

## Press release

Phytowelt coordinates multidisciplinary Green/White biotechnology project AELMON.

Nettetal/Cologne and Düsseldorf, February 2012

The Federal Ministry of Education and Research (BMBF) of Germany has approved funding for a project of a consortium of two SMEs and two academic institutes, called AELMON. AELMON will be carried out as a corporation of DECHEMA (Frankfurt/Main), the Westphalian Wilhelm's University Muenster, Phytowelt Greentechnologies (Nettetal/Cologne) and Autodisplay, Düsseldorf. The project will create the basis for the exploitation of plant enzyme systems in industrial production.

AELMON stands for “**A**rtificial **E**lectron transfer and plant **M**ono-oxygenases as basis for innovative catalytic systems.” The scientific justification for this project is the desire for an enhanced industrial use of plant enzymes of the P450 family. These enzymes have been well known for their outstanding features for a long time, which have not been accessible for economic exploitation in industrial synthesis. “Collaboration in this project offers the opportunity to position our Autodisplay technology as a solution for the production of enzymes, which are difficult to handle, such as the P450 enzymes,” says Dr. Ruth Maas, CEO of Autodisplay Biotech.

For Phytowelt's company strategy of making the most of its extensive know-how of plant biotechnology for new, sometimes surprising fields of application, AELMON constitutes an important landmark. “The special subject of this project acts as an interface between Green and White biotechnology. It may lead to the exploitation of totally new value chains,” comments Dr. Peter Welters, CEO of Phytowelt, the project.

Within the project a special emphasis will be placed on the biosynthesis of a certain terpen, which has gained attention in cancer research due to its potent pharmacological properties. Another sub-project will investigate new methods for the synthesis of building blocks for innovative plastics with premium properties.

Particular innovation potential of AELMON lies in a novel method for the production of P450 enzymes, provided by the project partners University of Muenster and Autodisplay, and in the development of a novel biotechnological method using electro chemistry. This combination of electro chemistry and bio-catalysis is a focal point of research of the DECHEMA. Its goal is the design of sustainable production processes with P450 monooxygenases.

For the time being AELMON is planned for a duration of three years. The Kick-off meeting took place Dec. 19<sup>th</sup> 2011.

Phytowelt GreenTechnologies GmbH is a company in the newly developing area of industrial plant biotechnology (Green Chemistry and Green Energy, CleanTech Industry), which has the objective of achieving optimized use of plants for industrial production processes. Depending on the task, plants are used as raw material (recyclable material), as production organisms or as models for process innovations (bionics and synthetic biology). Phytowelt has developed the expertise - particularly for the provision of enzymes for value-increasing syntheses and genes for microbial biosyntheses - to make a rich selection of plant enzyme reactions accessible to customers in fermentation technology. We are continuously improving sustainability of production processes by conversion to renewable raw materials with innovative enzyme systems, metabolones and fermentation processes. We also work to specifically improve plants as renewable energy carriers and suppliers of renewable resources with state-of-the-art breeding technologies, e.g. marker-assisted protoplast fusion.

Autodisplay Biotech GmbH is a company commercializing its proprietary expression platform for the display of heterologous proteins or peptides on the surface of *E. coli*. This surface display system has numerous advantages compared to established surface technologies. With these advantages Autodisplay is a new platform technology in biocatalysis, drug discovery, bioanalytics and antibody development.

The DECHEMA Research Institute is a non-profit, civil law foundation located in Frankfurt am Main/Germany. Its research is focused on sustainable technologies for future industrialized societies. To this effect, the institute uses its core competences in the fields materials engineering, chemical engineering and biotechnology, which have been amassed over decades. Through intensive cooperation of scientists from various disciplines, innovative solutions are developed for application oriented problems. With approximately 80 staff members the institute predominantly conducts fundamental and pre-competitive research. These publicly funded research projects are supplemented by industrial contract research projects.

Biotechnology is considered as the key technology for the future chemical industry. Therefore, the institute pursues numerous approaches to research demonstrating the potential of industrial biotechnology for the development of new, environmentally friendly processes and products based on renewable raw materials. Various research projects focus, amongst others, on the development of biotechnological production systems for technical enzymes and fine chemicals such as flavour compounds or cosmetic and pharmaceutical substances.

The Westphalian Wilhelms University, with its Department of Plant Biotechnology under the supervision of Prof. Dr. Dirk Prüfer has the overarching goal to combine basic and applied research for the sustainable development of marketable products. A key research activity represents the development of new expression and production platforms for proteins (enzymes, antibodies, etc.), secondary metabolites (isoprenoids, flavonoids, etc.) and biopolymers (modified starch and rubber). Plants or plant cell cultures and yeasts are used in systems biotechnology approaches. One of the latest innovative development, which is of particular importance for AELMON, is the matrix-protein tag that can be used both for the expression of cytotoxic proteins and to develop metabolons for studies in and ex vivo.

For further information please contact:

Tel.: +49-(0)2162 77859

Email: [contact@phytowelt.com](mailto:contact@phytowelt.com)