

## Imugene Quarterly Update

31 July 2007

### Quarterly Report – 1 April 2007 to 30 June 2007

#### *Quarter Highlights:*

- **Second US based bird flu poultry vaccine trials completed during the quarter achieved 100% protection against highly pathogenic H5N1 virus.**
- **The trials followed Imugene's successful trials in January and utilized refinements to the dosage and method of administration of the Imugene bird flu vaccine for broiler chickens.**
- **The continued bird flu vaccine success confirms that protection for poultry is available as early as 14-21 days of age and administration can be in ovo (into the egg) or orally in the water – both have important commercial implications.**
- **The results confirmed Imugene's platform technology is suitable for other bird flu viruses and the range of bird flu vaccines under development has been extended to include H7 and H9 vaccines.**
- **Results from the Avian Influenza trials have been forwarded to several international companies for future licensing opportunities.**
- **The Australian site for the poultry trial of Imugene's vaccine for coccidiosis disease has been decided upon by collaboration partner – Abic Biological Laboratories Teva Ltd. It is anticipated that the trial will be undertaken this calendar year.**
- **Commencement of USA based trial of Imugene's pig vaccine candidates for 'PRRS' disease. Results due in the upcoming quarter.**

#### **Avian Influenza Vaccines for Broiler poultry**

In the past quarter Imugene undertook its second set of Avian influenza vaccine poultry trials for 2007. The results surpassed the successful initial trials with efficacy levels reaching 100%.

The trial protocol followed refinements from the initial trials (where two oral doses of the pre-optimized vaccine achieved 66 percent protection for poultry) to the dosage and method of administration of the Imugene bird flu vaccine for broiler chickens.

The trial group with 100% protection received the first dose of Imugene's vaccine injected directly into chicken eggs followed by an oral booster dose when the chickens

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were seven days old. All vaccinated chickens (9) survived exposure to a high dose of a highly pathogenic Asian strain of the H5N1 avian influenza virus at age 21 days. All birds in this group remained healthy with no signs of disease.

Seven out of eight chickens in the unvaccinated control group died from the same exposure to the H5N1 avian influenza virus. The challenge dose used was the same high dose used in the first trial announced in January.

The Imugene vaccine has now demonstrated:

- high efficacy
- protection from the avian influenza virus at an earlier phase in the chickens' lives – 14 to 21 days
- protection using the injection into the egg (in ovo) vaccination route as well as orally via water, and
- feasibility of a single dose providing protection.

Both trials were undertaken at Benchmark Biolabs' bio-secure clinical trial facilities in Nebraska USA. Benchmark Biolabs is one of the few approved Animal and Laboratory Biosafety Level 3 (BSL-3) laboratory and trial facilities worldwide authorized to conduct animal trials with infectious agents such as Avian Influenza.

The in ovo administration route was a major achievement as most US poultry broiler hatcheries already own and operate egg injection machines. Accordingly, the ability to administer Imugene's suite of bird flu vaccines in this additional way is a major commercial advantage.

The other major advantages of Imugene's bird flu vaccine for broilers are high efficacy, low cost and ease of mass administration. Existing methods of dealing with at-risk birds are limited to extermination or individually injecting each bird with a vaccine.

A wider range of Avian Influenza vaccines is now under development including H7 and H9 vaccines. Whilst these viruses have not been as pathogenic as the H5N1, they have been prevalent in commercial broiler sheds in the major poultry producing countries including the US.

The vaccine's development has been partially funded by an Australian Government Commercial Ready Grant. Work to develop a diagnostic test to detect infected birds is also progressing and supported by the Commercial Ready Grant.

The latest trial results have been forwarded to several international animal health companies who have expressed interest in the vaccine. Imugene has provided this information and certain additional data to ensure that these companies have sufficient information regarding the vaccines capabilities. Discussions continue to focus on the science behind the Imugene vaccine. Imugene is extending the range of bird flu vaccines as well as continuing the product optimization process prior to offering licenses in the near future. This process of optimization is aimed at maximizing the ultimate license value for the Imugene suite of Avian Influenza vaccines.

### **Poultry Coccidiosis vaccines**

The Imugene constructed coccidiosis vaccine candidates were completed early in 2007. Since that time Imugene has assisted collaboration partner, Abic Biological Laboratories Teva Ltd, (Abic), with the design of the trial protocol and identification of possible trial sites. The trial will be undertaken by Abic in accordance with the Imugene and Abic contract research agreement.

Abic has advised that an Australian trial site has been selected and a trial is hoped to begin in the next quarter.

