Universität Basel

Research Project

NCCR Molecular Systems Engineering

Third-party funded project

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The NCCR Molecular Systems Engineering combines competences from life sciences, chemistry, physics, biology, bioinformatics and engineering sciences. More than 100 researchers and support personnel distributed into four work packages and 31 projects work together to address systems engineering challenges by integrating novel chemical and biological modules into molecular factories and cellular systems for the production of high added-value chemicals and applications in medical diagnostics and treatment.

Molecular systems engineering relies on the combination of both chemical- and biological modules. In this approach, complex dynamic phenomena emerge as the result of the integration of molecular modules designed to interact in a programmed way with their complex environment. In this manner, it should be possible to create molecular factories and cellular systems whose properties are more than the sum of the attributes of the individual modules.

The commitments of the leading houses, the University of Basel and ETH Zurich, also include new (joint) professorships, and extensive training of a new generation of scientists and technologists, leading to a long-term paradigm shift in molecular sciences and a new structure of the Swiss research landscape.

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