

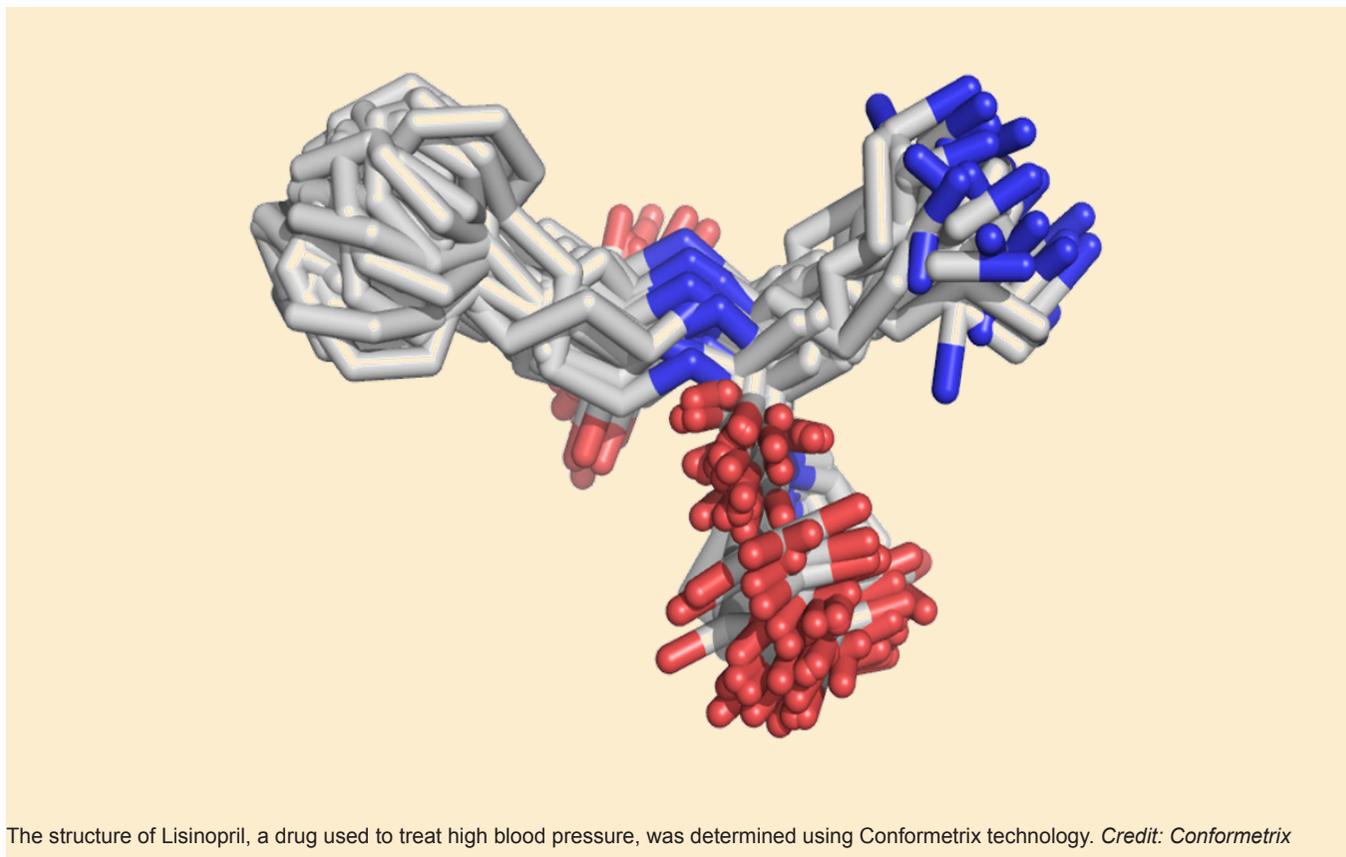
Conformetrix

Spin-out company Conformetrix, created by a University of Manchester researcher with funding from BBSRC, is helping pharmaceutical companies speed up their drug discovery pipeline and identify potential new drugs.

Drug discovery is expensive and time-consuming. For instance, it can take up to 15 years to develop a new drug¹, and the Office of National Statistics found that in 2009 the UK pharmaceuticals industry spent £4.4Bn on research and development alone². The platform technology developed by former BBSRC David Phillips Fellow Dr Andrew Almond³ and Dr Charles Blundell, the research assistant on Almond's fellowship grant, is making the process of drug discovery faster, more accurate and, as a result, cheaper.

Almond's company, Conformetrix⁴, has recently signed a research collaboration agreement with global pharmaceutical company AstraZeneca to use Almond's technology across their pre-clinical drug discovery programme⁵. Conformetrix has also worked with other pharmaceutical companies from around the world.

To generate new drugs, pharmaceutical companies begin by looking for small molecules that fit a biological target, often screening thousands of molecules to find a good fit. By understanding the structure of the molecules, researchers can better



understand how they will interact with the drug targets, leading to more targeted drug development. Until recently, however, it has been difficult and time-consuming to do so.

“Surprisingly, there’s very little technology available for looking at the shape of small molecules like drugs,” says Almond. Unlike proteins, these small molecules can’t easily be crystallised; usually a prerequisite for determining molecular structure.

To overcome this, the Conformetrix technology collects and uses Nuclear Magnetic Resonance (NMR) data in a novel way to study small molecules in solution.

“People have used primitive NMR... but we use about 10 to 100 times more data than traditional approaches,” explains Almond. “It’s mining data in a really new way that gets huge amounts of data out and allows you to get really accurate shape information,” he adds. “It’s vastly more accurate.”

The development of the technology into a commercial product was supported throughout by several complementary BBSRC funding mechanisms, beginning with a David Phillips Fellowship. Almond used the fellowship to investigate a small molecule called hyaluronan. “Towards the end of the fellowship we made a discovery in the lab that we realised could be used for looking at drug molecule shapes. We realised that was going to have a big impact on the pharma industry,” says Almond.

By the end of the David Phillips fellowship, Almond had patented the process, produced analytical software and established Conformetrix to develop and market it to pharmaceutical companies. This was followed by two Follow-on Funding grants to refine the technology, and an Enterprise Fellowship.

The Enterprise Fellowship allowed Almond the time

to commercialise the technology. “The main idea of the Enterprise Fellowship was to look at the commercial angle, to think about the best way to commercialise the technology, and also to get it ready for investment. At the end of the Enterprise Fellowship I’d managed to raise venture capital funding to get the company off the ground.”

Notes and references

1. See: <http://www.ons.gov.uk/ons/rel/rdit1/bus-ent-res-and-dev/2009-edition/business-enterprise-research-and-development.pdf>
2. See: <http://www.manchester.ac.uk/research/andrew.almond/research>
3. See: <http://www.conformetrix.com>
4. See: <http://www.conformetrix.com/news/press-releases/conformetrix-astrazenica-collaborate.html>