

# INVESTOR UPDATE



EDITION  
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10



CEO Matthew Lehman

## Message from the CEO

### Exciting times for cancer immunotherapy

Several of the Prima team attended the recent American Society for Clinical Oncology (ASCO) annual meeting in Chicago. This is one of the largest such meetings in the world every year and an important event to catch up on important developments in cancer treatment and research. Immunotherapy was a major theme of the scientific presentations.

There is a strong feeling in the community that we are starting to obtain a better understanding of the immune system, its role in cancer, and methods to utilize immunotherapies to control the disease. In simple terms, the best approach seems to be a combination of blocking the cancer's immune defenses and a stimulation of the body's own immune system.

Data from a number of clinical trials of "targeted therapies" or "checkpoint blockades" presented promising data in melanoma, colorectal, and ovarian cancers, among other targets. These therapies – such as CTLA-4 inhibitors (like ipilimumab), PD-1 inhibitors, and VEGF inhibitors (like pazopanib) – are able to block certain functions that otherwise allow cancer cells to thrive and escape detection from the body's immune system.

On the other side of immunotherapy is the need to stimulate the body's own cancer cell killing ability by actively engaging the killer T cells. This is where cytokine therapies (like GM-CSF), adoptive T cell therapy, and cancer vaccines such as CVac play a role.

One very interesting presentation at ASCO was a trial of ipilimumab combined with GM-CSF for treating metastatic melanoma. The combination treatment improved overall survival by 35% over treatment with ipilimumab alone. And – very importantly – the combination actually decreased side effects!

### Market outlook for cancer immunotherapy

It is not just the scientists that are excited about cancer immunotherapy. Industry investors are starting to take notice of the space and the market potential for this class of therapy. Andrew Baum, an industry analyst from Citibank, predicts cancer immunotherapy will grow to be a US\$ 35 billion market per annum by 2023. Mr Baum notes "the durability of responses with immunotherapy can last a decade, due to the induction of an ongoing immunological memory, targeting cancer cells for an indeterminate amount of time."

We at Prima are very excited about the future of cancer treatment. And we are very excited about CVac's potential place in the future treatment paradigm of ovarian cancer and other cancer targets. We believe there is a very bright future for the patients and for investors in this field.

### Advancing Prima's technology

To bring CVac's clinical potential to fruition, we are dedicated to leading on the technology and manufacturing side of our business.

Prima representatives caught up on the latest developments in the cell processing and manufacturing technology at the recent ICST meeting in New Zealand.

I am pleased to report that Prima's presentations at the international conferences detailed below were very well received and Prima is recognized as a leader among our colleagues in this technology space. Our investments in logistics, quality control, cell processing, and product characterization have put us in a very strong position.

### Capital raising

As most of our shareholders know, we have recently completed a share purchase plan and options entitlement offer. More than 1000 shareholders contributed to raise approximately A\$7.65 million dollars to help continue Prima's clinical and manufacturing development plans.

The funds raised allow us to move forward with our plans to test CVac in additional cancer targets. The German State of Saxony has awarded a EUR 3.8 million non-dilutive grant that will co-fund these three pilot clinical trials, as well as a number of important additional manufacturing developments and laboratory tests.

On behalf of our patients, doctors, and everyone here at Prima, I thank our shareholders for their loyal and ongoing support of our important work. We also thank the German State of Saxony for their continued support of our European R&D. **Matthew Lehman | Chief Executive Officer**

## >> In this Issue:

### ■ A patient's journey with CVac

In this issue we begin to introduce an in-depth journey of a patient in the clinical trials of CVac and an overview of the trial process from a patient's perspective. In this edition, we will begin part one of this multi-part series discussing the cancer diagnosis and screening for eligibility featured on page 2.

