REBUILDETROIT

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ReBUILDetroit Scholars at the University of Detroit Mercy in the SEA-PHAGE Laboratory.

STUDENTS IDENTIFY AND NAME BACTERIOPHAGE

Freshman in their first college semester have successfully identified and uniquely named the bacteriophage (viruses that infect bacteria) they discovered.

The Biology class is part of SEA-PHAGES project which provides students a unique mentored research experience in their freshman year.

"This is a great experience for freshman," says Dr. Stephanie Conant. "Providing a research laboratory experience in a students first semester is exciting for the students."

Students are part of larger national consortium to isolate and characterize new bacteriophage.

Earlier in the semester, students collected soil samples from a variety of environmental sources. From those samples, bacteriophage is isolated, purified and amplified in the laboratory.

The morphology of purified phage is examined under an electron microscope.

Phage genomic DNA is purified and characterized by restriction enzyme analysis then DNA is sent to a sequencing center to be "decoded."

"Students were excited to discover and name their phage," says Conant. "Having real-world research experience in the freshman year will hopefully engage students to continue their research beyond the undergraduate degree."

The SEA-PHAGE laboratory is sponsored by the Howard Hughes Medical Institute (HHMI) Science Education Alliance.

See photographs of Dean Gary Kuleck celebrating the success of this laboratory. https://goo.gl/9cagrb

ABOUT REBUILDETROIT

The ReBUILDetroit consortium is fueling the academic renaissance of Detroit by establishing it as the center for biomedical research training for underrepresented undergraduate students with a grant from the National Institutes of Health (NIH).

Consortium partners are: Marygrove College, University of Detroit Mercy and Wayne State University

NIH / Research Enhancement
Building Infrastructure Leading to Diversity
REBUILDetroit
Marygrove College
University of Detroit Mercy
Wayne State University

ADMINISTRATIVE CORE:

The overarching Administrative Core, composed of the Principle Investigators representing each of the consortium institutions oversees budgets, functions and activities of the other three Cores.

It ensures interactions between the institutions, periodic program evaluations and recommendations and implementations of modifications to any aspect of the program as required based on formative assessments.

Members of the Administrative Core are:
Dr. Gary Kuleck (UDM)
Dr. Sally Welch (MG)
Dr. Ambika Mathur (WSU)
Dominique Gambino (UDM)
Patricia Martinico (UDM)
John Powell (UDM)
Jennifer Tabb (WSU)

STUDENT TRAINING CORE:

The overall program is designed to provide mentoring and targeted training to students so that they complete degree programs relevant to the life sciences and choose to enter careers in biomedical research.

Students face many obstacles. Barriers include self-perception and the inability to conceive themselves as scientists or researchers, a lack of foundational skills from prior schooling that starts them off at a disadvantage academically and financial issues. Over time, these barriers become self-sustaining and the earlier one begins an intervention, the more likely one is able to achieve positive outcomes.

The goal of this Core is divided into six aims to improve educational outcomes:

1. Enhanced academic programs, coupled with mentored research experiences designed around individual student needs leading to career success.

2. Facilitate an increase students in biomedical careers.

3. Integrate biomedical research opportunities into the basic fabric of the scholar's activities.

4. Provide a structured environment and professional bonds that prepare students for successful biomedical careers.

5. Provide mentoring opportunities to develop skills in presentation, teaching and mentoring.

6. Provide a clear path for transiting students from community college and college to graduate school and/or biomedical careers.

Core members include:

Dr. Steven Chang (UDM)

Eric Brown (WSU)

Dr. Joseph Dunbar (WSU)

Dr. Steve Scribner (MG)

Pam Todd (UDM)

Kathleen Walker (UDM)

INSTITUTIONAL DEVELOPMENT:

The goal of this Core is to drive significant cultural transitions on campus. It requires a concerted effort from both faculty and administration in promoting institutional cultural change.

Transformational activities of this Core include:

1. Reconfiguration of physical laboratory spaces.
2. Development of cross-institutional mentoring for graduate students and post-doctoral fellows builds on pedagogical expertise and leverages the teaching expertise at partnering and pipeline institutions.
3. Engage in a robust array of faculty and educational development activities designed to integrate and sustain curriculum development, pedagogical innovation and growth in knowledge, skills and values related to multiculturally inclusive life sciences education.

Members of the Core include:

Dr. Jeanne Andreoli (MG)

Kiana Daniels (MG)

Dr. Mathew Ouellett (WSU)

John Powell (UDM)

Dr. Katherine Snyder (UDM)

Dr. Elizabeth Roberts-Kirchhoff (UDM)

RESEARCH ENRICHMENT:

The overarching goal of the Research Enrichment Core is to develop and implement innovative approaches to engage undergraduate students from underrepresented minority backgrounds in biomedical research.

The plan includes a curricular re-design and faculty training within and month the consortium partners.

The redesigned foundational curriculum emphasizes peer- and near-peer mentoring, an introduction to laboratory research and dedicated faculty advising.

Learning communities are critical component, which compliment the classroom and laboratory experience. Peer networks are essential for the development of the scholars' personal, professional and scientific development.

Members of the Core include:

Dr. Kendra Evans (UDM)

Dr. Andrew Feig (WSU)

Dr. Abigail Fusaro (MG)

Dr. Farron McIntee (WSU)