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## 2010 Innovations Awards Application

Deadline: March 1, 2010

ID # (assigned by CSG): **10-W-13UT**

Please provide the following information, adding space as necessary:

State: **UTAH**

Assign Program Category (applicant): **Workforce Development.**

1. Program Name **BioInnovations Gateway**

2. Administering Agency  
**Utah Science Technology and Research**

3. Contact Person (Name and Title)  
**Suzanne Winters, Ph.D. Executive Director**

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8. Web site Address  
<http://www.innovationutah.com/BiG.html>



9. Please provide a two-sentence description of the program.

**The BioInnovations Gateway (BiG) is an incubator program and facility for emerging biotech and biodevice companies, combined with a high school AND college Biomanufacturing student education and training facility for workforce development and the next generation of bio-innovators. The dual mission of the program is a unique approach to stimulating growth of the Utah life science industry through shared space, equipment, talent and resources.**

**A more complete description of the BioInnovations Gateway is attached as a Frequently Asked Questions (FAQ) (Attachment 1).**

10. How long has this program been operational (month and year)? Note: the program must be between 9 months and 5 years old on March 1, 2010 to be considered.

**Development, construction and operation of the facility and program began January 2009**

11. Why was the program created? What problem[s] or issue[s] was it designed to address?

**Problem: Most life science start-up companies do not have access to affordable laboratory space and expensive, sophisticated instrumentation and equipment. They also require extensive coaching and mentoring to create high potential growth and investment opportunities.**

**Problem: An appropriately trained workforce in biomanufacturing is required for the Utah life science sector to grow. On-the-job training/education of workers in this FDA regulated industry is expensive and inefficient for the companies to conduct post employment. No programs are available in Utah to prepare the workforce in the skills to enter and advance in the Biomanufacturing industry.**

**A perfect example of this is the attached recent article from the local newspaper indicating that Utah lost a potential 300 jobs with a proposed expansion of Myriad Genetics. Myriad elected not to locate the division in Utah due to the lack of enough skilled workers. (see Attachment 2)**

**A study conducted by Grant Thornton for the U.S. Economic Development Administration stated “that investments in business incubators generate significantly greater impacts in the communities in which they are made than do other project types.” (See attachment 3).**

12. Describe the specific activities and operations of the program in chronological order.

**In 2007, the Utah legislature appropriated funding to expand the biotechnology program at the community college into a 4-year degree AND to expand the program into Biomanufacturing to help meet the needs of Utah industry. The concept of combining workforce and economic development began in a grant proposal to the U.S. Department of Labor in 2007. Following receipt of the DOL grant, a partnership between Salt Lake Community College, Granite School District**

and the Utah Science Technology and Research initiative ([www.innovationutah.com](http://www.innovationutah.com)) was developed to create a shared use facility.

Currently, both high school and college level classes are conducted at the Granite Technical Institute and share laboratory space with the BioInnovations Gateway, a life-science business incubation program. Students have the opportunity for hands-on learning on sophisticated laboratory instrumentation, not generally available to the undergraduate student population. The Biomanufacturing curriculum including Good Manufacturing Practices, Good Laboratory Practices, Product Design Control and Integrated Product Development was developed with significant industry input to ensure students graduating from the program have the skills and education required to meet the needs of industry. Biomanufacturing students have the opportunity to intern with resident life-science start-up companies within BiG.

The BiG resident start-up companies have access to capital-intensive laboratories and equipment which are generally inaccessible to cash-strapped start-ups. By employing the Biomanufacturing student interns, they also have the opportunity to groom their next potential employees. The support programs available to these companies are designed to increase the likelihood of success, including assistance in grant writing, access to services such as legal, accounting and business planning and assistance in market and financial analysis.

In addition, BiG is engaging a major health care provider in Utah, Intermountain Health Care, to develop ideas and inventions from its physicians for development as student projects. In essence, this is a student-run contract research organization. Through research, development and manufacturing projects, students learn not only the technical skills necessary to conduct the project but also learn about contracting, contract implementation and delivery, and entrepreneurship. In fact, within the first 3 months of the first semester, high school students created a patentable design of interest for licensing to a local medical device company.

13. Why is the program a new and creative approach or method?

We are aware of only one other program with a similar dual mission, however that program engages ONLY college level students and does not encourage student entrepreneurship through contract research and development. Introducing marketable skills, education and the experience of life-science entrepreneurship to high school students is unique in the U.S.

14. What were the program's start-up costs? (Provide details about specific purchases for this program, staffing needs and other financial expenditures, as well as existing materials, technology and staff already in place.)

**Initial construction and start-up costs were the largest portion of the program's total budget. The BiG concept was designed to have modest operating costs once established to ensure sustainability.**

<b>Construction:</b>	<b>\$1.8 M</b>
<b>Equipment:</b>	<b>\$700,000*</b>
<b>Management:</b>	<b>\$250,000</b>
<b>Operations:</b>	<b>\$150,000</b>

**\* The equipment cost above reflects the newly purchased equipment for the laboratories and prototyping facilities. The existing facilities and resources at GTI are critical to BiG's success and are not reflected in the costs stated above.**

15. What are the program's annual operational costs?

**\$350,000**

**BiG annual operating costs were designed to be minimal in order to ensure sustainability. Obviously, the program could be expanded both in scope and size, but as a successful, replicable demonstration model, the ongoing costs are modest.**

16. How is the program funded?

**Funding for the initial construction was provided through two U.S. Department of Labor grants: a Community Based Job Training Grant and the Workforce Innovation for Regional Economic Development (WIRED) grant and Granite School District. Equipment and operations funding is provided by the Utah Science Technology and Research (USTAR) Initiative. Additional funds will be sought for ongoing operations through partnerships with business service providers, federal educational grants and the Utah State legislature.**

17. Did this program require the passage of legislation, executive order or regulations? If YES, please indicate the citation number.