The following topics will be covered in the patient journey series in upcoming newsletters:

- Cell collection and logistics management
- CVac Manufacturing and quality control process
- Dosing and how CVac works in the body
- Patient follow up and monitoring

- **Message from the CEO Matthew Lehman**
- **Q & A with CAN-004 Investigator**
- **Research and Development Update**
- **Scientific Advisory Board**
- **Meet the Prima team: Marc Voigt, Chief Financial and Business Officer**

## A patient's journey with CVac

### Cancer diagnosis and screening for eligibility

It is said that to truly understand you need to “walk in another’s shoes”. It is impossible to truly comprehend the experience of being told you have ovarian cancer, but in this piece we will try to overview the path walked by a patient who is enrolled into the CANVAS clinical trial and their commitment to undergo the MNC blood collection process, the teams that are committed to the quality manufacturing of CVac, through the journey of chemotherapy and finally attaining clinical remission to start the injection schedule and treatment of CVac. This is a patient’s journey.

**Commentary by Dr S. Gargosky and Dr J. Goh**

“ My name is Sarah. I am 55 years of age and was generally in good health, but started feeling a little off color with intermittent nausea, some abdominal discomfort and distention. Not knowing whether this was menopause or something else, I went to my general treating physician for a check-up. After having blood drawn for testing, being sent off for MRI/CT scans and a full clinical evaluation, I was brought back into the office to be told that I have a probable diagnosis of stage 3-4 epithelial ovarian cancer. We started to discuss my treatment options with a gynecology surgeon-oncologist and I remember thinking at the time, how is this possible? How did this occur without any hints of the severity of my condition? The web was a huge resource of information. I learned that if you are a woman over the age of 35 years you may be at risk for ovarian cancer, although the median age is 63 years. There is no diagnostic for early detection. No biomarker or genetic testing. This meant that even in advanced stages like I was diagnosed for, having mild and nonspecific symptoms such as abdominal discomfort or distension, I fitted into the majority (75%) that are diagnosed at advanced stages due to an asymptomatic course and the relative 5-year survival rate of 44% with disease recurrence in 12-18 months.

I also learned from my clinician (and the web) that the standard management of ovarian cancer is based on a multi-modality approach, involving surgery and chemotherapy. This comes in two regimens. [1] chemo therapy (called neoadjuvant) then surgery and then more chemotherapy or [2] surgery and then chemotherapy. The first approach is to help shrink the tumor burden before surgery. I am told by my physician that my tumor is immediately resectable or operable and that with optimal debulking I will have a better outcome. That was, the more removed the better as it meant the less cancer left behind to remove by chemotherapy. Also, in some countries there is another product called Avastin [bevacizumab] that in combination with standard chemotherapy of platinum and paclitaxel has shown good outcome. It is another option for me. I decided to proceed to debulking surgery which was performed successfully with no macroscopic residual tumour remaining.

Then I was told of the clinical trials that I could participate in to help research in this area of ovarian cancer. There are different trials on the web at [www.clinicaltrials.gov](http://www.clinicaltrials.gov) in which some my doctor is part of and some my doctor is not. The doctor talked to me of the trials he was involved with and I decided that for me, my options with optimal debulking surgery and chemotherapy are sufficient and that I might explore the new approach of individualized personal medicine for my remission phase. It was a little hard to consider being part of a study now but getting the treatment 6-9 months from surgery when I am in remission seemed the better trial for me. When I agreed to listen and learn about the CANVAS clinical trial specifically, I looked up CVac on [www.clinicaltrials.gov](http://www.clinicaltrials.gov) to find out more details.

I then met again with the study coordinator Karen who explained to me the study; my risks, benefits, the process and expectations. I was told that



I have a 50% chance of getting active treatment and a 50% chance of being on placebo. I was told of the risks associated with radiology and blood collection for safety testing, but I consider these part of my treatment and ongoing clinical surveillance. I was told of the risk associated with the MNC collection to make the study drug; a process that takes 2-4 hrs and filters my blood to collect the right cells to make the immune therapy. I was told of the study visits, the frequency and the tests at each time point. It's a commitment of time to be part of trial I have come to understand. But overarching this to me is the possibility of being part of making a difference to finding better or new treatments for this dreaded disease. It seemed worthwhile to me. I took home the informed consent to read again and to consider my options.

It was after the surgery as I was recovering that I discussed with my family again whether I would or would not participate in the CANVAS clinical trial that will provide maintenance therapy and monitoring for the coming years. With their support of my decision, I went back to the clinical center and signed the informed consent in the presence of a witness. This then allowed me to start the screening process to determine that I might be eligible for the study.

