

## **Project Personnel**

### **Dr. Kevin E. Shuman (PI)**

Dr. Kevin E. Shuman joined the College (fall 2016) as the Assistant Director of STEM Initiatives (staff position), and 50% of his time is spent mentoring students in microbiology research projects and in the NSF-supported Cannon Scholars program. Dr. Shuman will serve as PI on this ARC project and as a staff member, he will not receive any salary support.

### **Dr. Kelly Ann Miller (\$9,000 grant support as co-investigator + \$3,240 in fringe benefits)**

Dr. Kelly Ann Miller joined Wesley (fall 2016) on a tenure-track Assistant Professor in Microbiology position, and she has agreed to serve as co-investigator on this project. Dr. Miller will mentor the undergraduates in the lab-components of her microbiology and immunology courses and within the mentored directed research and summer internship programs. Dr. Miller has requested a 1.76-month (calendar year) salary for her efforts.

### **Green Clinics Laboratory Partners – Dr. Fady Gerges and Ghada Alabed**

Green Clinics Laboratory (GCL) is located a mile south of the College. It is a dedicated research facility with immunohistochemistry, in situ hybridization, real-time PCR analysis, frozen section computer assisted image analysis, and special stains analytic capabilities. A co-owner of GCL is Ghada Alabed, a 2010 Delaware-INBRE supported biology graduate of Wesley College. The second co-owner is Dr. Fady Gerges, a renowned Dover pathologist. GCL agrees to mentor the Wesley student-interns, provide necessary lab-space, provide use of their equipment facilities, and GCL will contribute an in-kind support equivalent of \$75K (a signed agreement is included in this proposal).

### **Project Student Support Costs**

#### **(\$15,760 for Undergraduate Tuition & Fees)**

Tuition assistance is requested to support 5 rising sophomores, juniors, or seniors who achieve and maintain high academic performance with a minimum 2.7 GPA or higher in their respective STEM program at Wesley College.

#### **(\$5,000 for Undergraduate Research Assistantships)**

Support is requested for 5 undergraduate STEM students to conduct paid research work in the chemistry and biology labs at Wesley College and within the partnering clinical lab, Green Clinics Laboratory. \$5,000 is requested for the STEM student research work performed during the academic semesters of the grant year project period.

#### **(\$15,000 for Undergraduate Summer Internships)**

Support is requested for at least 3 undergraduate STEM students to conduct paid research work during the summer months in the chemistry and biology labs at Wesley College and within the partnering clinical lab, Green Clinics Laboratory. \$5,000 in support of the 3 summer students' internships is requested during the summer months of the grant year for a total of \$15,000.

## **Project Travel**

### **(\$3,000 for travel support)**

To showcase the research results of the STEM students supported by the project, \$3,000 is requested for the student participants and their mentors, who serve as the PI and Co-Investigator on the project, to present at regional and national scientific conferences. Annual meetings and conferences that Wesley College is routinely affiliated with are the American Association for the Advancement of Science meeting and the American Chemical Society conference. Travel to the meetings and conferences may include registration costs, round trip mileage costs, incidental meal costs (not included in the conference program), lodging costs, airfare, taxi fares, incidental parking costs, and associated tips incurred while traveling.

## **Project Software user/development fees**

### **(\$10,000 for image analysis software user fees)**

Support for software user/development fees are needed to carry out the scope of the project. Specifically, the need to build image analysis software is critical to facilitating the research collaboration at Wesley and Green Clinics Laboratory. \$10,000 is being requested to successfully complete this effort.

## **Project Supplies**

### **(\$14,000 for research project kits)**

To carry out the scope of the project, it is projected that 10 kits are needed to conduct the FISH microbiology research projects at approximately \$500.00 per kit for a total of \$5,000. In addition, approximately 20 kits (\$400 per kit) are needed to conduct the immunohistochemistry research projects at an estimated cost of \$8,000. Within the immunohistochemistry research kits, the different reagents will be used during each step of the immunohistochemistry research process, which includes tissue preparation, fixation, labeling, mounting, epitope recovery, quenching, staining, blocking nonspecific sites, staining, and counter-staining. The kits are a valuable and needed resource in training the undergraduate research students and providing them with practice in carrying out the systematic technique, which will aid them as they engage in more complex research projects. An estimation of about 200 pre-prepared tissue slides and cover slips are also needed to facilitate the immunohistochemistry research process, which will enable the students at Wesley to do the staining and imaging preparatory steps. This will save the clinical laboratory (like Green Clinics Laboratory) time when performing the more complex steps. \$1,000 is estimated to cover the cost of the 200 pre-prepared tissue slides and cover slips.