**No**

18. What equipment, technology and software are used to operate and administer this program?

**Administration of BiG requires business and management skills, a doctoral level laboratory manager, a manufacturing person who understands the medical device industry and support staff. Other than normal technology databases and software, no specific technology is required. The laboratories contain sophisticated scientific and engineering equipment which is primarily maintained through vendor contracts. The engineering and design labs maintain subscriptions to sophisticated computer assisted design programs.**

19. To the best of your knowledge, did this program originate in your state? If YES, please indicate the innovator's name, present address, telephone number and e-mail address.

**Yes. The idea for BiG was generated through the collaboration of Dr. Tamara Goetz, currently serving as the State Science Advisory and Ms. Sandra Hemmert, Coordinator of the Career and Technical Education Program of the Granite School District.**

20. Are you aware of similar programs in other states? If YES, which ones and how does this program differ?

**BiG was developed as a replicable model. However, to our knowledge, no similar programs exist in other states. We are currently developing a collaboration with Colorado for replication of the model with Colorado State University and several school districts.**

21. Has the program been fully implemented? If NO, what actions remain to be taken?

**The program is not fully implemented. We are still developing a seminar and workshop series. These will be directed to both the student's classrooms and to meet the resident companies' needs. For example, we are partnering with local intellectual property legal firms, Small Business Development Centers and business consultants to provide teaching and mentoring to both students and companies.**

**The incubator is not yet at capacity for resident companies and students will not be "appropriately trained" for internships until completion of an additional semester of classes.**

22. Briefly evaluate (pro and con) the program's effectiveness in addressing the defined problem[s] or issue[s]. Provide tangible examples.

**Although still very early in its implementation, several examples of effectiveness are already evident. The students, both high school and college level are incredibly enthusiastic about the opportunities presented through BiG. They have conducted field trips to university labs and life science businesses not normally available to high school students. The interactions between the students and resident companies are described by the students as "way cool". One student stated, "This is way better than school!". The example of the invention by students provided in question #12 above has changed these students forever: their names will be on the patents should the patents issue. Already, these students have been introduced to the company interested in licensing the invention.**

**The BiG resident companies have stated that having access to the laboratory and prototyping facilities at BiG has provided efficiencies and cost savings enabling significantly faster technical and market development. The mentoring and business/market analysis available to them has helped provide access to and readiness for presentation to potential investors. The availability of interns is being anxiously awaited.**

**Of course, the real measure of the program's effectiveness will come several years from now when companies have graduated from the program, graduating students have been hired and employed by Utah industry which recognizes the value**

**of their education and training and inventions from student projects have been commercialized. These are the long-term goals, and given the very long times to market in this FDA regulated industry, they may take several years to be realized.**

23. How has the program grown and/or changed since its inception?

The program is constantly evolving based on industry input and student growth. The partnership with Intermountain Health Care doctors was not part of the original vision, but is a welcome addition to support students developing new skills and technologies side-by-side doctors in the field.

A clearer understanding of skills needed to be successful in the Biomanufacturing training program has led to starting students at a younger age, 9<sup>th</sup> grade instead of 11<sup>th</sup>, with an emphasis on building scientific and math skills. In addition, science and math concepts are being infused in Biotechnology and Biomanufacturing classes. Students who struggled previously with these skills are much more successful when they understand the “why” of learning.

Starting at a younger age for training will increase the number of students prepared to interview with BiG start-ups for positions as interns. Additionally, increased skills will support student projects and work with industry partners.

24. What limitations or obstacles might other states expect to encounter if they attempt to adopt this program?

**BiG is a concept which brings together individuals from the public and higher education and business communities. Each of these sectors “speaks their own language”, has their own agendas and traditionally have operated in an almost exclusive and independent basis. The success of this model is completely dependent upon engaging the correct individuals with fully supportive administrators within each organization.**

**The BiG partnership was initially difficult to implement until all involved recognized and accepted that the goal was mutual between them. However, without the partnership, BiG would have been impossible. No single entity, neither academic nor business, has the capacity, resources nor competencies to successfully develop and implement such an innovative program.**

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CSG reserves the right to use or publish in other CSG products the information provided in this application. If your agency objects to this policy, please advise us in a separate attachment.

2010 Innovations Awards Application  
Program Categories and Subcategories

Use these as guidelines to determine the appropriate Program Category for your state’s submission and list that program category on page one of this application. Choose only one.

Infrastructure and Economic Development

- Business/Commerce
- Economic Development
- Transportation

Government Operations and Technology

- Administration
- Elections
- Information Systems
- Public Information
- Revenue
- Telecommunications

Health & Human Services

- Aging
- Children & Families
- Health Services
- Housing
- Human Services

Human Resources/Education

- Education
- Labor
- Management
- Personnel
- Training and Development
- Workforce Development

Natural Resources

- Agriculture
- Energy
- Environment
- Environmental Protection
- Natural Resources
- Parks & Recreation
- Water Resources

Public Safety/Corrections

- Corrections
- Courts
- Criminal Justice
- Drugs
- Emergency Management
- Public Safety

Save in .doc or rtf. Return completed application electronically to [innovations@csg.org](mailto:innovations@csg.org) or mail to:

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The Council of State Governments

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This application is also available at [www.csg.org](http://www.csg.org).