Rentschler places formulation on biopharmaceuticals production agenda with LEUKOCARE alliance

On February 2, 2017, Rentschler Biotechnologie and LEUKOCARE announced a strategic alliance in which LEUKOCARE will become the exclusive formulation developer for the Laupheim-based contract manufacturer. Rentschler will acquire a 10% stake in LEUKOCARE, a biotech company established in 2003 and headquartered in Martinsried. On behalf of BIOPRO, Walter Pytlik spoke with the two CEOs, Rentschler's Dr. Frank Mathias and LEUKOCARE's Michael Scholl about the alliance.

Working on improving drug formulation: Dr. Frank Mathias, CEO of Rentschler Biotechnologie (left), and Michael Scholl, CEO of LEUKOCARE.

In your press release, it says that both companies hope to "elevate the role of formulation strategy on the biopharmaceutical industry's agenda". Is there any other reason for doing so, besides your strategic alliance? Is there significant potential for improvement in terms of the development and production of biopharmaceuticals?

Mathias: Yes. We are convinced that formulation, and above all, marketable formulations, are topics that feature quite low down on manufacturers' and pharmaceutical companies' lists of important concerns. Our pipeline shows us that many proteins and antibodies would benefit from better formulation. This is why we have chosen to put formulation on our agenda. We wanted to do this together with LEUKOCARE because we were of the opinion that they had a suitable state-of-the-art platform for solving this problem. And so we signed a cooperation agreement.

What can your technology do that others cannot? Does it have a unique selling point?

Scholl: Our technology addresses the issue of formulation and takes it to a new level. It does not just generate an incremental increase in stability and protection of the proteins' molecular structure, but is in fact able to considerably improve the stability of a product. Formulations that could previously only be stored in frozen form, i.e. as lyophilisates, can now be turned into liquid formulations that can be stored at a temperature of five degrees or even at room temperature. We are therefore not only improving existing formulations with our platform, but we can also achieve a significant improvement in stability. We can therefore also influence product properties.

Is your formulation technology limited to certain biologicals?

Scholl: No, it isn't. Our alliance with Rentschler targets all biopharmaceutical molecules produced in mammalian cells.

How does your technology work?

Scholl: We use excipients that support the three-dimensional structure of proteins, either in dry form by creating a protective layer around the molecule, or in liquid form, which involves stabilising the hydrate shell of a protein. We do not modify the molecule. Quite the contrary. We support the protein's natural, native three-dimensional structure.

Can you give me any figures to illustrate the competitive advantage that can be achieved with your technology?

LEUKOCARE aims to use its patented formulation technology to improve the stability and protection of biopharmaceuticals
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Scholl: That is a good question. To be honest, we do not yet have an accurate and convincing answer to this, I am afraid. This is partly due to the fact that no application is standard. For example, our technology can prolong the shelf life of a compound from 12 months to around 24 months, but it can also be used to turn a compound that previously had to be lyophilised into a liquid formulation. The technology has two advantages: it makes production simpler and cheaper, and more importantly, it improves medical compliance for doctors. We will be working with Rentschler to devise business cases in order to be able to provide this kind of information.

Can you tell me more about what you mean by "will result in value creation for our clients and help doctors and patients" (see press release)?

Mathias: This refers to the dosage form that a pharmaceutical company ultimately provides to the patient or the doctor, drugs that are resistant to higher temperatures and have a longer shelf life, all this creates greater value in daily use. Lyophilisates have to be thawed or warmed up and taken immediately. This is no longer necessary. These are just a few of many benefits.

Let's look at your client portfolio. The development and production of biosimilars is considered particularly challenging. Will the application of your partner's formulation technology make this venture easier?

Mathias: We are hoping that we will be able to stand out from other CDMOs[1] by showing our clients along the entire value creation chain that we will remain innovative. Our goal is to be at the forefront of developments. We are covering a specific value chain, all the way from cell development to when the finished product goes into the vial. Wherever we can bring in production advantages, in our case formulation advantages, it will be an innovative step forward.

Where will formulation development be carried out, in Laupheim or Martinsried?

Mathias: This will be done in Martinsried.

Where will the new technology be used?

Mathias: Let me say the following first. Many customers underestimate this issue. On frequent trips with clients I hear statements like, "Oh, we completely forgot to deal with formulation. Had we done so, we would not have so many problems now". We will now offer our formulation services to all our clients. I am sure that once clients realise that formulation has many benefits, they will have an intrinsic interest in using the new formulation technology.

The formulation of biopharmaceuticals has so far been an in-house process, right?

Mathias: Yes, that is what all CDMOs do. It is standard practice. We know our profession well, and what we do, we do very well. But now, we are talking about a completely different dimension.

How will the freed potential be used? Will you cut jobs in this area?

Mathias: No, we will not cut jobs, we will keep all our employees. We will simply transfer them to other projects. We have a lot to do in terms of development. Our employees are extremely positive about this.

Why Rentschler?

Scholl: I believe that alliances like these are very much driven by people. I have known Frank Mathias for quite a while before he became CEO at Rentschler. [ed. note: Mathias was CEO at Medigene from 2009 to March 2016; Medigene is also located in Martinsried.] This is how we ended up developing the concept together. With Rentschler, we have found a very good type of cooperation. The relatively close spatial proximity of the two companies is a definitive advantage for this alliance.

Rentschler has a 10% stake in your company. Does this give you a greater financial stability?

Scholl: Yes it does. Not that we were financially unstable before. But the alliance will accelerate our growth, and also contribute to the transformation of our organisation. Rentschler's shares in LEUKOCARE will also give us the financial backbone that we need to be able to grow.

Why did you choose to enter into a strategic alliance with a small biotech company, rather than acquiring a license for the company's formulation technology?

Mathias: We believe that an alliance gives us greater strength. We want to work together in the long term. We are not interested in purchasing individual licenses for individual clients. What we want to do is to integrate the technology into our value chain.

What concrete competitive advantages does Rentschler expect from this close cooperation?

Mathias: I think we are known as a very innovative CDMO, one that dares to enter a field that is still underdeveloped and will perhaps bring production forward. This particular issue will become increasingly important in coming years.

So this alliance is sending a signal to the biopharmaceutical community?

Mathias: Yes, I hope so, specifically in the sense that a company can benefit enormously from dealing with pharmaceutical formulation at a very early stage of clinical drug development. Many companies enter phase I and II with a suboptimal formulation. When phase III, and hence market launch, is not far off, they find out that the planned formulation is not good enough. By the way, this also happens with products that are already on the market. You can save a lot of time and money when you start with the formulation process at a very early stage, enabling you to keep to the time schedule. LEUKOCARE can develop a best-in-class formulation in the same amount of time that it takes to develop a standard formulation. A marketable formulation is then ready when the product is placed on the market. This also increases the value of a product for a biotech company, and therefore also for a big pharmaceutical company that is interested in the biotech or its product.

You have not said anything about the price tag of the alliance. Can you give us a rough idea?

Mathias: Our shares in the biotech lie in the mid-single-digit million range.

Further information:

Formulation is the most important step in turning a bioactive molecule into a medicine. The process ensures that an oral medication is suitable for oral delivery, has favourable pharmacokinetics in the human body, has high enough chemical and physical stability and hence shelf life, and that the final medicinal product meets all the criteria for an effective drug for human use, both from a medical and regulatory perspective. Research concentrates in particular on formulations that improve the transport of the drug to the intended site of action in the human body in order to reduce the dose required for the drug to be effective.

1 CDMO: Contract Development and Manufacturing Organisation