

Expert interview

How do new active substances from university research reach patients?

Access to capital remains one of the biggest challenges in the life sciences sector. Over the last two years, the Baden-Württemberg Center for Academic Drug Discovery (BWCAD2) has successfully implemented a model of cooperation between academic drug research and industry for the development and validation of therapeutic concepts. This has been a successful practice in the USA for a long time. Dr. Barbara Jonischkeit from BIOPRO spoke with the initiator and leading figure behind the BWCAD2 project, Prof. Dr. Stefan Laufer, professor of pharmaceutical chemistry and head of the Institute of Pharmacy at the University in Tübingen, about how translation of research findings into application can succeed.

You are developing active ingredients for medicinal products in your laboratories at the University of Tübingen. But you also know the other side of industrial research. How far can you get with university resources?

With university resources, you can get much further than you think if you know and master a few principles. It is important to validate one's research results early on if you want to translate them, i.e. put them into application. The university makes a lot more possible than is commonly believed.

And that was an approach we took with TüCAD2, the Tübingen Center for Academic Drug Discovery. TüCAD2 is a platform that adheres to Tübingen University's excellence strategy and, since 2016, has been a member of a large international network, the Academic Drug Discovery Consortium (ad2c), founded in the USA and active worldwide. The aim of this consortium is to pool competences in order to discover and develop active substances in the academic environment and to translate them to patient treatment.

Validating concepts is not a university competence. How do you get around this?

There is a relatively easy solution and it's called a 'critical path analysis', which involves what is known as first-to-fail principle, i.e. you take the critical steps first and not last. This goes against standard dogma and contradicts the usual procedure in university research, where you come up with results that are usually published and then no longer scrutinised. However, if you want to translate the results to practice, you have to question them until you can no longer negate them.

However, the first-to-fail principle that is common in the industry can also be implemented very well in university research. Validation, however, cannot be published, which is why the principle has not yet become academic practice, as the latter usually involves publishing interesting results in a high-ranking journal such as Nature or Cell. As validation studies lack novelty, none of these journals will publish such studies. However, it is well known at universities that filing a patent is much less time-consuming than it used to be. And it is precisely the validation study that serves to ensure how valid the findings are, thus forming the basis for seeking a patent. However, validation work is not a prerequisite for a patent.

After you had successfully adapted the method with TüCAD2, you decided to go one step further and launch the non-Tübingen-specific aspects as BWCAD2. What is your conclusion after two years?



Prof. Dr Stefan Laufer is the initiator of the BWCAD2 project
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The TüCAD2 platform is based on validating genetic targets with pharmacological-chemical tools. This is the validation step that is not carried out anywhere else in such an academic way and is therefore the unique selling point of TüCAD2. So while discovery is specific to Tübingen, aspects such as those related to establishing start-ups are not.

The idea was to make these aspects available to all Baden-Württemberg universities within the framework of BWCAD2. The most important components are to promote the acquisition of venture capital and the establishment of start-ups. We are very grateful that this idea has received funding from the Baden-Württemberg Ministry of Economic Affairs as part of the Forum Health Region Baden-Württemberg and that BIOPRO has provided substantial support for implementing the idea from the very beginning.

Who or what inspired you to think ahead and not choose the usual university technology transfer route?

Technology transfer offices help us protect our inventions. But when it comes to accessing sources of financing, technology transfer offices are often overwhelmed and do not have the necessary structures to do so. You only come into contact with venture capital when you have founded your own company. With the BWCAD2 project, I wanted to spare others the negative experiences I had with my two spin-offs and make these experiences widely accessible.

Did working in industry help you have a view that was different from the purely university-based one on these issues?

I worked in industry for ten years and ended up in the management team of a medium-sized pharmaceutical company. That is where I learned that validation and translation were top priority. In industry, everything is validated two or three times before you put more money into development. My experience in industry did not teach me much about how to acquire venture capital but it provided me with knowledge about how to manage a European platform of medium-sized pharmaceutical companies, i.e. the former Euro Alliance.

What is your conclusion after two years of BWCAD2? What are the most important ‘ingredients’ to develop a recipe for success?

BWCAD2 got off to a somewhat bumpy start due to the coronavirus pandemic. We wanted to have personal coaching, which was impossible during the pandemic. We therefore had to adapt the concept to a virtual world, which was made possible

thanks to the flexibility of the Ministry of Economic Affairs and the support of BIOPRO.

On our first pitch day, 16 venture capital companies joined us to evaluate the eight pitches. I think pitches of this kind are an excellent start-up aid for company founders. Normally, you have to go from door to door to land a few pitch appointments, and that's with each VC individually. With BWCAD2, we succeeded in bringing several VCs to the founders, something that had only rarely happened before in Baden-Württemberg.

What happens next?

In the project funded by the Ministry of Economic Affairs within the framework of the Forum Health Region Baden-Württemberg the focus was on conducting two pitches. Despite the adverse pandemic-related circumstances, we were nevertheless able to organise them. That said, organising pitch days on a large scale is not what academics usually do. Our goal was to show that it is possible to translate academic drug development projects into patient treatment and to create a blueprint for this. I am therefore grateful to BIOPRO for continuing to support the project and for keeping the name BWCAD2. I will continue to accompany the project to the best of my ability, but the responsibility will now be handed over to others. This helps to ensure there is no loss of knowledge and is important in terms of continuity.

Article

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