



24 August 2004

ASX ANNOUNCEMENT

**AVIAN INFLUENZA VACCINE
TO BEGIN EFFICACY TRIALS**

August 24, 2004, Sydney: Imugene today announces the media release by CSIRO confirming completion of the construction stage of a trial vaccine to protect chickens against the *Bird Flu* strain responsible for the recent epidemic in South East Asia.

The vaccine is now entering efficacy trials at CSIRO. Initial results are anticipated within the next two months.

The release is attached to this announcement.

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ABOUT IMUGENE:

Imugene Limited (ASX:IMU) is an Australian biopharmaceutical company specialising in the development and commercialisation of animal health products for production animals (pigs and poultry) and companion (pet) animals.

Imugene's products safely prevent disease in animals, reduce or eliminate the use of antibiotics, harmful chemicals and drugs and, in production animals, reduce the level of antibiotic and chemical residue entering the human food chain.

Imugene owns the worldwide rights to the Adenoviral Vector Delivery System for pigs and poultry. It is this Delivery System that is used to deliver Imugene's *poultry productivity enhancer* and the *Bird Flu vaccine*. Patents have been either granted or are under application in the major pig and poultry markets worldwide.

Imugene's poultry and pig portfolio is tapping into segments worth US\$3 billion of the existing US\$8 billion global spend on existing treatments per year. The majority of the existing treatments are chemical and antibiotic solutions that are becoming less effective for disease treatment and productivity enhancement. Compounding the problem of diminishing efficacy, governments and health organisations, internationally, are lobbying and legislating against the use of antibiotics in favour of non-chemical treatments.

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Media Release

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CSIRO Media Releases are available on the Internet: <http://www.csiro.au>

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AVIAN INFLUENZA VACCINE TRIALS TO BEGIN

CSIRO Livestock Industries has developed an experimental vaccine to protect chickens from the deadly H5N1 strain of avian influenza (bird flu).

The trial vaccine utilises Imugene Limited's platform adenoviral vector technology to deliver the necessary genetic material to stimulate the birds' immune responses.

Testing of the vaccine will now commence at CSIRO Livestock Industries' high biosecurity laboratories at the Australian Animal Health Laboratory (AAHL) in Geelong, Victoria.

The H5N1 strain of bird flu swept through 10 Asian countries early this year, resulting in the death or slaughter of over 100 million chickens and the deaths of more than 20 people. In July, further outbreaks of the strain were reported in Vietnam, Thailand and China, resulting in more culling of chickens and human deaths.

Once developed, the vaccine could be used to protect the world's poultry industry from further outbreaks and potential spread to Australia, Europe and the US.

CSIRO's Dr Chris Prideaux says that in order to provide a viable alternative to culling, it is important to quickly develop effective vaccines that can prevent and control outbreaks of bird flu.

"Previously influenza vaccines have had three principal problems to overcome: the potential for the disease to re-emerge through the use of 'live' vaccines, the cost of delivering the vaccine to commercial flocks and the need to be able to differentiate between vaccinated and infected birds," Dr Prideaux says.

"Most current vaccines are produced from live inactivated viruses. These vaccines can result in the virus persisting in the flock and potentially re-emerging to cause disease later on. Compounding this problem is that during an avian influenza outbreak, diagnostic tests cannot distinguish vaccinated (uninfected) birds from those affected by the disease."

The vaccine currently under evaluation by CSIRO delivers only a portion of the flu genetic material, instead of the whole virus, thus making it possible to distinguish between vaccinated and infected birds.

“This means a vaccination program could be undertaken to protect whole areas or countries whilst still maintaining surveillance for disease outbreaks and ensuring human safety,” Dr Prideaux says.

Imugene’s Managing Director, Dr Warwick Lamb, says the experimental vaccine was developed by CSIRO using Imugene’s *Adenoviral Vector Delivery System*.

“The major advantage is that vaccines generated using this delivery system are much safer than live attenuated vaccines and very cost effective for mass administration,” Dr Lamb says.

“In contrast to live attenuated vaccines, only a small portion of the genetic material will be used, therefore there is no risk that the vaccine could mutate or combine with naturally occurring influenza viruses to produce new strains, or recombine with human influenza strains which would have devastating global consequences.”

Solving the ‘high cost’ problem associated with other forms of controlling the disease, the Imugene *Adenoviral Vector Delivery System* can be administered to large numbers of birds via drinking water.

“Administering the vaccine via the birds’ drinking water greatly reduces the cost and effort needed to implement large scale protective vaccination,” Dr Lamb says.

The new trial vaccine is specific to the H5N1 strain of avian influenza, but can be easily and quickly adapted to protect against other strains of the virus.

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