Electronic Supplementary Material (ESI) for RSC Advances.

Table 1. The limit of detection (LOD) and limit of quantification (LOQ) for ICP-MS measurements

element	Co	Cr	Mo	Ni
LOD/ppb	0.024	0.115	0.086	0.097
LOQ/ppb	0.081	0.482	0.228	0.324

Table 2. Summarisation of metal release concentrations of Co-28Cr-6Mo and Co-35Ni-20Cr-10Mo alloys after 4 months immersion in PS, PS+albumin, PS+H_2O_2 and PS+albumin+H_2O_2 at 37 °C, the unit is ppb.

		Co	**Cr**	**Mo**	**Ni**	**Total**
Co-28Cr-6Mo	PS	59.9±8.1	2.9±0.5	4.5±0.3	/	67.3±7.2
	PS+albumin	62.4±2.6	8.5±0.5	5.1±0.1	/	76.0±2.0
	PS+H_2O_2	123.4±0.1	36.9±1.3	13.0±0.8	/	173.3±1.1
	PS+albumin+H_2O_2	162.0±7.5	42.4±2.8	13.8±0.6	/	218.2±6.7
Co-35Ni-20Cr-10Mo	PS	142.3±5.0	6.3±0.8	49.8±9.8	93.4±3.4	291.8±7.2
	PS+albumin	167.9±5.2	11.1±2.7	51.7±5.1	125.5±6.2	356.2±5.2
	PS+H_2O_2	237.3±9.2	99.9±8.2	121.6±1.5	162.4±10.9	621.2±8.6
	PS+albumin+H_2O_2	487.2±5.0	114.6±7.7	256.8±7.6	430.9±5.0	1289.5±6.6

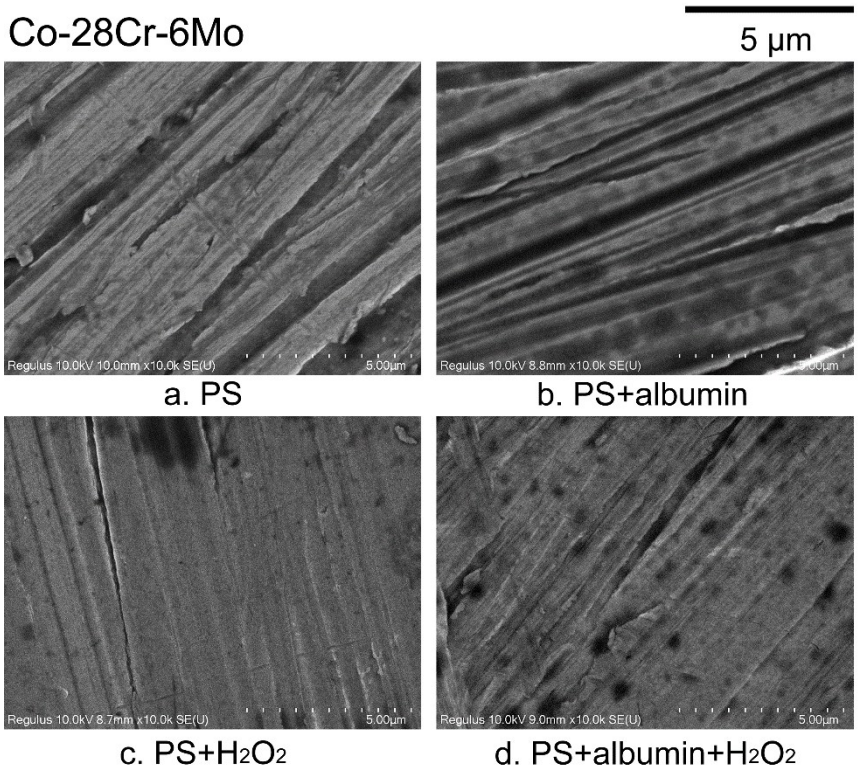

Figure 1. SEM images of the surface of Co-28Cr-6Mo discs in (a) PS, (b) PS+albumin, (c) PS+H_2O_2 and (d) PS+albumin+H_2O_2 after 4 months immersion at 37 °C