Step 1 for eligibility: Does my cancer tissue have the protein that this new therapy is targeting. These are tissue slides that are sent to a specialty laboratory that tests for the mucin 1 target.

Step 2: Is my blood and am I healthy enough to participate. This required blood draws and a physical exam and follow up. As we worked through the “screening” visit, as they are called, it took 2 weeks to learn that I had a mucin 1 positive cancer, the right type for CVac and that my blood work was acceptable.

I was accepted for the trial. Karen entered all of my data into a database and “randomized” me. Randomized means that a computer program assigns me to one of the two groups. I don't know if I am placebo or treatment and I won't know, but, I was ready for the next step – the MNC collection to make the study agent for my treatment. I feel that I am being pro-active in trying to prevent this cancer from returning and I know I will be monitored more closely, which is reassuring.”



Dr Fiorica

## Q & A with CAN-004 Investigator

We are pleased to introduce Dr James Fiorica, a dedicated investigator from the USA who is participating in the CAN-004 trial. Dr Fiorica leads the Women's Cancer Care program at Sarasota Memorial Hospital in Florida and is a clinical professor in OB/GYN at Florida State University College of Medicine. His expertise is in the diagnosis and treatment of reproductive cancers. In CAN-004, Dr Fiorica has cared for up to nine women who enrolled in the trial. We recently had an opportunity to discuss some of his experiences with CVac and the ongoing CAN-004 study.

**Q: You were one of the first U.S. sites to start on the CAN-004 trial. Can we assume you are enthusiastic about the program?**

**A:** Yes, our team is very excited to be a part of the CVac program! It has been over 20 years since a new drug has been approved for ovarian cancer

treatment in the U.S. This treatment could be really revolutionary and could lead the way for cellular therapies to meet the unmet medical need. With the interim CAN-003 data we are optimistic and hope that CVac may be able to help.

**Q: What has been some of the feedback you receive from patients? Is the CVac process burdensome?**

**A:** While it is not painful with minimal but acceptable risks, apheresis (or the cell collection) is inconvenient and it does take a few hours of the patients' time. The women on the trial had already undergone surgeries as well as several cycles of chemotherapy. It requires a lot of energy and resolve for these women to add an additional blood collection in preparation to have CVac manufactured for them. However, CVac is really quite simple and quick to

administer with small injections intradermally. Most patients felt that the potential benefit of participating on the study outweighed the upfront inconvenience of the apheresis.

**Q: Besides CVac, what else do you see on the horizon to potentially help improve treatment for ovarian cancer?**

**A:** I am an optimist by nature and believe that we will find some better diagnostic methods and treatment options for ovarian cancer. The biggest challenge we currently have is that ovarian cancer is usually diagnosed so late – there are few early symptoms and no reliable early detection methods. There have been important improvements in surgical techniques and chemotherapy administration that have helped improve survival outcomes in recent years. And the so-called “targeted therapies” have shown some activity in ovarian cancer, including bevacizumab. But we hold out some significant hope for immunotherapy approaches like CVac to provide survival benefits in ovarian cancer. Recently, Dr Kandalaf from the University of Pennsylvania presented some very early but encouraging results from an immunotherapy trial where 4 of the 6 patients responded well to a treatment made from the patients' own tumor pulsed with dendritic cells.

## Research and Development Update

Prima's manufacturing team and research and development groups continue to make great strides and progress and have been able to present at major international conferences and forums. These have been announced in our press releases but to briefly summarize these accomplishments:

### Presentations

**March 2013:** Marta Schilling, VP of Manufacturing, spoke at the International Society for BioProcessing Technology on *The Challenges of Harmonizing cGMP Manufacturing Across Multiple CMOs on Different Continents*. We were able to speak to our global harmonized manufacturing platform as the leader in establishing a comparable manufacturing process across three major continents; APAC, Europe and USA.

**April 2013:** Dr Sharron Gargosky, Chief Technical Officer, spoke at the International Society for Cell Therapies on *Orchestrating Autologous Dendritic Cell Therapy Clinical Trials Across 15 Countries*. We presented on the global platform that is unique to Prima and our leadership with operational interfaces to manage logistics, supply and cold chain management from blood collection centers to couriers to manufacturing organizations. We also presented a brief update on the clinical trial CANVAS to date.

