

# re•search

Both Sides of the Brain  
in Action

**BROCK  
UNIVERSITY  
RAISES THE  
STAKES**

**PLUS** WHY STUDENTS  
AND SCHOLARS ARE  
CHOOSING BROCK



**TD Insurance**

**Discover why over 600,000 professionals and graduates enjoy greater savings**

**Join the growing number of members who enjoy greater savings from TD Insurance on Home and Auto.**

Most insurance companies offer discounts for combining home and auto policies, or your good driving record. What you may not know is that we offer these savings too, plus we offer preferred rates to many university graduates, including Brock University graduates, and professional association members. Find out how much you could save if you are a member of one of the many universities or professional associations that enjoy our preferred rates.

**Go to [join.tdinsurance.com](http://join.tdinsurance.com) or call 1-855-JOIN-TDI (1-855-564-6834) to find out more.**



HOME | AUTO | LIFE | TRAVEL

The insurance program is underwritten by SECURITY NATIONAL INSURANCE COMPANY and distributed by Meloche Monnex Insurance and Financial Services Inc. in Ontario.  
©The TD logo and other trade-marks are the property of The Toronto-Dominion Bank or a wholly-owned subsidiary, in Canada and/or other countries.

# re•search

EDITOR

*Simon Beck* GLOBE EDGE

ART DIRECTOR

*Frank Perito* GLOBE EDGE

CONTRIBUTORS

*Kevin Cavanagh*  
*Jeffrey Sinibaldi*  
*Tiffany Mayer*  
*Cathy Majtenyi*  
*Kaitlyn Little*

re•search

IS PRODUCED BY  
THE GLOBE AND MAIL'S  
GLOBE EDGE

DIRECTOR,  
CLIENT ENGAGEMENT  
& GLOBE EDGE

*Teena Poirier*

GROUP EDITOR,  
GLOBE EDGE

*Charlene Rooke*

PROGRAM MANAGER,  
GLOBE EDGE

*Liz Massicotte*

BUSINESS  
DEVELOPMENT MANAGER,  
GLOBE EDGE

*Krista Cain*  
[kcain@globeandmail.com](mailto:kcain@globeandmail.com)

PRINTING AND PRE-PRESS BY  
DM DIGITAL+1

## ■ PRESIDENT'S MESSAGE

# Knocking down the walls



A university has to know what it wants to be.

At Brock, we have our own clear sense of who we are and what our role should be.

At the heart of Brock's mission is a simple idea: Overcome boundaries. This includes the boundaries between our own internal academic disciplines. It also includes boundaries between formal classrooms and the real life of surrounding communities.

Within a university, rigid boundaries can create silos of disciplines that don't always relate to the challenges being experienced in real, living communities.

Like most universities, Brock has specific research strengths. Unlike most universities, Brock has been breaking down the barriers between those disciplines. This includes creating transdisciplinary institutes that involve community partners.

In doing so, we collaborate with communities and also provide unique educational experiences for our students.

Brock is committed to the pursuit of academic excellence, and to being a partner that helps advance the economic, social and cultural development of communities beyond our campus.

These principles set our inner compass, so when students come to Brock, they become contributing members of a family that knows where it's going.

Please visit us at [brocku.ca](http://brocku.ca)

Jack Lightstone  
President  
Brock University

## contents

# 2

**CUTTING-EDGE HUB**  
*The Cairns Family Health and Bioscience Research Complex in action*

# 4

**TRANSDISCIPLINARITY**  
*Researchers working together to solve the world's problems*

# 6

**JOURNEYS TO DISCOVERY**  
*In pictures: Tales of research excellence*

# 8

**AGENTS OF CHANGE**  
*Brock's student researchers aim to make a difference*

# 10

**AT THE TOP OF THEIR GAME**  
*A look at Brock's 13 Canada Research Chairs*

# 12

**WHY BROCK?**  
*Students, professors and alumni reveal why they chose this university*

*Situated on the brow of the Niagara Escarpment in Ontario's Niagara region, Brock University is named for War of 1812 hero Major-Gen. Sir Isaac Brock, who died defending Canada during the Battle of Queenston Heights, not far from the present-day campus.*

Learn more about  
Brock University at  
[brocku.ca](http://brocku.ca)

## ON THE COVER



*Brock University's Canada Research Chairs in front of the new Cairns Family Health and Bioscience Research Complex.*

PHOTO BY BOB TYMCZYNSZYN

THE  
GLOBE  
AND  
MAIL

**Brock**  
University

50  
1964-2014



■ THE CAIRNS COMPLEX

# Brock opens cutting-edge research hub

New \$112-million centre will promote greater knowledge and “unleash innovation”

**Fiona Hunter remembers 2002 all too well.**

When the West Nile virus began killing Canadians a decade ago, Hunter and other scientists pressed Ontario officials to build a sophisticated lab where researchers could study the mosquitoes transferring the deadly virus to humans.

Since then, climate change has brought more insect strains and more health threats.

