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Canada

NRC Institute for Biological Sciences
**Bacterial Components for
Allergic Airway Disorder Therapy**

The Business Opportunity

Allergic airway disorders such as asthma affect millions of people globally. One of the most significant market barriers for asthma/allergic airways disorder therapy is the serious side effects associated with the long term medications. "The trend for combination products has expanded and several combination products are expected to enter the market during the forecast period." Most other immune-based treatments under development are effective prophylactically only. However, our technology not only has the additional therapeutic efficacy in treating an already ongoing disease, it is non-allergen specific (do not need to know the allergen causing the allergy).

The Technology

The ability of the live vaccine strain (LVS) of *Francisella tularensis* to suppress airway eosinophilia and pulmonary pathology, the hallmarks of asthma, was demonstrated in a mouse model of asthma. Intranasal and, to a lesser degree, intradermal immunization of ovalbumin (OVA)-sensitized mice with LVS suppressed the development of airway eosinophilia and associated pulmonary pathology induced by intranasal OVA challenge. Significantly for this technology, cell-free extract prepared from the LVS strain, and certain protein components thereof, showed a similar inhibitory effect. The inhibition of asthma and airway allergy was through the induction of T-helper cell (Th1)-mediated response which suppressed the ongoing pathological Th2 response in the lungs. These results raises the possibility of exploring protein

components of LVS as potential therapeutic modalities for human allergic asthma.

Patent Position

Patents Pending – NRC IBS case 11894

Key Publication

KuoLee R, Zhou H, Harris G, Zhao X, Qiu H, Patel GB, Chen W. Inhibition of airway eosinophilia and pulmonary pathology in a mouse model of allergic asthma by the live vaccine strain of *Francisella tularensis*. *Clin Exp Allergy* 2008 38:1003-15.

The Market

The asthma market was estimated at \$11.47 Billion in 2006. This is projected to grow to \$20.22 Billion by 2013, an annual growth rate of 8.4%. The existing unmet patient needs in the U.S. asthma market is growing rapidly, with a projected estimate of 42.5 million Americans afflicted by asthma or other chronic obstructive pulmonary disease (COPD) by 2013.

Technology Transfer Possibilities

- A commercial exploitation license for the technology.
- Development of this technology through a joint collaboration.

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