



Biotech Daily

Friday July 10, 2020

Daily news on ASX-listed biotechnology companies

Dr Boreham's Crucible: Cynata Therapeutics

By **TIM BOREHAM**

ASX code: CYP

Share price: 62 cents; **Shares on issue:** 117,124,004; **Market cap:** \$72.6 million

Chief executive officer: Dr Ross Macdonald

Board: Dr Paul Wotton (chairman), Dr Macdonald, Dr Stewart Washer, Dr Geoff Brooke, Dr Darryl Maher*

* A senior R&D executive with CSL, Dr Darryl Maher replaced Peter Webse, who continues as company secretary, on June 16

Financials (March quarter 2020): revenue nil, cash from operating activities \$803,000*, cash balance \$6.92 million**

* Includes \$2.51m of government grants and incentives

** Ahead of \$5.55m placement and share purchase plan.

Identifiable major holders: Fidelity International 9.9%, Fujifilm 7.4%, Dr Ross Macdonald 1.8%, Dr Mal Washer family account 1.9%

Contrary to conventional wisdom, the art of successful clinical efforts lies not in their underlying scientific rigor, but the ability to communicate them with catchy acronyms of convoluted trial names.

Cynata excels itself with its coronavirus trial MEND, a creative stretch on the full title of MEseNchymal-coviD-19 trial.

Then there's the company's osteoarthritis trial SCUIpTOR, which compresses "stem cells as a symptom – and structure – modifying Treatment for medial tibiofemoral Osteoarthritis".

(The trial sponsor the University of Sydney can take credit for that one).

More seriously, Cynata chief Ross Macdonald says clinical success relies not so much on safety and efficacy - they're a 'given' - but the ability to mass produce a therapy.

"If you can't manufacture your product by the truckload you don't have a product at all - but a biologic or medical curiosity," he says.

In that vein, Cynata claims to lead the race for commercial stem cell treatments with its manufacturing technique that doesn't rely on material from blood marrow donors.

The company is at the pointy end of development with late stage programs for knee osteoarthritis, graft versus host disease (via a partnership) and - of course Covid-19.

The only problem is despite locked-down Victoria's best efforts to inflate the casualty lists there aren't enough patients in critical care to enroll.

The science of stem cells

Cynata's work is based on harvesting induced pluripotent stem cells (iPSCs), from which mesenchymal stem cells (MSCs) are derived.

MSCs are adult stem cells which can be isolated from human and animal sources and can produce more than one kind of specialist cell.

Currently these precursor cells are derived from embryos, which presents some ethical challenges, or rely on a painful process called bone marrow aspiration.

The 'pluripotent' bit means the iPSCs have the ability to develop into any type of adult cell. They can be derived from anywhere in the body - typically skin and blood - and grown in limitless quantities in the laboratory.

The underlying intention is to treat the inflammation, which ironically is the body's way of responding to an infection.

"Think of it as the immune system back-burning to control a blaze," Dr Macdonald says. "The back-burn gets out of control and then becomes the bigger problem."

Cynata's intellectual property stems from the University of Wisconsin-Madison, the centre of US stem cell research. The Uni's Prof Igor Slukvin co-founded Cynata with the aim of licencing the technology from the Wisconsin Alumni Research Foundation.

That's WARF, which also developed the rat killer cum blood thinning drug, Warfarin.

Japanese research is also playing a crucial role in developing the technology, with Prof Shinya Yamanaka winning a Nobel Prize in 2012 for his work.

“The fact that an Australian company is now developing it is a quirk of history and about the availability of capital at the time,” Dr Macdonald says.

Cynata back-door listed in October 2013 via the shell of green nappy maker Eco Quest. Dr Macdonald joined Cynata at the outset, having been CEO of the private Hatchtech.

Hatchtech was working on a cure for head lice, which remains one of medicine’s confounding issues alongside a Covid-19 antidote - and just as contagious. Okay, were exaggerating, but frazzled parents might not agree.

Where have all the patients gone?

As with Mesoblast which we analyzed last week, Cynata is zeroing in on the role of cytokines in inciting acute respiratory distress syndrome – or Ards – the usual cause of Covid-19 deaths.

An inflammatory process, Ards gives rise to fluid build-up and ultimately respiratory failure.

The MEND trial will build on Cynata’s pre-clinical work with sepsis and cytokine release syndrome, which are common features of severe Covid-19 cases.

Having received ethics approval in early May, the company planned to enroll 24 adult Covid-19 patients in intensive care in New South Wales. It was intended that half the patients would receive the Cymerus infusion as well as the standard-of-care, while half would receive the current standard-of-care, alone.

The primary endpoint was improvement in oxygen levels by day-7, with safety and tolerability by day-28 tacked on as a secondary aim.

We’re talking in the past tense here because despite Victoria’s worst efforts in the last fortnight, there’s a dearth of critical-care patients to recruit.

“It was fairly clear that Australia’s prevention measures effectively flattened the curve and we quickly ran out of available patients,” Dr Macdonald says.

One option is to relocate the trial to an offshore corona-cluster, but the trouble is that the stricken areas are constantly changing (as Mesoblast discovered with its US based trial).

“We need to make sure we don’t chase the pandemic around the world,” Dr Macdonald says.