Abic is the animal health division of Israel-based Teva Pharmaceutical Industries Ltd

Coccidiosis is one of the most common and costly diseases in poultry and is prevalent worldwide. The disease causes weight loss and poor feed conversion and the death rate in chicks and adult birds can be high. Coccidia is the second biggest poultry health product area, second to poultry in-feed antibiotics.

### **Pig PRRS vaccine trial underway in the US**

Imugene's PRRS (Porcine Reproductive and Respiratory Syndrome) vaccine pig trial recently commenced in the US. A range of doses and timing of administration are being trialed to optimize the PRRS product.

It is hoped that the product optimisation work will enable the vaccine to deliver higher levels of protection and possibly permit single dose administration. The objective is to produce a vaccine administered in the drinking water or by injection.

The trial results are expected in the upcoming quarter. Further trial designs to maximise the commercial value of the vaccine constructs will be based upon the results of this current trial.

The vaccine is based on Imugene's *Porcine Adenoviral Delivery Vector* that delivers selected genetic material to the pig to stimulate the immune system to protect against the PRRS virus.

PRRS is one of the most economically damaging diseases of pigs worldwide causing industry losses of up to \$1 billion each year. Initially recognised in the US in 1987 the disease spread to Europe in 1990 and subsequently across most of the world. Australia is one of three countries to be considered PRRS-free.

Positive results from this trial will strengthen Imugene's licensing negotiations with major international animal health companies.

### **Patent progress**

Imugene received notification during the quarter that its *Porcine Adenoviral Delivery Vector* technology was granted patent protection in Europe, an important commercial region for pig production.

The *Porcine Adenoviral Delivery Vector* is the base technology behind all Imugene's pig vaccines including the PRRS vaccine candidates entering further trials in June this year.

Imugene now has patent protection for the *Porcine Adenoviral Delivery Vector* technology in both Europe and the US, in addition to other major pig producing countries around the world. The granting of this important patent provides Imugene with protection in the world's highest volume and value pig product markets.

## Financial

Net cash burn rate per month for the financial year ended 30 June 2007 equated to \$133,000 per month.

The Company year end cash balance was on budget at \$1.1m. Subsequent to year end Imugene received \$417,000 in July from the ATO (2006 Income tax rebate) and Commercial Ready Grant contributions.

**- ENDS -**

## About Imugene (ASX: IMU)

Imugene specialises in commercialising animal health products for production animals including pigs and poultry.

Imugene owns the worldwide rights to the *Fowl Adenoviral Vector Delivery System* for poultry and the *Porcine Adenoviral Vector Delivery System* for pigs. Imugene has successfully licensed the first product based on the *Fowl Adenoviral Vector Delivery System* – the *Poultry Productivity Enhancer*.

Imugene's poultry and pig portfolio is targeting a worldwide US\$3 billion annual market with four lead vaccine products under development and a strong product pipeline. Consumer demands for disease free and residue free food will bolster Imugene's prospects.

Imugene's products safely prevent disease and reduce or eliminate antibiotics and harmful chemicals in animals. Animal antibiotics and chemicals in the human food chain have been linked to the emergence of dangerous resistant bacteria in people and food residues.

For more information please visit the Imugene Website [www.imugene.com](http://www.imugene.com)

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# Appendix 4C

## Quarterly report for entities admitted on the basis of commitments

Introduced 31/3/2000. Amended 30/9/2001

Name of entity

IMUGENE LIMITED

ABN

99 009 179 551

Quarter ended ("current quarter")

30 June 2007

### Consolidated statement of cash flows

Cash flows related to operating activities	Current quarter \$A'000	Year to date ( 12 months) \$A'000
1.1 Receipts from customers	-	-
1.2 Payments for		
(a) staff costs	(125)	(675)
(b) advertising and marketing	-	-
(c) research and development	(244)	(750)
(d) leased assets	-	-
(e) other working capital	(158)	(950)
1.3 Dividends received	-	-
1.4 Interest and other items of a similar nature received	12	88
1.5 Interest and other costs of finance paid	-	-
1.6 Income taxes paid	-	-
1.7 Other:		
Government grants	129	613
Other	-	80
<b>Net operating cash flows</b>	<b>(386)</b>	<b>(1,594)</b>

+ See chapter 19 for defined terms.

