

PRESS INFORMATION

Strategic cooperation for novel and optimized enzymes

Frankfurt / Zwingenberg. Biotechnology companies BioSpring GmbH and BRAIN AG are joining forces in the area of enzyme discovery and optimization. The aim of this cooperation is to enhance the benefit for their customers in the area of biocatalytic innovation. This is achieved by linking complementary technology portfolios covering enzyme discovery and *in-vitro* evolution to fine-tune novel biocatalysts for desired functionalities. The cooperation covers customer driven projects as well as proprietary developments in their own right for application in the pharmaceutical industry and fine chemistry.

In this cooperation BRAIN AG contributes its EvoSolution® technology package for the discovery of novel enzymes from Metagenome Libraries of uncultivated microorganisms. BioSpring's efficient PHENolution® technology will be applied to further optimize these novel molecular catalysts.

In contrast to other technologies EvoSolution® provides a dramatically enhanced access to naturally occurring biodiversity. This proprietary concept circumvents cultivation of microbial target organisms and enables the construction of comprehensive enzyme libraries providing a nature-derived molecular portfolio. BioSpring uses PHENolution® to introduce defined and statistically tunable sequence variations into enzymes by total gene synthesis. In particular the possibility of controlled internal gene deletions or insertions greatly increases the power of positive manipulations to optimize enzymes for application in biocatalysis.

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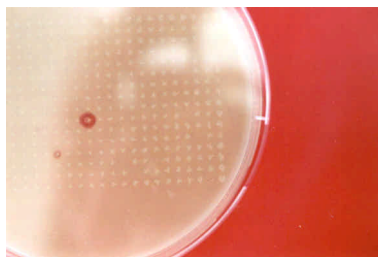
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BioSpring is a biotech and chemical company. Founded in 1997, the company has specialized on Enzyme Evolution and Nucleic Acid Technologies. Working in the area of gene technology and protein chemistry, BioSpring has developed PHENOlution, a fully integrated technology to create adapted and optimised enzymes for industrial applications. The synthetic construction of a gene library is one of the key steps in a most efficient and time saving enzyme development procedure. Compared to other evolutionary technologies, PHENOlution offers a major advantage as only the sequence information (amino acid or gene sequence) is needed for enzyme optimization. BioSpring is applying its fully integrated optimisation technology PHE-NOlution to develop new enzymes for the chemical and pharmaceutical industry, especially for the synthesis of drug intermediates and fine chemicals as well as the textile and food industry.

BRAIN Biotechnology Research and Information Network AG is a research and development company focusing on enzymes, bioactives and technical proteins. Its innovative EvoSolution® technology platform provides access to the vast biochemical and catalytic diversity of microorganisms and plants via cutting edge molecular genetics tools. Located in Zwingenberg, within the Rhine-Main-Neckar industrial and academic hotspot, BRAIN has built up large proprietary BioArchives with over 100 million genes of unique and often non-cultivable microorganisms. Based on these resources BRAIN identifies novel enzymes for application in biocatalysis and bio-transformation in the chemical, life science and food/feed industries as well as new bioactive substances and lead candidates for the pharmaceutical and cosmetics market. New candidate entities are developed to a point ready for large-scale industrial production. Founded in 1993, the company currently employs a staff of 40.

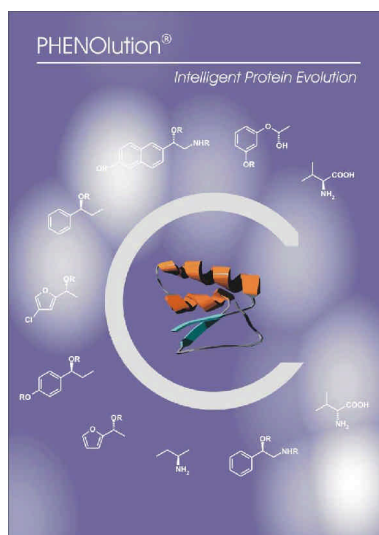
Pictures and Text

Pictures as well as the text of this press information can be downloaded at www.brain-biotech.de under "News" or www.biospring.de under "Press".



Novel enzymes and comprehensive enzyme libraries from non-cultivated microorganisms are identified by BRAIN.

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PHENOlution®, BioSpring`s Enzyme Evolution technology

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