

Anejo 1

Objetivos y Estrategia Proyecto Título V RCM

Title: **Clinical and Translational Research (CTR) with an Interdisciplinary and Entrepreneurial Approach for Students and Faculty from Undergraduate Programs in Puerto Rico**

Institution: University of Puerto Rico, Medical Sciences Campus (UPR-MSC)

This activity includes two components, and will serve 329 undergraduate students (UgS), from a total enrollment of 2,207, through: (1) Re-conceptualizing the current CRESCO (Center for Research Education and Science Communication Opportunities) to the **Center for Research, Entrepreneurship and Scientific Collaborations (CRESCO)**;; and (2) Development of a **Training Program in CTR and/or Entrepreneurship (E)** for UgS, Graduate Students (GS), Faculty (F) and Health Professionals (HP); **and hands-on-experiences CTR and/or E** for UgS, GS, and F who graduated (F graduates) from the Title V Cooperative Project UPR-MSC and Universidad Central del Caribe (TVCoop) and Undergraduate Faculty (UgF). We are addressing Hispanic students academic excellence, skills enhancement in CTR/E and improved technological infrastructure and **Competitive Preference Priorities 1 and 2**. The expected outcomes (baselines=0) include: (a) increase and improve institution's technological and research infrastructure and resources for CTR by 90%; (b) expand and develop CRESCO (physical and online); (c) increase to 200 the number each of :UgS, GS and F that received assistance from the Online CRESCO; (d) increase to 50 the number of F and S in Academic Programs in Health Professions/Science (APHP/S), from other UPR-campus and other universities in Puerto Rico, aware of training opportunities in CTR with an interdisciplinary approach (IA); (e) increase to 264 the number of UgS and/or GS and to 384 the number of F and/or HP with the knowledge, skills, capabilities and opportunities in CTR with an IA; (f) increase to 48 the number of UgS and to 48 the number of GS with financial and entrepreneurship skills for conducting CTR with an IA; (g) increase to 60 the number of UgS and to 60 the number of GS taking the Financial Literacy and Scientific Entrepreneurship (FLSE) **online tutorials** available at CRESCO's Web page; (h) increase to at least 10 the number of UgS and/or GS taking the FLSE online **course** available at CRESCO's Web page; (i) increase to 32 the number of Pilot Projects Program (**PiP**) teams formed as evidenced by a submitted proposal; (j) increase to 16 the number of Scientific and Entrepreneurship Mentoring Team (**SEMT**) formed as evidenced in an intention letter; (k) increase to 8 the PiP teams submitting papers on their research findings; (l) increase by 100% the PiP teams (comprised by F graduates, established researchers, UgF, UgS and GS) receiving incentives and support for research related activities, as evidenced in progress reports and an electronic portfolio as an assessment tool for their progress and achievement in CTR. Through these key components, UPR-MSC expects to achieve the ultimate goal of this activity: Hispanic students' academic excellence. We are addressing **Competitive Preference Priorities 1 and 2**.

INSTITUTIONAL MANAGEMENT		
<p>Problem #6: There is a critical need to update technology and telecommunications equipment for CTR development.</p>	<ol style="list-style-type: none"> 1. Increase and improve the online library resources and availability at UPR-MSC. 2. Provide and enhance technological and research infrastructure for CTR development. 3. Improve data gathering, storage, and management to provide accurate, timely and ongoing information in order to make data driven decisions. 	<p>1.1, 1.8, 2.1, 2.8, 3.1, 3.8, 4.1, 4.8 5.1, 5.8</p>
FISCAL STABILITY		
<p>Problem #7: UPR-MSC has fiscal constraints that limit its capacity to provide the necessary infrastructure and support for academic and research development.</p>	<ol style="list-style-type: none"> 1. To increase the cost-effectiveness of programs and services provided through the effective use and integration of technology in the teaching-learning process. 2. Develop entrepreneurship competencies among faculty and students. 	<p>1.1, 1.8, 2.1, 2.8, 3.1, 3.8, 4.1, 4.8 5.1, 5.8</p>

IV. IMPLEMENTATION STRATEGY AND TIMETABLE

Component # 1 (Includes Competitive Preference Priorities 1 and 2) : To expand the CTR environment with an interdisciplinary and entrepreneurial approach by the development of the **Center for Research, Entrepreneurship and Scientific Collaborations (CRESCO)** at UPR-MSC Library, heart and hub of the proposed project. The current CRESCO (Center for Research Education and Science Communication Opportunities), an online and physical space located in the UPR-MSC library and created by TVCoop, will be transformed into a center to provide the training venue for UG, GS, F and/or HP in CTR and financial/entrepreneurship skills. CRESCO will support targeted activities in financial topics to the Scientific Entrepreneurship Mentoring Team (SEMT) program. In addition, as a main collaborator of Component 2, it will provide scientific writing, statistical analysis services for participants of the interdisciplinary teams in Pilot Projects Program (PiP). The enhanced services of CRESCO will be also available for the general academic community. The re-conceptualized CRESCO will maximize the use of its existing facilities and equipped – study rooms, computers, laptops, smart boards and internet

access—to transform it into a training center in financial literacy/scientific entrepreneurship, where the UG and GS can develop skills and capabilities in this vital topic through: hands-on workshops, online tutorials and courses. Also, CRESCO will be a one-stop user oriented facility, with state of the art facilities and web-based resources, ideal for offering writing and statistical analysis support to the interdisciplinary teams, designing and conducting pilot projects on CTR. In summary, CRESCO will be the hub to both enhance the skills and capabilities in financial literacy/scientific entrepreneurship for UG, GS, and to provide the necessary support for S and F learning and/or conducting CTR. CRESCO facilities are and will continue to be accessible to disabled persons.

