

Inologic: inomics in action

The cell has it all figured out, Ed Field, president and director of Seattle, WA-based Inologic Inc, tells *BVW*. The best way to create active intracellular drugs with good safety profiles is to mimic nature. This is what Inologic is aiming to do, under the label of inomics.

Inomics is the study of inositols – sugar-like molecules, important for intracellular signalling. “Inositol signalling molecules have been overlooked in terms of their importance in regulating cell communication events and pathways,” says Field. Knowledge of the biological function of these molecules has only come to light in the past four or five years. “Our belief is that these molecules are going to play an important role in a lot of different diseases pathways.”

Inologic is as new as the research area. The company was incorporated in 1996 although lab work didn't begin until 1998, and Field was only brought in earlier this year. “It's been in the last six months that we've put a team together to move the research into a more drug discovery and development phase.”

... spreading the word

Inologic's founder is Dr Alexis Traynor-Kaplan, now the company's CSO, who “identified the second inositol signalling molecule ever discovered”, according to Field. Dr Traynor-Kaplan licensed the inositol technology from the University of California, San Diego, where she was based, and moved to Seattle to set up a lab, and a company, dedicated to inomics. Inologic has received funds from its founders as well as grants from the US NIH and the Cystic Fibrosis (CF) Foundation.

So why have inositols been ignored? “They're not proteins, they're lipids. Traditional drug discovery looks at a cell and thinks it has DNA, RNA and proteins... They've overlooked other components including these inositol signalling molecules – and they actually act as communicators between proteins. In a

lot of cases they can affect or modulate the behaviour of key proteins such as kinases that everybody seems to have an interest in from a drug discovery perspective... If we can prove that you can make therapies from this, I think we can open up a new paradigm in drug discovery. That's the mission of the company – to move a couple of these compounds forward to prove that they can be used therapeutically.”

... development

Inologic is still an early-stage company, with two major internal programmes in CF and anti-inflammation. The lead drug candidate is in the CF programme, and Inologic hopes to take the molecule into the clinic itself, and anticipates starting Phase I in 15–18 months' time. Inologic is also working on an anti-inflammatory that might have application in psoriasis, asthma or inflammatory bowel disease. Field elaborates: “One of the things that we've observed is, when given topically, these compounds have a very strong anti-inflammatory effect. There's evidence that a lot of the lesions caused by psoriasis are related to an inflammatory reaction.” A topical drug requires fewer systemic safety evaluations, and therefore can be advanced into human testing relatively quickly, making it a good first compound for proof-of-concept for a largely unproven technology.

In addition to broadening our understanding of inositols, inomics can also help to speed up early drug discovery. “Our approach is to create chemical analogues of naturally occurring signalling molecules. We know these are active in terms of their biological function. Our analogue library is all active compounds, so we bypass most of the screening and even a lot of the optimisation efforts because we're utilising this natural, intrinsic method of modulating cellular behaviour,” Field describes. In addition, by using copies of existing cellular molecules, there is less chance of introducing something toxic. “The cell is pretty smart. It has other pathways that can get around a blockage caused by a small molecule

found through screening. Our molecules can modulate multiple pathways and prevent the compensatory mechanisms that have been seen with other types of drugs that are active intracellularly.”

... platform money

Inologic is currently raising funds for a series A round – its first official VC and institutional fundraising. The company has secured bridging financing of around \$1M from angel investors, founders and a group of Venture Catalysts – 1024 Partners – who provide start-up advice as well as financial assistance. “We're looking for \$15M for the advancement of our two major internal programmes,” says Field. Inologic will also look to expand the therapeutic applications of the technology into areas such as oncology. “There would be certain areas such as asthma where we would want to partner earlier as [only a pharmaceutical partner would have] the resources and knowledge base we would need. But something like CF we could easily take to Phase II.”

Inologic has a good relationship with the CF Foundation. “They have a very strong therapeutic development network that we would like to take advantage of. There are centres of clinical research around the US that helps speed up patient recruitment. They've had a couple of drugs in the last five years approved for CF, and those drugs have been some of the fastest ones to get to approval.”

Another benefit of inomics is that its chemical analogues of inositol molecules can be readily manufactured, and are easily afforded patent protection compared to biological agents. But will inomics really take off? “Five to seven years ago, nobody knew what proteomics was, yet now everybody knows what it is and everybody thinks it's important. Inomics could be like that, and it will grow over time. I think it's going to take a company like ours to prove that you can actually create useful therapeutics with this knowledge,” concludes Field. **MG**

For more information, please contact president Ed Field on tel: +1 206 448 9226 or e-mail: edfield@inologic.com