



# InnovaBio-MD

## Biotechnology Internship Program



Genetic Manipulation of Fast Plants

### What is HCC's Biotechnology Program?

HCC is home to a rapidly growing biotechnology program, which began in 2007. Students in this program can earn an A.A.S. degree in biotechnology (60 credits) or a certificate in biotechnology (22 credits). Through the program, students are trained to enter careers in research and development as well as biomanufacturing at the technician-level.

In the years since its inception, the biotechnology program has placed nearly 100 percent of its biotechnology graduates directly into the workforce or has helped them to transfer to four-year institutions. HCC's biotechnology program has also been the recipient of more than \$1,000,000 in grants to support the development of courses and internships, purchase new equipment, and support educational outreach in the community.

### What is InnovaBio-MD?

In 2008, HCC participated in a Community Colleges Can (C3) project in which HCC was chosen as a

mentee college to Salt Lake Community College (SLCC) with the goal of creating an on-campus internship site using SLCC's model. The SLCC model emphasized hands-on lab work and eliminated the need for commuting to external internship sites, which are often a considerable distance from campus.

HCC's internship program, InnovaBio-MD (IBMD), began in fall 2009. Since that time, biotechnology student interns, under the supervision of highly trained and experienced InnovaBio-MD staff, have been completing contracted research projects from regional start-up biotech companies and government labs such as the United States Department of Agriculture (USDA). Housed on campus in HCC's Advanced Technology Center, InnovaBio-MD now has a comprehensive laboratory infrastructure in place, complete with cutting-edge biotechnology equipment, which cannot be found in other community colleges or universities in the area. Students can take advantage of this unique educational opportunity to gain research experience, which is essential for their career, while obtaining college credits.

### Why should I intern at InnovaBio-MD?

- Obtain real world lab experience on campus
- Learn Good Documentation Processes (including SOPs)
- Become proficient at Good Lab Practices (GLP)
- Acquire critical thinking, analysis, and troubleshooting skills
- Develop skills for success in industry or at a four-year college

### What are the advantages of working at InnovaBio-MD?

- Gain valuable research experience while staying on campus in a supervised and education-centric environment
- Build professional relationships with mentors and work flexible hours to fit your schedule
- Work on cutting-edge, goal-oriented research projects from local biotech companies and government labs
- Present research at local STEM conferences

### What do InnovaBio-MD interns do after the program?

After successfully completing the InnovaBio-MD internship program, students have transferred to four-year institutions including: Frostburg State University; University of Maryland, University College (UMUC); University of Maryland, Baltimore County (UMBC); Shepherd University; and Hood College. Additionally, students have gone on to work at the following top pharma and biotech companies:

- GSK
- MedImmune/AstraZeneca
- Lonza
- Thermo Fisher Scientific
- Cumberland Valley Analytical Services
- Medigen
- Biofactura
- USDA
- Fort Detrick
- Trans Ova Genetics

### InnovaBio-MD Capabilities

<p><b>PCR</b></p> <ul style="list-style-type: none"> <li>✓ standard PCR</li> <li>✓ reverse transcriptase PCR</li> <li>✓ real time PCR</li> <li>✓ analysis of real time PCR data</li> </ul>	<p><b>Extractions</b></p> <ul style="list-style-type: none"> <li>✓ plasmid DNA extractions</li> <li>✓ genomic DNA extractions</li> <li>✓ RNA extractions</li> <li>✓ protein extractions</li> </ul>
<p><b>Tissue Culture</b></p> <ul style="list-style-type: none"> <li>✓ maintaining cell lines</li> <li>✓ virus titration assays</li> <li>✓ transfections</li> <li>✓ immunofluorescence</li> <li>✓ intracellular staining</li> </ul>	<p><b>Miscellaneous</b></p> <ul style="list-style-type: none"> <li>✓ cloning</li> <li>✓ protein expression</li> <li>✓ protein purification</li> <li>✓ HPLC (High Performance Liquid Chromatography)</li> <li>✓ batch fermentation</li> </ul>

## Testimonials

*"I absolutely loved working at that lab. I developed skills so quickly and easily. My knowledge of lab equipment and ability to follow protocols has earned the admiration of my current professors and the knowledge I gained during my internship helped me on my capstone project."*

- Elsie,

former InnovaBio-MD student intern

*"A semester in Innova-Bio MD, along with a strong training in biotechnology from HCC, allowed me to land a great job with a great cGMP biomanufacturing company."*

- Justin,

former InnovaBio-MD student intern



## Student Accomplishments & Awards

### 34th Annual Mid-Atlantic Plant Molecular Biology Society Meeting 2017

- Are There Transgenic Petunias in Western Maryland?
- Identification of Candidate Genes for Anthocyaninless
- Identification of Housekeeping Genes in Plum

### Maryland Collegiate STEM Conference 2018



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