The hot summer of 2012 was Ontario’s worst for West Nile in 10 years — at least 244 confirmed cases in humans, more than half the national total.

But 2012 also brought hope, when Brock University opened the Cairns Family Health and Bioscience Research Complex.

Among other assets, the Cairns Complex houses Ontario’s only Level 3 Containment Lab (CL3) with an insectary. Now, in the heart of Canada’s West Nile battleground,

scientists can conduct unprecedented research on the effects of the virus on mosquitoes to assist in controlling disease-carrying insects.

And leading the way in that lab is Fiona Hunter and her students.

In the years when West Nile was running up its death toll, Hunter and her colleagues had to rely heavily on American studies to inform their research. They also had to send Ontario insect specimens to a lab thousands of kilometres away in Winnipeg, where technicians tried to help, but had their own obligations.

“Winnipeg had to focus on insect species endemic to their own region,” says Hunter, “which are not necessarily the same species we have here. That left researchers in Ontario with a significant gap in knowledge. We basically had to extrapolate — *guesstimate* — our findings for central Canada based on knowledge we had about mosquitoes elsewhere.”

**A new era dawned when the Cairns Family Health and Bioscience Research Complex opened in September 2012.**



**FEBRUARY 2008** › Province of Ontario commits \$33.5-million through the strategic infrastructure program created in its Fall 2006 Economic Statement.

**OCTOBER 2008** › Niagara Region municipality commits \$2-million.

**MAY 2009** › Government of Canada announces \$38-million investment as part of its Knowledge Infrastructure Program.

**SEPTEMBER 2009** › Groundbreaking ceremony.

**SEPTEMBER 2010** › The complex is named for the family of St. Catharines lawyer and businessman Roy Cairns, whose gift with an impact of \$10-million would help build the project.

**SEPTEMBER 2012** › The Cairns Family Health and Bioscience Research Complex is opened.

That will change, says Hunter, one of a handful of medical entomologists in Canada. "There is a lot to be discovered, and the Level 3 allows us to ask these sorts of fundamental biological questions."

She is not alone in seeing Cairns as the key to a better future. Other researchers think it will turn heads and attract more of Canada's best scholars and teachers. Wendy Ward, the Canada Research Chair in bone and muscle development and a leading researcher in osteoporosis, will be showing off the building to recruit top graduate students for her team.

"Most scientists go their whole career without ever getting to work in a brand new state-of-the-art

facility like this," says Ward.

"Cairns makes us a player," says Vincenzo De Luca, a leading biologist who is the Canada Research Chair in plant biochemistry. "The calibre and the potential of this facility is on par with just about anything you want to compare it to."

Kinesiologist Sandra Peters looked around her spacious new lab, awash in natural light, and summed it up succinctly: "It's beautiful."

From its conception, Cairns was designed to have dramatic impact and further entrench Brock's culture of transdisciplinary research (see page 4). Architects were told to create work spaces that would lead

**Medical entomologist Fiona Hunter is leading research into the deadly West Nile virus in the Cairns Complex's state-of-the-art Level 3 Containment Lab.**

different disciplines of researchers — professors and students alike — to interact, be exposed to each other, compare thoughts and look at challenges through different lenses.

The result is 176,000 square feet (more than four acres) of cutting-edge labs, teaching space and facilities where scientists and their students break ground in such fields as child and youth studies, biotechnology, green chemistry, psychology and health sciences.

The \$112-million Cairns Complex is also home to the Niagara campus of the Michael G. DeGroot School of Medicine, and a phytotron greenhouse where scientists study how plants can produce safer, more cost-effective cancer drugs and pharmaceuticals.

Brock officials call Cairns an important tool in their mission to use the university's resources and strengths to improve the regional economy and the prospects of Ontario communities. A key to this is the BioLinc business incubator, where scientists and entrepreneurs collaborate to turn discovery into business enterprises that stay in Canada and accelerate its emerging knowledge-based economy.

It's all a tall order, but University President Jack Lightstone says the model works because it has strong partners.

The visionary project received nearly \$72-million from federal and provincial governments and \$2-million from the Niagara Region municipality. The private sector is also pitching in, including a major gift from St. Catharines philanthropist Roy Cairns and his family.

"Finding new knowledge and unleashing innovation will be crucial to building a stronger future for Ontario and Canada," says Lightstone. "Brock is committed to helping make it happen, but in the end it is really the support of our partners that makes it possible." ■



Brock received **\$843,500** from the federal government to create BioLinc, a business incubator established specifically to help the university partner with regional supporters to create new bio-manufacturing businesses in southern Ontario.



■ COLLABORATIVE RESEARCH

# trans·disci·plin·arity (n)

A research strategy that crosses boundaries to create new disciplines and new solutions

**Transdisciplinarity is a clunky term**, but a simple idea: It means a single research effort undertaken by people from different areas of expertise. For Jack Miller, the word transports him back half a century to Cambridge University, where the new chemist spent two years before returning to Canada with a second PhD after his name.

