



Faces of the future

Fostering the next generation of bio-economy talent

A report on BioTalent Canada's programs for youth



Building skills for Canada's bio-economy

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BioTalent Canada™ helps Canada's bio-economy thrive globally. As a non-profit national organization of innovators leading that bio-economy, BioTalent Canada anticipates needs and creates new opportunities, delivering human resources tools, information and skills development to ensure the industry has access to job-ready people.



Building tomorrow's bio-economy HR capacity

Canada's bio-economy is an economic powerhouse. Spanning nearly every economic sector and ranging across industries from healthcare to food products to biocleantech, it represents the second-highest concentration of biotechnology in the world. Generating products and technologies in global demand, the bio-economy contributes 6.4% to Canada's national GDP through research, development and commercialized innovations.

Investing in the future

Bio-economy innovations are powered by individuals: people with the skill, vision and drive to make a difference in evolving industries. For Canada to stay competitive on the global stage, to create and commercialize scientific, technological and economic advances, we need to ensure the next generation is aware of the opportunities presented by the bio-economy—and has the experience and training to contribute to it.

BioTalent Canada™ is committed to helping skilled, talented individuals enter the bio-economy by maintaining programs that stimulate interest in bio-economy careers and expose students and graduates to real-world experience. These include:

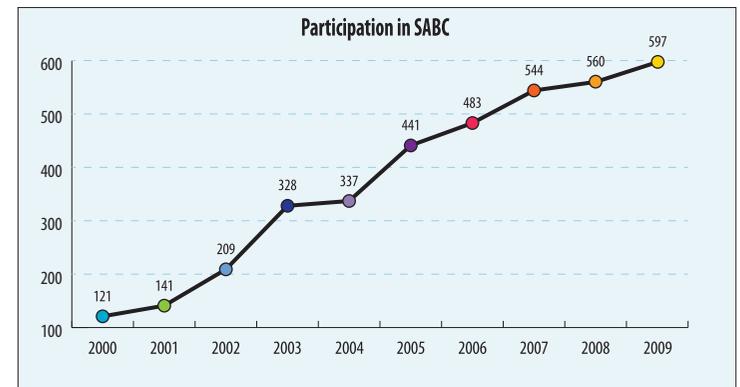
Career Focus Program

- 72 placements 2005-08
- 33 placements 2008-09
- 95 placements by May 2011—surpassing target of 92 by 2012

- The **Sanofi-Aventis BioTalent Challenge**—a competition that pairs high school students with mentors on innovative scientific projects investigating everything from cancer treatments to the genetic sequencing of crop blights;
- The **BioTalent HeadStart** program, which helps post-secondary students gain experience and make connections by volunteering their time with companies working on new ideas; and
- The **Career Focus Program**, which subsidizes the hiring of recent graduates up to a full year, giving companies access to the fresh talent they need while offsetting the cost of training.

Student participation in the Sanofi-Aventis BioTalent Challenge

BioTalent Canada has supported the SABC for more than 10 years. Participation has steadily increased since the competition's inception as students across the country have become more aware of the opportunity it represents.



Source: SABC Student Participant Tracking Survey 2010

A decade of excellence

In 2010, BioTalent Canada surveyed past participants to discover their reactions to the SABC experience.

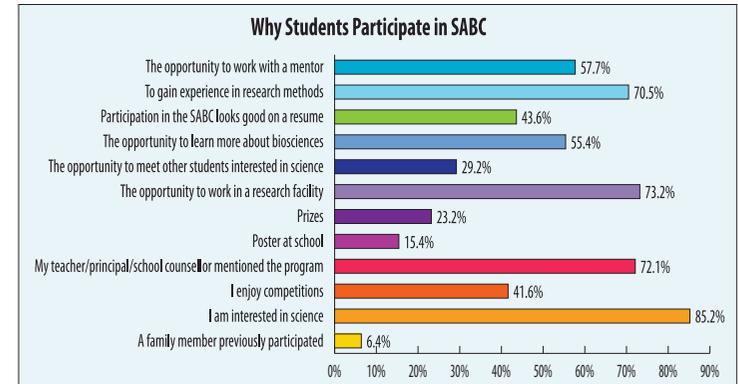
- 63% either agreed or strongly agreed that the SABC helped them seriously consider a career in science
- 74% either agreed or strongly agreed that the competition helped them appreciate the wide variety of career options available in the sciences
- 62% said they plan to study medicine, biology or engineering at the post-secondary level; an additional 24% expressed interest in neuroscience, life science and other related fields

For Canada’s bio-economy to continue to grow, it needs a deep and plentiful pool of talent—one that’s continually refreshed, and constantly supported and encouraged.

