



DiscoverGenomics!® SCIENCE EDUCATION PROGRAM

## Education Program at the J. Craig Venter Institute

The Institute began providing science education opportunities in Maryland in 1998. Beginning with simple tours of our facilities and internships, the education program has grown into many exciting activities.

## Programs

### DiscoverGenomics! Mobile Lab Program

The J. Craig Venter Institute DiscoverGenomics! Mobile Lab (DG!) is a self-sufficient laboratory on wheels providing middle school students and teachers in the Washington, DC and San Diego, CA areas an opportunity to learn current bioscience concepts and to master the use of the cutting-edge laboratory equipment found in today's life science research facilities. The modified motor coach, outfitted with advanced laboratory equipment, electricity, running water and network capabilities, accommodates up to 30 students, their teacher, and two mobile lab instructors. The workstations feature necessary equipment such as pipettes, electrophoresis supplies, centrifuges and reagents.

One of the keys to the success of the DG! Program is the teacher preparation component. Prior to scheduling classroom visits, teachers must first participate in a 30-hour professional development course to learn the techniques and Science, Technology, Engineering and Math (STEM) content behind the exercises, and to become familiar with the equipment. Once certified, teachers may then schedule up to four mobile laboratory visits during the school year based on their curricular schedule. Since January 2006, over 20,000 students have participated in 40,000 hands-on activities on the mobile laboratory.

During the first five years of operating the DG! Mobile Lab, three types of qualitative evaluation have been deployed to assess the program's effectiveness: student surveys, focus groups and teacher surveys. While the DG! Program staff do not have access to general student achievement data, the pre- and post-activity test responses show considerably improved knowledge scores.

Teachers have been overwhelmingly positive about the program, noting that the quality of the curriculum, equipment and mobile lab facility was very high. Teachers also reported that their students enjoyed the lab experiences. They felt that the program offered many benefits, including the opportunity to use advanced scientific equipment.

### DiscoverGenomics! Mobile Equipment Program

The DiscoverGenomics! Mobile Equipment Program supports high school and middle school science teachers by making available to them, at no cost, the equipment, reagents and supplies required to perform JCVI Mobile Laboratory Activities in their classrooms. These lab kits are available for loan to teachers that have

attended the DG! Professional Development workshops or that have participated in another molecular biology training program. In Maryland, 8,900 students in have participated in activities through this program. Since 2008, over 2,500 students have participated in California.

### Professional Development Program

The Teacher Professional Development Program invites middle school and high school educators to JCVI-led, intensive multi-day training sessions in genomics. Education staff members train teachers to use lab equipment and offer equipment for loan program so that the teachers can effectively lead lab experiments in their classrooms. Since the program's inception in 2000, 169 teachers from several states and a few other nations have received this intensive training.

### Internship Program

The Internship Program offers motivated high school, undergraduate and graduate students, as well as secondary teachers, the opportunity to continue advancing their personal scientific growth by participating in cutting-edge genomic research at JCVI facilities in Rockville and San Diego. Since 1999, 397 future scientists and 13 teachers have worked as active team members on JCVI research groups.

### Visiting Student Program

The Visiting Student Program offers students an initial glimpse into the world of genomics. Students learn about the research being conducted, tour the laboratories, participate in hands-on lab experiments and meet with the scientists. This program is aimed at a general student audience ranging from middle school through college undergraduates. Since 2000, the Institute has hosted more than 5,500 individuals through this program.

## Why Invest in the DG! Education Program

Mobile laboratories can be very cost effective for under-served and cash-strapped school districts. As an alternative to the costs of individual schools constructing and equipping fixed laboratories, mobile labs can serve many schools in multiple districts on a schedule tied to the science curriculum. This model also offers the advantage of pairing research institute personnel with classroom instructors. Science and technology are constantly changing. Bringing current knowledge and equipment to teachers and their students is arguably the most effective way to meet the challenge of keeping pace with that change. If we can truly empower classroom science teachers by making them comfortable teaching today's rapidly evolving science, and also provide them with current equipment that schools cannot afford to acquire, large numbers of students will be exposed to truly exciting science education activities — experiences that can stimulate life-long interest, and perhaps careers, in science and technology to help keep America at the forefront of discovery and innovation.

## Sponsorship Contact

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