Cambridge may be a place of

prestige and Nobel prizes, but 1960s England was a place of cramped, pre-Second World War buildings. New facilities were just coming on stream. Miller arrived to an environment where renowned scholars spent their days sharing space to teach, do research, even have lunch.

It was transdisciplinarity before anyone coined the word.

“The biology, physics, biochemis-

**Jack Miller is a chemistry professor who pioneered collaboration between disciplines.**

try and chemistry departments were a stone’s throw from each other,” he recalls. “Plus these guys all had lunch together down at the pub. It was an interface of state-of-the-art researchers in all these different disciplines.

“They were the first molecular biologists. Today that’s a discipline with its own name, but at that time it was just a physicist doing biology,

Brock recently created **5** new transdisciplinary research groups in biomanufacturing, health care, the environment, and social issues. Experts from different disciplines will combine their expertise to collaborate on fresh new approaches to common problems.

and a biologist doing physics.”

Miller soon realized this “culture of proximity” was a key ingredient to Cambridge’s potion for intellectual success.

“Where I was, it was biologists and chemists talking at lunch, talking at work. They’d put the chemists’ molecular model together with the biologists’ knowledge of biology and the physicists’ knowledge of crystallography.

“This is how, a decade before, they came up with the double helix. They discovered the code for mo-

among different faculty members and their students. Even the lounges are shared spaces.

Gary Libben, a psycholinguist who is also Brock’s Vice-President of Research, says it’s all about breaking down barriers and combining existing disciplines to create new ones.

“We have an ocean full of things to learn about,” says Libben, “and maybe a bathtub of things we already know. In my own field, we don’t expect the human mind to give up its secrets to just psychologists,

“We don’t expect the human mind to give up its secrets to just psychologists, or just linguists, or just computer scientists or just people who work on human development. The mind is just too complex.”

Gary Libben, psycholinguist and V-P, Research

lecular genetics — DNA!”

Miller returned to Canada and a career as a chemistry professor at Brock University in St. Catharines. He became dean of graduate studies and vice-president of research; Brock became a place where much of its research was of the transdisciplinary variety.

In 2009 the professor emeritus was coaxed out of retirement to help assign the work spaces in a new advanced facility at Brock. It was a crucial task: The Cairns Family Health and Bioscience Research Complex was designed to be a transdisciplinary environment, so it mattered who was working next to whom.

The Cairns Complex houses 35 researchers and more than 100 graduate students. It has psychologists working near biologists, chemists alongside physiologists, and so on. People work in spacious labs

or just linguists, or just computer scientists or just people who work on human development. The mind is just too complex.”

The approach is not exclusive to people in white lab coats. Professors from all of Brock’s seven faculties apply transdisciplinary thinking to a wide swath of teaching and research, interacting with each other or with peers from other universities.

Libben, who was the University of Calgary’s Associate Vice-President of Research before coming to Brock, says transdisciplinarity develops the kind of intellectual versatility that helps graduates succeed in the new economy.

“It trains people in teamwork, and it gives them multidimensional skills that enable them to be nimble and effective in the career marketplace. At Brock, we’re doing it right.” ■

## TRANSDISCIPLINARITY AT BROCK

**BIOLOGIST** Gary Pickering leads a team of 19 researchers from different backgrounds — and universities — studying the effect of climate change on the grape and wine industry, which contributes nearly \$1-billion a year to Ontario’s economy.

**THE DEPARTMENT OF CHILD & YOUTH STUDIES** ranges from developmental psychology to neuroscience, criminology and sociology. Professors routinely collaborate on files that go beyond their own disciplines, including a current project on rights for persons with intellectual disabilities.

**COMMUNITY HEALTH SCIENCES** associate professor Dan Malleck runs history courses that combine health studies with humanities. He says students learn not only different medical issues, but “how different disciplinary perspectives affect the way we perceive the world. Students benefit from experiencing how these different views operate.”

**POLITICAL SCIENCE** professor Leah Bradshaw teaches programs that embrace literature and arts. “These programs attract precisely the kind of student that we need in a globalized, complex and integrated world,” she said. “Students who seek out interdisciplinary graduate programs are among the brightest and the most creative.”

**ORGANIC CHEMIST** Jeffrey Atkinson, biologist Jeff Stuart and neuroscientist Cheryl McCormick will pool their knowledge to study compounds that could limit the damage to tissue caused by stroke and heart attack. Stuart and Atkinson co-supervise a student in biological sciences, and Atkinson says this “is an excellent opportunity for me to learn the essentials of the biological system I am helping to moderate.”

**ECONOMIST** Steven Renzetti is leading a major federally-funded study, involving more than 20 Canadian and international researchers, to examine a large range of issues regarding Canada’s water supply, including how we use it and how the constantly rising demand for water creates the potential for conflict in Canada and globally.

