Biotech Daily

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Daily news on ASX-listed biotechnology companies

Dr Boreham's Crucible: Patrys

By TIM BOREHAM

ASX code: PAB

Share price: 2.5 cents; **Market cap:** $26.8 million; **Shares on issue:** 1,072,590,325

Financials (March quarter): revenue nil, cash burn $861,000, cash on hand $5.2million*****, estimated current quarter outflows $1.09 million

***** A further $2 million is in deposits with a maturity of more than three months

Chief executive officer: Dr James Campbell

Board: John Read (chairman), Michael Stork (deputy chairman), Suzy Jones, Dr James Campbell

Identifiable major shareholders: Dr Dax Marcus Calder 11.03%, Stork Holdings (Michael Stork) 9.23%, Mason Stevens 6.50%, Macquarie Group 6.21%, Kemast Investments (KM Stokes) 2.75%, Oncomab GmbH 2.05%, Marginata Pty Ltd (Roy Bolton Super Fund) 1.87%, Yale University 1.51%.

The cancer drug developer adheres to that perverse law of diminishing returns that states: "The more a biotech company progresses down its chosen therapeutic path, the less it should be valued."

In Patrys' case, the stock has lost almost half its value over the past year, despite the company's preclinical success with its quest to conquer the blood-brain-barrier that prevents effective drug delivery to the noggin.

“Today we have more than $7 million in the bank and we have shown our technology is robust,” says CEO Dr James Campbell. “I know the inherent value of the company is much higher.”

One prominent Australian concurs: media and earthmoving equipment mogul Kerry Stokes holds a 2.75 percent Patrys stake, having participated in last year’s placement.

A short history of Patrys

We suspect this fact isn’t relevant, but Patrys means ‘partridge’ in Afrikaans and has nothing to do with a Greek island.

While Patrys initially was focused on gastric cancer, colon cancer metastases, and melanoma and multiple myeloma way back in 2008 to 2016, more recently its pre-clinical work has revolved around glioblastoma (brain cancer), triple negative breast cancer and brain metastases resulting from breast cancer.

The company’s lead program, PAT-DX1 - acquired from Yale University in March 2016 - is about inhibiting DNA damage repair (DDR), which may sound like a good thing, but not if it is the cancer that is doing the repairing. PAT-DX1 is designed to enhance cancer death.

Discovered by Yale University boffins, PAT-DX1 is a humanized and smaller version of deoxymab 3E10 (D3E10), a DNA damage repair antibody first identified in the inflammatory immune disorder lupus.

While most antibodies bind to the surface of cells, D3E10 nanoparticles penetrate them and transport the agent across the protective plasma membrane. Rather like Omo on those tough stains, it then binds to DNA and kills deficient or mutant cells.

Patrys was formed in December 2006 to consolidate human antibody technology from three sources: Germany’s University of Wurzburg, the Teutonic biotech Oncomab and Acceptys Inc (a US company commercializing Columbia University know-how).

The company listed in July 2007, having raised $25 million at 40 cents apiece. Patrys’ original work related to immunoglobin-M antibodies, which are bigger and more complex than the immunoglobin B antibodies used in most therapies.

In 2013, the company raised funds for a phase II trial, but it was curtailed because of manufacturing issues.

About the study

The company’s preclinical program relates to brain metastases stemming from triple negative breast cancer (TNBC), defined as tumors that don’t express estrogen, progesterone, or the HER2 receptor.

These cancers account for 15 to 20 percent of breast cancers, with about 30 percent resulting in metastases (usually brain metastases).

“By the time they are diagnosed the patients normally have several of them and their life span is very limited,” Dr Campbell says.

In December last year, the company announced the result of mice studies carried out by Yale Medical School, showing tumor reduction in 93 percent of the treated rodents. Also, 86 percent of the mice were still alive after the control ones had withered.

A follow-up effort, announced last month, compared PAT-DX1 with radiation therapy and in combination with the traditional treatment. Combined with lose dose radiation the compound “significantly increased” tumor suppression relative to both stand-alone PAT-DX1 and stand-alone radiation.

While last year’s study involved four weekly cycles of three doses per week, the latest one involved only one weekly cycle of three doses.

In other words, it worked just as effectively with a lower dose. “We wanted to prove an unequivocal crossing of the blood-brain barrier and we did just that,” Dr Campbell says.

What’s next?

Patrys and the Yale Medical School will “further explore the interaction between different radiation and PAT-DX1 dosing regimens that will inform and guide development [of the compound].”

Put another way, the next few months will be the boring-but-important phase of primate toxicity studies and formulation development, ahead of a phase I human study in late 2020 or early 2021.

“We are still doing pre-clinical work to inform what a study might look like,” Dr Campbell says.

In August last year, the esteemed Walter and Eliza Institute of Medical Research won a $100,000 Victorian government grant to combine PAT-DX1 with an antibody called 7D10 to produce - you guessed it - 7D10-PAT-DX1.

The idea here is that the 7D10 protein interacts with another protein called Bak to kill cells, but it can’t pierce the outer membrane to whomp the cancer cells. So like Omo Plus with active enzymes, combining the two might result in a more powerful treatment.

Finances and performance

Patrys is nicely cashed up, with $5.2 million of available moolah and $2 million in term deposits.

In February last year the company raised $2.4 million in an oversubscribed 2-for-11 rights issue at 1.7 cents apiece. Emboldened, management then followed up with a $4.6 million placement at 3.4 cents apiece, expanded from $3.5 million thanks to the patronage of Mr Stokes.

In December last year, Patrys then pocketed a $3 million insurance payout, relating to a botched manufacturing run pertaining to its old immunoglobin work. Dr Campbell says “we had to fight hard to get it”, which sounds very insurancey.

Since listing, Patrys shares have wavered between 32 cents in March 2008 and half a cent in August 2017.

As well as having Mr Stokes on the register, Patrys is backed by Canadian tech investor Mike Stork (who’s also on the board) and Perth periodontist Dr Dax Marcus Calder.

Dr Boreham’s diagnosis:

Delivering drugs across the blood-brain barrier has always been problematic, simply because the human body is constructed to keep the grey matter clear of foreign objects.

On industry estimates, the global market for TNBC drugs was worth $US296 million ($429 million) in 2015 and is forecast to rise to $US1.59 billion by 2025.

If the drug is progressed, it needs to be better than a current suite of so-called PARP inhibitors, which also inhibit DNA repair. The difference is the PAT-DX1 antibody has fewer side effects and can transcend the blood-brain barrier.

The FDA approved the first PARP, Astrazeneca’s Lynparza in 2014.

(PARP, by the way, stands for the enzyme poly ADP (adenosine di-phosphate) ribose polymerase and you can thank Wikipedia for that one).

Dr Campbell says despite the perception that drug developers are only acquired at the later stage, big pharma has been known acquire pre-clinical antibody and biologics compounds.

In April 2018, Israel’s Compugen inked a circa $US200 million deal with Astrazeneca to develop genetically-engineered antibodies to treat cancer.

Around the same time, OSE Immunotherapeutics of France partnered with Boehringer Ingelheim to develop a checkpoint inhibitor to treat advanced solid tumors.

That deal reportedly was worth up to $US1.4 billion. But as is the norm, the drug has to work before the real spoils are delivered and that applies to Patrys as well.

Disclosure: Dr Boreham is not a qualified medical practitioner and does not possess a doctorate of any sort. He is yet to transcend the blood-brain-barrier but certainly has cracked the other BBB – bulldust-baffles-brains.