

Experiment report on experiment MD460

Title: Intracellular topography studies of Mg in cultured cells by X-ray microfluorescence

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Beamline: ID21

The experiment aimed at measuring Mg distribution in cells by X-ray fluorescence microscopy. We had to face two main problems which affected seriously the measurements:

- 1) The excitation energy used (about 2.4 keV) was quite far from the absorption edge of Mg (1.3 keV). This, together with the low fluorescence yield of Mg and the presence of other elements whose fluorescence intensity was considerably higher than that of Mg, had the effect to mask the fluorescence peak of Mg.
- 2) The cells were fixed with a procedure that left some trace of Arsenic in the cell. This was completely unexpected. Unfortunately the L fluorescence line of As was very close to the K fluorescence line of Mg, and this further contributed to mask the Mg fluorescence.

As a consequence, unfortunately no reliable data could be obtained from the experiment.