# Journeys to discovery



↓ **WHAT HAPPENS IN OUR BRAIN** when we think about a simple task, like a speed challenge in which we see we're making an error, or a gambling game where we can win or lose? Psychology professor Sid Segalowitz, seen with technician James Desjardins, works with adults and children to understand how cognition and emotion are affected by specific aspects of brain function. His team focuses on how personality characteristics – risk-taking, sensation-seeking, empathy, obsessive-compulsiveness, how we respond to rewards and punishments – and stage of development relate to our brain responses. Their findings help us understand the underlying basis for differences across people, their normal developmental trajectories, and how they go wrong in extreme cases such as problem gambling or behavioural disorders.



→ **WHAT'S IN A NAME?** Money, if you're talking about wine. Goodman School of Business professor Antonia Mantonakis made headlines and caught the attention of consumer marketing execs around the world. Mantonakis and her team discovered that when test participants were given the same wine with two different names, people reported a higher preference towards the more complicated name. And they were willing to pay more for it.



PHOTO REPRODUCED WITH PERMISSION OF THE GLOBE AND MAIL



← **PROFESSOR ANA SANCHEZ** focuses on infectious diseases that are of global importance due to their distribution and spread potential. Sanchez was awarded a \$1.5-million Global Health Research grant to advance research in the fight of infectious diseases in Honduras, which has one of the highest rates of AIDS, dengue fever and parasitic diseases in Central America. The Cairns Family Health and Bioscience Research Complex supports important research that prepares Ontario for any infectious disease threats of the future.

→ **CHEMISTRY PROFESSOR TOMÁŠ HUDLICKÝ** is one of North America's top organic researchers. His breakthroughs in green chemistry include more efficient and environmentally conscious ways to create synthetic versions of morphine or Tamiflu-like drugs. "Graduate students and researchers come to Brock because of the stature of researchers like Tomáš," says Ian Brindle, retired Vice-President of Research. "He understands molecules in a way that few people do. It's almost a personal relationship."



↑ **BROCK IS LEADING RESEARCH** into how climate change is threatening Ontario's grape and wine industry, which contributes \$1-billion a year to the provincial economy. When officials came to announce the initiative, Debbie Inglis, Director of the Cool Climate Oenology and Viticulture Institute, showed cabinet minister Glen Murray and other dignitaries the industry-supporting science that takes place in Brock's labs — including this evaluation of wines made from grapes that were ripened off-vine prior to fermentation.

← **IN HER PURSUIT TO REVOLUTIONIZE THE FUNCTION OF THE HOCKEY SKATE**, kinesiology professor Kelly Lockwood worked with equipment manufacturer Graf Canada and dozens of athletes, from minor leaguers to pros, including NHL veteran Claude Lemieux, seen here. Skate boots are the vehicle by which mechanical function is translated to on-ice performance. Her study challenged the belief that lighter, stiffer boots perform better. Results assisted with the production of a new skate that enhances performance and inhibits boot-related injuries.

The advanced phytotron **GREENHOUSE** in the Cairns research complex can sustain equator-like conditions. Research activity includes developing medicines from plants, improving environmental stress tolerance in soybeans, and disease resistance in rice.

■ ACHIEVEMENT

# Agents of change

Brock's students are taught to learn with "both sides of the brain". It's an action plan that can lead to inspirational results

The most important transaction to happen at a university is the transfer of knowledge between professor and student.

When passion for teaching intersects with a thirst for learning, great things happen. The ultimate fruit of this fusion is when energized students go out and improve the world around them, in ways big and small.

Brock has a culture where students understand what it means to develop "both sides of the brain" and become better versions of themselves. Individually or collectively, they learn to convert inspiration into the seeds of leadership and change.

There are many stories of remarkable Brock students whose ideas and actions helped make a difference, improving life in their community or expanding knowledge in society. ....

Scott Behie was part of a research team whose significant findings were published in *Science*, the journal of the American Association for the Advancement of Science which is widely regarded as one of the world's top scientific publications.

The team discovered a fungus that acts as a natural "fertilizer" by transferring nitrogen – a vital nutrient – to plants. In fact, the fungus removes nitrogen from insects that the fungus had infected and killed, then transfers that nitrogen into

a plant's root system. This realization could in turn open other doors, including helping farmers reduce the use of fertilizers.

What's unusual is that Behie, the lead author of the *Science* article, is a graduate student, while his co-authors were chemistry instructor Paul Zelisko and biological sciences professor Mike Bidochka, who is also Behie's research supervisor.

"Publishing in a journal like *Science* is not something that happens every day, particularly for a graduate student," says Bidochka of his master's student. "It's particularly gratifying to see a Brock graduate student publish in one of the top scientific journals."

The article was also picked up by a plethora of popular science magazines and was a hot topic on scientific blogs. "This discovery generates new knowledge that enables us to better understand the nitrogen cycle and soil ecosystems," Bidochka says. "We're going to go on and do more complex things based on this research." ....

