

**MARKET UPDATE
31 OCTOBER 2005**

HIGHLIGHTS July-September Quarter

- **Signing of sub-license agreement with Merial**
Merial will produce and market the *Poultry Productivity Enhancer* globally and Imugene will receive sign up fees, milestone payments and royalties on sales
- **Completion of the nine trials / tests on the *Poultry Productivity Enhancer* for Office of Gene Technology Regulator (OGTR)**
- **Submission of final dossier to OGTR for approval to undertake commercial field trials**

MAJOR MILESTONE ACHIEVED IN COMMERCIALISATION STRATEGY

Imugene & Merial finalise sub-license agreement

During October, Imugene significantly advanced its commercialisation strategy with the signing of the agreement to sub-license the *Poultry Productivity Enhancer* to Merial, one of the world's largest animal health companies.

Merial will now take over funding and development of this product, obtain regulatory approvals and sell to poultry producers worldwide.

The commitment by Merial demonstrates the substantial commercial value of Imugene's products. Signing our first major license deal with perhaps the most prominent animal health company in the world, validates the Adenoviral Delivery Vector platform technology.

Merial specialises in poultry disease management, particularly in commercialising recombinant viral vaccines. Merial has the resources and track record to rapidly establish a dominant market position for new vaccines. Its resources include highly experienced product development teams and comprehensive global sales, marketing and distribution infrastructure.

While the details of the license agreement are confidential, Imugene will earn sign up fees followed by milestone payments in the product development process and royalty payments on product sales following successful

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commercialisation. The agreement includes agreed minimum performance requirements and timelines. The license grants Merial the right to use the Fowl Adenovirus Delivery Vector only for this poultry product and Imugene retains the rights to develop other products from this platform technology.

To assist shareholders and the investment community understand the ramifications of the Merial sub-license, we provide responses to many 'frequently asked questions'.

Q. *Who is Merial?*

A. Merial is a joint venture between two large human pharmaceutical companies – Merck & Co. and sanofi-aventis. Merial is the world's second largest animal health company (in terms of sales), operating in more than 150 countries. Merial employs about 5,000 people and has revenues over US\$1.8 billion – all from animal health product sales.

Q. *What are the key financial terms of the sub-license with Merial?*

A. For competitive advantage reasons the key financial terms of the sub-license must remain confidential. In animal health product licensing arrangements, it is usual to see single digit royalty rates.

Q. *When will the Poultry Productivity Enhancer be sold in global markets?*

A. The vaccine will be launched as soon as possible. The remaining steps are –

- scale up and manufacture,
- large (>10,000 bird) 'commercial setting repeat data efficacy trials' and
- prepare regulatory approval dossiers for each major territory.

Merial will now undertake these steps. Australia is the most advanced territory in terms of regulatory preparation and Imugene will assist Merial to conduct the remaining commercial trials and achieve product registration in Australia.

While neither Imugene nor Merial can control the timeframes of worldwide regulators, Imugene anticipates first sales of the vaccine could be achieved within 24 months.

Q. *What makes Merial the ideal commercialising partner?*

A. Merial has highly experienced and strongly resourced global teams specialising in poultry health and performance as well as biological manufacture, regulatory approvals, marketing and distribution. Merial can quickly launch an Imugene product in all major worldwide poultry markets.

In addition, Merial is the recognised world leader in the development and approval of ‘viral vector technologies’. Merial is already using viral vectors to deliver vaccines to a number of animal species. As the Imugene platform ‘Adenoviral Delivery System’ used to develop the *Poultry Productivity Enhancer* is a viral vector, Merial is best placed to recognise and mobilise the technology. Merial has launched over 75% of the existing viral vector based products that prevent or treat animal diseases.

Q. What is the Poultry Productivity Enhancer?

- A. The *Poultry Productivity Enhancer* is a vaccine that is able to be mass administered to all broilers (meat producing chickens) via drinking water, feed or aerosol after hatching or directly into the egg prior to hatching. The vaccine boosts the chickens’ immune system, improving general health and ability to resist bacterial and viral infections.

The vaccine has been demonstrated to be much more effective in promoting health and allowing chickens to reach market weight earlier and with significantly less feed than existing in-feed treatments such as antibiotics. Unlike antibiotics and other feed additives, the Imugene vaccine leaves no residues in the meat that is consumed by humans.

Q. How significant are the benefits of the Poultry Productivity Enhancer?

- A. **Very significant.** Studies demonstrated that chickens at 42 days of age vaccinated with the *Poultry Productivity Enhancer* (either with or without antibiotics also being used) were:

- i) 13% heavier than ‘control’ (The control group were non-*Poultry Productivity Enhancer* vaccinated chickens on normal feed – i.e. antibiotics pre-mixed in feed) and used 9% less feed per kg of weight than the control group, and
- ii) 15% heavier than the worldwide industry best practice benchmark and used 11% less feed per kg of weight than the industry benchmark.

