

Press release University of Gothenburg

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## 112 million SEK for generating computer models of yeast

**The European Commission will fund with 11.7 million Euro (about 112 million SEK) a project aiming at generating computer models of yeast cells. Just over 3 million Euro (about 30 million SEK) will support research at the University of Gothenburg, Chalmers University of Technology and the Fraunhofer Chalmers Centre for Industrial Mathematics in Göteborg.**

The project starting April 1 will run for five years and is coordinated by Prof. Stefan Hohmann at the Department of Cell and Molecular Biology, University of Gothenburg.

Systems Biology is a relatively new field of research within molecular biosciences. Research aims at understanding how the interaction of genes and molecules within cells result in the properties of cells and entire organisms. Systems Biology makes use of mathematical and computational models to understand such complex behaviours. Therefore Systems Biology is interdisciplinary requiring collaboration of biologists, medical researchers, mathematicians, physicists, chemists, engineers and computer scientists.

Systems Biology and the application of computational models of cells and organisms is expected to have major impact on how diseases are treated in the future, especially with respect to personalised medication and on how bioprocesses in biotechnology can be designed. Göteborg is home to a leading research environment within Systems Biology and the formation of a Gothenburg Centre for Systems Biology with participants from the Science Faculty and Sahlgrenska Academy of the University of Gothenburg and Chalmers University of Technology is presently being discussed. Göteborg will host the International Conference on Systems Biology with up to 1,000 participants in August 2008 (23-27 August).

The present project called UNICELLSYS brings together sixteen organisations from Sweden, Denmark, Germany, Italy, The Netherlands, United Kingdom, Switzerland, Austria, and Spain. The project uses yeast – ordinary baker's yeast – as a model organism.

Yeast is traditionally used in research as a model organism because it can be easily handled in the laboratory and its cellular structure is quite similar to human cells, but much simpler. So far different laboratories, including teams from Göteborg, have generated computational models of parts of the yeast cell.

The aim now is to generate computer replicas of larger parts of the yeast cell and to simulate – and to correctly predict – the behaviour of yeast cells in different situations, such as stress or starvation. Technology for such computer simulations as well as knowledge gained from yeast is expected to be suitable also for generating computer models from human cells and eventually in the next 20 years or so also from entire human.

The new project is kick-started with a first general assembly April 8-11 in Göteborg.

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More on UNICELLSYS:

<http://www.unicellsys.eu/>