PEPTIDE THERAPEUTICS IN DRUG DISCOVERY

ALEX BATCHELOR, CEO, **Orbit Discovery**

Alex has more than 20 years' experience of sales, marketing and business development in the life science research and drug discovery markets in Europe, US and Asia. He is an experienced bridge between technical and commercial groups, having started his career in research for the UK Ministry of Defence before moving into industry where he has managed staged R&D processes, implemented IP strategies and launched many successful products and services at companies including Lonza and Genalyte. Alex holds a BA in Pure and Applied Biology from Brasenose College, Oxford.

What are the main advantages of peptide therapeutics in drug discovery?

Peptides have some of the more advantageous attributes of both small molecules and biologics. They have extremely good specificity which you generally associate with biologics and relatively safe degradation products; at the same time, they are small. Therefore, we can observe better tissue penetration, and so address a broad range of targets.

Could you explain next generation display?

What we mean by next generation display is presenting enormous libraries of peptides to drug targets and identifying peptides from within those libraries that have a biological function. We call that next generation because showing function is a step on from other display platforms, which simply find things that bind.

What are the challenges that you face when using next generation display?

The biggest challenge we have is identifying relevant phenotypic assays to distinguish between peptides that have target engagement and those that don't. We have an ongoing effort to optimize our assays and come up with faster and better reporting systems to enable us to identify a good hit from a less good hit.

What are the next steps for your company's work in this field?

There are two main areas; the big picture is around addressing as many different target types as possible. For the minute we mainly focus on soluble proteins, GPCRs and T cell receptors. We'd like to broaden that out into other targets, for example, ultimately, ion channels. The other is around designing better libraries. We can make random libraries and they can become bigger. However, that's not anywhere near as smart as designing structured libraries which consider the target structure in the first instance.

What are the top three takeaways from your presentation?

Number one is that peptides are relevant to targets associated with some of the big growing chronic disease areas. The second is that almost all peptide drugs on the market have come from a naturally occurring peptide; where there is no naturally occurring peptides, you must go to discovery platforms like ours to identify them. Finally, if you screen for a molecule and you look for function, you put yourself ahead of something that just screens and looks for binding.

What are you most looking to get out of attending events like this one?

Your events are generally good in that there's a diverse agenda. I find it useful for keeping up with all kinds of different aspects of drug discovery. It is not too focused but at a relatively broad and up-to-date level. The diversity of the talks is attractive.

What do you think are the most important technologies impacting drug discovery?

AI, machine learning/informatics is obviously coming up very quickly. At the moment, we use it a bit; we should probably use it a lot more. It seems to be very powerful.

What do you think are the biggest recent innovations in the area?

Probably CRISPR, for making better cell models.

What are the main challenges that researchers face when developing strategies for drug discovery?

I think there's a tension between the desire to find novel targets, and the desire to screen well-validated targets, because you can't have both. That will continue. Perhaps a way of addressing that is to be able to come up with tool compounds that enable us to validate novel targets in a quicker way.

What do you think the future of drug discovery research will be?

Probably something around more relevant biology; screening in human systems or human cell-based systems as far as possible, so that you have a better prediction of what happens when you go to Man.