



# Vacquel Pty Ltd

## A new vaccine delivery system for human and veterinary use

### CONTACT

Dr Don Kakuda  
UniQuest Pty Limited  
Lv 7, GP South Building  
Staff House Road  
Brisbane QLD 4072  
Australia  
[www.uniquest.com.au](http://www.uniquest.com.au)

T: (61 7) 3365 4037  
F: (61 7) 3365 4433  
E: [d.kakuda@uniquest.com.au](mailto:d.kakuda@uniquest.com.au)



### The Technology

A new system for delivering foreign antigens for vaccination utilising live attenuated *Salmonella* vaccines that can be administered orally has been developed. This system has a number of potential advantages over injection - the more traditional route of vaccination:

- \* Live: Use of a live attenuated *Salmonella* strain to deliver the vaccine antigen generates a highly effective immune response that lasts longer than other vaccines.
- \* Stable and Safe
- \* Oral: Hazards associated with needles and syringes are overcome.
- \* Secretory Immunity: Allows more rapid delivery to the target site.
- \* Low Cost

Broadly Applicable: Applicable to a broad range of important diseases in humans and animals.

### Applications

*Salmonella* delivery of protective antigens can be used to generate vaccines that can protect against a wide range of pathogens where protective antigens have been identified. A number of companies are developing *Salmonella*-based vaccine delivery systems, however these systems involve plasmid-based antigen expression and incorporate a mechanism to stabilise the plasmid. The major advantage of Vacquel's system is that high levels of antigen expression can be obtained from a chromosomal promoter, avoiding the manufacturing and regulatory difficulties of the plasmid based systems. Furthermore, plasmid-based systems place an extra metabolic load on the bacterium, in addition to the requirement for a stabilization system, which may reduce vaccine efficacy. Direct comparisons of Vacquel's technology with competing plasmid based systems show that Vacquel's chromosomal system generates comparable levels of antigen expression to the plasmid based systems whilst overcoming the disadvantages of the plasmid-based systems. Protective antigens have been identified for a large number of human and veterinary diseases, but delivering these antigens to the immune system remains a major challenge. Vacquel's system has the capacity to deliver antigens effectively, enabling the vaccine potential of these antigens to be realised.

### Market

The world human and veterinary vaccine markets are estimated at over \$7 billion and \$3 billion, with compound growth rates of 14% and 6% respectively (Frost & Sullivan).

Vacquel will validate the delivery system using a veterinary disease as a model that will lead to a licenced product in 1-2 years. For human use vaccines, Vacquel expects to partner with antigen discovery companies to develop vaccines.

### IP Position

A number of patent applications are currently being prosecuted regarding Vacquel's bacterial expression and proprietary antigen systems.

### Commercialisation

We are seeking to license this vaccine delivery system to leading vaccine companies both in the human and veterinary markets having proprietary positions over valuable antigens.