When Sierra Holtzheuser sought a research subject for her first-year graduate studies in Child and Youth Studies, she didn't have to look far.

Partnering with the Learning Disabilities Association of Niagara, she helped develop a literacy program for four- and five-year-olds who struggle with reading. The program,



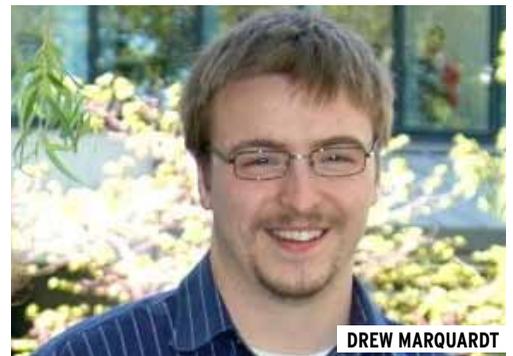
SCOTT BEHIE



SIERRA HOLTZHEUSER



ASHLEY BUCK



DREW MARQUARDT

By delivering urgent warnings to grape farms, Brock's VineAlert program tells Niagara growers when to turn on their wind machines to avoid **FROST** damage and crop loss. The program saves energy, too, by providing accurate information so that wind machines are not turned on unnecessarily.

called Reading Rocks Junior, is all about being proactive.

"Our goal is to prevent reading issues before they become problematic," she says. "Typically, reading problems aren't even diagnosed until Grade 4, and by that time kids are already two or three years behind their classmates."

Thanks to Holtzheuser's research, more than 40 families across the Niagara region could take part in an emergent literacy program at no cost, and now the Learning Disabilities Association of Niagara will offer Reading Rocks Junior as part of their programming for the next two years.

Further afield, she presented her research at the Love of Literacy conference for the Halton District School Board as well as to the Congress for the Social Sciences and Humanities.

Ashley Buck helped make history. She was in the first group of students to enrol in – and graduate from – the Gidayaamin Aboriginal Women's Certificate Program.

Offered through Brock's Faculty of Education, it is a transitional program to help Aboriginal women, many of whom are mothers of young children, overcome academic, cultural, or linguistic barriers to getting a university education.

If Gidayaamin is an achievement for the university, Ashley's story is one of personal triumph. A young Onondaga Nation single mother from Six Nations, she had begun attending university several years earlier, but discontinued because of the demands of raising very young children and the lack of support for single mothers.

"I'm grateful to my professors, who are Aboriginal women and men, for supporting me and my role as a mother," she says. "They would say, 'Your son is sick. As holistic people, we need to take care of our bodies as well and not just our

minds, so go home to care for your son'."

For her, the Gidayaamin program was not a happy ending. It is an exciting beginning.

"I am now in my first year of a Bachelor of Arts in Distinct and Diverse Communities. My dream is to teach Aboriginal studies in university."

It is commonly accepted that vitamin E is important to our health. Drew Marquardt wanted to know more.

"We all know we need to get our vitamins, but it's not clear that taking more vitamin E helps," he says. "Some very large studies have come up empty. Why?"

For raising the question and proposing to find the answer, Marquardt won a coveted Vanier Canada Graduate Fellowship, a federally-funded award intended to help retain world-class doctoral students in Canada. Successful applicants receive \$50,000 per year, for three years, to pursue and complete doctoral studies.

"My project is to make a link between the structure of vitamin E and its role in the human cell," he says. "With a better understanding of vitamin E's biological role, we can begin to figure out why research on vitamin E supplements shows no clear health benefits, and in fact, too much vitamin E may be harmful."

Marquardt is emphatic in praising his supervisor, physics professor Thad Harroun. "I wouldn't be doing this work if it wasn't for Dr. Harroun," he says. "It was always an open-door policy. I learned directly from a professor."

"It's been a blast to work with someone as enthusiastic as Drew," Harroun says. "This Vanier is well earned. He made a difficult transition from chemistry to physics and has picked up a lot of biology on the way. That's not easy, yet he enjoys it." ■

## ALUMNI IN ACTION



**TONYA VERBEEK**  
(BRLS '00, BEd '03, MEd '06)  
Canadian Olympic wrestler,  
multiple medalist  
BROCK PROGRAM: Faculty  
of Education

### ANDREW TINNISH

(BRLS '99, BSM '01)

Assistant General Manager,  
Toronto Blue Jays

BROCK PROGRAM: Sport Management,  
Faculty of Applied Health Sciences



### JOHN SMOL

(MSc '79)

Professor, Queen's University,  
Canada Research Chair in  
Environmental Change

BROCK PROGRAM: Biological  
Sciences, Faculty of  
Mathematics and Science

### FRASER SMITH

(BBA '92)

Manager, product management, PayPal

BROCK PROGRAM: Business Administration,  
Goodman School of Business

### KIRSTY SALMON

(MSc '94)

Head of research, BP Biofuels

BROCK PROGRAM: Biological Sciences,  
Faculty of Mathematics and Science



### MARY GUERRIERO AUSTROM

(BA '81; BEd. '80)

Social psychologist at  
Indiana University,  
world-renowned

Alzheimer's researcher.

