MODELING OF MAMMALIAN CELL METABOLISM

The University of Chemistry and Technology, Prague (UCT) is a public higher education university pursuing scientific, research, development, and implementation activities. It is the largest educational institution of its kind in Central Europe, with a tradition spanning almost two centuries. With progressive fields of study and a prestigious international reputation, UCT provides every student education in advanced technologies and excellent preparation for lucrative careers worldwide.

Starting date: October 1st
This is a PhD project to be held within the Department of Chemical Engineering at the University of Chemistry and Technology Prague.

Project is a part of large initiative to understand mammalian cell metabolism and its change under various conditions. Student will be responsible for the modelling of cell metabolism using various techniques including Metabolic Balance Analysis and Flux Balance Analysis.
Extracellular fluxes will be calculated from the time evolution of the carbon and nitrogen sources such as glucose, glutamine, lactate as well as all amino acids using HPLC. In parallel to this technique for selected conditions LC-MS method will be used to gain knowledge about the concentration of several intracellular components. When combined with the specific consumption of labeled isotope 13C (various carbon sources) and 15N (nitrogen containing amino acids), this method could be used for validation of the intracellular fluxes calculated by the developed model. Once validated such model will be used to optimize feeding strategy for fed-batch and perfusion cultivation.

The proposed research project requires an enthusiastic student with good modeling capabilities (MATLAB, FORTRAN or equivalent) and understanding of cell metabolism modeling. Even though this project is focused on the modelling of cell metabolism successful candidates will be involved in the planning and proposing of new experiments using state of the art analytical techniques. The successful candidate will be dynamic, motivated and outgoing student with excellent interpersonal skills.

Collaborations:
Project will be realized in a collaboration with industrial partner

Nature of funding:
Competitive salary will be offered to the successful candidate.

How to put forward my candidature:
If you are interested, please send us your **resume** and **examination results** by e-mail to:
Assoc. Prof. Miroslav Soos, PhD (miroslav.soos@vscht.cz)
Phone: +420 22 044 3251