



## 01415 - Development of Anti-IgE Peptide for Treatment of Canine Allergy

North Carolina State University: Dr. Bruce Hammerberg

Grant Amount - \$84,861.00 Project Dates : 1/1/2011 - 12/31/2012

**Abstract:** Treatment of chronic allergic diseases in dogs, often seen as recurring dermatitis, frequently results in less than optimal outcomes. When the disease can be linked to exposure to specific allergens, such house dust mites, desensitization injections can be effective in some individuals when carried out over an extended time; however, most cases are not resolved by desensitization and require a combination of allergen avoidance and anti-inflammatory drugs. The prolonged use of these drugs, such as corticosteroids, can result in severe side effects. These same challenges exist for human allergy sufferers, but recently there has been a major breakthrough in the development of a new, safe and effective therapy using a monoclonal antibody that specifically binds and neutralizes human IgE that is responsible for activating inflammation-producing cells. This new product is called Xolair® and it has been used safely by millions of allergy patients for more than 5 years. Our laboratory has developed a monoclonal antibody that specifically binds canine IgE in the same manner as the monoclonal antibody used to develop Xolair®. There are two obstacles remaining in providing the canine equivalent to Xolair® for treatment of allergies in dogs and they are the

### Objectives of this proposal:

1. Modifying the monoclonal antibody to reduce the dog's natural response to clear this protein;
2. Developing cost effective production of the modified antibody.

### Our Approach is to:

1. Generate a single chain recombinant peptide from the IgE-binding region of our canine IgE-specific monoclonal antibody that is small in size and of limited antigenic potential
2. Develop a transgenic plant (eg. tobacco) containing the gene for this recombinant peptide using well established techniques that will allow production of the therapeutic peptide in kilogram quantities.

The expected outcome will be to provide a new, safe and highly effective treatment option for canine allergic diseases that is affordable to use for maintenance therapy.

DAF: \$2,500.00 Commitment

Date:11/22/2010