



# Biotech Daily

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*Daily news on ASX-listed biotechnology companies*

## Dr Boreham's Crucible: Bionomics

By TIM BOREHAM

**ASX code:** BNO; **Market cap:** \$178 million; **Share price:** 37 cents

**Shares on issue:** 483 million

**Chief executive officer:** Dr Deborah Rathjen

**Board\*\*:** Dr Errol De Souza (chairman), Dr Deborah Rathjen, David Wilson, Peter Turner and Alan Fisher.

**Financials (2016-'17 first half):** revenue\* \$7.1 million (down 30%), loss \$9.696 million (down 1%), cash burn \$3.02 million, cash balance \$43 million (down 5%) \*\*\*

\* includes licence fees, collaboration income, sales and rental income and interest income

\*\* Chairman Graeme Kaufman retired in August last year

\*\*\* Received another \$US10 million milestone payment from Merck post balance date.

**Shareholders:** Ausbil Dexia 7.3%, Link Traders 6.2%, PPM 5.2%, CVC 4.7%, Merck 4.5%

If there's any biotech that exemplifies the tortuous path of drug development, it's the Adelaide-based Bionomics as it pursues treatments for disorders including depression, anxiety, post-traumatic stress disorder (PTSD), cancer and Alzheimer's disease.

Like Her Majesty Queen Elizabeth II, Bionomics has graced our lives for years and at times the company is just as inscrutable. Like the Monarch, Bionomics is not short of a quid, although it is debateable just what its crown jewels are.

Like the Windsor family, Bionomics has delivered its fair quotient of drama as well, notably a shareholder revolt last year that resulted in the departure of chairman Graeme Kaufman and fellow director Trevor Tappenden.

The investor disquiet stemmed from a deeply discounted, \$US12 million warrants issue to US investors in late 2015. To an extent this has clouded the company's progress across its clinical and pre-clinical suite of molecules which read like an airport departures board at rush hour: BNC101, BNC105, BNC210 and BNC375.

Bionomics' current lead candidate, BNC210 has been trialled for the relief of generalized anxiety disorder (GAD), with a further expanded trial targeting post-traumatic-stress disorder (PTSD). The first data from a 192-patient US trial is expected by April 2017.

BNC210 works by modulating the alpha-7 nicotinic acetylcholine receptor, a target for the improvement of memory and learning deficits in illnesses such as Alzheimer's disease.

The common current treatment, the benzodiazepine class of drugs, have been around for more than 50 years. Indeed, the Rolling Stones were thought to be referring to Valium (one of the drugs in that class) when they penned Mother's Little Helper in 1966.

Benzodiazepines target another key central nervous system receptor called the GABA, which has nothing to do with Queensland cricket. The trouble is, they can create dependence issues and have even been blamed for suicide in long-term users.

BNC210 is also claimed to be non-sedating and works rapidly.

"Alpha-7 involves emotions and when overactive is responsible for symptoms of anxiety and depression," Bionomics chief executive officer Dr Deborah Rathjen says.

"But when it's not working enough it is responsible for memory loss."

BNC210 subtly turns down the 'volume' of the receptor without over compensating.

According to Bionomics, the generalised anxiety disorder results "met primary endpoints with a high level of significance". In other words, it stacked up well relative to the comparison drug lorazepam and the placebo, as measured partly by the Joystick operated runway task (JORT).

(JORT not an aviation term but an anxiety-inducing Pacman-like game in which a threatening red dot chases a green dot, with the player receiving an unpleasant burst of noise if the threatening red dot manages to catch the green dot).

On another front, BNC101 - a new class of cancer drug that targets cancer stem cells - is subject to US trials tackling relapsed chronic lymphocytic leukaemia and metastatic renal cell cancer. The latter is funded by Novartis.

Under the 2014 agreement with Merck Sharp and Dohme (known as Merck Inc in the US and Canada), Bionomics is entitled to receive up to \$US506 million in milestone payments, plus eventual royalties on product sales.

Last month, Bionomics claimed an \$US10 million milestone payment from Merck after Merck initiated a phase I Alzheimer's disease clinical study. The compound in question is BNC375, which also modulates the alpha-7 receptor.

On the oncology front, Bionomics last month announced a combination trial in which BNC105 would be used in conjunction with Merck's checkpoint inhibitor Keytruda for melanoma. This trial is proudly sponsored by the Victorian Cancer Agency, in collaboration with the Peter MacCallum Cancer Centre and the Olivia Newton-John Cancer Wellness and Research Centre.

The trial for advanced melanoma patients unresponsive to current treatment is due to enrol by July 2017.

But BNC105 has a chequered history. In 2014, a 136-patient phase II renal cell carcinoma program failed to meet its primary endpoints.

BNC210 has also had its collaborative setbacks: in 2012 the Cambridge, Massachusetts-based Ironwood Pharmaceuticals licenced the compound, in a deal worth "up to" \$US345 million.

But two years later, the men from Ironwood handed this one back to Bionomics – by mutual agreement, of course. At least in this case, Bionomics continues the clinical program off its own bat.

In 2012, Germany's Merck Serono and Bionomics agreed to cancel work on compounds based on Bionomics Kv1.3 potassium ion channel program for multiple sclerosis.

### **Prospects:**

The cashed up Bionomics is well-placed to pursue its clinical program and Merck's involvement is beneficial (although by no means guaranteed).

Progress is slower than expected.

The optimists argue Bionomics is tackling a raft of maladies, so there's more chance of at least one being successful. While 'parents' shouldn't play favourites, Dr Rathjen makes her view clear on the 'child' most likely to shine: "As a CEO, I will admit to moments of anxiety so BNC210 is up there. It (anxiety and depression) is also a huge market."

Others point to past clinical failures, with one unkind soul describing BNC105 as the "undead" of drug development.

The cancer drug discovery expert says: "Failure after failure (though disclosures all carefully managed by Bionomics) and the compound is still in development? It just doesn't work!"

Private equiteer Sydney's CVC - the chief agitator which called last year's extraordinary general meeting - this month reduced its shareholding below substantial level.

**Dr Boreham's diagnosis:**

It's apt that Bionomics work revolves around the central nervous system because it has certainly delivered nervy moments for shareholders over the years.

Bionomics has been listed for more than a decade in its current guise, with the shares peaking at 76 cents in October 2013 and bottoming at 19 cents in February 2009.

We're not quite sure what compound will drive short term momentum, but Bionomics obviously has a full slate of work.

With a \$170 million market cap backed by \$43 million in cash, the stock may appeal to investors who, like the Wave Hill stockmen, know how to wait.

***Disclosure: Dr Boreham is not a qualified medical practitioner and does not possess a doctorate of any sort. But he is of anxious disposition, which qualifies him for instant expert status.***