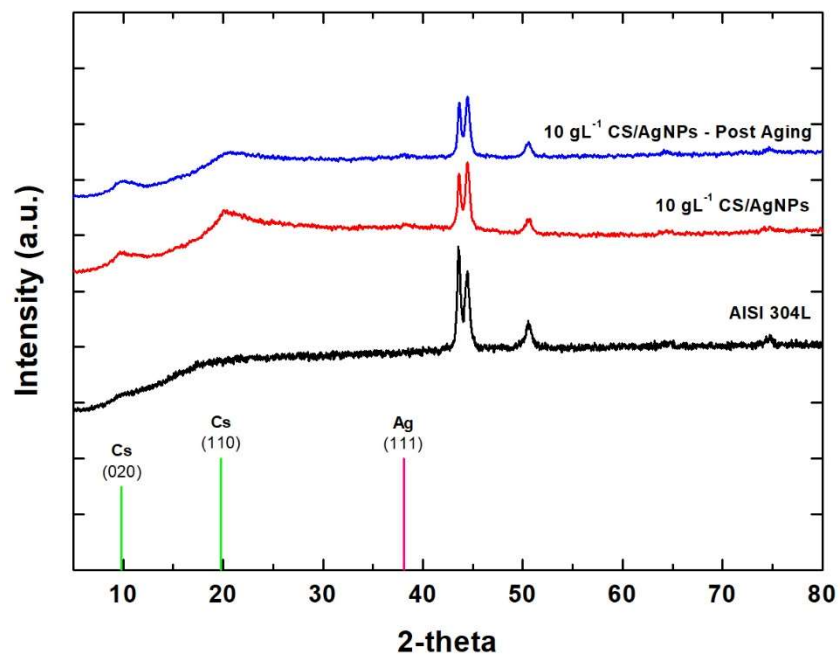


Figure S4. XRD patterns of the sample 10 gL⁻¹ CS/AgNPs after aging in SBF.

	ΔH [J/g]
Chitosan powder LMW	252
10 gL ⁻¹ CS	213
10 gL ⁻¹ CS/AgNPs	237

Table S1. Melting enthalpy calculate by DSC

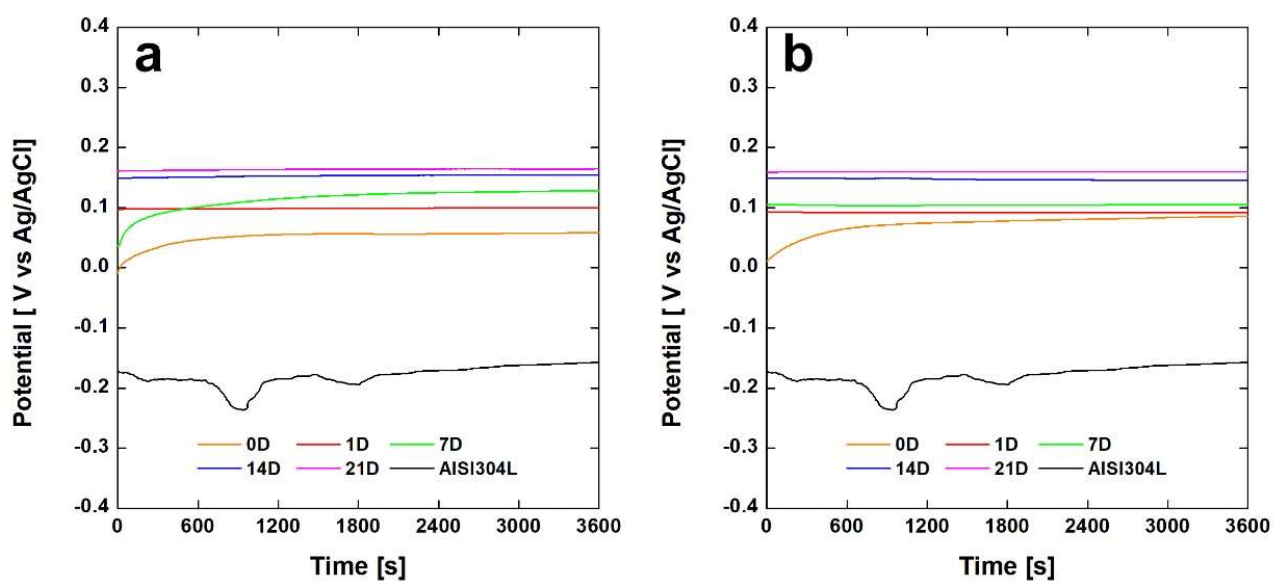


Figure S5 OCP curves after different aging time: a) coating obtained using a solution of 7.5 gL⁻¹ of CS, b) coating obtained using a solution of 10gL⁻¹ of CS.

