



JDRF Requests Expressions of Interest for the Discovery and Development of Tolerogenic Nanoparticle Delivery Systems for Preventing and/or Abrogating Beta Cell-Specific Autoimmunity in Type 1 Diabetes

Purpose of Request

JDRF is soliciting expressions of interest (EOI) for the discovery, development and pre-clinical testing of tolerogenic nanoparticle delivery systems of diabetes specific antigens designed to prevent and/or reverse type 1 diabetes (T1D). JDRF is committed to translation of research findings towards clinical results and is most interested in translationally relevant projects.

Background

Inducing antigen-specific tolerance is one of the most elusive and most highly sought therapeutic goals in autoimmune diseases. Recently, a number of new tolerance-inducing antigen-specific approaches have been described and tested in preclinical models showing an ability to suppress specific pathogenic autoimmune responses while maintaining global immunity against infectious agents and non-self antigens. JDRF is interested in supporting the discovery and development of nanoparticle-based vaccines or approaches for inducing beta cell-specific tolerance or immunoregulation in T1D. The tolerogenic nanoparticles should contain beta cell antigen(s) for specificity. There may be multiple approaches to induce immunoregulation with nanoparticles, including: inclusion of molecules that promote the induction of antigen specific immune tolerance; generating properties of nanoparticles that structurally and/or chemically act directly to induce immunoregulation, such as by resembling apoptotic cells; or unique tolerogenic delivery of the particles. It should be noted that such approaches offer a platform technology that can be applied to other autoimmune and perhaps even allergic conditions with the provision of disease-relevant antigen(s).

Specific Goals of Request

Expressions of interest are sought from investigators interested in discovering, developing and testing in pre-clinical models, novel tolerogenic nanoparticle delivery systems for the prevention and/or treatment of T1D. The delivery systems should incorporate both tolerance promoting molecules or properties and beta cell specific antigen(s). The clinical translation potential of the investigations should be emphasized. This initiative encourages collaborations between experts in the fields of bioengineering, immune tolerance, and T1D. However, we also welcome investigators with assays or hypothesis relevant to this initiative.

Examples of pertinent topics include, but are not limited to:

- Use novel biodegradable/biocompatible biomaterials or application of existing nanoparticles for tolerogenic delivery
- Incorporation into nanoparticles of beta cell antigen(s) with tolerance-promoting molecules (e.g. siRNA to downregulate costimulatory receptors or molecules or signals required for DC maturation and/or function, molecules to upregulate co-inhibitory receptors or tolerance induction, immunoregulatory cytokines, etc.)
- Nanoparticles that induce apoptosis or mimic apoptotic cells and express beta cell autoantigens
- Nanoparticles that release tolerogenic beta cell autoantigens or provide tolerogenic release of autoantigens
- Novel routes of administration or specific targeting of nanoparticles to induce immune tolerance
- Demonstration of therapeutic efficacy (prevention, disease reversal potential) in animal models
- Mechanisms of action of nanoparticle-based approaches in pre-clinical models of T1D

Investigators with ideas or resources that might benefit this initiative should also submit their ideas via an expression of interest.

Expressions of intent should be no more than two pages in length including the following information:

- Name, title and institution of principal investigator (PI), co-investigator and/or key collaborator(s)
- Brief details of approach proposed, including hypothesis, scientific rationale and references to published or preliminary data (preliminary data need not be presented in detail)
- Description of potential for translation into therapies including short and long-term development goals
- Biosketches of PI and co-investigators/collaborators (does not count towards page limit)
- Total estimated budget and project duration (not to exceed 24 months)

Inquiries in this area should be referred to Jessica Dunne, Ph.D. jdunne@jdrf.org; tel: +1-212-479-7595

Key Dates:

- Expressions of interest should be submitted via proposalCENTRAL (<https://proposalcentral.altum.com>) no later than September 9, 2010.
- Submitted expressions of interest will be acknowledged with brief responses as to their suitability for further development by the JDRF no later than October 11, 2010.