Component 2 (Includes Competitive Preference Priorities 1 and 2): Through this component, we propose an integrated UG, GS, F and HP development plan in CTR with interdisciplinary and entrepreneurial approach and the enhancement of the CTR and technological infrastructure. This component will focus in three areas described below: **A.**

Training: 1. Training in CTR **available to the UG and/or GS** of APHP/S from different UPR campuses and universities in Puerto Rico through the two-credit elective course offered through hybrid modality INTD 5998 (CTR I - Introduction and Principles) and a UPR-MS's professional certification in CTR (PCCTR). This multidisciplinary course exposes students to the main concepts that underlie CTR through conferences, workshops and presentations. The course discusses topics such as the history and definition of CTR identification of attributes of a clinical and translational researcher, and the intersection of health professions and research questions. Additional topics include: individual development plan, protection of the human subject, responsible research behavior, mentor-learner relationship and clinical and translational environment. At the end of the course, the students prepare an electronic portfolio as evidence

of their course activities as future researchers. For the promotion of the courses, 5 student leaders will be identified per year. The necessary administrative steps will be taken to make this course a regular offering in the undergraduate and graduate programs from different UPR-Campuses and other universities in Puerto Rico. 2. Training in CTR with interdisciplinary approach offered in hybrid modality, **available for the F and HP** through modules and two certifications (level 1 and 2) in CTR from the Continuing Education Division. These certifications will expose the F and HP to the same topics of the course described in previous section A but for the faculty and/or with clinician perspective. Each certification will be an integration of nine (9) instructional modules and will be offered during one semester of an academic year. The curriculum proposal of this Professional Certification will be presented to the Continuing Education Departments of the School of Nursing and the School of Health Professions of the UPR-MSU for its creation and approval. Once approved, the Certification will be advertised through the participation of project collaborators in promotional activities. It is expected to be able to expand the offer of this Certification to other health professionals in the second and fourth year of this project. 3. Training in financial literacy and scientific entrepreneurship available for UG and GS by offering the Training Cycle -Financial Literacy & Scientific Entrepreneurship- a series of workshops from which online tutorials and a hybrid course will be developed and offered. The educational materials/resources and promotional materials for the course and CTR modules will be prepared in Spanish, targeting Hispanic students, faculty and health professionals with limited English proficiency. **B. Hands-on-experiences**: To enhance and empower the academic environment providing continued support and training in CTR through the development of a “Pilot Projects Program” (PiP) and in financial literacy and scientific entrepreneurship through the establishment of Scientific Entrepreneurship Mentoring Team(SEMT) Program. Through

these programs we propose a comprehensive and integrated student/faculty development plan.

1. **PiP** will provide the scenario for the acquisition of critical techniques in CTR while offering additional support for the continued growth of students and faculty. The PiP will support the design and development of pilot research projects enhancing UG's potential as future researchers, students' progress towards graduate academic programs, and potentially increasing the number of underrepresented Hispanic minorities in research. The PiP program will target: a) individuals, from post-secondary institutions across Puerto Rico, who completed all the activities, including participation in Clinical and Translational Mentored Teams (CTMTs) of the previous TVCoop faculty graduates (F graduates) and b) other faculty members, students, and well-established in-campus researchers working in Clinical and Translational Research (CTR). Details follow. The PiP program is designed for an initial support for six and extension of twelve more months (for a total of 18 months), subject to reasonable progress in achieving the research project's aims and as evidenced by the written and oral progress reports.

a. **Pilot Projects (PiP) support for F graduates:** During the five years of the TVCoop we were able to successfully engage 15 faculty members in CTMTs. These F graduates have either completed their research experience or are currently engaged in research in their respective CTMTs and will finish their experiences by September 2020. To enhance the educational environment spearheaded by these F graduates and well aware that the experience gained through the CTMTs is not enough as to propel these F graduates into the competitive CTR research world, we have designed this PiP program to provide F graduates with continued support. PiP will furnish resources to design and implement a pilot research project, while receiving mentorship from a well-established researcher in any university island wide. The new teams will be comprised of the F graduate, an established researcher faculty mentor (researcher mentor) and at least two students.

b. **PiP for**

established researchers in CTR: Considering the need to diversify the research options and cognizant of the desirability of integrating multidisciplinary and interdisciplinary teams in CTR, the PiP program will also support established researchers, in any university island wide, that will engage in research with a team that must include students and a UgF member. CRESCO will support participants in PiP teams in **scientific writing, statistical analysis and** throughout the stages of design, implementation, final analysis and publication of results. 2. **SEMT** is designed to provide active participation in hands-on entrepreneurial experiences to UgS and GS with a variety of intensive entrepreneurial hands-on experiences, internships and site visits, among others. The SEMT will have a special emphasis of fiscal literacy and skills such as budget preparation and implementation. The experience includes the design of a science entrepreneurship proposal under the guidance of a scientific-entrepreneur/mentor. **C. Infrastructure:** To enhance the undergraduate CTRE and technological infrastructure providing: core equipment for the skills laboratories at the SoHP and the SoN that could be used for some of above mentioned training experiences, as well as hands-on experiences for UgS, GS, F and HP; and minor equipment and materials, as needed and requested to perform the proposals/projects of the **PiP teams** and **SEMT**.

To support the decision-making processes throughout the development of the proposed project and to measure the impact of the project on the participants, we will use the tracking system developed through the TVCoop. The current tracking system will be adjusted to the specific needs of the new project by the Internal Evaluation Team in collaboration with the TV project's leadership (project director, activity co-director and co-coordinators). The tracking system will allow the project's leadership to gather data on each of the activities/courses and workshops and guide the implementation of all proposed interventions. (Details in the Evaluation Plan section).