BROCK PROGRAM: Psychology

### DAVID GRIMES

(BSc '75)

President, World Meteorological Organization

BROCK PROGRAM: Physics and Mathematics,  
Faculty of Mathematics and Science



### DEREK KONTKANEN

(BSc '01, MSc '05)

Two-Time Award-Winning  
Winemaker, Jackson-Triggs  
Okanagan Estate Winery

BROCK PROGRAM: Biological  
Sciences, Faculty of  
Mathematics and Science

### DAVID LEIP

(BSc '90)

Head of web innovation, IBM

BROCK PROGRAM: Computer Science,  
Faculty of Mathematics and Science

Tomáš Hudlický, chemistry professor and Canada Research Chair in biocatalysis, recently passed the **\$1-million** mark in revenues generated through licensing agreements for processes developed in his labs to improve the production of pain-control medicines.



■ CANADA RESEARCH CHAIRS

# At the top of their game

Brock's 13 CRCs fight cancer with flowers, help Olympic skiers aim for gold, peer into the minds of teenagers and much more

**When he was growing up in Montreal in the 1970s**, Vincenzo De Luca's mother would give him his bus fare so he could get to mass. Sometimes he went to church. And sometimes he got off the bus at Montreal's botanical gardens, to explore beds and greenhouses teeming with the colours, textures and scents of plant species from around the world.

"It was an oasis in the middle of a city," he says quietly as he remembers the experience. "Everywhere was this incredible biological diversity. I was mesmerized. How did all this diversity come to be?"

Young Vincenzo knew he had 90 minutes to spend in the gardens before heading home in time for lunch. (It would be years later, when he was a renowned scientist, before he sheepishly told his mother about not always making it to church.)

De Luca went on to become a senior scientist with the biotech giant Novartis in North Carolina's Research Triangle, studying cellular processes and why plants produce unique natural products as a result of gene mutation.

But in 2001 he came home to Canada, to join the faculty at Brock University, where his breakthroughs include increasing the amounts of cancer-fighting drugs generated by the leaf of the tropical Madagascar periwinkle flower. Today he is the Tier 1 Canada Research Chair in Plant Biochemistry and Biotechnology.

The Canada Research Chairs program was created by the federal government in 2000 to attract and retain top researchers. Tier 1 and Tier 2 CRCs are nominated by universities, but must also be confirmed by their peers as being exceptional researchers and potential leaders — even world leaders — in their field.

Brock's research income jumped by more than **21%** in 2010 (\$15.65-million), the highest rate of growth in research funding among all Ontario universities, and among the top 5 growth rates in the country

There are 13 CRCs at Brock. Besides De Luca (8), they are:

**1 Tomáš Hudlický**, Tier 1 CRC in Biocatalysis (biological methods of manufacturing), arrived in 2003 from the University of Florida. "I do research on new pain and cancer medicines, research in green chemistry and natural product synthesis." His work includes developing processes to manufacture medicinal agents for pain control and alcohol and drug addiction.

**2 Melanie Pilkington**, CRC in Novel Hybrid Materials, joined in 2004 from the University of Berne in Switzerland. "I make magnetic and electronic materials capable of storing information. That could ultimately lead to faster, lighter and more efficient computers."

**3 Wendy Ward**, CRC in Bone and Muscle Development, arrived in 2011 from the University of Toronto. She came to train Canada's future leaders in health-related fields and to foster partnerships between the university and industry. "I study how dietary strategies, using a combination of healthful foods or supplements, may be used to help prevent debilitating fragility fractures resulting from osteoporosis."

**4 Stephen Cheung**, CRC in Environmental Ergonomics, joined Brock in 2007 from Dalhousie University. His work has led to materials that help Olympic skiers go faster, or help offshore oil workers survive longer if they fall into an icy sea. "I study how our body controls temperature, how being hot or cold affects our performance, and how we can make work in extreme heat and cold safer."

**5 Kevin Kee**, CRC in Digital Humanities, came to Brock in 2005 from McGill University. "My work sits at the intersection of history, computing, education and

game studies. I use computing and interactive media to analyze and communicate culture, and history in particular, in new ways." In 2010 Kee developed an iPhone app that is a GPS-guided interactive tour of War of 1812 sites.

**6 Terrance Wade**, CRC in Youth and Wellness, came home to Canada and joined Brock in 1993 from the University of Cincinnati's Faculty of Medicine. His work focuses on the question: "How does the social environment influence one's mental and physical health status?"

**7 Andrea Doucet**, Tier 1 CRC in Gender, Work and Care, came to Brock in 2011 from Carleton University. "I am exploring the changing meanings and practices of care work, paid work, and domestic consumption for women and men. This research will increase scholarly and popular understandings of gender equalities and gender differences in paid and unpaid work and contribute to effective policies and community programs for Canadians who have caregiving responsibilities."

