JDRF REQUESTS LETTERS OF INTENT FOR:

NOVEL BIOENGINEERED MATERIALS AND DEVICE CONCEPTS TO FACILITATE DEVELOPMENT OF ENCAPSULATION SYSTEMS FOR TYPE 1 DIABETES

PURPOSE
JDRF is committed to accelerating the development of a beta cell replacement therapy with a replenishable source of insulin-producing cells capable of reversing hypoglycemia unawareness, restoring glucose control, and improving the management of insulin treatment in type 1 diabetes (T1D) without chronic systemic immunosuppression. To accomplish this goal, JDRF invites applications to define encapsulation systems and advance preclinical or clinical proof of concept studies aimed at validating beta cell replacement approaches for individuals living with T1D.

BACKGROUND
Transplantation of pancreatic islets is a proven treatment capable of restoring glucose control in individuals with severe life threatening hypoglycemia unawareness. However, the application of islet transplantation is limited due to the requirement for lifelong immunosuppression therapy and a shortage of islets from donor pancreata. One of the goals of the Beta Cell Replacement program at JDRF is to develop safe therapies that pair insulin-producing cells with supportive and protective strategies capable of restoring long-term beta cell function without the need for chronic immunosuppression. Currently, encapsulated systems consisting of a protective barrier enclosing a cell product derived from porcine sources or human pluripotent stem cells are considered the most likely candidates to have nearer term clinical impact. For the last five years, research teams funded by JDRF and often brought together through a Consortium, have made significant progress in the field of encapsulation by advancing the development of bioengineered materials, optimizing human stem cells and porcine islets as a cell source for therapy, and providing preclinical proof-of-concept for several encapsulated systems. However, key challenges remain to be addressed when considering replacement therapies with encapsulation systems. These include the recognition of materials leading to a foreign body/fibrotic response, oxygenation and diffusion of nutrients including glucose/insulin through the membranes to prevent hypoxia and malnourishment, glucose sensing and insulin release kinetics, and the lack of an optimal microenvironment at the implantation site to allow long-term cell viability and function.

OBJECTIVES
JDRF is soliciting letters of intent from academic or industry applicants to incorporate new technology platforms, engineering concepts, and provide proof-of-concept validation to improve islet encapsulation systems as a key component of cell replacement therapy for T1D. Expected outcomes from project proposals would overcome the particular features that are limiting to the current beta cell replacement approaches. The issue to be resolved should be clearly identified in the proposal and the impact of the proposed work on the development of the product discussed. Encapsulation prototypes must be scalable and capable of supporting the necessary dose of replenishable cell source to enable translation into clinical settings. Projects at later-stages in the development process with nearer-term clinical impact potential will be given priority.

Examples of pertinent deliverables, but not intended to be exclusive or all-encompassing, include:

- Enhance the functionality of existing prototype devices through improved nutrient and/or oxygen delivery systems or incorporation of novel biomaterials, coatings and/or local immune modulators
- Testing retrievable encapsulation systems with porcine islets or human pluripotent/embryonic stem cell-derived beta cell products that have demonstrated POC with human/rodent islets
- Explore technologies and concepts to define the optimal biomimetic microenvironment for cell grafts, including non-invasive imaging approaches.
• Demonstrate biocompatibility of materials, capsules, or devices in human studies
• Clinical POC of encapsulation systems

This RFA will not support the following types of applications:

• Optimization of stem cell differentiation/maturation protocols
• Proposals for novel/optimized concepts that replicate or contain minimal modifications to current encapsulation strategies.

Applicants are encouraged to consult with JDRF Scientific Staff to discuss the alignment of their proposal to this RFA and in developing the projected study concept. Collaborations with industry and/or direct applications by companies are strongly encouraged.

LEVELS OF FUNDING AND GRANT MECHANISM
In response to this announcement, LOI’s can be submitted to our Strategic Research Agreement (SRA) and Discovery Program (DDP) grant mechanisms. For more information on these mechanisms, please refer to our website:
• Strategic Research Agreements: http://grantcenter.jdrf.org/information-for-applicants/grant-mechanism-descriptions стратегических-соглашений/
• Industry Development and Discovery Program: http://grantcenter.jdrf.org/industry-partnerships/

Each project may request up to total $350,000 USD per year (including 10% indirect costs), for up to three years. Applicants should discuss with JDRF Staff (see below) when proposing longer timelines or higher budgets to determine the suitability of proposal.

Pilot and feasibility studies without significant preliminary data may also be submitted and can request up to total $150,000 USD per year for one year (including 10% indirect costs).

If you would like to submit an Industry Development and Discovery project LOI to this RFA, please contact Dr. Esther Latres (elatres@jdrf.org) to discuss this prior to submitting an application.

All funded principal investigators from this call for applications will be required to participate in in-person consortium meetings as well as regular teleconferences for scientific and administrative updates. It is expected that investigators will share unpublished data and reagents within the consortium, governed under a confidentiality and non-disclosure policy. Prior to awarding funds, PIs and subcontractors will be required to agree to JDRF’s Grant Policies and Procedures, including an Intellectual Property Policy and a Confidentiality Non-Disclosure policy. Continuation of funding will require active participation in the consortium and will be contingent upon results.

