The Fralin Life Science Institute strategically invests in targeted research areas within the life sciences. Such investments will include recruitment and set-up support for new faculty members, retention and recognition of established faculty members, seed funds for new research projects, equipment purchases, graduate student recruitment and support, undergraduate research support, and support for outreach activities. Existing research initiatives within the life sciences that receive the highest priority for support are vector-borne disease, molecular plant sciences, infectious disease, obesity, and cancer biology. The Fralin Life Science Institute is actively engaged in cooperative partnerships with colleges, departments, and other institutes that also support the life science community.

**Goals Achieved for FY 2011**

**Develop and institute a plan to more effectively use life science infrastructure.**

**Goal accomplishment:** In FY 2011, the Fralin Life Science Institute invested $328,000 for infrastructure support. These funds were used for the purchase of new equipment, equipment upgrades, and maintenance contracts and to provide cost sharing and start-up funds to faculty members to be used for the purchase of new equipment. A principal scientist was appointed in each of the flagship life science buildings (Integrated Life Sciences Building, Life Sciences Building I, and Latham Hall) and funds were given to them for the upkeep and acquisition of shared facilities and equipment within those buildings.

**Hire a communications officer/Web designer to revamp our website and develop a communications plan for the institute.**

**Goal accomplishment:** A communications officer was hired to overhaul the institute’s website and effectively convey our mission and accomplishments to the faculty, students, alumni, parents, media, general public, and government and community organizations. A comprehensive communications plan is under development.

**Help recruit capstone hires in the vector-borne infectious disease (VBID) and obesity research areas and seek program funding from the National Institutes of Health (NIH) to support this research.**

**Goal accomplishment:** Three new faculty members for the VBID research thrust area were hired in FY 2011: Belen Cassera, recruited from Albert Einstein College of Medicine; Zach Mackey, recruited from the University of California, San Francisco; and Troy Anderson, recruited from the University of Texas-Tyler. The VBID research group continues to be very successful in its pursuit of external support and currently has more than $21 million in funding, with the majority coming from NIH. This group is pursuing an NIH Ruth L. Kirschstein National Research Service Award (NRSA) Institutional Research Training Grant (T32) to develop a premiere graduate training program in vector-borne infectious disease. Fralin also assisted in the hiring of Andrew Nielson, recruited from the University of Michigan Medical School, for the obesity research thrust area. The obesity research area currently has more than $11 million in extramural funding.
Other Accomplishments

- Support faculty research endeavors in the life sciences to increase external funding competitiveness.

Goal Accomplishment: $253,000 was awarded to 11 faculty members to develop preliminary data so that they might be more competitive in extramural funding competitions. Awarded faculty were from the human nutrition, food, and exercise (HNFE); entomology; biological sciences; and plant pathology, physiology, and weed science departments; Virginia-Maryland Regional College of Veterinary Medicine; and Virginia Bioinformatics Institute.

- Facilitate graduate and undergraduate research education.

Goal Accomplishment: Fralin supported nine graduate students, from the HNFE, molecular plant sciences, entomology, microbiology, and cell and development biology programs, with tuition and assistantship support ($225,342) during the 2010-2011 school year. With the help of key life science faculty members from around campus, the institute also organized a graduate recruiting weekend during the fall semester, bringing top students to Virginia Tech from numerous universities around the country. Fralin conducted several workshops on how to write and publish scientific research, which were attended by 106 students from seven colleges. Twelve undergraduate students were supported during the summer of 2010 through the Summer Undergraduate Research Fellowship program, researching topics ranging from colony collapse in honeybee populations to the effect of oxidative stress on mitosis. In conjunction with Novozymes, the Fralin Life Science Institute also supported teams of science and business students participating in a summer internship to develop and conduct market analyses on new products. Endowment funds awarded to the institute director supported five undergraduate students as they conducted research in their mentors’ laboratories.

CHALLENGES AND OPPORTUNITIES

Collegiality and cooperation have always been a hallmark of the Virginia Tech life science community. However, the substantial increase in capacity for life science research, involving significant capital construction, purchase of state-of-the-art equipment, and investments in biological containment facilities as well as vivaria, have placed new pressures on our research scientists with increased expectations for performance. A major goal of the Fralin Institute is to preserve the spirit of an integrated community approach towards life science research, which will be accomplished by a shared leadership approach involving the participating college and departmental units.

The recent appointment of “principal scientists” — those who receive financial support from the institute and are responsible for day-to-day management of the flagship life science buildings — represents a significant step forward. The principal scientists are responsible for preserving and enhancing resources available to all Virginia Tech life science investigators. In the future, they will cooperatively manage a large portion of the Fralin Institute budget. We believe that the collaboration of the principal scientists with Fralin administrative leadership will prove an effective way to manage our resources and maximize the capacity for peak performance.

Another challenge we face is the further development of research teams within specific scientific areas. We are particularly encouraged by the development of strong research portfolios in the areas of vector-borne disease and molecular plant sciences over the past decade. However, aggressive growth in the areas of obesity research and infectious disease research is urgently needed. The Fralin Institute leadership team will invest in such growth by continuing to work cooperatively with other institutes and colleges to establish these dynamic research teams.

GOALS AND OBJECTIVES FOR FY 2012

Continue to develop and implement the plan to manage and coordinate the effective use of life science research infrastructure.

Effectively communicate the mission, goals, and achievements of the institute through electronic and print media.

Work to advance our outreach programs (Biotech-in-a-Box, Partnership for Research and Education in Plants, and Professional Development for Virginia Teachers) and continue to extend our research knowledge to K-12 students in Virginia and the nation.

Partner with the graduate school in both graduate student recruitment and in supporting and implementing the Translational Plant Science Interdisciplinary Graduate Education Program.

Invest in growth of targeted areas, in particular in obesity research and infectious disease, by continuing to work cooperatively with other institutes and colleges to establish these dynamic research teams.