

# Supplementary materials

## Electrodepositing Ag on Anodized Stainless Steel for Enhanced Antibacterial Properties and Corrosion Resistance

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**Table S1** Element content of different oxide layers on stainless steel anodized film

Element	Stainless steel substrate		Porous oxide film top		Porous oxide film bottom	
	Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %
O	1.85	6.11	21.96	49.32	15.06	37.87
Cr	19.97	20.31	13.92	9.63	22.08	17.07
Fe	69.79	66.07	58.21	37.45	57.04	41.06
Ni	8.39	7.51	5.92	3.63	5.84	4.00

**Table S2** Weight of stainless steel before and after rubbing

No.	Process parameters	Mass before milling (g)	Mass after milling (g)	Weight loss (g)
0 <sup>#</sup>	Blank	3.7352	3.7349	0.0003
1 <sup>#</sup>	5V 2min	3.5869	3.5868	0.0001
2 <sup>#</sup>	5V 5min	3.7154	3.7151	0.0002
3 <sup>#</sup>	5V 10min	3.6873	3.6871	0.0002

**Table S3** Equivalent circuit component parameters of AC impedance spectrum

Process Parameters	R <sub>s</sub> (ohms)	Q(F)	n	R <sub>f</sub> (ohms)	Q(F)	R <sub>ct</sub> (ohms)	n
Stainless Steel	3.41	2.998×10 <sup>-4</sup>	0.8351	9644	2.155×10 <sup>-6</sup>	318.3	0.7915
Anodizing	3.866	4.562×10 <sup>-4</sup>	0.8212	2495	1.774×10 <sup>-4</sup>	2525	0.7812
5V 2min	3.717	1.954×10 <sup>-4</sup>	0.9655	4.02×10 <sup>4</sup>	6.34×10 <sup>-3</sup>	1.253×10 <sup>5</sup>	0.9469

**Table S4** Fitting results of antibacterial stainless steel polarization curves under different deposition times

Deposition parameters	E <sub>corr</sub> (V)	I <sub>corr</sub> (μA/cm <sup>2</sup> )
Stainless Steel	-0.101	0.81
Anodizing	-0.169	1.37
Ag 5V 2min	-0.051	0.25