The Sanofi-Aventis BioTalent Challenge has been an important contributor to that end by raising awareness of bio-economy careers among high school students, educators and the public. Along with cash awards and support, it provides students with the hands-on lab experience critical to success in the industry. Recognizing sanofi pasteur’s vision and commitment in creating and funding the program, BioTalent Canada has been proud to support the competition for over 10 years. With the SABC’s successful expansion to a national program, BioTalent Canada has taken a new promotional role to enable new partners.

The competition guides participants throughout the research process, from proposal to final analysis. Paired with experienced mentors who work in the sector, students present their proposals for constructive criticism and refinement. While supervised and supported, students do much of the actual lab work themselves, following safety standards and professional best practices. The final data is collected and analyzed, with conclusions presented to the awards committee.

Since 1995, the competition has involved more than 4,000 students, allowing them to engage in research in real lab settings. And the work is often of significant scientific importance, addressing everything from renewable energy to cancer research.



Source: SABC Student Participant Tracking Survey 2010



Protecting Canada’s crops

At 14, Saskatoon’s Rui Song became the youngest winner of the SABC’s national competition, taking home \$5,000 for her work on identifying a harmful fungus that attacks lentil crops. One of Canada’s major agricultural exports, lentils are attacked by two forms of closely-related fungi. One is relatively harmless, but the other can reduce crop yields by up to 50%—and they’re often difficult to differentiate. Song’s work investigated the fungi’s molecular markers, and her results might help farmers identify when their crops are being attacked by the fungi’s milder form. This would save time and money—and prevent the unnecessary use of fungicide.



“In high school I hated the canned experiments (with) planned outcomes.... Through the biotech challenge I discovered the adventure of being a scientist and entering the lab not knowing what the results of that day's research would bring. My love for immunology and discovery of the excitement of research led me to enter the immunology and infection program.”

Past SABC Participant

A one-of-a-kind opportunity

By gaining valuable, real-world experience with both the scientific process and practical, hands-on lab work, students learn and refine the skills they'll need to become bio-economy professionals.

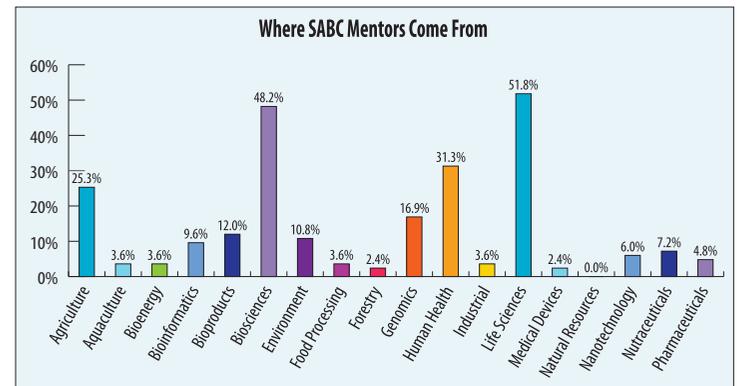
Why mentors matter

Key to the competition's success are the mentors who volunteer their time to guide students through their projects. By providing structure and suggestions while encouraging passion and creativity, they cultivate not only scientific skills but also the project management, networking and communications abilities of their students, all while allowing the participants to do the actual research.

That's critical in today's job market. As the majority of companies contributing to Canada's bio-economy are small and medium-sized enterprises (SMEs), they tend to look for employees able to multi-task and handle a variety of roles. SABC helps students become well-rounded and versatile, better preparing them to move into the bio-economy workforce.

Extended impact

For competitors, participation in SABC can have benefits that extend far beyond the competition. Along with the prizes furnished by the SABC, participation often leads to scholarships and bursaries—almost \$3 million has been awarded so far—and helps students develop connections with academia and the professional world. And students often go on to win prizes at other science competitions. For example, at the Intel ISEF 2011 competition in Los Angeles—the world's largest pre-college celebration of science—17 Canadians took home awards, including six regional and national SABC winners. And many participants go on to pursue education and careers in the bio-economy.



