

NOVEL DRUG TARGET IDENTIFICATION BASED ON GENETICS WITHIN PSYCHIATRY



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Michael Didriksen PhD Senior Director - Schizophrenia/Psychosis Biology Lead at Lundbeck A/S. Michael Didriksen holds a position as Senior Director - Schizophrenia/Psychosis Biology Lead at Lundbeck A/S. In this position, he is leading and coordinating preclinical research projects and bridging preclinical and clinical research within schizophrenia and psychosis in Lundbeck. Michael Didriksen has been/are member of several international consortia's, and have chaired national and international research projects including the IMI project NEWMEDS the H2020 project COSYN, the COST project MINDDDS and the project "BrainSeq" a precompetitive consortium for brain genomics". Michael Didriksen joined Lundbeck in 1994. During his time at Lundbeck he has held various positions as line and project manager in research and been member of late stage development project teams and strategic boards. Michael Didriksen obtained his MSc degree and PhD in Psychopharmacology from the Royal Danish School of Pharmacy. In 2006 - 2007 he was visiting scientist in Prof. Marc Caron lab at Duke University.

What innovations in genetics have played a key role in advancing drug development?

At Lundbeck, we have used the identification of the copy number variants, i.e. high penetrant variants, to develop a research platform where we have been able to identify novel drug targets. The novel findings of a broad range of common genetic variants are also important. However, getting from identification of low risk variants to understanding disease biology will take some time.

What are the underlying benefits of using genetics to inform drug development?

My focus is psychiatry. There has been a huge gap in understanding the disease biology in psychiatry. Genetics have helped us in developing the right disease models, in animals and in vitro assays. We are getting much closer to understanding the underlying disease biology.

Do you use NGS and single cell technologies in your research?

Yes, we do; we don't do it in-house, but we are using companies for that. This is something we do on a regular basis.

What would you say are the key priorities of the industry in this area?

The key priority is really to bring the genetics into a biological understanding. This is key for us as a company, because we are making drugs, and drugs are treating biology. If we don't translate the genetics into function, then it's useless.

What would you say are the main challenges of drug development?

It's identifying the right patient for the right drugs. In my area, schizophrenia, we are not dealing with a homogeneous disease. Patients are very different and it's likely they are having different diseases, i.e. biological dysfunctions. We need to understand what the difference is between individuals.

Would you say that's the next step in the field?

That's one of the next steps - biomarker identification, for which you can use genetics, but you can also use a lot of other biomarkers, e.g. blood biomarkers, imaging and EEG. This whole area within biomarkers is exploding right now.

What would you say are the top three takeaways that you hope delegates will take from your presentation?

The main take home is that we have succeeded in identifying novel drug targets based on genetics within psychiatry. There's not that many companies that have compounds in discovery within psychiatry, based on genetic findings. The other important point for us and for my presentation is that genetics have allowed us to make animal models and in vitro assays with construct validity, so we are much closer to the actual disease biology, compared to where we were before, when using chemical substances to mimic psychotic-like behavior in rats.

Are there any topics or key talks that you've been to or hoping to attend that really stood out for you from the agenda?

There's a lot of new technologies that you learn about. It's very hard to stay on top of all the new developments on a regular basis, e.g. during your workday. That is why it's great to attend a meeting where presentations on these are brought together. You can get all of that information in two days.

Would that relate to your main purpose for attending the congress?

I can brush up on what is going on, in terms of development of technologies. Of course, there's also some scientific presentations, but I would say the major part of the presentations here are not focusing on actual biology science, but rather on technology science. Another important aspect is also to meet people, of course.