



Biotech Daily

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Daily news on ASX-listed biotechnology companies

Dr Boreham's Crucible: Micro-X

By TIM BOREHAM

ASX code: MX1

Share price: 11 cents

Shares on issue: 516,424,994

Market cap: \$56.8 million

Chief executive officer: Kingsley Hall

Board: David Knox (chair), Peter Rowland, Dr Alexander Gosling, Jim McDowell, Patrick O'Brien, Illona Meyer, Andrew Hartmann

Financials (Year to June 30, 2023): receipts \$3.89 million, net cash outflows \$11 million;

(June quarter 2023): customer receipts \$1.71 million, grant income \$1.54 million, net cash outflows \$2.89 million, cash of \$5.22 million, quarters of available funding: 1.8

Identifiable major holders: Varex Imaging 9.9%, Perennial Value Management 11.25%, Tiga Trading-Thorney 5.7%, Acorn Capital 9.3%, Australian Super 4.5%.

In an ideal Micro-X world strokes and field injuries will be better treated, snaking airport queues will be a thing of the past and bomb disposal will be safer.

But as with Barbieland, the company's behind-the-scenes workings have been less ideal than the glossy vision statement, leading to a sagging share price and investor frustration.

In May, CEO Peter Rowland stepped down in favour of chief financial officer Kingsley Hall. Chief scientific officer Dr Brian Gonzales was made head of the Americas and chief engineer Anthony Skeats was ordained as chief operating officer.

Not that Mr Rowland was a feckless Ken, good for only beach-going. Having founded Micro-X in 2011, he oversaw development of four separate uses for the company's revolutionary cold-cathode x-ray technology.

"Unlike the old tubes, they are electronically rather than heat controlled, which means they can be turned on and off instantaneously," Mr Hall says.

"This benefits a range of applications [traditional x-rays] hitherto have been unable to access."

Micro-X already has commercialised two mobile digital radiology (DR) devices: the first-generation Nano and a sturdier iteration called Rover.

So, what's the problem?

"The company has been highly regarded for its development, engineering and manufacturing skills, but not so much for its commercial nous," Mr Hall says.

"The challenge for the new management team is to raise its commercial capabilities, to at least the same level as the engineering capabilities - and they are large shoes to fill."

The bottom line was that the company was not seeing enough revenue from the DR devices, in a highly competitive market.

Mr Hall initiated an operational review, covering "commercial and development products, customers, partners and finances." Results are pending.

Management has already reduced costs by \$2 million a year and implemented a more aggressive sales approach to moving \$6 million of Rover inventory.

Micro-X marks the spot

Based in the Adelaide suburb of Tonsley, Micro-X has technology acquired from Xinray, a University of North Carolina spin-off company.

Micro-X listed on December 21, 2015, having raised \$20 million at 50 cents apiece.

In 2016, the company struck a five-year exclusive worldwide distribution agreement with Carestream Health Inc (formerly Kodak Medical Imaging).

Carestream sold the Nano units under the name of Carestream DRX Revolution. In late 2020, this compact was "modified" to allow Micro-X to sell directly or via other agents.

In March 2022, the company struck a non-exclusive US distribution deal with the San Diego based MXR Imaging Inc, the country's biggest independent provider of radiology equipment.

In April last year, Micro-X signed a collaboration and supply deal with the listed French x-ray equipment manufacturer DMS Imaging SA, pertaining to an "innovative" product.

About the tech

In a process little changed for more than a century, x-rays are generated with a heated filament cathode that generates electrons in a vacuum tube.

These electrons are then accelerated by high voltage on to a tungsten anode target to produce x-rays on impact. The process is inefficient because of wasted heat and the electrons don't all move in the right direction.

Micro-X's cold cathode technique is based on an array of four-nanometre wide carbon tubes, under an electrified fine mesh structure. While standard computed tomography (CT) scanners use only one x-ray source to rotate around an object, these electronically-controlled tubes enable x-ray beams to be fired from different angles with no moving parts.

The upshot is the tubes can be made substantially smaller and 95 percent lighter - one kilogram compared with 20 kilograms.

Good boy, Rover

Micro-X's first bedside digital radiology/imaging tool Carestream DRX Revolution Nano is already approved in more than 30 countries. The Rover has FDA approval.

The "ruggedized" version, Rover (and an FDA approved variant called Rover Plus) was designed at the request of the Australian Defence Force (ADF). These units weight 95 kilograms, compared with 350kg to 600kg for a traditional mobile x-ray unit.

In July, the company delivered its first Rover unit to the ADF's deployable hospital program, in a \$1.3 million deal under the auspices of prime contractor Saab Australia.

In the Ukraine, 13 Rovers are in use on the front line, having been supplied via two charities for the frontline hospitals.

COO Anthony Skeats says the feedback from Ukraine surgeons is that reliability has been "unbelievable," with one unit carrying out 6,000 images in the first month.

If all that sounds too earnest, some Rover units are being used in the US by the Major League Baseball and the National Hockey League and "this is intended to drive awareness and future sales opportunities".

Stroke of fortune

Three-quarters of strokes result from clots rather than bleeding and they can be effectively treated if help - and drugs - are administered swiftly.