Putting this in perspective, for every 500 million chickens produced (Australia’s production is about 900 million chickens pa) the Imugene vaccine will, based on the above results:

- · In the usual 42 day grow-out period, produce an additional 177,500 tonnes of weight when compared with the industry benchmark. Using an estimated farm gate price per kg of chicken meat of \$1.20/kg, this is worth about \$200 million additional gross profit for the producers of those 500 million chickens.

or

- · Produce the same market weight of chicken as the industry benchmark in 38 days rather than the standard 42 days – enabling large savings in labour and overheads per kg produced. As feed is the highest per unit cost in poultry production, the largest saving is in the reduced amount of feed required – a saving of 235,000 tonnes. Using an average feed cost of \$300 per tonne, the saving on feed for the production of 500 million chickens is \$70 million for the producers.

Q. *How big is the world market?*

- A. There are over 40 billion broilers produced per annum world wide. In the major markets of the US and Europe, annual broiler production is over 8.5 billion and 6.0 billion respectively.

The industry is concentrated. More than 90% of US broiler production is by the top 20 producer companies. This concentration is similar in the other major markets.

Q. *At what price will the Poultry Productivity Enhancer be sold?*

- A. The vaccine pricing will be determined by Merial. One of the ‘industry standard’ valuation methods that the Imugene management has used in a theoretical model to determine pricing is for the vaccine seller to charge up to 33% of the ‘financial productivity gain’ achieved. For example, should the *Poultry Productivity Enhancer* be determined to deliver a financial gain (in terms of weight gain, feed conversion, labour and other overhead savings) of say 20 cents per bird, then the vaccine selling price would be about 6.5 cents per bird.

On this basis and assuming that the *Poultry Productivity Enhancer* is used in half the 15 billion chickens hatched in the US, Europe and Australia annually, sales could exceed \$500 million. Given the highly concentrated nature of the poultry production industry, Imugene expects that the vaccine will achieve a significantly greater market share than 50% in each major territory.

However the actual selling price will be determined solely by Merial, based on the benefits demonstrated in large commercial trials and the above example is hypothetical.

Q. *Is the Poultry Productivity Enhancer protected by patents?*

- A. Yes, two separate patents apply to the product. Patents provide a monopoly for the vaccine in the major markets of US, Australia, Canada, Japan and New Zealand. Patent applications are waiting formal patent granting in Europe and Mexico.

Importantly, with Merial as the vaccine’s commercialising entity, the vaccine has the ability to quickly secure a dominant market share in

non-patented jurisdictions thereby reducing encroachment by generic producers.

Imugene receives royalties on sales in patent protected and non protected jurisdictions.

Q. *What are the costs of production of the Poultry Productivity Enhancer?*

A. A key benefit of this technology is its very low cost of manufacture.

The Imugene vaccine is biological and differs from chemicals – ‘biologicals’ are grown not manufactured. There is no need for expensive or dedicated capital equipment. The vaccine will be produced under standard GMP (Good Manufacturing Practice). A master batch of highly concentrated vaccine will be produced and from this, millions of doses will be produced and distributed to all global markets.

Q *What about competitors?*

A. There are no direct competitors to the *Poultry Productivity Enhancer*. This vaccine boosts chickens’ immune systems against viral and bacterial diseases without the use of chemicals or antibiotics.

Existing antibiotic treatments assist with bacterial diseases only and are routinely mixed into poultry feed. The effectiveness of antibiotics has reduced over time and some important infectious bacteria have developed resistance to some antibiotics. Europe is banning antibiotics to animal feed from 2006 and the US is under pressure to follow as soon as viable alternatives are available. The *Poultry Productivity Enhancer* is a viable alternative.

Poultry producers continue to evaluate alternative additives to poultry feed including ‘enzymes’ and other ‘antimicrobials’. Imugene’s *Poultry Productivity Enhancer* can be used with all of these additives.

From the poultry producer’s point of view, the costs of the inputs (health additives and feed) are measured against the output (financial return from sales).

UPDATE ON OTHER ACTIVITIES

Avian Influenza (“Bird Flu”)

H5N1 Highly Pathogenic Avian Influenza (HPAI)

Developing an effective preventative Avian Influenza (Bird Flu) vaccine for poultry remains a high priority for Imugene.

Vaccines currently used for Bird Flu have serious limitations. These are a combination of poor efficacy, safety limitations (ability to cause changes in the disease causing virus) or costly administration for mass scale broiler sheds (i.e. individual injections for tens of thousands of chickens).

Construction of Imugene's Bird Flu vaccine candidates were finalised in the quarter. Trialling has occurred and continues to assess the ability of these experimental constructs to elicit circulating antibody responses (provides disease protection) to the avian influenza strain in chickens.

This approach is seeking to determine the best vaccine candidate(s), dosage, timing and route of administration. Following review and assessment of this data, the best combinations of dose and timing will be used in final challenge trials.

We anticipate these trials continuing into the first quarter of 2006.

To assist shareholders in their understanding of the research and development work that is being undertaken by Imugene, we provide responses to the most frequently asked questions:

Q. *What is Imugene doing to prevent the Bird Flu?*

A. Imugene has constructed a Bird Flu vaccine candidate that is being tested in its effectiveness to immunise chickens against the Bird Flu virus. The Bird Flu vaccine uses the same platform 'Adenoviral Delivery System' used in the successfully licensed *Poultry Productivity Enhancer*. By stimulating the chicken's immune system to produce antibodies to the Bird Flu virus, protection from disease should be present if the chicken becomes exposed to Bird Flu.

