



## ASX RELEASE

### **BENITEC REPORTS SIGNIFICANT PROGRESS MADE ACROSS ALL OF ITS THERAPEUTIC PROGRAMS**

- **The pain program has been significantly de-risked and is on track for a clinical trial in 2012**
- **Lung cancer program advances with initial *in vivo* animal data showing safety and efficacy**
- **The hepatitis B program is on track, with highly effective ddRNAi sequences identified and tested *in vitro* and delivery demonstrated *in vivo*.**
- **Follow up of a patient in the USA HIV/AIDS clinical trial supported by Benitec at the City of Hope has shown continued expression of ddRNAi 3 years after the initial treatment. Also there has been a 6 fold increase in the number of blood cells containing the construct.**

Sydney, November 17, 2011. The Directors of Benitec Ltd (ASX:BLT) are pleased to announce that the Company's in house programs are all making strong progress.

Benitec's confidence in a successful clinical outcome has been significantly increased as a result of the activities over the last 6 months. In that time, the following outcomes have been achieved:

- Completion of *in vivo* studies to confirm the role of the first pain target, D-amino acid oxidase (DAO) in neuropathic pain.
- Completion of extensive studies demonstrating *in vivo* silencing of DAO, in a preclinical model of neuropathic pain using Benitec's ddRNAi technology;
- As previously announced a decision to focus on a second target, PKC gamma, following the publication earlier this year of independent validation of the efficacy of this target.
- The decision to prioritise PKC gamma was confirmed by international clinical pain specialists and key opinion leaders.
- Subsequent *in vitro* and *in vivo* experiments are underway using PKC gamma.
- Engagement of a CRO to prepare for a USFDA submission for a clinical trial
- Engagement of a New York-based firm, Campbell Alliance, to test the market and undertake a commercial outreach program

The decision to focus on PKC gamma as Benitec's lead target, whilst extending the intended time frame for completing the program, has significantly increased the company's certainty of a successful clinical outcome, and has allowed the company to activate an outreach program (being conducted by Campbell Alliance) for the eventual commercialisation of the pain product much earlier than the Board had envisaged. As previously announced, the potential benefits of PKC gamma as a target include the ability to overcome morphine tolerance. Additionally, PKC gamma has potential for faster progression through the FDA approval process. This is because of its conserved sequence between different species, which allows a single construct to be tested in all animal models in compliance with FDA guidelines. Neither the morphine tolerance nor the conserved homology are shared by DAO, which, however remains part of Benitec's extended pain approach.

Whilst we have already identified an effective sequence, we expect to identify the optimal lead sequence early in 2012 and this will then be incorporated into the pre-IND documents being developed by the CRO retained by Benitec for that purpose.

In a further update, the non small cell lung cancer program has met all of its *in vitro* milestones over the past six months, with a highly effective triple cassette ddRNAi molecule being developed that almost completely silences the gene associated with chemotherapy drug resistance in human lung cancer cells. As a result, these cells are significantly more sensitive to killing by chemotherapy drugs. The next step is to demonstrate the ability to deliver the construct to the cancer cells in an animal model, and the first of those experiments has just been concluded, with very encouraging results. In an intravenous injection, the construct was delivered to the lung cancer with no apparent adverse effects, and with strong silencing of the target gene. Whilst a preliminary result, this is a highly significant step, as it provides evidence that Benitec's approach of delivering a gene silencing molecule systemically has real potential in the clinical setting for lung cancer.

Professor Maria Kavallaris from the University of New South Wales said, "We are very encouraged by this initial result. We are now ready to optimise the dose to ensure maximum silencing efficacy. These studies are vital to build a case for a clinical trial in lung cancer using this potent gene silencing approach."

Benitec's hepatitis B program, being conducted in collaboration with Biomics Biotechnologies in Nantong, China, is on track, with several highly effective ddRNAi molecules identified to knock down a key hepatitis B gene *in vitro*. The group has also refined key elements of the DNA constructs to avoid potential adverse side effects. Furthermore, the group has achieved nearly 100% delivery of the molecules to the liver from a single intravenous injection in an animal model, confirming the feasibility of Benitec's therapeutic approach for this disease as well. The program is well on track to deliver on expected outcomes, including a clinical trial in 2013.

In latest follow up data from the HIV clinical trial that was supported by Benitec, Professor John Rossi at the City of Hope reported that one of the patients continues to express the ddRNAi construct in his blood stem cells 3 years after the initial treatment, and that the number of peripheral blood cells containing the construct, whilst low, has increased 6 fold over that time. Professor Rossi described this as a "spectacular result" and added "The safety and feasibility of this study has opened the door for this treatment approach to possibly cure HIV by supplying gene modified stem cells that totally repopulate the patients' blood cells with HIV resistance." Benitec is exploring a range of options to partner or license the ddRNAi technology for HIV/AIDS applications.

Dr Peter French, Benitec's CEO, said, "These outstanding results have led to further strengthening of our extensive IP through additional patent applications, and provide the Board and me with added confidence that Benitec's technology has the potential to provide transformational solutions to a range of previously intractable and untreatable diseases and conditions. We look forward to providing further news on the progress of these programs early in 2012.

#### **For Further Information**

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**About Benitec [www.benitec.com](http://www.benitec.com)**

Benitec Limited is developing novel treatments for chronic and life-threatening conditions based on gene silencing using a transformational technology, DNA-directed RNA interference (ddRNAi) - sometimes called expressed RNAi. The technology's potential to address unmet medical needs and, potentially, to cure disease results from its demonstrated ability to permanently silence genes which cause the condition.

Benitec now either owns or exclusively licences from CSIRO more than 40 granted or allowed patents in the field of RNA interference for human therapeutic applications. Patents have been granted in key territories such as the USA, the UK, Japan, Europe, Canada and Australia. In addition, Benitec has almost 50 patent applications pending for which it is the owner or exclusive licensee from CSIRO, and has further intellectual property under development as a result of its pipeline program.

Benitec trades on the Australian Securities Exchange (ASX) under the symbol "BLT". The Company was founded in 1997 and has been publicly held since 2001. The Company aims to deliver a range of novel ddRNAi-based therapeutics to the clinic in partnership with the pharmaceutical industry. In-house it is pursuing a focused R&D strategy in infectious diseases, cancer and chronic cancer-associated pain, as well as programs with licensees that have advanced to pre-clinical and/or clinical trials.