



Imugene Licenses Poultry Productivity Product to Merial

October 13, 2005 Sydney, Australia: Imugene and Merial have finalised an exclusive sub-license agreement granting Merial the global rights to develop and sell Imugene's poultry productivity enhancing product.

Merial is a world leading animal health company and is a recognised leader in poultry disease management.

Trials of Imugene's poultry productivity enhancer have demonstrated growth gains of 13.7% with 11.7% improvement in food conversion ratio. These weight gains exceed the current industry best practice by up to 15.8%.

Commenting on the successful conclusion of the license negotiations, Imugene Managing Director, Dr Warwick Lamb said, "We believe Merial is the best company to take this product to market. They have experienced product development teams, sophisticated sales, marketing and distribution networks and an enviable international presence. The strength and depth of these resources far exceeds anything Imugene could replicate internally and will allow us the best possible path to market."

Imugene will earn milestone payments throughout the product development process followed by royalty payments received on product sales following successful commercialisation. The agreement also includes mutually agreed minimum performance requirements and timelines. Imugene retains the rights to all other products utilising the Fowl Adenoviral Delivery Vector platform technology.

The territories of Australia, Japan and New Zealand are now included in the sub-license territory, providing Merial with rights to manufacture, market and distribute the product to all markets. The inclusion of these countries and other refinements to the terms of the sub-license agreement, has improved Imugene's future financial returns. Imugene will continue to assist the product development process in Australia involving finalisation of the OGTR approval and commercial scale trials.

Dr Warwick Lamb stated, "The sub-license completes this major stage in our commercialisation strategy for this poultry product. We look forward to the results of this partnership as Merial has an impressive track record in marketing new vaccines".

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"Combining Merial's well established global brand and network with our highly effective poultry productivity enhancer positions the product for success."

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About Merial

Merial is a world-leading, innovation-driven animal health company, providing a comprehensive range of products to enhance the health, well-being and performance of a wide range of animals. Merial employs approximately 5,000 people and operates in more than 150 countries worldwide. Its 2004 sales were in excess of \$1.8 billion. Merial Limited is a joint venture between Merck & Co. and sanofi-aventis. For more information, please see www.merial.com.

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.

Future financial benefits will flow to Imugene as a result of the *Poultry Productivity Enhancer* sub license agreement as regulatory and product development milestones are achieved and royalties are received on product sales following successful commercialisation.

Imugene is currently developing a vaccine for prevention of Avian Influenza (Bird Flu) using this platform technology.

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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Background to the Poultry Productivity Enhancer Product

Imugene's patented *Poultry Productivity Enhancer Product* boosts a natural component of the immune system, a cytokine known as gamma interferon. This boost to the immune system increases resistance to a range of bacterial as well as viral infections. Improved disease protection is provided for both gastrointestinal and respiratory diseases. Preventing these diseases improves growth rates, reduces mortality and reduces the costs of production (the major cost being feed).

Previous trials have demonstrated unsurpassed results:

- Finishing Weight gains of 13.7% better than untreated birds and 15.8% above industry best practice "Ross Standard".
- Improved feed conversion of 11.7% above the Ross Standard and 9.2% better than untreated birds.
- Documented efficacy regardless of the presence or absence of in-feed antibiotics.

In addition to the outstanding efficacy results, Imugene's product is suitable for mass administration in water or feed.

The Competitive Advantages

Imugene's *Poultry Productivity Enhancer Product* delivers significant benefits over existing and known emerging products including antibiotics and antimicrobial chemicals.

- In-feed antibiotics are only effective against bacterial diseases and do not provide any protection against viral diseases whilst the Imugene product improves immune protection against both.
- The Imugene product with its proven efficacy for improved feed conversion and weight gain, significantly lowers producers' costs of production (shorter time period to market weight, lower feed costs).
- The Imugene product is biological (non-chemical) and is residue free, satisfying consumers' increasing demands for antibiotic and chemical free chickens.

As the necessary regulatory approvals are obtained, the *Poultry Productivity Enhancer Product* will be sold across global poultry markets for use both with in-feed antibiotics and following their withdrawal. The Imugene product is ideally positioned to move into this expanding market.

Avian Influenza (Bird Flu)

The same platform technology, the Fowl Adenoviral Delivery Technology, that has been used to develop the *Poultry Productivity Enhancer Product* is also being used in the current development work for a Bird Flu vaccine and other poultry products.

Imugene has developed a Bird Flu vaccine candidate which is currently being assessed. If successful, the new Imugene Bird Flu vaccine will be suitable for large scale administration to poultry.

The global poultry industry

On a global scale the annual production of broiler meat is 50.5 million metric tonnes derived from approximately 40 billion birds. The commercial broiler industry involves the rearing of massive numbers of birds in purpose built facilities. In the US and Europe the industry has become highly consolidated and vertically integrated. As a result, producers have become extremely efficient.

The intensive confined rearing of tens of thousands of birds in one shed presents major challenges to producers in health management. Profit margins are highly dependant on production efficiency. This efficiency is in turn dependent on the number of birds surviving to marketable age, the corresponding rate of weight gain, feed conversion ratios, and cost of treatments to prevent or reduce disease and to promote healthy growth.

In addition to animal welfare issues, illness or death have a serious negative impact on profitability. In these intensive production industries, the use of animal health treatments are assessed on a cost benefit basis.

Improvements in productivity are measured in fractions of cents and percentages. Producers assess the cost of treatments against the value of the improved output / productivity achieved. By comparison, the improvements delivered by Imugene's *Poultry Productivity Enhancer Product* are double-digit benefits.

Diseases in the poultry flock devastate commercial objectives. In general, the incidence and severity of disease is increased with higher stocking density, dietary changes, ventilation and stress such as high or low shed temperatures. Profitability margins are reduced by disease due to reduced growth, reduced feed conversion, costs of drugs, and labour costs associated with treatment.

Antibiotics are currently added to poultry feed as growth promotants to protect birds against bacterial infections. Until the development of the Imugene product, there were very few alternatives to antibiotics as a preventative treatment for bacterial disease. Consequently, antibiotics have and continue to be routinely incorporated into feed for poultry production to protect birds against infections and avoid production losses.

Consumers and regulators are demanding chickens free of antibiotic or chemical residues. Imugene's product is biological and therefore non chemical, non antibiotic and is residue free.

An initiative announced by the European Union in March 2002 calls for the banning of all remaining antibiotics used as growth promotants by 2006. This regulatory ban combined with public pressure for chickens free of drugs and chemicals has increased the demand for alternatives that provide disease prevention, healthy and safe growth promotion and improved feed efficiencies. This provides a growing market into which the Imugene product will be launched.

Being a biological treatment, production costs are significantly cheaper than chemical/s or antibiotic growth promotants. The *Poultry Productivity Enhancer Product* is also suitable for mass administration in water or feed, injected into the egg, or by aerosol spray.

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