

PRESS RELEASE

BRAIN and Degussa extend strategic partnership to discover novel enzymes for biocatalysis

Zwingenberg and Hanau/Germany, May 2002 - In continuation of a successful collaboration started in 2000, Degussa AG (Düsseldorf), a world industrial leader in speciality chemicals with its *Project House Biotechnology* and BRAIN AG (Zwingenberg) strengthen their partnership in biocatalysis. Launching another joint enzyme discovery project BRAIN will conduct extensive screening campaigns focussing on microbial strain collections and particularly on gene libraries of uncultivated microorganisms, so-called metagenome libraries.

The goal of this collaboration is the identification, production and application of new nitrile hydratases for the enzymatic hydration of sterically demanding nitriles in sustainable and environmentally friendly processes. The amides thus produced are important intermediate products for the pharmaceutical and agrochemical industries. At present, they can only be prepared, often in low yield, with high energy costs and with large quantities of salt as a by-product. In contrast, enzymes from microorganisms promise a highly efficient, specific, resource-saving and environment- friendly conversion of nitriles to the corresponding amides.

Since 1993, BRAIN has been systematically building up a "Bio-Archive" of resources and a technology portfolio designed to track down new and novel enzymes, especially ones from organisms that have never been cultivated. This "metagenome approach" taps a diversity of microbes that is at least a thousand times greater than

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that accessible by classical cultivation methods. This is because most bacteria are uncultivable, making their enzymes inaccessible to classical screening procedures. The great variety of non-cultivated organisms promises a correspondingly rich diversity at the molecular level. This diversity is a prerequisite for the search for biocatalysts to be used in numerous applications. “The collaboration with Degussa will provide further validation of the metagenome approach, with a new class of industrially important high-performance enzymes for special chemical applications. This industrial sector is especially dependent upon the discovery of new enzyme systems with special property profiles, and the metagenome approach will raise substantially the number of available nitrile hydratases with new properties,” comments Dr. Jürgen Eck, CSO of BRAIN. The cooperation between BRAIN and Degussa will receive some 500,000 Euro in support from the programme “Sustainable Bioproduction” of the BMBF (German Federal Ministry of Education and Research).

“The high level of molecular-biological expertise of the staff at BRAIN and their many years’ experience in genetic screening of uncultivable biodiversity, paired with Degussa’s strength in technical applications of biocatalysts provides an ideal starting-point for successful projects,” says Dr. Stefan Buchholz, head of Degussa’s *Project House Biotechnology*. “The intimate coupling between BRAIN and our *Project House* in Hanau will make a major contribution to the success of our work. It will be the basis of the success of our programme of rapid discovery of novel enzymes and their prompt application in technical processes to generate products with a high potential for creating added value, such as intermediates for the pharma and agro industries.” Dr. Holger Zinke, chairman of the board of directors at BRAIN, adds: “With its central position and its numerous points of contact with different market sectors, Degussa’s *Project House Biotechnology* is the perfect partner for the introduction of the genetic

screening approach to the generation of high-performance industrial enzymes.”

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BRAIN Biotechnology Research and Information Network AG is an innovative company focusing on the discovery and development of novel enzymes and bioactives. Its novel EvoSolution® technology platform combines the untapped biodiversity of microorganisms and plants with modern methods of molecular biology. The company located in Zwingenberg within the research and industrial region Rhine-Main-Neckar has at its disposal a comprehensive BioArchive with over 100 million genes of unique and non-cultivable microorganisms. Based on these resources BRAIN identifies novel technical enzymes for biotechnological production and synthesis processes (bio-transformation) in the chemical and life science industries as well as new bioactive substances and lead candidates for the pharmaceutical and cosmetics market, and develops the basis for their large-scale industrial production. The company which was founded in Darmstadt in 1993, currently employs a staff of 41.

Degussa AG Project House Biotechnology

With the founding of the Project House Biotechnology, the new Degussa has created a company-wide centre of expertise in the field of biocatalysis. The interdisciplinary Projekthouse team, comprising micro- and molecular biologists, chemists, process engineers and a food chemist, focuses the technical capability and the market experience of the eight business areas involved.

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