Supplementary information

The supporting material includes the results from the preliminary cell study performed to find the appropriate dilution for the evaluation of potential compatibility of the coated samples. The supplementary information also includes confocal pictures for the different conditions tested with the 3D collagen hydrogel using microglia.

A preliminary cytotoxicity study was conducted using microglia exposed to extracts from the SiN coating and CoCrMo controls, and two points of the SiFeCN coatings using different dilutions (1:1, 1:8, 1:16, 1:32, 1:48, 1:64 and 1:80 dilution) with the aim of finding the appropriate dilution for the assessment of potential differences between compositional points on the coating surface. As expected, the cell viability (Figure S1) showed higher levels with higher dilution, maintaining levels aabove 60% over time for the SiN reference coating and CoCrMo controls only after 64 times dilution. The 1:64 dilution was hence chosen to compare all the samples as the extracts of the control materials maintained high enough levels of cell viability at this dilution that allowed for testing the compatibility of the extracts of the SiFeCN coatings.

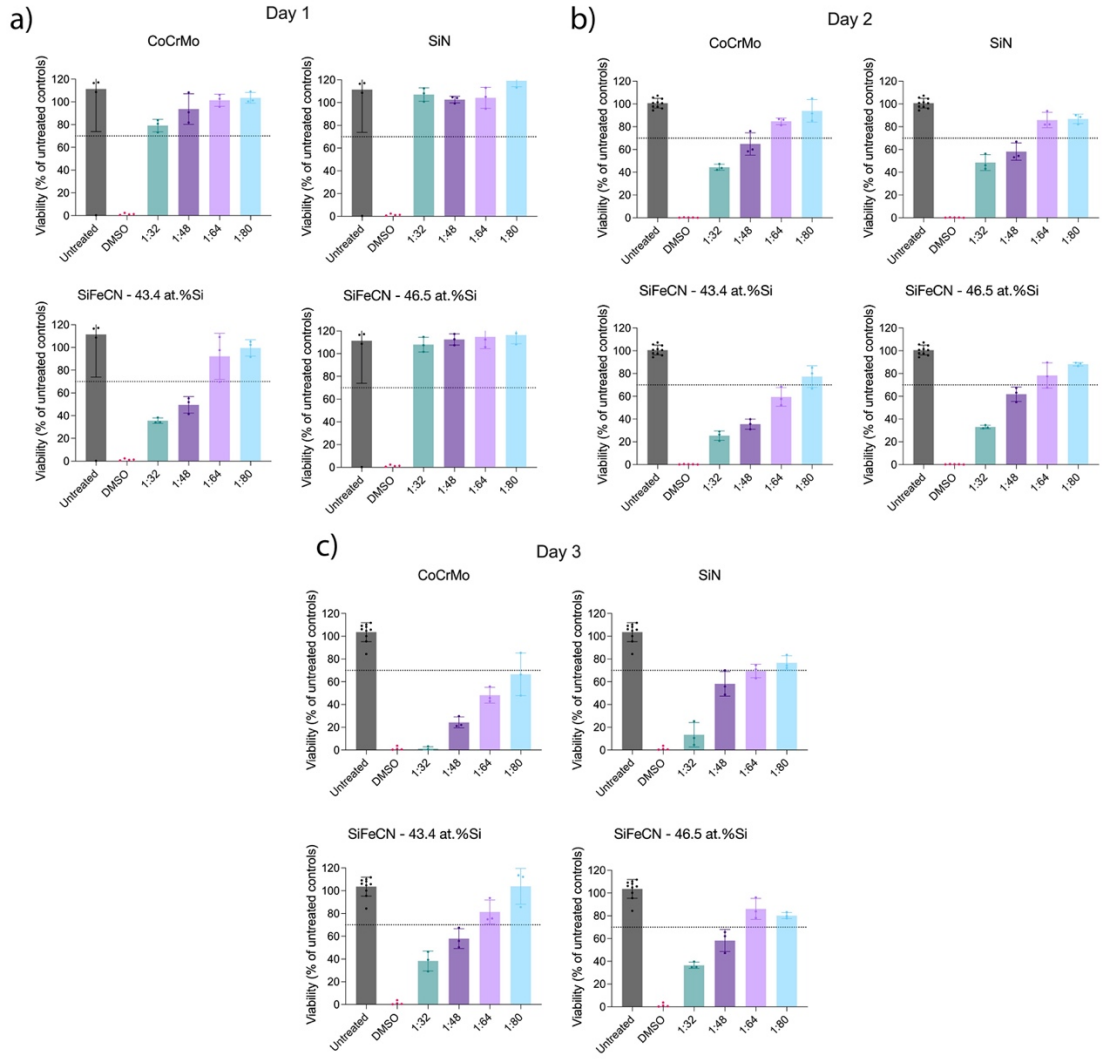

Figure S1 Cell viability (expressed relative to untreated controls) of C8-B4 cells in the presence of different dilutions (1:32, 1:48, 1:64 and 1:80) of extracts over 3 days from 2 sample points (1 - 43.4 at.% and 4 - 46.5 at.%) and CoCrMo and SiN coating reference controls.

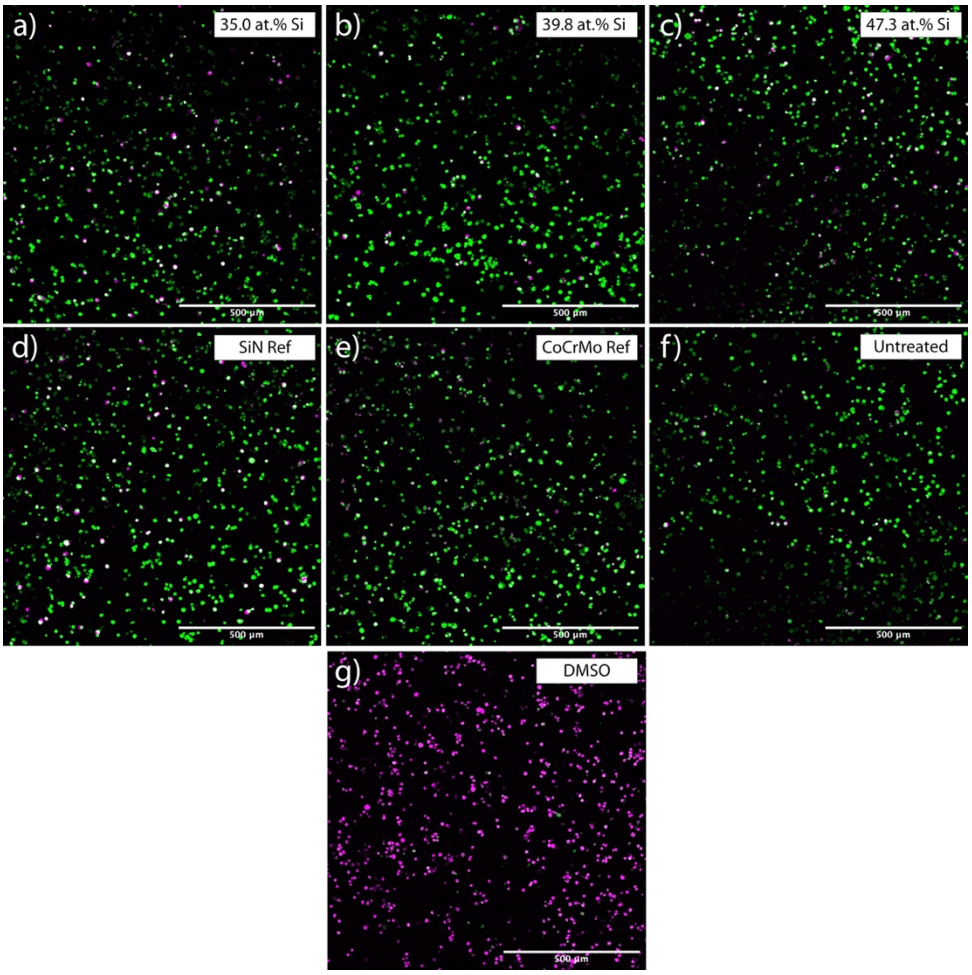

Figure S2 Cell viability of C8-B4 cells in 3D culture in the presence of the different extracts at 1:64 dilution over 3 days. Confocal laser scanning microscopy images at day 3 of the cells exposed to extracts from SiFeCN coatings (a-c), SiN and CoCrMo references (d-e), untreated cells (f) and DMSO control (g) Green (CalceinAM) for living cells, magenta (EthD) for dead cells.