

Regenerative Medicine Minnesota: Progress Report

Grant Title: Innovative Minds Partnering to Advance Curative Therapies (IMPACT): A Statewide Undergraduate Regenerative Medicine Education Program (MRM 2015 UED 002)

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Project Timeline: May 1, 2015 – April 30, 2016

Brief description of project: The IMPACT program is a crowdsourcing-inspired educational initiative that challenges undergraduate students to develop novel hypotheses for real-world health questions. In this program, multidisciplinary teams of students across all academic years conduct primary literature review to address regenerative medicine cause-to-cure challenges through written submissions, scientific posters, and oral presentations at an annual symposium.

Through an inaugural RMM education grant, we proposed to do the following:

Aim 1: Recruit long-term faculty supporters across partnering MN colleges

Aim 2: Build programmatic infrastructure for sustainable expansion of IMPACT

Aim 3: Evaluate educational/scientific merit of IMPACT for students and research institutions

Where did this project take place? Mayo Clinic, IMPACT symposium on March 5, 2016

People impacted by project and where they are from: Support from RMM enabled the IMPACT program expand to 20 colleges (up from 8 in 2015). Participating institutions include state universities, private colleges, as well as community and technical colleges. A total of 164 undergraduate students participated in IMPACT over the past year (288 total to date).

What was the outcome of the project?

Aim 1: The IMPACT program successfully engaged 40 faculty sponsors in the past year; 20 of whom attended the symposium and engaged in dialogue with Mayo Graduate School leadership about mentoring students into emerging biomedical careers, such as regenerative medicine.

Aim 2: An IMPACT database was assembled to maintain demographic information and survey data. This data-management infrastructure, along with a program announcement video on the IMPACT webpage, enables ready expansion of the program to additional schools and students.

Aim 3: IMPACT students (n=33) and controls (n=77) responded to pre-/post-surveys to evaluate the educational merit of the IMPACT program. Following the IMPACT program, participants show significantly greater self-efficacy in hypothesis generation ($p=0.007$) and self-identity as scientific innovators ($p=0.02$) compared to controls. Moreover, the stem cell research conducted by the winning IMPACT team at Mayo Clinic in 2015 attests to the scientific merit of this program.

Overall, this project was successful in establishing a network of college educators committed to the IMPACT program, building the infrastructure for a statewide regenerative medicine education platform, and empowering MN students to conduct cause-to-cure regenerative medicine research.

Resulting publications/grants/awards

This research will lead to two publications (in preparation) to be submitted prior to April 30. One publication will focus on the educational survey data and another will highlight the laboratory research conducted by the winning IMPACT students. An application for the Mayo Clinic Education Science Career Development Award will also result from this education research.

Responsible Spending:

To date, the RMM education award has been allocated to support 17% of the program director salary/benefits, travel costs for campus visits, technology costs for the IMPACT database, and costs associated with the IMPACT symposium. Remaining funds will be spent prior to April 30 to support travel/awards for the IMPACT students.