

Interview - Exscientia takes single molecules to multiple pathways in diabetes



[Jonathan Gardner](#)

Innovation in diabetes seems to have reached a plateau, with recently launched drugs focusing on combinations and quick- or extended-action formulations. Sanofi's recent collaboration with private UK group Exscientia is taking drug discovery in a different direction – identifying bispecific small molecules that could work on multiple novel and known pathways.

The collaborators are taking the view that diabetes is not a standalone disorder, with accompanying conditions such as heart disease or obesity offering an opportunity to target mechanisms that work in conjunction with blood-sugar modulation. “We wanted to think about the next generation of diabetes treatment, not just about new pathways – but not just doing fixed dose combinations, and using a single molecule,” Exscientia's chief executive Andrew Hopkins tells *EP Vantage*.

Finding faster

The deal, valued at a total of €250m (\$280m), will see Exscientia identifying potential candidate molecules based on chemical compatibility and biological relevance, with research funding provided by Sanofi. The pharma giant will conduct assays, preclinical experiments and clinical trials upon exercise of a licence option on specific molecules.

Exscientia says its artificial intelligence-driven drug discovery platform allows for candidate generation in roughly a quarter of the time of traditional approaches. That will come in handy for Sanofi, for which 2017 will be the last year at the top of the diabetes heap as its long-acting insulin Lantus succumbs to generic competition.

The French group has sought to remain a player, in-licensing agents from Lexicon and Hanmi, though with the exception of a type 1 diabetes vaccine most of its collaborations have involved candidates in classes with well-established competition.

Thus the Exscientia deal represents a strategic shift of sorts, embracing small molecules and novel approaches to treating the condition, and taking a broader view that diabetes is one of a “cluster of morbidities”, Mr Hopkins says.

“This potentially opens up ways of segmenting the market and coming up with medicine for these potential comorbidity options,” he says. “It fits into the emergent thinking within both companies.”

Obesity and non-alcoholic steatohepatitis are two comorbidities Mr Hopkins names, but of course cardiovascular and kidney disease, chronic obstructive pulmonary disease and retinopathy are all complications of diabetes.

As for targets, some may be novel and some well-known, he says: “For some of the innovative targets that have come along and potentially have not shown as much efficacy as one would like, bootstrapping them with a validated target is an approach.”

Immuno-oncology

Sanofi is the first big pharma name to show interest in Exscientia's work, but it is not the private group's first collaboration. Exscientia already handed over to Sumitomo Dainippon Pharma one bispecific molecule that selectively activates two G protein-coupled receptors from two distinct families in central nervous system disorders.

And it is working with Evotec on bispecific small molecules focusing on cancer-related adenosine targets with a role in immuno-oncology. At the AACR meeting in April, the partners presented early data on an agent that can antagonise adenosine 2A and CD73.

In oncology, Mr Hopkins believes that small molecule bispecifics might offer a cost-effective alternative to, for example, checkpoint inhibition antibodies used in combination with chemotherapies or other treatment

approaches, or emerging cell and gene-based therapies.

Exscientia is now owned by its founders and staff, and has funded expansion through its collaborations, which has also allowed it to measure the productivity of the drug discovery platform. Future expansions, of course, are likely to involve outside investors, although Mr Hopkins declines to give details about when strategic decisions will be made.

Being in the sweet spot of immuno-oncology gives Exscientia a good chance of getting investors to listen to its story. A big pharma partner in Sanofi cannot hurt either. Delivering a couple more clinical candidates quickly to validate the speed of its discovery platform will make Exscientia hard for investors to ignore.

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