ELIGIBILITY
Applications may be submitted by domestic and foreign non-profit organizations, public and private, such as universities, colleges, hospitals, laboratories, units of state and local governments, and eligible agencies of the federal government. Applicants must hold an M.D., D.M.D., D.V.M., Ph.D., or equivalent and have a faculty position or equivalent at a college, university, medical school, or other research facility. Please note that applications from for-profit entities or industry collaborations with academia may be submitted to this LOI, however, additional information will be requested from for-profit entities if a full application is invited.

For clinical studies, applicants must hold an appointment or joint appointment in a subspecialty of clinical medicine, and conduct human clinical research.

There are no citizenship requirements for this program. To assure continued excellence and diversity among applicants and awardees, JDRF welcomes applications from all qualified individuals and encourages applications from persons with disabilities, women, and members of minority groups underrepresented in the sciences.
LETTER OF INTENT
Prospective applicants should submit a Letter of Intent on line via RMS360 ([http://jdrf.smartsimple.us](http://jdrf.smartsimple.us)) to be considered for a full proposal request. The LOI template provided on the RMS360 website must be used to complete the application. Applicants will be notified approximately eight weeks after the LOI deadline date if they have been approved to submit a full application.

Please see below for complete instructions. Letters of intent should use the template provided and include the following information:

- Background /Rationale and Specific Aims of overall project
- Overview of hypotheses, goals, deliverables and collaborative framework as applicable
- Title, lead investigator and brief description and specific aims of individual projects (if collaborative/network)
- Expected deliverables and impact of the proposed study with potential next steps
- Intellectual Property or commercial efforts associated with the current application
- Total budget / budget by year by project
- Biosketches for all Principal Investigators and Co-Principal Investigators

PROPOSAL
An approved Letter of Intent is required prior to submission of a full proposal. Upon notification of a request for a full proposal, the application must be completed using the templates provided on the RMS360 ([http://jdrf.smartsimple.us](http://jdrf.smartsimple.us)). Proposal section templates in MS Word [10 page maximum] should be type-written, single-spaced and in typeface no smaller than 10-point font and have no more than six vertical lines per vertical inch. Margins, in all directions, must be at least ½ inch. Complete information should be included to permit review of each application without reference to previous applications.

Note that all applications involving human subject research must include supplemental information to address subject safety, study design and investigational product information. More details can be found in the Human Subject Research Guidelines: [http://grantcenter.jdrf.org/wp-content/uploads/2012/12/JDRF_Scientific_Guidelines_final-Aug20151.pdf](http://grantcenter.jdrf.org/wp-content/uploads/2012/12/JDRF_Scientific_Guidelines_final-Aug20151.pdf)

ANNOUNCEMENT INTRODUCTION AND PUBLIC Q&A
JDRF will hold announcement introduction meeting via web and teleconference on December 20 at 12pm US Eastern Standard Time, to which all interested prospective applicants are invited. JDRF scientists will give an overview of the goals of this initiative, explain the application process and answer initial questions on applications. A brief introduction on JDRF’s new grant application portal (RMS360) will also be given.

Webex Details
Click here to join the webinar: [Join WebEx meeting](#)
Meeting number (access code): 731 985 123
Meeting password: 46hEEgdr

Join by phone
1-866-469-3239 Call-in toll-free number (US/Canada)
1-650-429-3300 Call-in toll number (US/Canada)
Global call-in numbers | Toll-free calling restrictions

If you are unable to attend the webinar and would like more information, please contact Dr. Latres directly.

DEADLINES
RFA Release Date: ..........................................................Dec 13rd, 2016
Teleconference Introduction & Public Q&A: ..............................................Dec 20th, 2016
EOI Deadline: .............................................................................Jan 12th, 2017
Full proposal Notification: ..........................................................Jan 31st, 2017
Full Proposal Submission Deadline: .............................................March 1st, 2017
Response to Applicants Date: .....................................................July, 2017
Anticipated Earliest Start Date: ....................................................September 1, 2017
SUBMISSION INSTRUCTIONS

Applicants should register and submit their completed LOI in RMS360 (http://jdrf.smartsimple.us).

REVIEW CRITERIA

Applications will be evaluated in accordance with the criteria described below. Evaluations will be competitive and performed by an appropriate peer review group convened by the JDRF. Reviewers will be asked to evaluate applications based on the likelihood that the proposed research will have a substantial impact on the mission of JDRF. The scientific review group will address and consider each of the following criteria in assigning the application’s overall score, weighing them as appropriate for each application.

- Relevance: Is the proposed research relevant to the objectives of this RFA? What will be the expected impact of these studies on JDRF’s goal to develop beta cell replacement therapies?

- Significance: Does this proposal address a key/strategic issue? What will be the expected outcome of these studies on the concepts, methods, or preclinical/clinical development that drive the beta cell replacement field?

- Approach: Are the conceptual framework, design, methods and analyses adequately developed, well integrated and appropriate to the aims of the project? Does the applicant acknowledge potential problem areas and consider alternative tactics? Is the proposed research feasible within the term of the award?

- Investigator experience and environment. Due to the nature of the RFA objectives, it is expected that multiple investigators might be required to contribute the expertise required for a project to succeed – e.g., bioengineering, transplantation, chemistry, etc. If the investigator does not have T1D experience, are there appropriate collaborative arrangements with experts in T1D?

CONTACTS

PROGRAMMATIC
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If you have any grant-specific questions as you work within RMS360, please contact the administrative contact listed above.

For any non-grant-specific inquiries or issues, please contact SmartSimple Support Services via email support@smartsimple.com or phone (866) 239-0991. Support hours are Monday through Friday between 5:00am and 9:00pm US Eastern Standard Time.