Success through cooperation

Anders Ekblom, head of science and integration at AstraZeneca, explains that the future of drug discovery lies in 'predictive innovation'.

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In January, the pharmaceutical firm AstraZeneca, headquartered in London, announced the formation of a Science and Technology Integration Office to coordinate precompetitive collaborations and public–private partnerships. *Nature* talked to Anders Ekblom, the company's former head of Global Medicines Development who will be leading the integration office, about the need for open innovation, the state of 'predictive science' and the future of pharmaceutical research and development (R&D).

J. Harkonen/AstraZeneca

Anders Ekblom

What is the Science and Technology Integration Office?
There are two activities that we would like to focus on. The first is our involvement in large public–private partnerships, such as the US Food and Drug Administration's (FDA) Critical Path Initiative and the European Union's (EU) Innovative Medicines Initiative. We have a number of very significant collaborations like these. It is all about being more focused and more aligned as a company towards them.

The second part is for us to work in a much more precompetitive and open innovation space than we have done before. Historically, pharmaceutical companies have competed when we didn't need to compete. Let's say we are five companies interested in delivering drugs for Alzheimer's disease and we all need an established biomarker [that reflects the status of a disease]. Why wouldn't we collaborate in developing a biomarker that all of us would use?

People in industry often refer to 'consortium fatigue'. Are there any new public–private partnerships that you'd like to see?
I think we have to focus our energy on a couple of large initiatives with large partners. Having too many partnerships doesn't make anyone happy. But the antibiotic field with its issue of antibiotic resistance could be an example of a very important area going forward. It is a challenge that affects the whole world.

Some in industry have expressed a desire for precompetitive collaborations that sort through the thousands of early leads that emerge from technologies such as genome-wide association studies. Would you like to see more collaboration in this?
If you go back a number of years and think about all the companies based on technology platforms that generated tons of potential targets for drug development or understanding disease, very little of that matured into something useful. Perhaps there needs to be a smarter approach to what we will do with all of these data. But at this stage, it is hard to stay whether that would be more important than some other area. Bioinformatics is going to be a field in which I'm sure there will be collaborations, but I'm not sure that just coming up with another 5,000 targets without any thought behind it would be helpful to anyone.

The Innovative Medicines Initiative aims to stimulate drug development in the EU, but some academics have complained about intellectual-property issues (see 'Universities shun Europe's drug initiative'). How has the experience been for industry?
AstraZeneca has been one of the largest participants in the Innovative Medicines Initiative. One challenge from our side has been engaging our global organization. Research and development at large pharmaceutical companies is global, and sometimes you need to use people in places other than Europe. This has been a challenge, and we and others would like to see more rule changes to make it simpler for us to operate. That is being discussed now as the European Commission is coming out with views on Horizon 2020 [the EU's next multi-year research funding plan].

How has AstraZeneca's relationship with the FDA's Critical Path Initiative been?
It has been pretty good. To me, the crucial part in all of these initiatives is to get data that will change the way in which we operate. I

think there are good in-roads, for example, in initiatives in which industry pools data from control groups of a certain disease and makes them available to researchers. So there are good examples of where it happens, it is just a matter of doing more of it.

You've been with the company since 1993, and were most recently head of Global Medicines Development during a period of heavy R&D restructuring. Will there continue to be major changes?
The pharmaceutical industry is still facing significant challenges. Wherever you look, people are trying to gear up in various ways and that is going to continue for quite some time. We haven't cracked predictive innovation, which is a big challenge.

What is 'predictive innovation'?
The billion-dollar question is 'how early can I know that the approach I'm taking will definitely turn into a drug that delivers exactly what I would like to see?' A lot of the cost in today's drug development is the cost of failures. We are all trying to focus our energy on how we can get different technologies to better predict outcomes.

From where might those technologies come?
You need several different technologies and you need to use them in an integrated way. There are more and more biomarkers in play, for example, but what we really need is to turn biomarkers into predictive, validated surrogate markers — such as blood pressure — that predict with high certainty the outcome when you do the full trial.

What would it take to generate more validated surrogate markers?
Sometimes the important role that clinical research has in this is forgotten. And if you go to different countries around the world, you can see that the time and resources for clinicians to do crucial research are often diminishing. I think it is important for societies to provide the right infrastructure and resources for clinical research, so clinicians can also be part of finding out more about diseases, classifying them and understanding which markers predict efficacy and safety.

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