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With AI to individual patient care

How can a customized chemotherapy be found for cancer, for example? Machine learning methods can help with this and also improve patient treatment for other diseases. The start-up project aimed analytics at the University of Bonn has developed a modular analysis system that precisely groups patients on the basis of medical Big Data. The team of Dr. Kevin Baßler, Dr. Patrick Günther and Karsten Waltemathe has now received a coveted EXIST start-up grant of 130,000 euros from the German Federal Ministry for Economic Affairs and Energy for one year.

"Starting this spring, we will be able to optimize the prototype of our application and take it to the next stage of development," says Dr. Kevin Baßler, who holds a PhD in Molecular Biomedicine from the Life and Medical Sciences Institute (LIMES) at the University of Bonn. Thus aimed analytics joins the ranks of start-up projects that bring their idea from the University of Bonn into the business world via EXIST funding. The start-up coaches of the Transfer Center enaCom at the University of Bonn actively supported the team in the application process.

Similar patients - similar therapies

Many of today's chemotherapies are only effective for some patients. This is because there are many different forms of pancreatic cancer, for example. However, it is possible to read which genes are active in the tumor cells and thus determine which variant is involved. "We want to use this data from the cells to identify groups of patients who have a similar characteristics of pancreatic cancer," says Baßler, the expert on biological and medical topics at aimed analytics. Similar patients are more likely to have similar responses to certain therapies.

By breaking the concept of patient grouping down into analytic components and defining them as modules, the scientists reduce the complexity of the underlying process. The modules can be highly automated using artificial intelligence (AI) and are strung together in a modular fashion. This allows a patient grouping to be mapped quickly and flexibly for different diseases.

Dr. Kevin Baßler and Dr. Patrick Günther laid the foundations for their idea during their doctoral studies in the research group of Prof. Joachim L. Schultze at the LIMES Institute of the University of Bonn, who is mentoring the company's development during the EXIST grant. "We quickly realized that complex analyses, such as patient groupings, were very time-consuming to perform using previous approaches," reports Dr. Patrick Günther, an expert in Big Data and machine learning who holds a doctorate from the University of Bonn and the University of Melbourne.

By developing the module-based system, Dr. Günther and Dr. Baßler accelerated the grouping process through parallelization and automation. "The exciting thing about our idea is that we not only want to build a commercially profitable company, but are working to advance medical progress at the same time," says Karsten Waltemathe, a master's student in economics at the University of Bonn and the contact person for financial aspects of the startup project.

Support from the Transfer Center enaCom

The experts at the University of Bonn's Transfer Center enaCom closely support aimed analytics on the path to developing a competitive business plan and beyond. In addition, the founders have the opportunity to use premises of the Transfer Center enaCom on Brühler Straße and to exchange ideas closely with other start-ups. "aimed analytics won the enaCom prize for its more precise patient grouping at the ideas competition just this fall, and we are delighted that the team is now receiving EXIST start-up support," says enaCom head Sandra Speer.

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The founding team of aimed analytics (from left): Karsten Waltemathe, Dr. Patrick Günther and Dr. Kevin Baßler.
Photo: Sylvia Heckmair