Jonny Ohlson – CEO, Touchlight, UK

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Jonny Ohlson, founder & CEO of Touchlight, discusses the genetic medicine revolution and the role of Touchlight in disrupting the field with its revolutionary DNA technology.

You founded Touchlight Genetics in 2007. What was the rationale, and could you please introduce what is so unique about your company?

The advent of the computer and the understanding of coding systems and algorithms was key in defining the progress of the 20th century. Although quite distinct in its field, the advent of sequencing the human genome was equally monumental, unleashing DNA as a new coding system with enormous potential.

Following this breakthrough, it was evident that what would follow was an exciting era of genetic innovation, and that DNA would play a large and valuable role. However, when you looked at how DNA was made in large bacterial fermentations, it was clear that this technology wouldn't be capable of underpinning this advancing new frontier. DNA fermentation technology is now indeed failing to meet demand due to inherent limitations in the process and the associated need for significant space and capital investment for expansion. At the time, this limitation was not front of mind for the field, but looking forward given the rate of growth, it seemed there was space for innovation.

Touchlight was founded at that time on the simple conviction that DNA would underpin the next generation of medicine, and therefore would require significant innovation.

Touchlight was built from the ground up, starting with a vision and a concept, as well as hope and excitement. We knew this was not the way a typical biotech is developed, but we felt we had identified the spark for something incredible.

The Enterprise Investment Scheme (EIS) played a significant role in Touchlight's start up; it is a real treasure for innovation in this country. Access to the scheme is granted to people committed to driving innovation and provides investors with tax relief on any profit they make, and further relief in the situation where the business failed, massively increasing the appetite of otherwise risk-averse investors. Thanks to this scheme, I was able to get patient capital to develop our technology.

Over the last 10 years, we have deployed that capital to develop a revolutionary DNA technology, which we call doggybone DNA or dbDNA™. This technology allows us to manufacture commercial scale and quality DNA in a cell-free two-week process. Our technology is truly disrupting the decades-old fermentation approach. The process uses two enzymes, and basic benchtop laboratory equipment to produce DNA of any sequence for therapeutic applications. The benefits of our DNA platform are not limited to a means of making DNA, but largely reside in the product we produce. The dbDNA™ eliminates bacterial sequences, improving safety, quality and expression characteristics by overcoming a fundamental issue inextricably linked to plasmid DNA. What this all really means is that we can overcome significant hurdles in DNA production that hamper the progress of real solutions to diseases of great unmet need. We are in the process of realising this vision, and have established a GMP dbDNA™ production facility at Hampton capable of manufacturing multi-gram scale dbDNA™ which we are using to advance our in-house products as well as those of our partners.

How prone is the UK business environment for developing such disruptive technologies in the life science sector, notably in comparison to the US?

From our experience, the UK business environment has a few unique features that are differentiating as a place for developing disruptive technology. Firstly, the UK has established a favourable tax landscape for innovation. In addition to EIS, one thing people are waking up to is the strength of the Patent Box tax incentive we have in the UK. This scheme provides a favourable tax rate for revenues derived from patents. American venture capitalists are beginning to consider this as a significant advantage for start-ups in life sciences.

The UK has a relatively supportive regulatory environment for advanced therapeutics. The MHRA has been active in accelerating new genetic medicine ideas, and have welcomed open discussions

about our technology as an emerging technology. On top of that, the evolution of the NHS represents a great opportunity for the biotech industry at large and is a key component in commercializing new products in the UK.

The UK's research infrastructure is unparalleled. Our world leading institutions are developing, testing and commercialising high impact technologies and therapeutics. They also make great partners for commercial entities like Touchlight.

Putting all those elements together makes us feel that this is a very favourable environment for biotech businesses to flourish. In my opinion, room for improvement lies in harnessing venture capital in the UK. While today, businesses are using a lot of European and US venture capitals, I strongly believe we could develop a stronger footprint of venture capital in the UK.

What is the next step for Touchlight, and what challenges have you identified moving forward?

The next step is commercialization. We have strong IP, we have scaled and evidenced the technology, and we are on the cusp of our commercial phase and the growth and development that comes with that. The main challenge will be moving from being a small company to a big company, whilst staying true to our culture and vision.

Whilst we have to put our stake in the ground and begin to commercialise our platform as it stands, we also want to stay one step ahead of ourselves. One of our core objectives, and challenges, is to always disrupt our own technology in order to advance.

Moving forward, do you see your business dependent on big pharma?

Partnerships with big pharma, and biotech, in fields where we can advance their programmes and platforms provide early monetisation opportunities for Touchlight, and play an important role in our commercial strategy.

However, our ultimate aim is to develop our own drug products. For these programmes, we clearly adopt a very different approach – building the data internally, and aiming primarily for patient outcomes, rather than a route to monetisation.

When we come back to the UK in 5 years, what will you tell us about Touchlight?

Touchlight will have partnered in our 'starting materials' fields, and we will be progressing our own products into the clinic, with a vision to treat diseases of high unmet medical need.

What is your final message to our audience?

Touchlight is just one of many technologies disrupting the traditional pharma model, most notably within rare diseases and vaccines. Many pharma companies which have high value franchises in rare diseases that are confronted with gene therapy ‘cures’ that will change the nature of their business. Additionally, we can imagine a future where medicines such as vaccines are developed within weeks, rather than months, and are distributed rapidly across the globe in response to emerging epidemic threats.

Fundamentally, Touchlight’s technology removes the limitations previously associated with DNA, opening up a world of opportunity previously unimaginable. My final message to the audience is simply to rethink DNA as a material of the future.

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