



VERMONT GENETICS NETWORK FACT SHEET

Who's Involved in the VGN?

The Vermont Genetics Network (VGN) links resources at the University of Vermont (UVM) to its partner institutions, which include Castleton State College, Johnson State College, Middlebury College, Norwich University, and St. Michael's College. VGN is part of a national system of university and college networks funded by the National Center for Research Resources (NCRR) at the National Institutes of Health (NIH) called the IDeA Networks of Biomedical Research Excellence (INBRE). Faculty involved in the VGN come from a range of disciplines, including biology, medicine, chemistry, psychology, math and computer science, and botany.

How Much Funding Has Been Received?

- **VGN Phase 1**: UVM received a \$6 million grant from NCRR to establish the VGN in 2001.
- **VGN Phase 2 (current)**: UVM received a \$16.5 million grant from NCRR to continue the work of the VGN and fund additional key equipment and technology.
- In both phases, about 60% of VGN funds go to the partner institutions and 40% to UVM.

Purpose of VGN Phase 1

The purpose of Phase 1 of the VGN was to build a culture of genetic and biomedical research at the partner institutions.

Accomplishments of Phase 1 grant include:

- The **Microarray Facility**. This technology is considered a necessity for maintaining competitiveness in generating NIH funding and preparing students for biomedical careers. The microarray process involves a series of steps and stations that put raw genetic data on a single chip. This allows researchers to observe the interactions of as many as 15,000 genes at the same time. The end product allows scientists to zero in on specific genes, such as those involved in the process of disease. The facility's equipment cost roughly \$300,000 to set up and requires regular upgrades.
- The **Bioinformatics Core**. This information network gathers, stores, analyzes and integrates biological and genetic information gained from the microarray process and other experiments and converts it into significant conclusions about how cells function. The network is constantly evolving to accommodate the explosion of biomedical information being made available. Initially, equipment costs totaled about \$300,000.
- The **BioDesktop program**. Developed at UVM, BioDesktop is a web application that allows researchers to organize a high volume of microarray data into hierarchies of computer folders, in order to facilitate data analysis.

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A partnership with



Castleton State College Johnson State College Middlebury College Norwich University Saint Michael's College



National Center for Research Resources
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Vermont Genetics Network

IDEA Networks of Biomedical Research Excellence

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- The **Microarray Outreach Core**. Provides a team of faculty and staff (and the necessary equipment) to visit partner colleges to share microarray experiments. Visits have been made to Johnson State College, Middlebury College, Norwich University, and Saint Michael's College.
- Faculty and student **Research Support Grants** at the partner institutions.
- **Laboratory Set-ups** for UVM junior faculty.
- **Graduate Student Assistantships** for biomedical research graduate students at UVM.
- **Networking and Professional Development Functions** for faculty and undergraduates.

Purpose of VGN Phase 2

The purpose of Phase 2 of VGN is to enhance and continue to build a culture of research throughout the state of Vermont.

Phase 2 grant activities include:

- UVM has purchased a **Mass Spectrometer** and accompanying equipment, which cost about \$300,000 to be used in a Proteomics Facility (*see below*). A mass spectrometer is an instrument that measures the masses of individual molecules that have been converted into ions, which are molecules that have been electrically charged.
- Plans to develop a **Proteomics Facility** modeled after the Microarray Facility. This technology allows scientists to identify proteins and determine their role in the disease process, thus assisting in the creation of methods to prevent, diagnose and treat diseases.
- Development of a **Proteomics Outreach** program modeled after the current Microarray Outreach program that takes experiments (and necessary equipment) to other Vermont colleges.
- **Renovation of Labs** at Castleton State College, Johnson State College, Norwich University, and Saint Michael's.
- Continue to support the **Microarray Facility** and provide usage for partner institution researchers free of charge.
- Expanding the **Microarray Outreach Core** to include other Vermont colleges.
- Faculty and student **Research Support Grants** at the partner institutions.
- **Laboratory Set-ups** for UVM junior faculty.
- **Graduate Student Assistantships** for biomedical research graduate students at UVM.
- Continuing to host **Networking and Professional Development Functions** for faculty and undergraduates.

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