Q. *How will this vaccine be used?*

A. A successful vaccine would be used in widespread vaccination of broiler flocks in risk areas, or to protect large areas or countries from disease infiltration. In areas of disease outbreak, infected birds are culled and birds within a 25-100km of the infection site are likely to be vaccinated to prevent the spread of the disease.

A successful vaccine must be able to be administered quickly and cheaply to millions of birds. The Imugene vaccine under development can be administered to birds through drinking water, feed or by aerosol spray.

Q. *What is the current treatment for poultry to prevent Bird Flu?*

A. There are Bird Flu vaccines available but these have to be individually injected. This is extremely costly and burdensome.

CORPORATE SNAPSHOT

Shares		<u>130,579,565</u>
Options:	Exercise price 22.5c Oct. 07	4,633,333
	Exercise price 25c Dec. 06	3,000,000
	Exercise price 30c Dec. 06	3,250,000
	Exercise price 50c Jan. 07 (quoted)	4,250,000
	Exercise price 50c Oct. 07	<u>1,533,333</u>
		<u>16,666,666</u>
Cash on hand - 30 September 2005		\$3.9 million
Net Cash Burn rate –		
	Previous 12 month average - per month	\$155,000
	Budget for next 12 months - per month	\$150,000

-ENDS-

About Imugene

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

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.

Imugene owns the worldwide rights to the *Fowl Adenoviral Vector Delivery System* for poultry (delivering the effective *Poultry Productivity Enhancer*) and the *Porcine Adenoviral Vector Delivery System* for pigs. Financial benefits will result from the *Poultry Productivity Enhancer* Meril sub-license agreement as product milestones and sales are achieved.

Imugene's poultry and pig portfolio is targeting a worldwide US\$3 billion annual market and replace existing chemical and antibiotic products. Consumer demands for residue free food and health regulatory pressures will bolster Imugene's prospects.

For more information please visit the Imugene Website 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 September 2005

Consolidated statement of cash flows

Cash flows related to operating activities	Current quarter \$A'000	Year to date (3 months) \$A'000
1.1 Receipts from customers	-	-
1.2 Payments for		
(a) staff costs	(115)	(115)
(b) advertising and marketing	-	-
(c) research and development	(208)	(208)
(d) leased assets	-	-
(e) other working capital	(170)	(170)
1.3 Dividends received	-	-
1.4 Interest and other items of a similar nature received	55	55
1.5 Interest and other costs of finance paid	-	-
1.6 Income taxes paid	-	-
1.7 Other (provide details if material)		
- Research & Development Rebate	-	-
- AusIndustry Rebate	13	13
Net operating cash flows	(425)	(425)

+ See chapter 19 for defined terms.

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

	Current quarter \$A'000	Year to date (3 months) \$A'000
1.8 Net operating cash flows (carried forward)	(425)	(425)
Cash flows related to investing activities		
1.9 Payment for acquisition of:		
(a) businesses (item 5)	-	-
(b) equity investments	-	-
(c) intellectual property	-	-
(d) physical non-current assets	-	-
(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)	-	-
Net investing cash flows	-	-
1.14 Total operating and investing cash flows	(425)	(425)
Cash flows related to financing activities		
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)	-	-
Net financing cash flows	-	-
Net increase (decrease) in cash held	(425)	(425)
1.21 Cash at beginning of quarter/year to date	4,346	4,346
1.22 Exchange rate adjustments to item 1.20	-	-
1.23 Cash at end of quarter	3,921	3,921

+ 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	89								
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, 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, consulting fees and superannuation entitlements;	(ii)	Reimbursement of expenses;	(iii)	Provision of Legal services; and	(iv)	Non-executive directors fees
(i)	Executive salaries, 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

- 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

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

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	253	253
4.2 Deposits at call	3,668	3,668
4.3 Bank overdraft		
4.4 Other (provide details)		
Total: cash at end of quarter (item 1.22)	3,921	3,921

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 October 2005
(Director/Company secretary)

Print name: Alex Neuling

Notes

1. The quarterly report provides a basis for informing the market how the entity's activities have been financed for the past quarter and the effect on its cash position. An entity wanting to

+ See chapter 19 for defined terms.

disclose additional information is encouraged to do so, in a note or notes attached to this report.

2. The definitions in, and provisions of, *AASB 1026: Statement of Cash Flows* apply to this report except for the paragraphs of the Standard set out below.
 - 6.2 - reconciliation of cash flows arising from operating activities to operating profit or loss
 - 9.2 - itemised disclosure relating to acquisitions
 - 9.4 - itemised disclosure relating to disposals
 - 12.1(a) - policy for classification of cash items
 - 12.3 - disclosure of restrictions on use of cash
 - 13.1 - comparative information
3. **Accounting Standards.** ASX will accept, for example, the use of International Accounting Standards for foreign entities. If the standards used do not address a topic, the Australian standard on that topic (if any) must be complied with.

+ See chapter 19 for defined terms.