



Bert Klebl, CEO of the Lead Discovery Center in Dortmund.

“The LDC bridges the valley of death”

Founded in 2008, the **Lead Discovery Center (LDC)** closes the funding gap between basic research and drug development. In this interview, CEO **Bert Klebl** describes the close cooperation with scientists and the LDC's role-model function.

TEXT **TOBIAS HERRMANN**

Mr. Klebl, the Max Planck Society concentrates on basic research. How does a drug discovery organization such as the LDC fit with this?

Bert Klebl: For me there's no contradiction. Of course, the first goal of basic research is to create new knowledge and expand on what we already know. But this often generates results with a practical application. If researchers discover a molecule that seems medically relevant, for example, they should definitely pursue this idea. The substance could turn out to be a cure for a fatal disease. And this is where the LDC comes in.

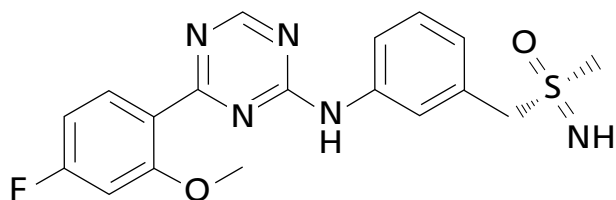
How does your collaboration with the research scientists work exactly?

Usually it's the scientists who get in touch with us. The LDC was founded 12 years ago and by now we are well known at all the institutes in the biology and medicine section, as well as in the chemistry, physics and technology section. Our members of staff immerse themselves in the topic, talk

to experts and have the scientists explain their hypothesis. Then we bring in our drug development expertise and examine whether or not the project can be realized. Once this hurdle has been cleared, we sit down with the researcher and write up their idea and all the drug-relevant information in an investment proposal. This sets out verifiable milestones and states the aim of the project. A committee on which staff from Max Planck Innovation and investment fund participants are equally represented then decides if and how the project is to be supported financially.

What is the aim of the project usually given by the researchers? In other words – up to which stage do you accompany the project?

Basically we accompany the drug development from the initial idea up to "proof of concept." If the molecule has proven its worth in an animal model, we consider our job done, and license the product together with the appropriate patents to a pharma company. >



The chemical formula of Atuveciclib. This molecule, a member of the class of so-called CDK inhibitors, is currently in a Phase I study and is therefore the most advanced LDC project. It has been developed together with Bayer since 2011 and could be used in cancer therapy.

Why do companies get on board so late? Couldn't a scientist with a promising idea start cooperating with a biotech company at an earlier stage?

I'm afraid they wouldn't have much luck. With a few exceptions, there are hardly any biotech or pharma companies still actively engaged in research in the transition area from basic research to early drug discovery. Most biotech companies have long since become service providers, as this is considerably more lucrative in the short run, and pharma concerns concentrate on later developmental phases. The wheels in drug development turn slowly. It can often take 4 or 5 years for an initial idea to become a finished product for "proof of concept", which will ideally be ready for clinical testing 2 or 3 years after that. Companies get on board later, when the value chain is shorter and the perceived entrepreneurial risk is not so great.

The probability that an idea proves to be a failure is therefore greatest early on.

At the LDC, how often does an idea lead to a start-up?

We have undertaken around 80 projects since 2008. Nearly half of these have yet to be completed, so we can't yet say if they're going to be successful. From the remaining 40 projects that have already been completed, we have generated licenses, joint development programs with biotech and pharma companies and/or start-ups. All in all, we have successfully completed 19 projects, giving a success rate of about 50 percent. Of course we have had our failures – these are unavoidable in drug development. As soon as it becomes clear that the original hypothesis can't be fulfilled, we have to respond accordingly.

By ditching the project?

Not necessarily. When one door closes, another sometimes opens. For example, we

were investigating a mechanism involved in a metabolic disease at the LDC, and developed a drug candidate for it. But the project hit a dead end. During our experiments, however, we noticed that this mechanism plays a much greater role in neurodegenerative disorders. So we revised the hypothesis, came up with another strategy, and followed this new approach. Pharma concerns don't usually have this degree of flexibility because their therapeutic focus is often very narrow and they are under greater pressure to generate money.

Apropos money: how is the LDC financed?

In the first ten years, many projects from the Max Planck Society were financed within a cooperation framework: the Society provided EUR 6 million per annum for project-related activities at the LDC until the middle of 2018, with a total turnover of just over EUR 11 million that same year. This sum for project financing has now been reduced to EUR 3 million per annum. However a new, fund-like structure provides a further stable source of financing. This KHAN-I fund delivers EUR 3 million in reciprocal financing per annum, in addition to completely new drug research approaches, so that we still have EUR 6 million available for project ideas from the Max Planck Society. In addition we have always created other sources of income at the LDC. These include grant funding, collaboration contracts with industry, and licensing revenues.

Does money also flow back to the Max Planck Society?