Barring a full blown local “second wave” of infections, another option is to expand the program to other illnesses: Ards is common to influenza, pneumonia and even inhaling toxic fumes, with Cynata’s initial Ards program two years ago focused on non Covid-19 causes.

A pressing knee-d for an osteo treatment

In mid-June Cynata won regulatory and ethics approval to run a phase III trial to test Cymerus on knee osteoarthritis sufferers.

Aimed at enrolling 440 patients, the randomized, double-blinded, placebo-controlled trial is sponsored by the University of Sydney and fully funded by a \$2 million grant from the National Health and Medical Research Council.

Dr Macdonald estimates that if Cynata were to fund the trial it would cost \$20-25 million. The difference is that the University benefits from 'in kind' arrangements, such as access to imaging machines. Cynata however will provide the product, which is not cheap to make.

While there are plenty of patients to recruit, the parties are waiting for New South Wales health authorities to allow clinical trials to resume.

The trial will assess the effect of injected Cymerus over two years, the co-primary endpoints being patient-assessed pain reduction and reduced cartilage loss.

The company's pre-clinical research suggests that the release of cytokines and growth factors reduces inflammation and promotes tissue repair and new blood vessel formation.

Under the watchful eye of the University of Sydney's osteoarthritis expert, Prof David Hunter, the trial will be carried out at sites in Sydney and Tasmania.

GVHD – Good Value Here Dudes

Cynata is working closely with its Japanese partner Fujifilm to launch a phase II trial for graft-versus-host disease, hopefully by the end of this year.

GvHD is an immunological condition that afflicts bone-marrow recipients, when the donor's T-cells view the patient's healthy cells as foreign and attack them, and is usually fatal for patients resisting steroid treatment.

Fuji is funding all product development and commercialization, with Cynata in line for milestone and royalty payments.

Japan is especially keen on stem cell therapies because of the country's ageing population, with Prime Minister Abe keenly promoting the research. Liberalized regulation means it's possible to have a product approved after phase II trials.

Cynata's own 15-patient, phase I trial showed that by day-100, 13 of them had shown improvement in the severity of GvHD symptoms. Eight of the 15 showed a complete response rate: in other words, all GvHD signs and symptoms had disappeared.

The trial was the first time any patient had been treated with iPSC-derived mesenchymal stem cells - their own cells or otherwise. The Japanese trial is likely to enroll 15 to 20 patients.

And furthermore ...

In January, the UK Medicines and Healthcare Products Regulatory Agency gave the go ahead for a phase II trial for critical limb ischemia. Cynata had planned a 90-patient effort, but once again COVID-19 intervened.

Critical limb ischemia is an advanced form of peripheral artery disease, resulting from narrowing of the arteries (especially in the lower legs). This results in gangrene, ulceration and other nastiness.

Finances and performance

Cynata's piggy bank was bolstered in April after the company joined the conga line of biotechs going to the well by raising \$3.55 million in a placement at 60 cents apiece, a 23 percent discount.

A further \$4.8 million was raised via a share purchase plan that initially targeted \$2 million.

Fujifilm is kindly funding the GvHD trials, and with the knee osteo trials taken care of as well, Cynata's main financial commitment is the Covid-19 stuff.

Cynata has pocketed a \$US3 million upfront payment from Fujifilm and is in line for up to \$US60 million of milestones, with \$US2 million at the end of the trial.

Dr Macdonald says Fujifilm still believes a new drug would be worth \$US300 million in annual sales, which would deliver at least \$US30 million in annual royalties to Cynata.

Fuji caused investor conniptions by not exercising its rights to the deal by the original deadline of March last year, a prevarication that sent the shares down 35 percent in a day.

Cynata shares since listing have traded as high as \$1.66 (August 2019) and as low as 31 cents (January 2016).

They have been less resilient than most other biotechs during the corona crisis, having traded at \$1.09 before late February's share market meltdown.

Cynata is hot property

Cynata's market valuation belies the fact that in July last year it fielded a non-binding but genuine takeover offer from Japanese conglomerate Sumitomo, for \$2 a share cash.

Cynata granted non-exclusive due diligence and ceased chatting to some other prospects in the wings, but by mid-October the Sumitomo talks had ceased.

“We decided to part company and remain good friends,” Dr Macdonald says.

He says the deal’s termination wasn’t so much about price, but Cynata’s decision-making being stymied during the negotiating period. In particular the osteoarthritis and critical limb ischemia trials were put on ice - a costly delay given the subsequent coronavirus interruption.

Dr Boreham’s diagnosis:

With the key trials delayed, there’s a bit of dead air ahead on Cynata’s announcements bandwidth and some investors might get b-o-r-e-d.

Or will they? Like a thoughtful parent packing away cards and Guess Who for a road trip with the kids, Dr Macdonald hints at more ‘Fuji type’ partnering deals.

“Unusual things can happen in the corporate world,” he says. “We do have active dialogue with corporate parties at any time. We have walked away from some because we want to be assured of the right deal for shareholders.”

Dr Macdonald admits the current share weakness is frustrating, given the “legitimate” \$2 a share offer.

Meanwhile, Cynata remains a takeover target. “We are a publicly traded company - we are for sale every day of the week at the right price,” Dr Macdonald says.

Dr Boreham is not a qualified medical practitioner and does not possess a doctorate of any sort. Happily, his offspring are old enough to be beyond the reach of lice super spreaders.