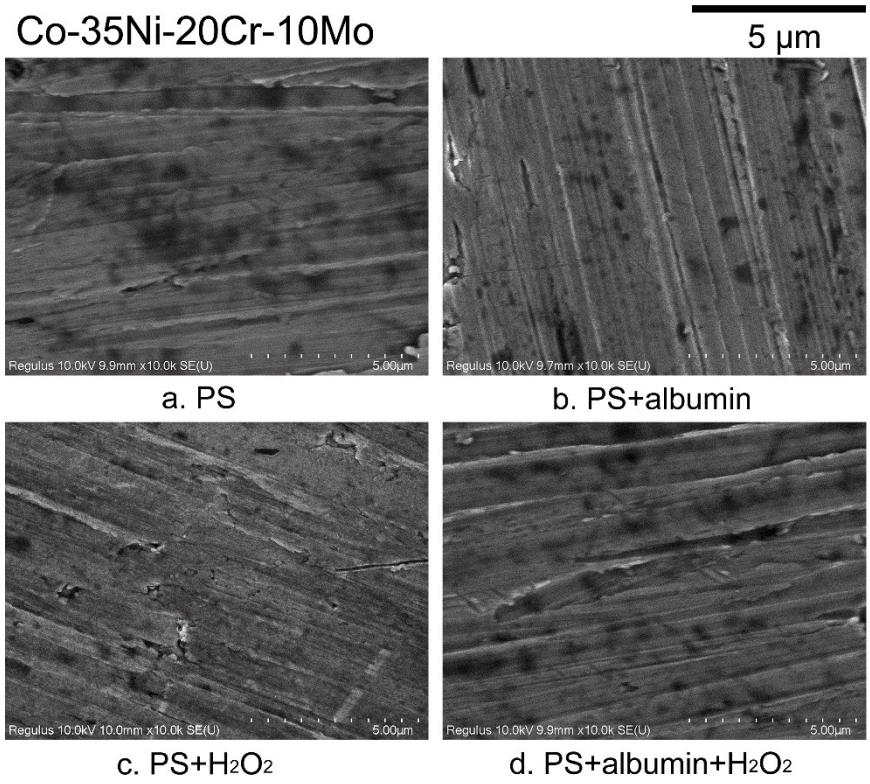

Figure 2. SEM images of the surface of Co-35Ni-20Cr-10Mo discs in (a) PS, (b) PS+albumin, (c) PS+H_2O_2 and (d) PS+albumin+H_2O_2 after 4 months immersion at 37 °C

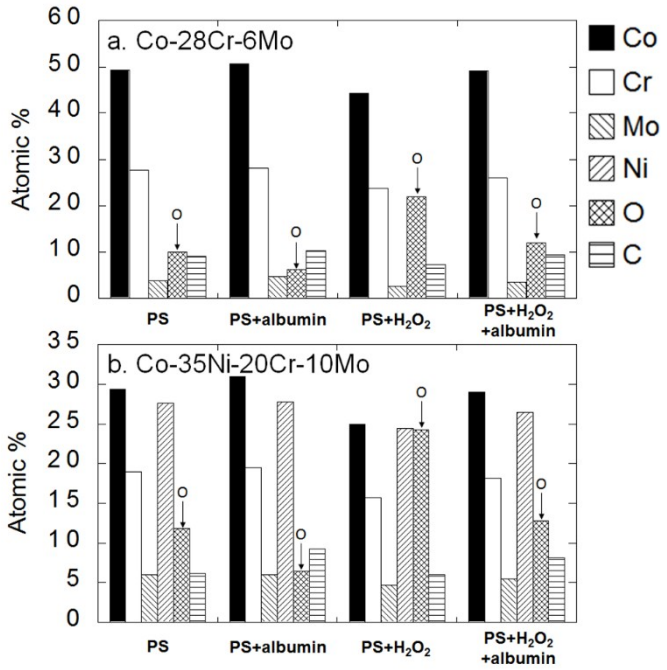

Figure 3. Atomic percentage on the surface of (a) Co-28Cr-6Mo and (b) Co-35Ni-20Cr-10Mo in PS, PS+albumin, PS+H_2O_2 and PS+albumin+H_2O_2 after 4 months immersion at 37 °