

T-Cell Receptor Peptide Vaccine

TECHNICAL SUMMARY: TCR Vaccine

BACKGROUND:

Immune responses are coordinated by the innate immune system via antigen-presenting cells (i.e. monocytes/macrophages) and the acquired immune system by T helper (Th) subsets Th1 and Th2. Th1 cells promote cellular immunity by the secretion of IL-2, TNF- β , and INF- γ . Conversely, Th2 cells mainly promote humoral immunity by secreting IL-4, IL-5, IL-10 and IL-13. Immuno-pathology of Th1/Th2: It is now well accepted that many diseases are a result of a Th1/Th2 imbalance. This is a tightly balanced system, whereby Th1 cytokines suppress Th2 activity and visa versa. Since Th1 is responsible for cell mediated and antibody mediated (IgG2) immunity, partial loss of the Th1 component accompanies many chronic infections and makes a host more susceptible to new infections. Therefore, a Th2 bias decreases cell mediated immune surveillance, leaving the host susceptible to pathogens and a variety of IgE mediated diseases. In summary, restoration of normal Th1/Th2 balance is essential for appropriate immune responses and physiological status.

TCR VACCINE DESCRIPTION:

The TCR Vaccine is a subcutaneously administered peptide vaccine that engages the T-cell Receptor (TCR) and has immuno-regulatory and immunostimulatory activity. In lab animal studies, TCR Vaccine has restored cell mediated immunity, normalized Th1/Th2 balance, and reduced viral pathology. In veterinary studies, TCR Vaccine has shown to be effective in atopy, stomatitis, and skin infections.

KEY BENEFITS OF THE VACCINE:

- Targets a central immunological regulator (T helper cells) for a more comprehensive approach to disease intervention
- Balances numerous cytokines in physiological ratios
- Can be used as a prophylactic or therapeutic vaccine
- Requires no adjuvant or antigen to produce effects
- Proposed long lasting effect on immunity (months to years)
- Synthetically manufactured which reduces contamination issues

POTENTIAL VETERINARY INDICATIONS:

- **Canine:** Atopic dermatitis, autoimmune disorders
- **Feline:** Asthma, enteritis, stomatitis
- **Equine:** Small airway disease, uveitis
- **Bovine:** Johne's disease, M. bovis, mastitis, BLV
- **Swine:** PRRSv

Development Status: Clinical studies are currently on-going.

