

# Press Release



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## Insilico: co-designer of innovative cell factory for fine chemicals

(Stuttgart) – A new BMBF joint project to transfer systems biology research directly into practical applications is profiting from Insilico Biotechnology's expertise. The goal is to make *Pseudomonas* bacterial strains fit for commercial use in the field of industrial biocatalysis. The project will run for three years, coordinated by BASF and financed with approx. EUR 5.5 million. Insilico Biotechnology is the second partner from industry, while all others are university research institutes, mostly from the region around Stuttgart.

By very nature, *Pseudomonas* strains produce substances that are of interest for the chemical industry, e.g. enzymes, aromatic substances and source materials for manufacturing fine chemicals. »We will concentrate on optimising established synthesis pathways for certain target products such as menthol and vanillin for ultimate commercial production on a large industrial scale. However, we will also develop new methods of synthesis for our target products«, states Klaus Mauch, CEO of Insilico, summing up the goals of the project. This makes the project a pilot in its field because the results can be transferred to other product groups and strains.

The ambitious aim of contemporary systems biology is to define the system of the »living cell« as completely and quantitatively as possible including all biomolecules and biochemical reactions. This leads to the development of network models and simulations which will be able to predict how, for example, the yield of desired metabolic products can be increased. Insilico Biotechnology is predestined for developing network models to improve production as the company already has a genome-based network model for the *Pseudomonas putida* reference strain in its portfolio. This network model will now be adapted to the strains under investigation in the new joint project and then modified accordingly. The Insilico team uses simulation processes to find new solutions for the most efficient conversion of the respective resources into target products. At the same time, the team is focusing on minimising by-products as a result of manufacturing and keeping the use of co-substrates to a minimum.

For the first time, Insilico Biotechnology will use this project to combine all available »omics« data (genome, transcriptome, metabolome and proteome data) for the *Pseudomonas* strains with simulations for product formation and growth. »This can only be achieved with extra computing power so we are drawing on high - performance computing. Our ultimate aim for the future is to be able to make reliable and exact predictions for the efficient production of all desired substances in the shortest time possible«, explains Mauch.

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Insilico Biotechnology designs and optimises biotechnological processes for the chemical and pharmaceutical industries. Successful in business since 2001, Insilico has internationally renowned expertise and a unique technology platform for connecting cell model libraries with simulation processes. Insilico analyses the latest biotech data and integrates it in genome-wide network models. With its high-performance computing techniques, Insilico develops new improved solutions for manufacturing biochemicals and biopharmaceuticals and achieves considerable cuts in the time needed for the development of bioprocesses. Insilico is a privately-owned company, located in Stuttgart, Germany.

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