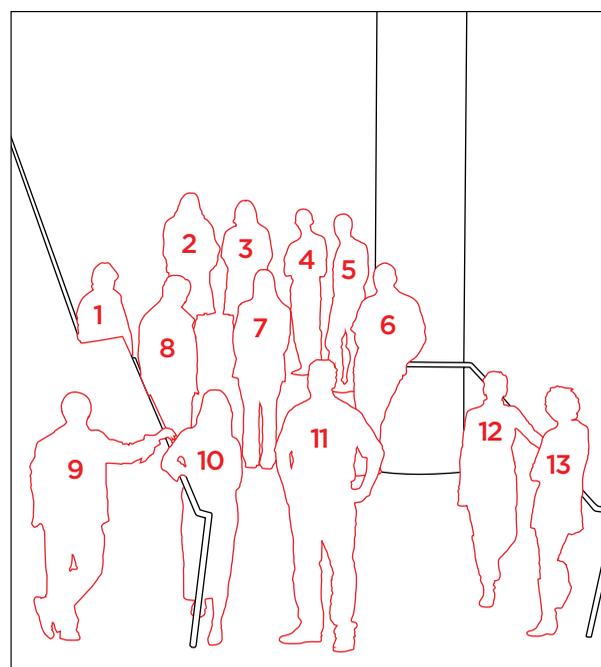
**9 Ping Liang**, CRC in Genomics and Bioinformatics, arrived in 2008 from the Roswell Park Cancer Institute in Buffalo, NY. "I research how we humans are different from each other genetically, and how can such information can be used to prevent and better treat diseases."

**10 Jennifer Rowsell**, CRC in Multiliteracies, came to Brock in 2010 after teaching at Rutgers Graduate School. "I conduct research on ways of reading, writing, thinking, communicating, visualizing literacy in our day-to-day lives. Much of my research takes place in elementary and secondary schools, and in community hubs such as libraries and museums, exploring the role of community, culture, and social class in our understandings of literacy."

**11 John Bonnett**, CRC in Digital Humanities, came to Brock in 2005 from the National Research Council. "My research explores how the computer can be used to support expression, analysis and teaching in history. Its purpose is to produce new ways to tell stories in virtual worlds, new modes of content creation to show how and where Canadians lived, worked and played in the past."

**12 Janet Conway**, CRC in Social Justice, arrived at Brock in 2007 from Ryerson University. "I work on social movements, protest and activism in the context of globalization. Studying them helps us understand both the problems and possibilities of globalization."

**13 Cheryl McCormick**, CRC in Neuroscience, joined Brock in 2004 from Bates College in Lewiston, Maine. Her research centres on "understanding how the adolescent brain differs from the adult brain in vulnerability and resiliency." ■



# In their own words: Why Brock?

*More leading faculty, and more students with higher grades, are applying to come to Brock. What is it that draws people? We asked them*

“Brock’s seminar system allows students to develop skills outside of the lecture hall. These skills are very appealing to employers, which is why Brock has one of the best co-op programs and so many graduates find employment.”

*Tylor Huizinga, 4th year, Psychology Co-op*  
.....

“I wanted small class sizes, to meet and get to know my professors, to be given the opportunity to get the best out of my courses, and to study in a region with incredible growth potential. Brock offered all of that and more.”

*Alumna Allie Hughes, BA, Communications (2009)*  
.....

“What attracted me was the emphasis on and support for creative and unconventional forms of scholarship and teaching. The English department at Brock is an inspiring place! My colleagues constantly amaze me with their innovative work and their generous support and encouragement for the projects going on around them.”

*Adam Dickinson, Associate Professor,  
Dept of English Language and Literature*  
.....

“At Brock, learning is exciting, educational and edgy.”

*Matt Fleming, 3rd year,  
English Language & Literature/Dramatic Arts*  
.....

“I had job offers here and at the Tier 1 Research University of New Hampshire. I chose Brock because I welcomed the opportunity to work at a mid-sized university that emphasized and encouraged transdisciplinarity of faculty research agendas.”

*Mary Breunig, Associate Professor,  
Recreation and Leisure Studies*  
.....

“All of my degrees and postdoctoral fellowship were at big universities in Ontario. I was attracted to Brock because of its more intimate nature. I was impressed from the moment I came that undergraduate students had opportunities to be involved in professors’ research projects, as well as the hallmark of Brock — the seminar system. Brock is a rising star in research, and I wanted to be part of the momentum.”

*Voula Marinos, Associate Professor,  
Child and Youth Studies*

“The campus is a community all on its own. The class sizes are perfect for you to participate in and get to know everyone, even your professor. I wouldn’t have picked any other campus over this one.”

*Emily Bosse, 4th year, Sociology*  
.....

“I chose Brock over 30 years ago, and the reasons still hold true today — great profs giving practical, real, relevant lessons; personalized attention; classes that are small enough to allow for students actually knowing their profs and vice versa. And of course, the social life (I still have friends from my Brock days). Both sides of the brain, right?”

