

Supporting Information for the article “Strontium-delivering glasses with enhanced bioactivity for anti-osteoporotic applications”

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1 In vitro studies: DMEM ionic concentrations

	Na ⁺	K ⁺	Mg ²⁺	Ca ²⁺	Cl ⁻	HCO ₃ ⁻	HPO ₄ ²⁻	SO ₄ ²⁻
Human plasma	142.0	5.0	1.5	2.5	105.0	27.0	1.0	0.5
DMEM	154.5	5.4	0.8	1.8	118.5	44.0	0.9	0.8

Table 1 : Ionic concentrations of inorganic salts in human blood plasma and DMEM (mmol.L⁻¹).

2 SEM images of the glass discs before and after interaction with DMEM

SEM analyses were conducted over the glass discs after different interaction periods to follow up the surface changes. A Field Emission-Gun Scanning Electron Microscope with a 2.5 kV beam voltage was used to probe the glass discs. Results are presented in Figure 1 and provide us with the same observations that are available in an abundant literature. After soaking, the discs surface is quickly coated with small calcium phosphate precipitates. Initially limited to some scattered sites, the newly formed surface layer quickly extends over the whole material.

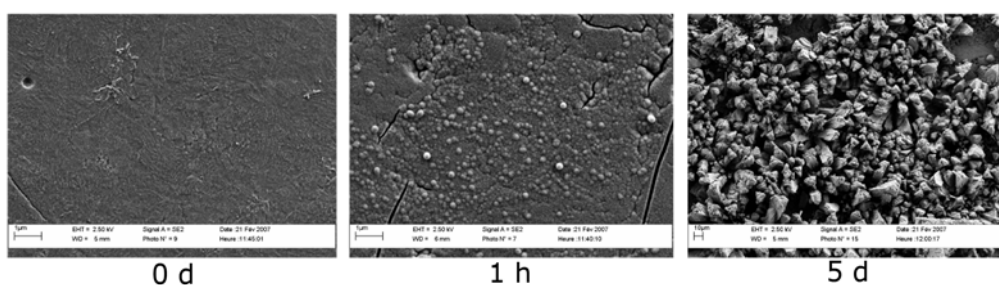


Figure 1: SEM images (Secondary Electron Imaging) of B75 glass discs before interaction (0 d) and after 1 h, 5 d of interaction with DMEM. Similar observations are obtained for the B75-Sr1 and B75-Sr5 Sr-doped glasses.

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3 Chemical mapping at the periphery of the B75-Sr1 disc

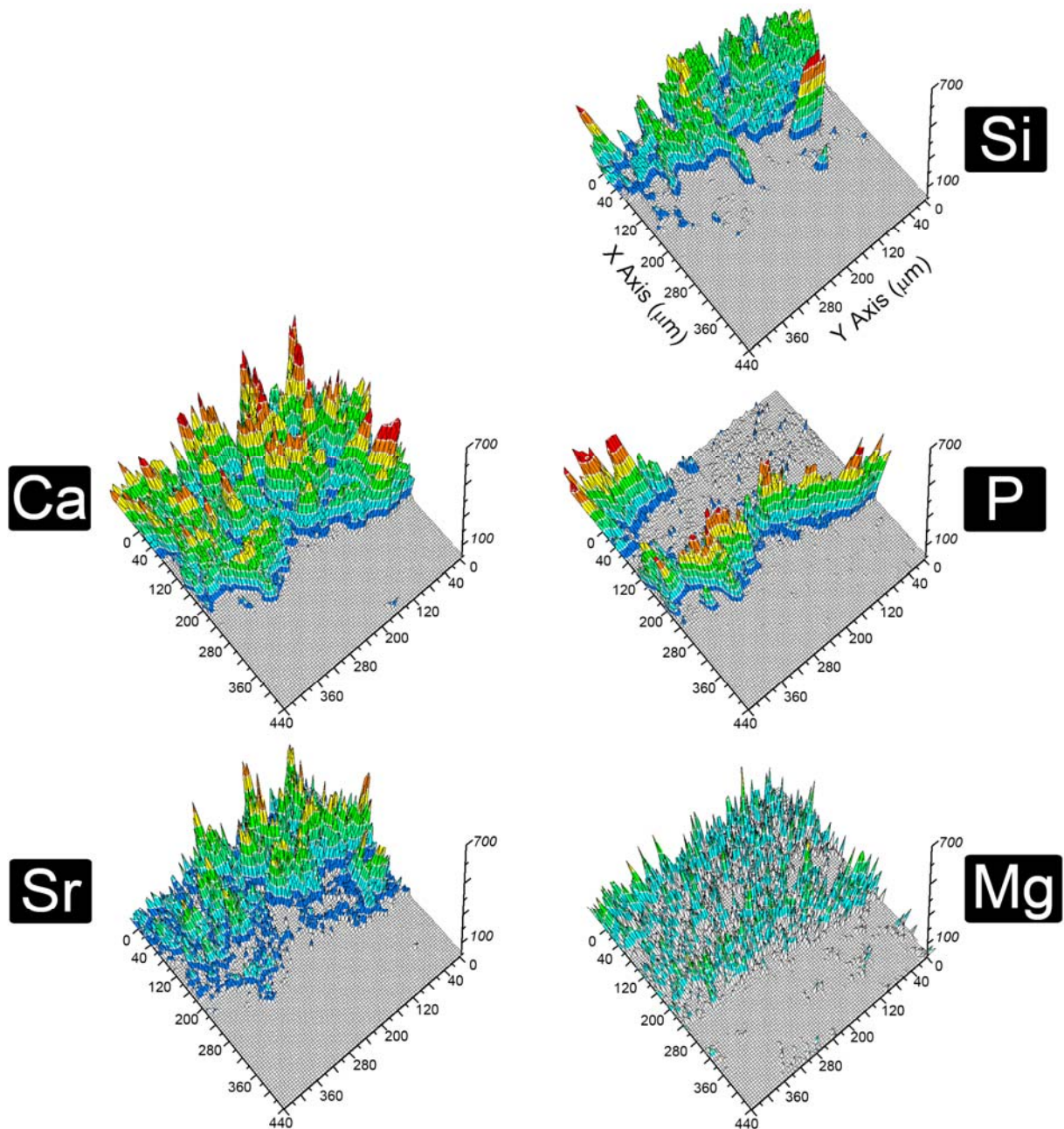


Figure 2 : chemical mapping at the periphery of the B75-Sr1 disc after 10 days of interaction ($440 \times 440 \mu\text{m}^2$).

Figure 2 shows the elemental distributions at the periphery of a B75-Sr1 disc after 10 days of interaction with DMEM. The results are very similar to those obtained for B75-Sr5. A Ca-P rich layer has formed at the surface of the disc and is extended over $20 \mu\text{m}$. Traces of Sr and traces of Mg are incorporated at the material surface, within the newly formed phosphocalcic layer.