This is best done within the first hour - the so-called Golden Hour - but the medicos need to know whether the stroke is a clot or a bleed. If the blood thinning drugs are administered to the latter patients, they will probably die.

Backed by the Australian Stroke Alliance (ASA) and the Australian Medical Research Future Fund (MRFF), Micro-X has developed a lightweight computed tomography (CT) scanner for in-ambulance stroke diagnosis.

The standard-of-care is an eight-slice helical (or spiral) CT scanner, but these units weigh 600kg and needs to be stabilised on a flat surface to spin properly. They also cost \$1.5 million and require a crew of five.

Called a ring scanner, the Micro-X device weights 75kg, is much cheaper and emits 85 percent less radiation. The device has 29 miniature cold cathode tubes, measuring 40mm rather than the usual 150mm.

The company hopes to launch its first human trial at the Royal Melbourne Hospital in early 2024, with patients having both the proposed and traditional imaging methods, with no consent required.

"Ultimately, the minimum pass criteria for us ... is to detect at least one millimetre of volume of blood anywhere in the head," Mr Skeats says.

The ASA and the MRFF have advanced \$40 million to further the program, with a fourth milestone payment of \$8 million received in June this year.

The company says the addressable market is more than \$US5 billion, assuming they are put only in road ambulances (the Royal Flying Doctor Service is also interested).

The stroke imaging platform is also a potential springboard into other computed tomography markets such as full body pathology, super lightweight CT and spectral CT (the later at a fraction of the price of current units on the market).

Argus - read all about it!

Micro-X is developing an imaging camera, called Argus, for remote one-sided-viewing of suspected improvised explosive devices (IEDs). Weighing a mere 15kg, Argus is of a self-contained camera carried by a robot.

In 10 seconds, the device can determine whether a suspicious object such as a backpack contains a bomb or something even more dangerous, such as a rotten tuna sandwich.

Argus was field tested in Adelaide last year. From up to 1,500 metres away, it generated high-definition images of an anti-personnel mine and a simulated bomb in a car door.

The company cites a total addressable market of \$US1.8 billion for Argus, which it hopes to launch by the end of 2023.

Landing at an airport near you

Fed up with airport queues? You are not alone ...

Micro-X is developing a self-directed screening portal called Checkpoint, which integrates passport scanning, photometric identification, body scans and luggage CT scans.

The big selling points are fewer staff and better detection.

Micro-X had a \$4 million funding development compact with the US Department of Homeland Security (DHS), which overlooks the agency responsible for airport screening, the US Transportation Safety Administration (TSA).

In June, the company completed a critical design review, which must have pleased the DHS/TSA bigwigs because the contract has been extended by up to \$US14 million (\$A21 million). The funds will help advance the airport screening to live airport testing. The company cites a total addressable market of \$US24 billion for airports alone: \$US8 billion in the US and \$US16 billion for the rest of the world.

Not off beam at all

In September 2022, Micro-X announced a strategic partnership with Varex Imaging Corp, a Nasdaq-listed supplier of medical x-ray components.

The deal involved Varex handing over \$7.5 million in cash and investing \$7.5 million in Micro-X shares for a 9.9 percent equity stake (at a 10 percent premium). Varex will access Micro-X's multi-beam technology, which is cool because Micro-X is focused on its single-beam methods.

"We haven't sold the farm," Mr Hall says. "We have leased the bit down the back we don't use anyway."

Finances and performance

Micro-X recorded June quarter customer receipts of \$1.71 million, with a further \$1.54 million of inflows from Varex and the airport screening and stroke partners. The company had end-of-quarter cash of \$5.5 million in cash, enough for only 1.8 quarters.

But this financial year the company expects \$13 million project payments from partners, as well as a \$5.5 million Federal Research and Development Tax Incentive in the current quarter. At least some of the Rover inventory should also turn into cash.

“We are well funded in to 2024,” Mr Hall says.

The company aims to reduce the unfunded portion of its development costs to 48 percent of this financial year’s budgeted \$25.2 million, compared with a 65 percent unfunded portion last year and 81 percent in the 2021-22 year.

Over the last 12 months Micro-X shares have traded between 17 cents (late September last year) and a record low of nine cents in late May this year.

The stock peaked at 56 cents shortly after listing.

Dr Boreham’s diagnosis:

Management and investors alike are frustrated by the company’s lowly share price, with a nice 45 percent fillip after the July airport funding extension deal quickly evaporating.

“The challenge of a small [cap] stock is that when you do get good news, some people choose to get out and that is their right,” Mr Hall says. “But none of our major shareholders has been selling.”

Micro-X has done well to attract the non-dilutive partnership funding and management won’t be afraid to do more deals in the short to mid-term.

“But we can’t rely on third parties all the time,” Mr Hall says. “We need to take some responsibility for commercializing our technology at some point.”

The company is super-excited about the potential of the stroke imaging - and so are we.

After all, strokes are the second biggest cause of death, afflicting 13.5 million people annually and killing five million of them. Of the survivors, 65 percent will be left with a severe disability.

“But we need to get on with it,” Mr Hall says. “We need to get our products into market and do it profitably.”

Disclosure: Dr Boreham is not a qualified medical practitioner and does not possess a doctorate of any sort. So, when it comes to upgrading his skills, he needs to get on with it or he will end up like a Ken – fit only for the beach.