

## «Biom mineralisation» Experiment

## MICROALGA BIOMINERALISATION UNDER MICROGRAVITY

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The purpose of the experiment is to study the effect of microgravity on microalga biom mineralisation phenomena in processes related to the metal ion transformation in two ways, namely by exobio-polymers during crystal formation and by the cell itself in the course of transport and assimilation of metal ions — microelements of nutritional medium in autotrophic and heterotrophic regimes.

The main objective is to study microgravity effects on the following processes:

— monocrystal synthesis (for example, gold and platinum) with application of water soluble biopolymers — exopolysaccharides of microalgae *Chorella vulgaris*, strain LARG-3, as reducers;

— alteration of cytoplasmic membrane configuration in the course of microalga growth and development on a space station in altered gravity.

The absence of gravitational convection in microgravity results in unlimited growth (without mixing) of diffusion layer of microalga cells exometabolites and, probably, in diffusion restrictions on microelement transport to a cell. This hypothesis will be checked in experiment.

The methods of electron microscopy and X-ray diffraction will be used.

Results obtained will allow recommending new biotechnological methods of perfect monocrystal synthesis in microgravity.