



# InnovaBio-MD

## Biotechnology Internship Program



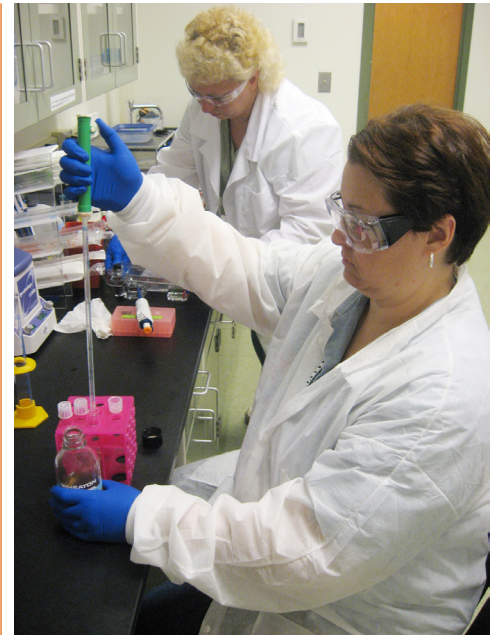
HCC's own internship program, InnovaBio-MD (IBMD) began in fall 2009. Since that time, biotechnology student interns, under the supervision of a Ph.D. scientist, have been completing contracted research projects from industry and government labs. Housed on campus in HCC's Technical Innovation Center, InnovaBio-MD now has a comprehensive laboratory infrastructure in place, complete with cutting-edge biotechnology equipment. For a full list of equipment, see the reverse of this page.

### What is the CRO model?

The CRO (Contract Research Organization) model allows for a company to be run by a community college. The community college solicits contracts with industry partners to conduct biotechnology projects utilizing student interns as the workforce. This educational tool is unique in that it allows students to participate in real-world research projects while staying on-campus to work in a highly supervised and education-centric environment.

### Why support InnovaBio-MD?

By supporting InnovaBio-MD with contracts, industry partners will be able to out-source necessary projects to a top-of-the-line research lab while supporting the education of local students, thus helping the economic development of western Maryland. This is a unique opportunity for industry partners to obtain quality data and support education all at the same time.



### 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 bio-manufacturing 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 "CRO" model. The SLCC model emphasized hands-on lab work and eliminated the need for commuting to external internship sites, which are often not located at a convenient distance from campus.

### How can I get more information?

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## InnovaBio-MD Capabilities

### GENERAL

<b>Extractions</b> -Plasmid DNA extractions -Genomic DNA extractions -RNA extractions -Protein extractions	<b>Blotting</b> -Southern blotting (Chemiluminescent Detection) -Northern blotting (Chemiluminescent Detection) -Immunoblotting (Chemiluminescent Detection) -Immunoblotting (BCIP/NBT Detection)
<b>PCR</b> -Standard PCR -Reverse Transcriptase PCR -Quantitative Reverse Transcriptase PCR	<b>Miscellaneous</b> -DNA subcloning -Batch Fermentation -Tissue Culture -High Performance Liquid Chromatography -Non-polar C18 column -Variable Wavelength UV/Vis Detector (195 to 800 nm) -Fluorescence Detector- broad range (254-380 excitation; 450/below emission)

### APPLIED

-Construct screening -Cell culture screening -Preliminary preparation of protein extracts -96-well plate fluorescence assays -RNA purification of large sample numbers	-DNA purification of large sample numbers -Construct preparation -Production and purification of recombinant proteins -Preliminary product purity testing
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## InnovaBio-MD Equipment List

<b>Freezers/Refrigerators</b>	<b>Hoods</b>
So Low-80° Freezer	Biological Safety Cabinet - Labgard Class II Type A2
Frigidaire Refrigerator	Biological Safety Cabinet - Esco Class II Type A2
-20° Freezer - Northland Model T-19	Biological Safety Cabinet - Esco Class II Type BSC
So Low Flammable Materials Storage Cabinet	Mott Fume Hood
<b>Incubators</b>	<b>Centrifuges</b>
Amerex Instruments - Incumax IC150 (x2)	Sorvall Legend RT+
Amerex Instruments - Steady Shake 757 (x2)	Rotors
Forma Scientific Steri-cult 200	Sorvall - Fiberlite F21-48
VWR Large Incubator	Sorvall - TTH750
<b>Vortexes</b>	Beckman Avanti30
Southwest Scientific (x4)	VWR Galaxy 5D
VWR minivortexer MVI	Labnet Inc - Spectrafuge 24D (x4)
	Eppendorf Minispin (x5)
<b>Balances</b>	<b>Stir Plate</b>
Analytical - Adventurer Pro (Ohaus, x4)	Fisher - Isotemp (x2)
Standard - Pioneer (Ohaus, x2)	VWR Hotplate/Stirrer
Flynn Scientific balance	Southwest Scientific (x2)
<b>Spectrophotometer</b>	<b>Electrophoresis Equipment</b>
BioRad Smart Spec Plus	X-Cell Sure Lock
Cole Parmer 2800 UV/Vis	BioRad Power Pack basic (x2)
	BioRad Micro Pulser
<b>Rocker/Shakers</b>	<b>Thermocyclers</b>
Benchmark Research Products - Orbishaker	Applied Biosystems 2720 thermocycler (x3)
Benchmark Research Products - BR1000	
Benchmark Research Products - Minimixer	<b>Electrophoresis Documentation</b>
Lab Depot - Analog Orbital Shaker	Biorad XR+ gel doc (x2)
<b>Specialty Equipment</b>	<b>Computers</b>
Roche LightCycler 480-II	HP Intel Core2 Quad
Tecan Plate Reader Infinite M1000	Gateway Intel PentiumD
HPLC- Buck Scientific BLC20	<b>Miscellaneous</b>
BioRad low pressure chromatography system	Spectrolinker XL - 1500 UV Crosslinker
Bioreactor- New Brunswick Scientific BioFlo 110	Aquasolutions Water Purifier
<b>Water Bath</b>	BioRad Electroporator
Precision 180 Series Water Bath	Glas Col Rotator
<b>Heat Blocks</b>	
Fisher - Dry bath (x2)	
Southwest Scientific Digital Dry Bath (x2)	