Press release

Hermann von Helmholtz-Gemeinschaft Deutscher Forschungszentren

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Contests / awards, Research projects Biology, Construction / architecture, Electrical engineering, Energy, Medicine transregional, national HELMHOLTZ SPITZENFORSCHUNG FÜR GROSSE HERAUSFORDERUNGEN

Fair wind for founders: Helmholtz to fund six innovative spin-offs

Faster bone loss detection using marine chemistry, equipping cargo bikes with high-performance fuel cells, or simplifying the energy efficiency measurement of buildings – these are three of the six new business ideas selected for the Helmholtz Enterprise funding program. These spin-off projects now have up to 260,000 euros at their disposal for one year.

Spin-off companies from research are an important way to apply new technologies and findings for public benefit. This is why Helmholtz supports entrepreneurs in the field of science with a number of funding instruments, including the Helmholtz Enterprise program. Since 2005, 176 spin-offs have emerged from the Helmholtz Centers. Approximately half of them were funded by Helmholtz Enterprise. New, promising spin-offs are now ready to launch. Six spin-off projects were included in the program during the current round of calls.

Over a period of twelve months, each of the founders receive up to 260,000 euros in funding and go through a number of support programs to turn their business idea into a reality. "We use Helmholtz Enterprise to support brilliant scientists with their business ideas," says Otmar D. Wiestler, President of Helmholtz. "Their new companies are the result of years of excellent research at our Centers. Their new products and processes have high potential for innovation. For this reason, they play an important role in bringing technological progress into our daily lives. I wish them much success!" Half of the Helmholtz Enterprise funding comes from the Helmholtz President's Initiative and Networking Fund, the other half is provided by the Helmholtz Center where the basic technology of the business idea was developed.

The six projects currently being funded are:

1. Improved treatment for cancer patients (Theraselect) Helmholtz Zentrum München – German Research Center for Environmental Health (HMGU)

The Theraselect project aims to create new diagnostic and pharmacological tests to improve treatment for cancer patients. The basis for the spin-off from the Department of Analytical Pathology at the Helmholtz Zentrum München is specially developed methods in mass spectrometry imaging that make thousands of molecules visible in tissue samples. In addition to the cell structure, this makes it possible to see which molecules are present at which location. This can help drug studies to differentiate between active ingredients and their metabolic products in order to verify the success of a treatment. The method also allows specific biomarker profiles to be collected from clinical tissue samples. Based on the results, doctors would be able to make personalized treatment decisions in the future. The locally resolved detection of previously undetectable, tumor-inducing molecules could set new standards in cancer diagnostics.

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2. Fuel Cell Power Pack gives cargo bicycles more power (FCPP) German Aerospace Center (DLR), Stuttgart

The German Aerospace Center (DLR) has developed an innovative fuel cell module called the Fuel Cell Power Pack (FCPP), which makes cargo bikes fit for everyday use. It can be refueled in a matter of seconds and performs reliably even at low temperatures. It allows a greater range and twice the service life at similar costs to fully battery-powered systems. It can also be integrated into existing bicycle concepts. The application focus is on what is known as the last mile, meaning the distance between the distribution center and the customer. This is becoming increasingly important due to the rise in e-commerce. The DLR spin-off provides technology and an innovative logistics concept that is faster and more flexible than cars or vans, while also being emission-free and quiet.

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3. Storing valuable muscle stem cells (MyoPax) Max Delbrück Center for Molecular Medicine in the Helmholtz Association (MDC)

Rare muscular dystrophies destroy tissue stem cells as well as muscle. This eliminates any chance for those affected to recover through stem cell-based treatments. Intensive research on these treatments is currently underway. MyoPax is the first biobank for muscle tissue at drug level that is expected to enable patients to benefit from these treatments in the future. The founding team from the Experimental and Clinical Research Center (ECRC), a joint facility of the Max Delbrück Center for Molecular Medicine in the Helmholtz Association (MDC) and Charité – Universitätsmedizin Berlin, is working on regenerative treatments for muscle loss to cure more than 50 hereditary, previously incurable muscular diseases. They use a patented procedure to extract primary muscle stem cells from routine biopsies. The researchers can then repair genetic defects in these stem cells, multiply them as muscle cells, and regenerate tissue. The MyoPax biobank will store the processed tissue samples for patients until the procedure has been completely developed and officially approved. It is currently undergoing preclinical testing.

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4. Early detection of bone loss (Osteolabs) GEOMAR Helmholtz Center for Ocean Research Kiel

Osteoporosis or bone loss is a widespread disease that many older women suffer from. The consequences range from broken bones to complete loss of mobility. In the OSTEOLABS project, a research team from the GEOMAR Helmholtz Centre for Ocean Research Kiel and physicians from University Hospital Schleswig-Holstein are developing a non-invasive biomarker based on a marine chemistry analysis method for calcium isotopes that only requires urine or blood for the examination. The biomarker is expected to be able to detect bone loss much earlier than traditional methods and, in the case of an illness, to measure the therapeutic success, thus ensuring a personalized treatment

strategy and optimized medication. The goal of the spin-off is to offer the test as a medical device and osteoporosis screening service. OSTEOLABS has already received funding of 1.8 million euros from a validation project of the Helmholtz Association.

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5. Simulation methods for lightweight construction (Simutence)

Karlsruhe Institute of Technology (KIT)

Fiber-reinforced plastics offer excellent mechanical properties such as high material rigidity and, simultaneously, very low weight. This means they offer enormous potential for lightweight construction in vehicle structures. However, currently available software cannot accurately simulate and design the load-bearing capacity of the corresponding components or the manufacturability of production processes. The result of this is a high degree of uncertainty and high costs to develop and use fiber-reinforced plastics. Researchers at the Institute of Automotive Engineering at Karlsruhe Institute of Technology (KIT) have now significantly improved corresponding simulation methods. Through the start-up Simutence, they are offering new processes for the virtual product development of fiber-reinforced plastics as services and as additional modules for commercially available software. Based on process and structure simulations, it is possible to reliably design fiber-reinforced plastics within a virtual process chain and optimize the associated manufacturing processes and components.

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6. Rapid energy analysis of buildings and apartments (neofizient) German Aerospace Center (DLR), Cologne and Jülich

About half of the approximately 40 million apartments in Germany will have to be renovated over the next 20 years. Because of energy saving regulations and the large saving potential offered by new materials and technologies, building energy consulting will be required to plan the renovations. These consultations are time consuming and expensive since experts have to perform complex, on-site measurements. The procedure and the documentation are not standardized and are not comparable due to varying standards of quality. It is currently impossible to get a simple assessment of the energetic condition without on-site analysis by an expert. The neofizient spin-off from the Institute for Solar Research at the German Aerospace Center (DLR) offers fast, inexpensive, and standardized preparation of energy building models. The measurement using a newly developed infrared (IR) interior scanner is so simple that it can be performed by anyone. The interior scanner is based on an optical 360° camera system that combines visual and IR data. These data are used to create a 2.5 dimensional spatial model that displays energetic information such as the U-value (heat transfer coefficient), thermal bridges, and humidity.

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The Helmholtz Association contributes to solving great, pressing questions facing society, science, and business with top scientific performances in six research fields: Energy; Earth and Environment; Health; Key Technologies; Matter; and Aeronautics, Space, and Transport. With 39,000 employees at 18 Research Centers and an annual budget of over 4.5 billion euros, the Helmholtz Association is Germany's largest science organization. Its work follows the tradition of the great natural scientist Hermann von Helmholtz (1821-1894).

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