

Annual report

of the Dean and Vice-President, Faculty of Health Sciences



Dean's message



It's been a year of excellent achievements in the Faculty of Health Sciences, most notably as McMaster University was recognized as having the top programs in health science in Canada and 14th in the world.

We were ranked in clinical, pre-clinical and health programs among world class universities by the Times Higher Education World University rankings of the U.K. This, and other accolades, is kind acknowledgment of the continuing accomplishments of our faculty, staff and students in their dedication to advancing health learning, discovery and care.

In research this year, our scientists' discoveries have included a drug which successfully kills cancer stem cells while avoiding the toxic side-effects of cancer treatments; that a gene that makes people obese may also make them happier; that probiotics show potential to minimize *C. difficile*; and that antibiotic resistant bacteria live deep in the world's largest underground caves.

In education, we have graduated some of our largest classes of physicians, nurses and other health professionals, along with our first MD/PhD program graduate and Canada's first male midwife. We have also established an already-popular master's program in health education.

At the same time, the Faculty is building partnerships in the community to accommodate its growth of the past decade. The Niagara Regional Campus of the medical school is settling into its new home on the Brock University campus in St. Catharines while the School of Nursing set up a community site at Homestead Christian Care's Dr. John Perkins Centre.

In this report you will find a short recap of some of the outstanding endeavours of our team members, both individually and in collaboration, in every educational and research program of the Faculty.

Kind Regards,

John G. Kelton, MD
Dean and Vice-President
Faculty of Health Sciences, McMaster University



7 The new Halton McMaster Family Health Centre's redevelopment project is underway.



6 Accolades



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Cover/Back: Images of faculty, researchers, students and friends.

Making the news



▲ Mick Bhatia and Jennifer Russell talk while running an assay with the Cell Growth and Discovery Workcell.

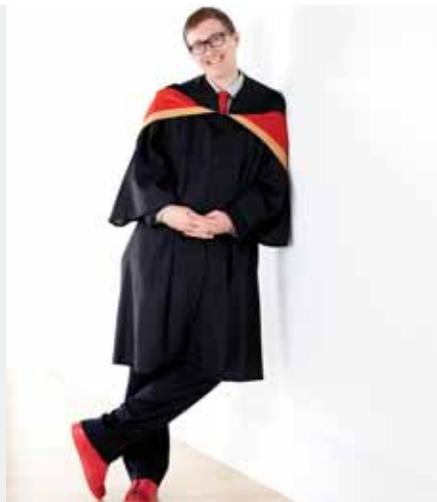
■ Mick Bhatia (above left), scientific director of McMaster's Stem Cell and Cancer Research Institute, and his team discovered a human-ready drug, thioridazine, which kills human cancer stem cells while avoiding the side effects of conventional cancer treatments. The next step is to begin clinical trials, focusing on patients with acute myeloid leukemia. The research was published in the journal *CELL*.

■ McMaster University researchers have discovered that long-term insulin use does not cause heart disease for people with diabetes or pre-diabetes. The study, led by professor of medicine Hertzell Gerstein, published in the *New England Journal of Medicine* also found people with pre-diabetes who received daily basal insulin injections with insulin glargine had a 28 per cent lower chance of developing Type 2 diabetes, even after the injections stopped.

■ Gerry Wright, scientific director of the Michael G. DeGroot Institute for Infectious Disease Research (IIDR) at McMaster University, and Hazel Barton, associate professor of biology at the University of Akron, discovered a remarkable prevalence of antibiotic resistance bacteria isolated from Lechuguilla Cave in New Mexico, one of the deepest and largest caves in the world and a place isolated from human contact for more than four million years. The research was published in the journal *PLoS ONE*.

■ Mark Tarnopolsky, professor of medicine, and Justin Crane, a doctoral student in kinesiology, have discovered a brief 10-minute massage helps reduce inflammation in muscle. It triggers biochemical sensors that can send inflammation-reducing signals to muscle cells. The research appeared in *Science Translational Medicine*.

■ The Faculty also made headlines when Otis Kryzanasuskas (right) became the first man to graduate from a Canadian midwifery program. The 25-year-old graduated from McMaster's Bachelor of Health Sciences (Midwifery) program in May. McMaster's midwifery program, started in 1993, was the first in Canada.