Fungi feed on pollution

Working with mentor Dr. David Overy at the University of PEI, Samuel Mundy, 18, and Hardy Strom, 17, have found fungi that may help clean up soil polluted by maritime oil spills by "eating" the contaminants. Their discovery could pave the way for the commercialization of a powerful new environmental bio-technology.



**“[The SABC offers] direct involvement and immersion in a scientific field.
It encourages original thinking and not a regurgitation of information.”**

Past SABC mentor

Keeping brains healthy

By studying the brain cells of growing tadpoles, British Columbia's Vincent Ye, 18, demonstrated the harmful effects of alcohol on the neurological developmental process. Guided by Dr. Kurt Haas at the University of British Columbia's Brain Research Centre, Vincent showed that brain cells exposed to alcohol can shrink by up to 30%, which provides a possible explanation for the human disability known as Fetal Alcohol Syndrome.



Guiding the next generation

In 2008, BioTalent Canada found that over a third of Canadian bio-economy companies were experiencing skills shortages—a trend projected only to intensify.

BioTalent Canada is committed to addressing this problem by linking SMEs with students and new graduates eager to gain experience in the job market.

“We would probably not otherwise have created this position last year due to the economic downturn, but took the opportunity to participate in the wage subsidy program. We’ve since hired the participant fulltime, and are looking to hire another person.”

Career Focus Program employer

Getting an early lead

The *BioTalent HeadStart* program gives post-secondary students the chance to connect with companies working on bio-sector projects. The students can then volunteer in any area of the business—from research to marketing. Not only does the *BioTalent HeadStart* program provide volunteers with valuable experience, but companies are able to advance their projects with lower costs. And since there’s a strong focus on non-traditional elements of the bio-economy—such as website development or administration—the program allows students outside of the scientific domain to start thinking about the bio-economy and how they can contribute to building its business capacity.

Bridging the gap

The *Career Focus Program* links companies with recent graduates. By providing a four- to 12-month subsidy for the hiring of fresh talent, the program encourages companies to focus on bringing new graduates into the fold—filling positions with the right people. Many companies in the program say they would not have hired fresh talent otherwise, and nearly 100% of *Career Focus Program* participants are hired full-time by the companies with which they are placed.



“The program allowed me to get exposure to the biotechnology industry and this experience has strongly increased my drive to pursue pharmaceutical/discovery research.”

Career Focus Program participant

Facing forward

Canada has earned a reputation for leadership in the bio-economy—and needs the right support to continue its evolution and growth. Through initiatives like SABC, the *Career Focus Program* and the *BioTalent HeadStart* program, BioTalent Canada helps raise awareness of bio-economy opportunities by engaging with young people from high school to post-secondary education and beyond.

BioTalent Canada is dedicated to growing the capacity of Canada's bio-economy with a number of programs:

- *Bio-economy Career Profiles*
- *Bio-economy Skills At-a-Glance*
- *Bio-economy Skills Profiles*
- *BioCareer Pathways*
- *BioTalent HeadStart* program
- *BioTalent Quest*
- *Biotechnology Learning Continuum*
- *Career Focus Program*
- *Labour Market Information reports*
- *Sanofi-Aventis BioTalent Challenge*
- *The PetriDish™*

By boosting the profile of the bio-economy and providing the support necessary for students to gain experience and connect with employers, BioTalent Canada is helping ensure that the next generation of talent will be fully prepared when entering the workforce. That means companies can spend less time struggling with HR and more time concentrating on the innovation that will cement Canada's leadership in the growing global bio-economy.



On a mission to explore biotechnology

The BioTalent Canada website, biotalent.ca, gives youth numerous opportunities to explore biotechnology and bio-economy careers—including through the interactive *BioTalent Quest* for younger visitors that has students making a simulated mission to Mars to learn about biotechnology and its many applications. Users also develop teamworking skills by choosing mission colleagues with different talents to help tackle each challenge.

Strong Board of Directors

The Board of Directors is composed of experts in the field of HR — CEOs, CFOs and CSOs from across Canada with extensive financial and industry experience representing companies and organizations in Canada's bio-economy. BioTalent Canada is not a membership organization and therefore relies on the guidance provided by its dedicated volunteer Board of Directors.

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