

# Press release by the Industrieverbund Mikrobielle Genomforschung

## White biotechnology

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### **German industry collaborating closely on microbial genome research**

Prominent companies in the chemicals, pharmaceuticals and nutrition industries have come together for the first time under the umbrella of the "Industrieverbund Mikrobielle Genomforschung" (industry/science association to promote microbial genome research), Dusseldorf, with the aim of advancing microbial genome research as a technology with broad industrial application. The work is being carried out in close cooperation with the Federal Ministry of Education and Research (BMBF) and academic research groups. An international body of experts has already delivered a very positive assessment of the first projects, which have a total volume of 42 million euros over five years and are each financed equally by the BMBF and industry. Over the next few years the projects will seek to improve how efficiently micro-organisms are used in technical processes and to develop new products from micro-organisms with new properties.

This work will make a substantial contribution to the further development of white biotechnology in Germany, a country that is assuming a pioneering role in this technology both in academic research and in industrial application. Industry and the BMBF will provide around 600 million euros for white biotechnology projects over the next ten years.

The **Industrieverbund Mikrobielle Genomforschung** is supported by BASF, Bayer Crop Science, BRAIN, Degussa, Henkel, Milupa, Schering, Südzucker and Wacker, as well as other small and medium-sized companies. Dr. Karl-Heinz Maurer, Chairman of the Industrieverbund Mikrobielle Genomforschung, comments: "The use of genome information to optimize micro-organisms and their products is becoming a key factor in the global race to be first with the best products and processes in white biotechnology."

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Thomas Rachel, Parliamentary State Secretary at the Federal Ministry of Education and Research, explains: "It is essential that industry, universities and politics stand shoulder to shoulder if they are going to hold their own in the global competition. So I welcome the industry's GenoMik-Plus initiative, an approach that is closely linked to the federal government's high-tech initiatives and which is accompanied by other BMBF programs in the fields of biotechnology, nutrition and health."

As the world's leading specialty chemicals company, Degussa already holds a strong position today in fermentation-based amino acids for animal nutrition and for applications in the pharmaceutical and food industries. Speaking about what his company is aiming to achieve through its participation in the GenoMik-Plus initiative, Degussa's Deputy Chairman Dr. Alfred Oberholz says: "We are seeking to utilize synergies in research to leverage additional technology potentials in production processes and to step up the pace from development through to market readiness. What is more, the proportion of our products that are based on renewable raw materials is set to significantly increase over the next few years."

Henkel has a great deal of experience in a partnership-based strategy of developing enzymes for detergents and cleaning agents. "Enzymes in detergents and cleaning agents are a well-known example of the successful use of white biotechnology. Consumers benefit from low washing temperatures and better cleansing power, while nature gains through a reduction in the quantity of chemicals used and lower energy consumption", is how Dr. Wolfgang Gawrisch, Chief Technology Officer Research/Technology of Henkel KGaA, summarizes the situation.

Speaking for BRAIN AG, a technology company specializing in white biotechnology, Chief Executive Officer Dr. Holger Zinke notes: "The Industrieverbund Mikrobielle Genomforschung is an outstanding platform for the collaboration of industry, technology companies and academic partners. The new national initiative pools these forces together for the first time, and thereby makes an important contribution to strengthening Germany's position on the research landscape."

### **Genome research into micro-organisms – key technology for the 21<sup>st</sup> century**

Five years ago sequencing and evaluating a microbial genome cost a million euros and needed one year to carry out. Today it can be done for a tenth of the outlay and in just three months. Prof. Dr. Alfred

Pühler, holder of the Chair of Genetics at Bielefeld University and coordinator of the Bielefeld GenoMik-Plus network observes: “Genome-based analysis and optimization of organisms, production processes and applications is set to become one of the prerequisites for innovative and competitive products and processes in the field of chemistry, pharmaceuticals, medicine and nutrition. The GenoMik-Plus networks have advanced the development of the technology and methods required to the extent that industry can now put them into practical application.”

The use of micro-organisms in industrial biotechnology is regarded as a key technology of the 21<sup>st</sup> century. What is increasingly becoming the “glass cell” is making it possible to quantify and use the natural metabolic activity of micro-organisms more efficiently than ever before. As a result, advances in sequencing methods and functional genome analysis can enable the genetic configuration of organisms to be revealed and compared within a very short time. This will enable the very complex ways in which micro-organisms interact with their environment to become increasingly predictable. And as a result it will be possible to develop products and intermediates based on renewable materials as well as, for example, new substances that have an antibiotic effect or that can be proven to have a positive effect on intestinal flora.

“White biotechnology” – also known as industrial biotechnology – is the term used to describe sustained, industrial manufacturing processes that are primarily based on natural, biological resources. It covers fermentative and enzymatic processes that offer both economically and ecologically promising alternatives to chemical-physical processes.

*Industrieverbund Mikrobielle Genomforschung (Dusseldorf): An association to promote science and research, in particular functional genome research into micro-organisms. The association brings together the experience gained by science and business, supports research in the area of genome research and supports the exchange of expertise and cooperation between business and science. Members of the Industrieverbund come from companies in the biotechnology, chemicals, consumer goods, foodstuffs and pharmaceuticals industries. BASF, Bayer Crop Science, Biopract, BRAIN, Degussa, Direvo, Henkel, Milupa, Schering, Südzucker and Wacker are all involved in the Industrieverbund.*