With distinction



First in Canada and 14th in the world for post-secondary institutions offering clinical, pre-clinical and health programs Times Higher Education World University Rankings 2012



Ranked sixth among Canada's top 50 research universities and among the top five institutions in research intensity Research Infosource 2012



One of three Canadian universities ranked in the top 50 world universities in clinical medicine and pharmacy and one of four Canadian universities in the top 100 world universities overall Academic Ranking of World Universities 2012



Ranked in the top three Canadian universities for biomedical and health-care research funding for the past seven years Association of Faculties of Medicine of Canada



First among Canadian universities for teaching quality and learning, research opportunities for students, academic counselling and overall campus atmosphere The Globe and Mail's Canadian University Report 2013



Sixth in Canada among universities in the medical/doctoral category Maclean's 2013 University Rankings

Research, innovation & collaboration



▲ Pictured from left, are Eric Brown, Brian Coombes and Gerry Wright, brainstorming ideas in the High Throughput Screening Lab.

HONOURS

■ Gordon Guyatt, Distinguished University Professor in clinical epidemiology and biostatistics and medicine, has been named an officer of the Order of Canada and elected a fellow of the Royal Society of Canada. Both honours recognize Guyatt's contributions to the advancement of evidence-based medicine and its teachings — an approach which uses critical appraisal and applies the best available evidence from science to decisions on patient care.

■ Gerry Wright, a professor of biochemistry and biomedical sciences and scientific director of the Michael G. DeGroote Institute for Infectious Disease Research, has been elected as a fellow of the Royal Society of Canada. Founded in 1882, it is the country's oldest and most prestigious scholarly organization. Wright is recognized for understanding the origins, evolution and molecular mechanisms of antibiotic resistance in bacteria.

■ Eric Brown, professor and chair, Department of Biochemistry and Biomedical Sciences, is the recipient of the Canadian Society of Microbiologists Murray Award for Career Achievement, which gives national recognition to an outstanding Canadian microbiologist for key contributions to microbiological research.

■ Brian Coombes, associate professor, Department of Biochemistry and Biomedical Sciences, and Canada Research Chair in Infectious Disease Pathogenesis has been awarded the Canadian Society of Microbiologists Fisher Scientific Award for early career achievements.

■ Charu Kaushic, an associate professor in the Department of Pathology and Molecular Medicine, has been awarded an Applied HIV Research Chair from the Ontario HIV Treatment Network (OHTN). She will use the five-year chair to develop knowledge and prevention strategies that decrease women's susceptibility to HIV.

■ Hertzel Gerstein, professor of medicine and clinical epidemiology and biostatistics, has received the Canadian Diabetes Association's 2012 Lifetime Achievement Award for research. The award recognizes a research leader who has made long-standing contributions to the Canadian diabetes community.

■ Ron Goeree, a professor in the Department of Clinical Epidemiology and Biostatistics at McMaster University and director of the Programs for Assessment of Technology in Health Research Institute, is the recipient of the Dr. Jill M. Sanders Award of Excellence in Health Technology Assessment. It was awarded to Goeree by the Canadian Agency for Drugs and Technologies in Health.

Research Chairs

■ Karun Singh, a principal investigator in the McMaster Stem Cell and Cancer Research Institute, has been appointed the David Braley



Chair in Human Stem Cell Research. Singh is exploring the new and emerging field of human neural stem cell physiology. He plans to design and implement high-throughput drug screens that focus on correcting abnormal neural cellular function.

■ Paolo Muti, a professor in the Department of Oncology, is the inaugural holder of the ArcelorMittal Dofasco Chair in Experimental



Cancer Therapeutics. Her research focuses on chemoprevention, which investigates the potential for agents including vitamins and drugs, both old and new, to prevent cancer.

Learning



The Faculty of Health Sciences has launched a masters program in health science education. It is targeted to health care practitioners and clinical educators who want to teach or conduct research in health professional education.



The Physician Assistant Education Program has been awarded full accreditation by the Canadian Medical Association (CMA). Founded in 2008, the program is the first Canadian civilian undergraduate training program for the health profession.



