

## **ASX ANNOUNCEMENT**

**15 May 2008**

### ***POULTRY COCCIDIOSIS VACCINE TRIAL SUCCESSFUL***

#### ***The Imugene/Abic vaccine successfully induced protection against the major poultry disease Coccidiosis***

Abic Biological Laboratories Teva Ltd. (Abic), has presented a summary of the results of the recently completed coccidiosis disease poultry trial. The trial tested a series of vaccine candidates constructed by Imugene in accordance with a research agreement with Abic.

Of the six variations of the vaccine candidates tested, there was a clear best performer which induced strong protection against the coccidiosis disease and lesions. The vaccine also significantly reduced shedding of the protozoal parasite which is a major indicator for vaccine efficacy.

Dr Warwick Lamb, Managing Director of Imugene stated, "The success of the Imugene/Abic collaboration to develop an orally delivered vaccine has exceeded our expectations in this first trial. The vaccine has surpassed the accepted commercial parameters for protection against this disease that affects all young chickens in both the chicken meat and egg production markets. Our FAV delivery system has now proven to be effective against a non-viral disease for the first time. Coccidiosis is a protozoal parasite and we are delighted to have proven the FAV vector efficacy against a new class of infectious agent.

The trial was conducted by Abic in conjunction with the University of Technology Sydney in Australia. The trial was designed to test several versions of vaccines using Imugene's patented Fowl Adenoviral Vector (FAV) delivery system and Abic's patented coccidian genetic material. The trial consisted of 24 groups with 20 birds in each group.

The vaccine candidate groups that produced the most protection were orally vaccinated at day 1 (i.e. 1 day old) and day 14. On day 28, all birds were challenged with the *Eimeria maxima* specie of coccidia. (*E. maxima* is one of the most common and problematic specie of coccidian and affects poultry worldwide).

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[www.imugene.com](http://www.imugene.com)

The trial measured protective efficacy in two ways:

1. Lesion Scoring – Birds in the Lesion scoring groups were euthanased 7 days following challenge and were scored as to the severity of coccidiosis effect (lesions) in the gut. Scoring was from 0 (no lesions) to +4 (severe lesions).
2. Oocyst shedding- The oocyst is the coccidian cyst that is transferred from an infected bird via the faeces and is the infective stage for other broilers. Birds in the oocyst scoring groups had fecal material collected for each of the four days following challenge and oocysts were counted. A reduction of the peak litter oocysts of between 60-80% is considered commercial efficacy.

The best performing vaccine group's results are:

1. Lesions :
  - a. 74% of birds had a score of 1 lesion (control group 6%)
  - b. 11% of birds had a score of 3 lesions or more (control group 44%)
2. Oocysts:
  - a. Group max daily oocyst count <68,000 (control group >350,000) – reduction 80%
  - b. Group total oocyst count <139,000 (control group >668,000) – reduction 79%

Through the combination of Imugene's FAV delivery system with Abic's coccidian genetic material, the successful vaccine has passed feasibility and has the potential to be developed for introduction to the large international broiler markets. The FAV delivery system enables the effective vaccine to be administered orally (in water) on a mass scale, such as the broiler sheds containing many thousands of chickens.

Dr Lamb stated "We are particularly optimistic, as this is the second successful vaccine trial of our expanding poultry disease vaccine range. Following on from the trial success of our Avian Influenza vaccine and our in ovo and oral delivery successes, our laboratory has been very busy. We have another four poultry vaccines nearing readiness for trials and this second trial success is very encouraging for the prospective vaccines moving into the trial phase."

The next stages in the development of the vaccine will require optimisation techniques to be applied and trialing to determine aspects such as minimum dose and optimum date of administration for protection. Abic and Imugene are in discussions regarding the arrangements to undertake these necessary stages of development.

Imugene's commercial strategy remains consistent and will be seeking to license, on commercial terms, the non exclusive use of the FAV to Abic to enable the Imugene / Abic coccidiosis vaccine to be developed and marketed by Abic to broiler producers worldwide.

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## **POULTRY COCCIDIOSIS VACCINES**

### ***Disease***

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

### ***Current treatment for poultry (Breeder & Layer) producers***

Abic currently markets a very effective 'non-vectored' sub-unit coccidia vaccine which is sold to poultry broiler breeders, for the maternal immunization of their offspring chicks. Abic distribute this product "CoxAbic<sup>®</sup>" globally. The genetic material used in this effective 'injectable only' sub-unit vaccine for breeder birds has been used by Imugene in constructing the FAV Cocci vaccines for oral delivery for the broiler bird markets.

### ***Current treatment for poultry (broiler) producers***

Current treatment for broilers is control only, not prevention, through the use of coccidiostats. These treatments are usually administered in the feed as additives. Coccidiostats are a range of chemical compounds suffering from declining effectiveness as resistance is developing.

The global market for broilers is in excess of 50 billion birds per year.

### ***Commercial proposition***

Coccidiostats are becoming less effective and cannot be used to prevent the disease. Preventative vaccines exist and are based on live attenuated vaccines and sub-unit vaccines. These are injectable vaccines.

Abic is one of the industry leaders in preventive poultry vaccine development.

An effective vectored vaccine, deliverable orally by water, would be commercially attractive for its significant improvement in administration efficiency.

**END**

### **About Abic Biological Laboratories Teva Ltd**

Abic is a quality producer of pharmaceuticals and veterinary products. Abic Biological Laboratories is wholly owned by Teva Pharmaceutical Industries Ltd. The veterinary division under the name of Abic has emerged as a major force in the Israeli veterinary market.

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## 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'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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