**April 2013:** Dr Jyoti Arora, Imaging Project Manager at Cell Therapies, in collaboration with Prima, presented at International Society for Cell Therapies on *In Vivo Characterisation of Cellular Therapy Products*. This cutting edge science is designed to understand how dendritic cells move in the body depending upon administration location, type of injection and where they migrate or move. This work is in early research but the foundation and application to a full characterization of CVac and its kinetics is very exciting.

### Posters

**April 2013:** Dr Michael Buchholz, Project Manager for European Manufacturing, presented a poster at the International Society for Cell Therapies on *Qualification of the COSTIM Assay* to determine potency and use in clinical trials. He presented data on the establishment and qualification of this important bioassay that is used to test the potency of the CVac product.

**April 2013:** Dr Sharron Gargosky, Chief Technical Officer, presented a poster at the International Society for Cell Therapies on *Qualification of an Intracellular Cytokine Staining (ICS) Assay to Evaluate Mucin 1-specific T Cell Responses in Ovarian Cancer Patients Treated With CVac Immunotherapy*. We showed the establishment and qualification of this specialty assay, its ability as an immune assay to help us monitor CVac treated patients to assess the T cell response to mucin 1.

## Prima BioMed's Scientific Advisory Board

The Scientific Advisory Board (SAB) is a team of distinguished scientists who provide independent review of Prima BioMed's product development programs and new product opportunities. The SAB is comprised of leaders in immunotherapy research who have made significant contributions to advancing the field and are committed to furthering Prima's mission.



**Michael Szardenings, Ph.D.**

Head of the Ligand Development Group at Fraunhofer IZI in Leipzig Germany; research interests: ongoing research is primarily focused on immune responses in the context of allergies and infections



**Professor Ian Frazer AC, FRS, FAA, Chair of SAB**

CEO of Translational Research Institute, Internationally renowned co-creator of technology for cervical cancer vaccines; cancer immunotherapy researcher at University of Queensland Diamantina Institute



**Holden T. Maecker, Ph.D.**

Assoc. Professor of Microbiology & Immunology; Director of the Human Immune Monitoring Center at Stanford University; research focus on cellular immune responses to chronic pathogens and cancer



**Assoc Prof Bruce Loveland, Ph.D.**

Cellular immunologist, Head of Research Support and Facilities, co-head of the HCV Immunotherapy Laboratory at the Burnet ImmunoMonitoring Facility in Melbourne, Australia



**Chris Schmidt, Ph.D.**

Chief investigator at Oncogenomics Laboratory at Queensland Institute of Medical Research developing personalized cancer vaccines and immunotherapeutics

### Meet the Prima team

## Marc Voigt, Chief Financial and Business Officer

With over 15 years of experience in the financial and biotech industry, Marc joined the Prima team in early 2011 with a focus on European operations. In May 2012, he became the Chief Business Officer and in November 2012 also assumed the role of Chief Financial Officer as well as continuing to focus on European operations as the Managing Director of the German subsidiary in Berlin.

Prior to joining Prima BioMed, Marc was the Managing Director of caprotec bioanalytics GmbH and served as a consultant to other biotech and technology companies. He started his career at the Allianz Group as a personal deputy manager to a member of the management board, working in the field of pension insurances and funds, then moved his focus to handling IPOs and venture capital for net. IPO AG, a publicly-listed investment boutique bank in Frankfurt. For several years, Marc worked as an investment manager for a midsize venture capital fund based in Berlin, being responsible for several successful transactions and in this role, was a member of multiple supervisory boards. He gained operational experience while serving as Chief Financial Officer and Chief Business Officer with Revotar Biopharmaceuticals and Medical Enzymes AG respectively, where he successfully concluded several licensing transactions and financing rounds.

Marc was awarded his Masters of Business degree, specializing in Finance and Marketing, from the Free University of Berlin along with completing several courses in law. Since 2001, Marc has been a judge and coach for Germany's biggest business plan competition and is a member of the Pharma Licensing Club Germany.



*Marc Voigt*

## Company calendar and 2013 catalysts

Prima has enhanced its website to keep shareholders abreast of all upcoming company events. Check out the Company Calendar for regular updates.

