

In Conversation with Cloud Pharmaceuticals' Don Van Dyke



Artificial intelligence is one of the hottest topics in the pharmaceutical industry and there seems to be an almost daily stream of stories about its benefits. This is leading to questions about whether the hype is justified, and if it be shortly replaced by something else. To get an insider's perspective, Ed Corbett a Principal at Novasecta, interviewed Don Van Dyke, Chief Operating Officer of Cloud Pharmaceuticals to hear his thoughts on what the potential of AI is and whether the hype is justified:

EC: It seems that AI is the hottest topic in the pharma industry at the moment? Why is this?

DVD: Given that the regular news frequently features AI and how it is being applied to everyday life, it has been almost inevitable that the topic has found its way into the pharma industry. This in turn has fed curiosity about the technology and increased interest in what AI *might* be able to do in a pharma specific context. Recently, we have seen not only the possibility of AI being discussed in the industry, but also concrete results – this has generated additional excitement.

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It is also worth highlighting that as humans, we tend to believe in technology that we don't necessarily fully understand – in the case of AI, it has led to the idea that AI will solve all our problems, which is clearly not the case!

EC: Is the hype behind AI justified? Can you highlight any concrete examples of success?

DVD: Hype is different from buzz. My view of hype is that it seduces those that don't necessarily understand the topic, in this case AI. This is different from generating a *buzz* which I define as being backed by results.

At Cloud, we feel we have been part of generating the buzz around AI. We focus on the drug design process, which is a small but very important part of what the industry does. Historically, the process of going from a drug target to a lead molecule has taken between 5-6 years – we have proven that it's possible to achieve this in 3-4 *months* and have designed against 25 different targets and produced active molecules in this timeframe. This is clearly a radical improvement, with benefits in terms of both time and money. By having a proven track record, potential partner confidence is increased, making a deal more likely. If we hadn't been able to demonstrate the kind of results, we wouldn't have secured the relationship we currently have with GSK.

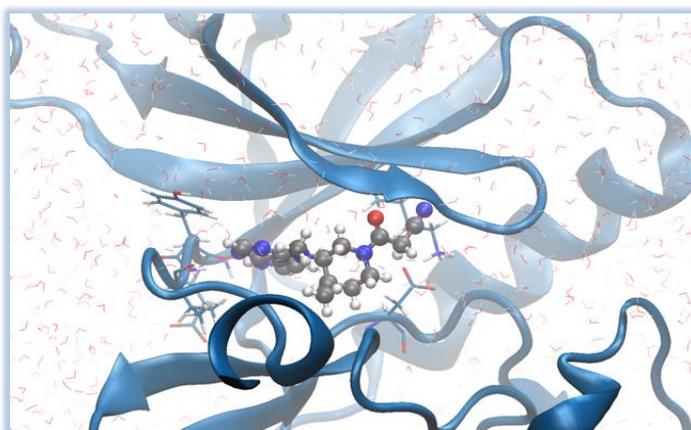


Image: Cloud Pharmaceuticals

Taking a broader view of where AI is showing promise, I would also point to target discovery. Companies like Berg Health are focusing on using machine learning and AI to discover new drug targets, with the ability shrink the time it takes to identify attractive targets. AI is also being applied to toxicology, enabling companies to predict the outcomes of animal studies and plan accordingly. Finally, AI can be applied to real world evidence – Sanofi is using AI to collect post-marketing data to support ongoing monitoring and surveillance.

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EC: Given the complexity of the AI landscape, what are the first steps pharma companies should take to explore AI?

DVD: I would start by getting over the hype and taking time to understand AI, specifically that it isn't one thing and is not a one size fits all proposition. Some AI works well in population statistics, other applications are appropriate in computational chemistry. By recognising the variability of the technology, companies can then understand where it can be applied and focused on the tasks for which it is most appropriate. All too often companies tend to fall in love with the technology, rather than falling in love with the results – be focused on the results first and foremost

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EC: What challenges do pharma companies face when trying to integrate AI into their current operating models?

DVD: Pharmaceutical companies operate in a highly regulated environment that is designed to produce safe and effective medicines, with failure incurring significant cost in terms of both money and reputation. Given these risks, companies tend to have processes and a mindset that is not always open to new ways of doing things, such as AI – comments like ‘that’s the way we have always done things round here’ and ‘I don’t trust this new technology’ are common. Greater openness is a key part of AI adoption.

Every company is different, and they all have different operating models and ways of working - this means that there is not a standard way of integrating AI. Whether companies need a separate AI function is moot – in the future I see AI being as integral to the way in which a pharma company operates as Excel – and companies don't have Excel divisions! One thing I would definitely avoid is deploying bright, highly paid people to projects in which there is an AI element, but could lead to reinventing the wheel – there may be a solution that is cheaper and/quicker than AI and companies should pursue these first.

EC: What do you think the pharma industry looks like in 5 years' time given the potential benefits of AI?

DVD: It's inevitable that AI will make pharma incrementally, but not revolutionarily better. AI can make the process of drug development and commercialisation quicker and more efficient, but the core regulatory requirements of the FDA and EMA are likely to remain the same, as these are set up to develop and commercialise safe and effective medicines. In the future, I can see AI making the development of targeted therapies and personalised medicine much more economically appealing than it is today. It will also reduce price as it will lower the barrier of entry to develop medicines and increase competition. This is how we think of the principle benefit of AI at Cloud – we are democratising the process of drug design, enabling both start-ups and well funded companies to develop medicines for patients that need innovative, low cost therapies.

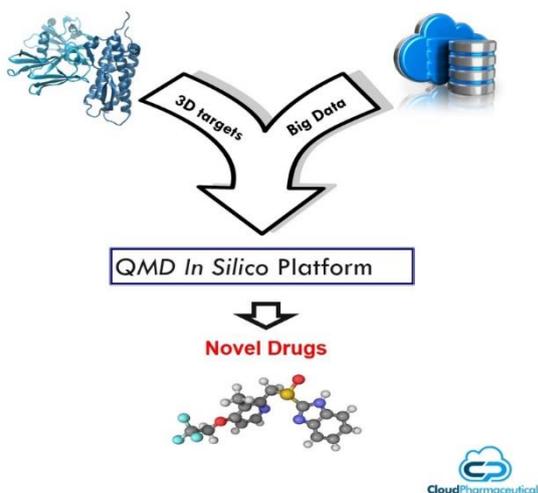


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