*Alumna Marion Gross Finkelstein, BAdmin (1980)*

“Brock stands out because of the depth and breadth of our high quality and politically-engaged faculty members. For rigorous and relevant social justice scholarship, particularly research focusing on eliminating poverty, fostering gender equality, creating good jobs, and extending ideas of fairness to the animal world, Brock is second to none. When I explored the research clusters at Canadian campuses, and which universities encouraged and supported thoughtful, meaningful scholarship, Brock was at the top of my list.”

*Kendra Coulter, Assistant Professor, Centre for Labour Studies*



“I chose to come to research and teach at Brock because of its world-class basic sciences faculty and the unpretentious atmosphere found at a small/mid-sized university. Brock supports its people and allows them to follow their ideas, whether they be important curiosity-based research that forms the foundation of all our knowledge, or the applied research that addresses time-sensitive questions with potential economic impacts.”  
*Glenn Tattersall, Associate Professor, Biological Sciences*

“On my first visit to Brock I was impressed by an incredible sense of collegiality in the air. I actually thought it was too much to be true and later wrote a colleague to ask if it was real. I was assured that it was. Eight years later, I can say that the initial impression was indeed real. I am glad I made the decision to come here.”  
*Bareket Falk, Associate Professor, Kinesiology*

“Brock gives you the freedom and flexibility to pursue your passion. If you are a self-starter, you will find that your colleagues and dean will support your scholarship with enthusiasm.”

*David Schimmelpenninck, Professor, Department of History*



“Brock is small enough to be an intimate community, large enough to be recognized on a global scale. I have never felt like ‘just a number’. I have always been an individual whose goals are supported and encouraged by professors and peers. I have had the opportunity to take part in experiential learning and work closely with professors on research projects. I feel I have received a truly well-rounded and world-class education.”

*Courtney Keogh, Bachelor of Sport Management, Master’s student, Applied Health Sciences*

“I was attracted by the Niagara geography and beauty, and by the opportunity for close relationships with students.”

*Lynn McCleary, Associate Professor, Nursing*

“Three-fold return: return on investment, return on network and return on relationship. A degree from Brock did absolute wonders for me.”

*Alumnus, Sahil Khan, Business Administration (2006)*

“I chose Brock because of the balance between research and teaching — I do not want to do one over the other — and Brock is a wonderful place for this.”

*Thomas Farrell, Professor, Applied Linguistics*

“AACSB Accredited Business School. Niagara Escarpment. No. 3 in co-op placements in Canada. History. Alumni of distinction. Innovation in bioscience. Quality of life.”

*Andrew Ware, Master’s student, Business Administration*

“It is a mid-sized, young university that is very friendly — a warm, intellectually stimulating place to work. Like myself, many of my colleagues in the humanities have been hired in the past 10 years, so there is a lot of excitement and innovation happening at Brock.”

*Linda M. Steer, Associate Professor, Visual Arts and Liberal Arts; Director, PhD Program in Interdisciplinary Humanities*

“The friendly atmosphere, caring professors and wonderful opportunities to learn, volunteer, and grow make Brock into the great school that it is.”

*Brittany Martin, 3rd year BA/BEEd*

“I came to Brock from the University of Cambridge in 2005, drawn by the combination of a campus set amid the greenery of the Niagara escarpment (and) an institutional commitment to research excellence. The supportive research ethos at Brock for grad students and faculty alike should be compelling reasons for others to come here.”

*Martin J. Head, Professor, Earth Sciences*

“Brock is an excellent university with an exceptional young, dynamic faculty that nurtures original thought. I obtained my undergraduate degree from a much larger university, and wasn’t certain that Brock would be able to provide an experience of the same calibre. The personalized attention in my graduate program fosters creativity and confidence, in addition to integrity and professionalism. I am planning on pursuing my PhD at Brock. This school is phenomenal.”

*Julia Polyck-O’Neill, Master’s student, Studies in Comparative Literatures and Arts*

**Goodman**  
School of Business

Brock University

**Glenn Stevens**

Master of Business  
Administration candidate.

Inventor, volunteer, hockey  
coach/referee, mountain biker.

Goals: Imagine. Invent. Involve.

# MBA for both sides of the brain.

The Goodman MBA program develops well-rounded individuals. We recognize and nurture both sides of the brain — where diverse passions are welcomed and celebrated, and students become better versions of themselves.

Just ask MBA student Glenn Stevens. He has two U.S. patents and looks for discoveries in all pursuits, whether they be hockey, cycling, culinary arts or wineries. The term 'well-rounded' just might have been invented for him.

Our MBA program is just one in Brock's diverse array of more than 40 graduate programs. To experience Brock as an MBA candidate, visit [goodman.brocku.ca/mba](http://goodman.brocku.ca/mba)

Brock University | Niagara | Canada

**Brock**  
University

**50**  
1964-2014