<b>12-15 JUL 2013</b>	<i>16th Ovarian Cancer National Alliance, Washington DC</i>
<b>25-28 SEP 2013</b>	<i>Aegis Capital Healthcare Conference, Las Vegas NV</i>
<b>15 NOV 2013</b>	<i>Annual General Meeting of Prima BioMed Ltd</i>
<b>04-06 NOV 2013</b>	<i>Bio-Europe, Vienna, Austria</i>
<b>2Q CY 2013</b>	<i>Announce pilot trials of CVac in new cancer targets</i>
<b>3Q CY 2013</b>	<i>CAN-003 Immune monitoring (ICS) data</i>
<b>4Q CY 2013</b>	<i>CAN-003 progression-free survival data and initial overall survival data</i>

## Follow Prima's progress

Prima BioMed is committed to continuous and transparent dialogue with our investors. In addition to our quarterly newsletter, we encourage our shareholders to follow our progress in a number of ways:

### ■ Quarterly conference calls

Prima's management holds quarterly conference calls to review our operational and financial results. Details of the calls and accompanying webcasts are announced to the ASX and posted on our website. Recordings and transcripts of these calls are also maintained on our website.

### ■ [www.primabiomed.com.au](http://www.primabiomed.com.au)

The company website is a treasure trove for those in search of details about our company, our management team, and archived information. We encourage everyone to check it out regularly.

### ■ [www.clinicaltrials.gov](http://www.clinicaltrials.gov)

Prima registers all of our clinical trials, and the details of enrolling doctors, on the ClinicalTrials.gov website, a service of the United States National Institutes of Health. This register is the largest such repository of clinical trial information around the world.

### ■ Twitter

[twitter.com/PrimaBioMed](https://twitter.com/PrimaBioMed)

### ■ Facebook

[www.facebook.com/PrimaBioMed](https://www.facebook.com/PrimaBioMed)

### ■ LinkedIn

<http://us.linkedin.com/company/prima-biomed-ltd>

Future issues of the Prima investor newsletter will be available by email only. If you wish to continue to receive the investor newsletter in hard copy please email: [enquiries@primabiomed.com.au](mailto:enquiries@primabiomed.com.au)



## Forward looking statement

Any forward looking statements in this newsletter have been prepared on the basis of a number of assumptions which may prove incorrect and the current intentions, plans, expectations and beliefs about future events are subject to risks, uncertainties and other factors, many of which are outside Prima Biomed Ltd's control. Important factors that could cause actual results to differ materially from any assumptions or expectations expressed or implied in this newsletter include known and unknown risks. As actual results may differ materially to any assumptions made in this newsletter, you are urged to view any forward looking statements contained in this newsletter with caution. This newsletter should not be relied on as a recommendation or forecast by Prima Biomed Limited, and should not be construed as either an offer to sell or a solicitation of an offer to buy or sell shares in any jurisdiction.

## Prima BioMed – Fast Facts

### Listings

Australian Securities Exchange (ASX), NASDAQ,  
Deutsche Börse

### Stock Codes

ASX: PRR, NASDAQ: PBMD,  
Deutsche Börse: ISIN: YP1B.F

### Issued Capital – Ordinary shares

1.143B

### Market Capitalisation

A\$89 M (approximate as of 24 May 2013)

### Cash Position

A\$25M (approximate as of 31 March 2013)

## Board of Directors

<b>Ms Lucy Turnbull, AO</b>	Non-executive Chairman
<b>Mr Albert Wong</b>	Non-executive Deputy Chairman
<b>Mr Matthew Lehman</b>	Managing Director and Chief Executive Officer
<b>Mr Martin Rogers</b>	Non-executive Director
<b>Dr Richard Hammel</b>	Non-executive Director
<b>Dr Russell J Howard</b>	Non-executive Director

## Senior Management

<b>Dr Sharron Gargosky</b>	Chief Technical Officer
<b>Mr Marc Voigt</b>	Chief Financial Officer
<b>Dr Neil Frazer</b>	Chief Medical Officer
<b>Ms Deanne Miller</b>	General Counsel and Company Secretary
<b>Ms Marta Schilling</b>	VP of Manufacturing