**Appendix 4C**  
**Quarterly report for entities**  
**admitted on the basis of commitments**

	Curent quarter \$A'000	Year to date ( 12 months) \$A'000
1.8 Net operating cash flows (carried forward)	(386)	(1,594)
<b>Cash flows related to investing activities</b>		
1.9 Payment for acquisition of:		
(a) businesses (item 5)	-	-
(b) equity investments	-	-
(c) intellectual property	-	-
(d) physical non-current assets	-	(4)
(e) other non-current assets	-	-
1.10 Proceeds from disposal of:		
(a) businesses (item 5)	-	-
(b) equity investments	-	-
(c) intellectual property	-	-
(d) physical non-current assets	-	-
(e) other non-current assets	-	-
1.11 Loans to other entities	-	-
1.12 Loans repaid by other entities	-	-
1.13 Other (provide details if material)	-	-
<b>Net investing cash flows</b>	-	(4)
<b>1.14 Total operating and investing cash flows</b>	(386)	(1,598)
<b>Cash flows related to financing activities</b>		
1.15 Proceeds from issues of shares, options, etc.	-	-
1.16 Proceeds from sale of forfeited shares	-	-
1.17 Proceeds from borrowings	-	-
1.18 Repayment of borrowings	-	-
1.19 Dividends paid	-	-
1.20 Other (provide details if material)	-	-
<b>Net financing cash flows</b>	-	-
<b>Net increase (decrease) in cash held</b>	(386)	(1,598)
1.21 Cash at beginning of quarter/year to date	1,485	2,697
1.22 Exchange rate adjustments to item 1.20	-	-
1.23 <b>Cash at end of quarter</b>	1,099	1,099

+ See chapter 19 for defined terms.

**Payments to directors of the entity and associates of the directors**

**Payments to related entities of the entity and associates of the related entities**

		Current quarter \$A'000								
1.24	Aggregate amount of payments to the parties included in item 1.2	(112)								
1.25	Aggregate amount of loans to the parties included in item 1.11	Nil								
1.26	<p>Explanation necessary for an understanding of the transactions</p> <table border="1" style="width: 100%;"> <tbody> <tr> <td style="width: 5%;">(i)</td> <td>Executive salaries, bonuses, consulting fees and superannuation entitlements;</td> </tr> <tr> <td>(ii)</td> <td>Reimbursement of expenses;</td> </tr> <tr> <td>(iii)</td> <td>Provision of legal services; and</td> </tr> <tr> <td>(iv)</td> <td>Non-executive directors fees</td> </tr> </tbody> </table>		(i)	Executive salaries, bonuses, consulting fees and superannuation entitlements;	(ii)	Reimbursement of expenses;	(iii)	Provision of legal services; and	(iv)	Non-executive directors fees
(i)	Executive salaries, bonuses, consulting fees and superannuation entitlements;									
(ii)	Reimbursement of expenses;									
(iii)	Provision of legal services; and									
(iv)	Non-executive directors fees									

**Non-cash financing and investing activities**

- 2.1 Details of financing and investing transactions which have had a material effect on consolidated assets and liabilities but did not involve cash flows

None
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- 2.2 Details of outlays made by other entities to establish or increase their share in businesses in which the reporting entity has an interest

None
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**Financing facilities available**

*Add notes as necessary for an understanding of the position. (See AASB 1026 paragraph 12.2).*

		Amount available \$A'000	Amount used \$A'000
3.1	Loan facilities	Nil	N/A
3.2	Credit standby arrangements	Nil	N/A

+ See chapter 19 for defined terms.

**Appendix 4C**  
**Quarterly report for entities**  
**admitted on the basis of commitments**

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**Reconciliation of cash**

Reconciliation of cash at the end of the quarter (as shown in the consolidated statement of cash flows) to the related items in the accounts is as follows.	Current quarter \$A'000	Previous quarter \$A'000
4.1 Cash on hand and at bank	749	635
4.2 Deposits at call	350	850
4.3 Bank overdraft	-	-
4.4 Other	-	-
<b>Total: cash at end of quarter</b> (item 1.22)	1,099	1,485

**Acquisitions and disposals of business entities**

	Acquisitions (Item 1.9(a))	Disposals (Item 1.10(a))
5.1 Name of entity	N/A	N/A
5.2 Place of incorporation or registration	N/A	N/A
5.3 Consideration for acquisition or disposal	N/A	N/A
5.4 Total net assets	N/A	N/A
5.5 Nature of business	N/A	N/A

**Compliance statement**

- 1 This statement has been prepared under accounting policies which comply with accounting standards as defined in the Corporations Act (except to the extent that information is not required because of note 2) or other standards acceptable to ASX.
- 2 This statement does ~~does not~~ give a true and fair view of the matters disclosed.

Sign here: ..... Date: 31 July 2007  
(Director/Company secretary)

Print name: Alex Neuling

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+ See chapter 19 for defined terms.