



Technology Description



SpiroGene is focused on the development of a novel vaccine and an innovative diagnostic kit for a bacterial disease, avian intestinal spirochaetosis (AIS). AIS is present in high value egg layers and broiler breeders and is responsible for an estimated loss of US\$4 billion per annum to the poultry industry. The disease is caused by the bacterium *Brachyspira* and is characterized by chronic diarrhoea in diseased birds, resulting in the faecal staining of eggs and wet litter with a significant reduction in egg production and a negative effect on growth rates.

Value Proposition and Competitive Advantages

The immediate market potential is estimated to AUD 24 million/pa for treating 20% of laying chickens affected with AIS and with recalcitrant/drug resistant strains of the bacteria. As the market expands into the other 80% of the affected chickens aiming to reduce antimicrobial usage; the commercial opportunity increases to AUD 472million/pa. SpiroGene has a competitive advantage with an advanced research and development program in the diagnosis and prevention of this disease where there are currently no registered products, nor effective, treatment and diagnostic options for AIS. Conventional treatment regimes using antibiotics are unsustainable due to the issues of bacterial resistance, recurrent treatment failures and drug residues in eggs. Diagnosis of AIS by cell culture is cumbersome and time-consuming. SpiroGene seeks to utilize its technical strengths and experience in reverse vaccinology to produce a cost-effective vaccine and an innovative diagnostic kit to address an industry need.

Current Status/ Next Steps

SpiroGene has embarked on an R&D program to ensure complete intellectual proprietorship over *Brachyspira* antigens for use as vaccine and diagnostic candidates. SpiroGene has also commenced in vivo immunogenicity and vaccine efficacy trials. It is envisaged that a global animal health pharmaceutical partner with experience in poultry vaccine marketing would be essential to further develop, register and market the product on a global basis. SpiroGene is currently considering the following capital funding options:

- Co-development, or an alliance, with pharmaceutical companies providing partner funding development of the technology, and(or)
- Further external financial investment to continue the development of the technologies.

Funding Requirements

SpiroGene currently has investment funds of \$500,000 from Stone Ridge Ventures in milestone-based tranches. SpiroGene is seeking to raise up to \$1million for large-scale pre-clinical development of the vaccine and diagnostic candidates.

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