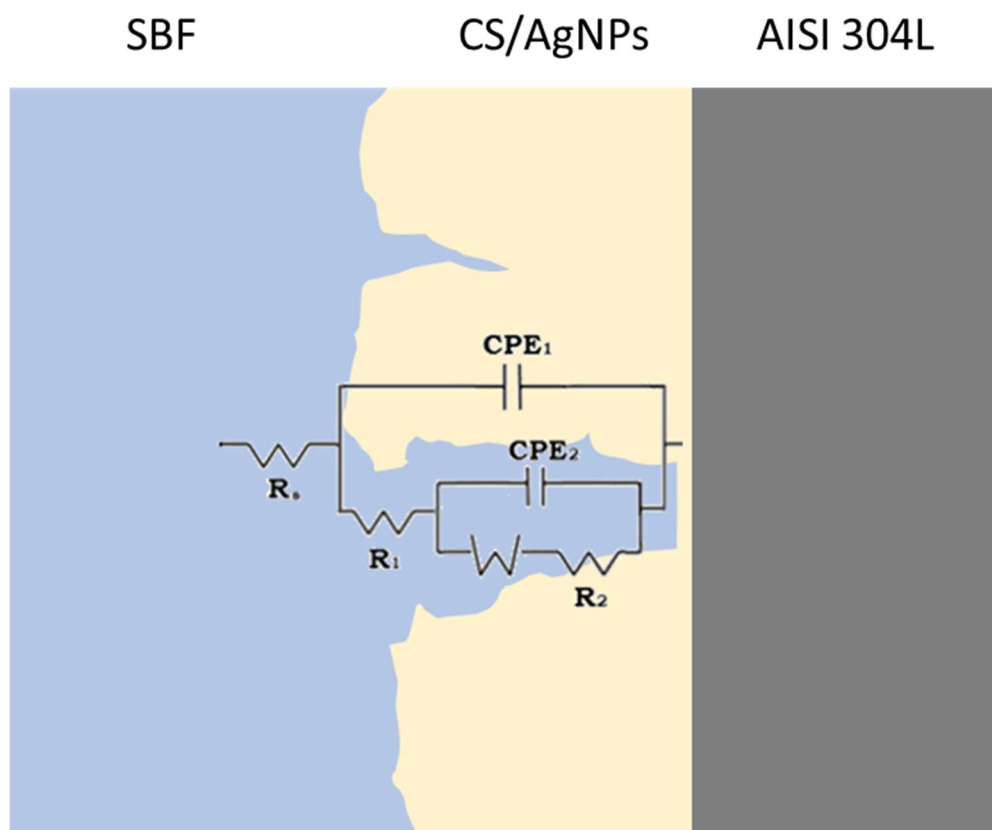


Figure S6 Schematic cross-section of the coating and equivalent circuit used to fitting the impedance data

	Time (Day)					AISI 304L
	0	1	7	14	21	
	R(CPE1(R(CPE2(RW))))					R(CPE R)
R_s	77.81	82.89	79.26	75.49	73.42	32.62
CPE_1-Y	4.59×10^5	3.09×10^5	5.04×10^5	6.19×10^5	6.16×10^5	-
CPE_1-n_1	0.6489	0.653	0.5419	0.5076	0.5218	-
R_1	237.4	564.2	1053	1728	1612	-
CPE_2-Y	4.77×10^5	4.06×10^5	3.23×10^5	3.3×10^5	3.41×10^5	5.51×10^5
CPE_2-n_2	0.7602	0.7297	0.7465	0.7953	0.8123	0.7665
R_2	1.14×10^5	4.97×10^5	4.48×10^4	1.55×10^6	9.21×10^5	5.38×10^5
W	4.36×10^5	2.61×10^5	4.11×10^6	2.85×10^5	1.98×10^5	-

Table S2 Fitting parameters of impedance data of the sample 10 gL⁻¹ CS/AgNPs. For comparison, the value of uncoated AISI 304L fitted with an R(CPE(R)) equivalent circuit was also reported. The mean standard deviation was 3.7%