Press Release

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New Modelling Platform for Industrial Bioproduction

(Stuttgart) – Insilico Biotechnology is one of the partners in a transnational EU-project out to find a common, easy-to-use computer-based platform for modelling metabolic processes in organisms which are of interest for biotechnological applications. The main advantage of this approach is that it will considerably shorten the time from concept to marketable European biotechnology product.

A model is only as good as the database behind it but there is more to the picture than just the quality and quantity of the data stored there. Vast volumes of data on the metabolism of organisms have to be managed and processed for quick and easy access if the outcome of production processes in industrial biotech applications is to be predicted reliably. For this reason, Insilico Biotechnology and two other industrial partners together with several academic research groups from various parts of Europe are designing a common and efficient computer-based platform for modelling metabolic processes. A variety of methods for analyzing data and modelling processes will be brought together on this platform and then harmonized but beforehand, innovative mathematical approaches and computer algorithms will have to be developed.

Insilico has already reconstructed the metabolism of various production-relevant microorganisms and cell lines on a broad basis and currently runs its own platform for modelling and predicting metabolic processes so that the joint project will definitely benefit from Insilico's expertise in these fields. Insilico will also provide company-owned data records and metabolic reconstructions to be used for further development within the transnational research group. New software solutions will be sought for modelling signaling pathways and regulatory networks, for example, so that they can be incorporated in already existing models. Step by step, this combination of European interdisciplinary expertise in data management, computer-based visualization, statistics, mathematical modelling and biotech engineering will create a framework enabling both research groups and industrial companies to predict metabolic processes much more efficiently than at present.

In turn, Insilico Biotechnology will itself profit from such developments. "We will use the joint results to optimize our own pipeline as regards modelling and simulations for industrial bioproduction purposes. This will put us in the favorable position of being able to offer our customers state-of-the art solutions for their specific bioproduction needs – especially in the fields of healthcare and food products – so that they will be a jump ahead of their rivals", says Klaus Mauch, Insilico's CEO.

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The project entitled BioPreDyn (New Bioinformatics Methods and Tools for Data-Driven, Predictive Dynamic Modelling in Biotechnological Applications) has a total volume of nearly three million EUR and is being supported by the European Commission for the next three years. The project partners are eight research institutions from Spain, the Netherlands, Italy and Great Britain together with EMBL (European Molecular Biology Laboratory) which is based in Germany. Insilico Biotechnology is the only industrial partner from Germany.

Insilico Biotechnology reconstructs, simulates and predicts the performance of complex cellular systems 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 mechanistic whole-cell network models. With its high-performance computing techniques, Insilico develops superior solutions for manufacturing biochemicals and biopharmaceuticals and achieves considerable cuts in the time needed for drug toxicity tests. Insilico is a privately-owned company, located in Stuttgart, Germany.

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