Accelerating research intelligence with AI: an interview with Daniel Jamieson, CEO and Founder of Biorelate

Daniel Jamieson is the CEO and Founder of Biorelate, a biomedical curation company that aims to accelerate insights and innovation in future drug discovery. Daniel started Biorelate in the midst of a computational biology PhD at the University of Manchester after the successful identification of drug repurposing opportunities with Pfizer. He is now coming up to 7 years into that journey, and his focus remains on turning Biorelate into a world-leading enterprise, helping pioneering companies and researchers in their mission to develop life-saving innovations. *The Biochemist* spoke to Daniel about the journey so far.

Daniel is also a member of the Biochemical Society's Early Career Advisory Panel, helping the Society support early career researchers.

What took you from a PhD in computational biology to being the founder of Biorelate? Is there any specific advice you can offer about making the transition from academia to industry?

Although I was a budding scientist at the time, with little business acumen, and surrounded by a culture of aspiration that led to either a postdoc or a semi-entry-level job that I could probably have started 5 years earlier, it was clear that Biorelate was an important idea. So, what was key for me was breaking free from those cultural shackles and exposing myself to a more entrepreneurial mindset. I entered a few startup competitions, sat in lectures in the business school, read a lot of books and spoke to some smart people who had done it before. I was fortunate to win a couple of those competitions, awarding me a small amount of startup capital. Perhaps the most important thing, though, was the support of mentors, particularly Jonathan Tobin, who taught me a different way of thinking.

I think the best advice I can give people who want to become entrepreneurs post-PhD is to be prepared to be patient for a while longer. Most people in their PhD are on a tiny stipend compared to their friends who are perhaps further ahead in the rat race. There's this feeling that you have to go out and get a job with a decent salary

ASAP and the prospect of starting a lean business is daunting. Nowadays, there are accelerators all over the place; so if you have an idea or just want to get involved in startups, join one of those. They're perfectly designed to expose you to the right cultural mindset. Give it some time and, whether you've failed or succeeded, you'll have learnt enough and set yourself up for a career in entrepreneurship.

Before Biorelate, what problem did you identify that made you think that a tool should or could be developed to address it?

When I was at Pfizer, their scientists were trying to develop cutting-edge new therapies to treat nasty chronic pain diseases, affecting nearly 25% of the European population. Very quickly, I realized that, despite being one of the leading research centres into chronic pain treatments, their researchers didn't have anywhere near a full grasp of all the data and knowledge that could potentially unravel the next leading therapy. I then went about building the world's first pain research interactome, which we used to uncover multiple potential drug repurposing opportunities. These subsequently doubled Pfizer's hit rate to 42%.

The success of that approach was a light-bulb moment for me. Curating the sum knowledge of a field to accelerate the therapeutics of the future was a powerful mission.

Why is Biorelate the solution, and how does it work?

We've built Galactic AI™, a supercomputing platform that automatically curates biomedical research to dramatically improve the understanding of a research area in drug discovery. The type of data it is capturing is typically curated manually elsewhere, at an approximate cost of $200 per article. With the scientific literature now standing at over 50m articles and doubling every 9 years, we're turning a $10 billion challenge into a 12-hour processing job.

We then work with companies to use that curated data to provide understanding of how drugs work and uncover novel targets within focal endotypes, investigating dual screens, target deconvolution and many more use cases. Ultimately, our goal is to connect the evidence that is obfuscated and use that to speed up the development of important new therapies.

With a number of databases and curation tools available, what makes Biorelate unique?

There are no curation tools on the market that accurately curate drug discovery data to a human level. We provide access to curated data available in no other database.

AI is becoming more and more ingrained in day-to-day life; what do you think are going to be the next areas of development using AI technology?

I struggle to think of many areas where AI technology hasn't already impacted in some way. AI today is fairly task specific. What will be interesting is how artificial general intelligence (AGI) develops over the coming years. It won't be long before humans are redundant for most tasks, with a handful of rainmakers left directing the quinary sector. Most other professions will probably be socially driven. I don't see that as daunting, but we really do need to rethink society a bit. Universal basic income (UBI) is an interesting idea.

Given the current coronavirus pandemic and how users are digesting content, what part do you think AI and Biorelate have in this? Do you think the way that people want to receive and use content will change permanently after the pandemic?

It all depends on how people return to work. What most companies seem to have learnt is that remote working is functional and often more productive than being in an office. Business development has entirely shifted to virtual meetings; however, this has all happened in the absence of social contact opportunities. Face-to-face meetings were a key performance indicator (KPI) before the lockdowns, so clearly there is a potential business edge to returning to some form of the old norm.

It does seem likely, however, that many people will continue working from home and that the way they are now working is different. Without as many distractions, people are perhaps devoting more time to quiet research. With travel reduced, there is a small renaissance in the use of laptops as opposed to mobile. And, ultimately, with many companies now having to be leaner, there is a lot of focus on cost reduction. AI can be a big driver here, and we will likely see many companies being prepared to consider new processes and ways of doing things that perhaps they were more resistant to prior to the pandemic.

What is next for you – are there other problems that can be solved with similar AI technologies?

I've not thought too hard about it. There will always be interesting problems to solve, until perhaps AI owns this space as well.

If you are interested in learning more about Biorelate and trying out the tool, contact Dan at dan@biorelate.com. ■