Yes, it's a very dynamic system. The licensing agreements with our cooperation partners stipulate payments coupled to particular milestones. And as soon as a product is launched on the market, the Max Planck Society and the LDC receive a percentage share of revenue. The latter is a relatively new phenomenon for us – due to the long lead times in drug development, we are only just beginning to see the fruits of our labor.

LEAD DISCOVERY CENTER (LDC)

The Lead Discovery Center (LDC) was founded in 2008 as a spin-off of Max Planck Innovation. The aim of the organization, which is based at the BioMedizinZentrum in Dortmund, is to translate research projects into novel drugs, developing them for the market. Scientists in basic research are supported by an interdisciplinary team of around 80 molecular biologists, pharmacologists and project managers. To date, 20 patents have been registered and 20 projects partnered.

Do you work exclusively on Max Planck projects?

Up until 2018, most original ideas came from the Max Planck Institutes. In future, as a result of the new fund-like structure, the portfolio will grow synergistically. Apart from the Max Planck Foundation, the investors in the KHAN-I fund include the promotional bank of the Austrian federal government – and in return they naturally expect support for Austrian research projects. In addition, because we receive fun-

ding from various other sources, we have always pursued third-party projects. But to be perfectly clear: our focus will definitely remain on the Max Planck Institutes.

When the LDC was founded in 2008, there were 30 members of staff. Now there are 80. Do you want to expand further? And do you have the space?

In view of our steadily rising turnover, we expect to hit the 100 staff mark within the next few years. And yes, it's getting a bit

cramped, but we can upgrade. The Bio-MedizinZentrum in Dortmund where we are based is continually being expanded, and a new building is planned there for the end of 2021. We certainly want to continue on our current road to success. >

Many processes at the LDC are automated. This analyzer can measure the binding of small molecules to proteins with a high degree of sensitivity.



Photo: Lead Discovery Center



Pipetting robots can transfer a large number of minute liquid portions at once.

And then there's your Munich branch...

Correct. In 2016 we opened a branch in Munich – in Planegg, to be precise – which specializes in the development of therapeutic antibodies. LDC Biologics is situated at the heart of the Munich biotech cluster, which is considered the center of German drug research. We will also be expanding at this location in the years to come.

Is this enough to cope with the increasing demand?

Our growth is not limitless. We are already in a position to initiate more projects than our capacity allows. I would be delighted if more institutes follow the LDC's example. The demand is certainly there, and pharmaceutical basic research everywhere is just waiting to be transferred into applications. The Max Planck Society recognized this need early on, and created the LDC as an effective instrument to bridge the "valley of death" – i.e. the usual funding gap between basic research and commercial application.

Do you miss having state support?

In my opinion, the LDC fulfills a kind of political mandate. There is huge political pressure for sustainable start-ups and spin-offs. I believe we can adequately fulfill this requirement – our success rate to date speaks for itself. As far as I know, the federal government is currently planning a translation fund. This would be a good first step that we at the LDC would certainly welcome. Otherwise, I can only appeal to every decision maker to follow our lead. We at the LDC would be happy to advise!

Photo: Lead Discovery Center

SMOTHERING CANCER CELLS IN REFUSE

In mid-January 2020, a joint venture between the LDC, the South Korean pharma company Qurient and Nobel Prize winner Robert Huber founded QLi5 Therapeutics – the most recent success story at the LDC. Robert Huber is the originator of the idea, and his research forms the basis for the project. Specifically, QLi5 is engaged in the search for proteasome inhibitors. These prevent cells from breaking down proteins that are no longer required. Cells are "smothered" by the accumulated protein "refuse" and die. In this way, cancer cells can be effectively destroyed.

Huber, now Director Emeritus at the Max Planck Institute of Biochemistry, has been pursuing this therapeutic approach with the support of the LDC for some time. A few years ago, Merck came on board as strategic partner, although the Darmstadt company does not hold shares in QLi5. Instead, the Seoul-based biotech company Qurient is cooperation partner and primary investor. "The fact that QLi5 Headquarters are nevertheless in Dortmund, shows the high level of trust that Qurient has in the LDC," says Robert Huber. "The LDC has truly deserved this trust, as Qurient's success is based primarily on two LDC-supported products." It is therefore logical that the South Koreans want to extend their cooperation with the LDC. A further indication of the close collaboration is the appointment of Michael Hamacher, who has worked at the LDC since 2008, as the CEO of QLi5.

WE INVEST IN PEOPLE.

VENTURE CAPITAL FOR HIGH-TECH FOUNDERS.
MADE IN GERMANY.

50 YEARS OF
MAX-PLANCK-INNOVATION
CONGRATULATIONS
& THANK YOU!
FOR THE GOOD COOPERATION

- +++ The High-Tech Gründerfonds is THE seed investor for innovative technologies and business models.
- +++ We successfully support the best founders, whose ideas can revolutionize entire industries and improve people's lives.
- +++ From the foundation to the exit.



Our fund investors