The Michael G. DeGroote School of Medicine graduated its first student from its new MD/PhD program in May. The program allows students to achieve both degrees in seven years.

new people-centred and technology-enabled system will make it possible for patients to keep health information from different hospitals or clinics in one place, and lets them decide who has access. It will help people better manage their own health and wellness and more easily connect with health and wellness professionals.

GRANTS & COLLABORATIONS

■ Federal funding of \$36.5 million has been renewed for the AllerGen Network Centres of Excellence over the next seven years. It will allow researchers to pin down underlying causes and develop new treatments and prevention methods for people living with allergies, asthma and anaphylaxis.

■ Joy MacDermid, a professor and assistant dean of McMaster's School of Rehabilitation Science, received \$2.5-million from the Canadian Institutes of Health Research for research that will improve Canadians' bone health.

■ McMaster is leading a new research program aimed at improving the care and quality of life for cancer survivors. The Canadian Centre of Excellence in Oncology Advanced Practice Nursing (OAPN) at the Juravinski Cancer Centre and the Canadian Centre for Advanced Practice Nursing Research (CCAPNR) at the School of Nursing (SON) hosted national and international researchers, decision-makers, patient advocates and health care providers for two days at the McMaster Health Forum to identify research priorities and solutions for improving survivorship care. This national stakeholder meeting was funded by the Canadian Institutes of Health Research (CIHR).

■ McMaster University and Actium Research Inc. have entered into a landmark collaboration covering McMaster's proprietary adult human stem cell lines, cancer stem cells and the directed differentiation platform developed by Mick Bhatia and his team at the McMaster Stem Cell and Cancer Research Institute (SCC-RI). The goal is to commercialize the team's results.

■ The Sir Frederick Banting Legacy Foundation, a Canadian charity dedicated to reducing the prevalence of diabetes, and McMaster's Department of Pediatrics, have partnered to support pediatric diabetes research. The partnership will fund an annual expert-led think-tank to address the special challenges faced by diabetic youth and research projects

focusing on children, First Nations and other at risk communities.

■ The U.S. National Institute of Allergy and Infectious Diseases provided a \$6.4-million grant to McMaster University to study a vaccine to treat people with an allergy to cats. It will examine how the vaccine changes the immune response to protect patients and it will also investigate how the white blood cells that are targeted by the vaccine contribute to asthma.

■ Olive Wahoush, assistant professor with the School of Nursing and a team of Hamilton public health nurses received almost \$1-million from the Public Health Agency of Canada to promote screening for breast, cervical and colorectal cancer to people living in low-income housing communities.

■ McMaster University researchers and McMaster Children's Hospital clinicians have teamed up to form the Metabolism And Childhood (MAC) Obesity Research Program to address the childhood obesity epidemic.

■ The Federal Economic Development Agency for Southern Ontario is contributing up to \$15.5 million to develop the Connected Health and Wellness Project (CHWP). It is in combination with \$23.3 million in support by the major partners, such as York University, NexJ Systems and McMaster University. The CHWP, a



▲ From left: Joy MacDermid, a professor and assistant dean of McMaster's School of Rehabilitation Science and Leona Aglukkaq, Canada's Minister of Health, talk with patient and professor Sue Baptiste, who had a prolonged recovery following a hand fracture.

Accolades



Her Royal Highness Princess



Margriet of the Netherlands received an honorary degree from McMaster University for her humanitarian work

on an international level. She is honorary chair of the advisory board for the Master of Science Global Health Program at McMaster and Maastricht University, which is committed to training future leaders to work in complex environments around the world.



Jean Chamberlain, an associate professor in the Department of Obstetrics and Gynecology, was honoured with the Royal College of Physicians and Surgeons of Canada's 2011 Prix d'Excellence, an award honouring significant contributions in providing outstanding care to patients and the community.



McMaster University's Program for Interprofessional Practice, Education and Research (PIPER) was awarded the 2012 Alan Blizzard Award, designed to stimulate and reward collaboration in teaching.



Jenn Salfi, an assistant professor with the School of Nursing, received the 2012 Dr. John Gilbert Interprofessional Education Mentorship Award from the National Health Sciences Students' Association.



Winnie Doyle, an assistant clinical nursing professor and executive of St. Joseph's Healthcare Hamilton, has been honoured with the 2012 John C. Sibley Award, presented annually to part-time faculty members who have made outstanding contributions to the education of health professionals.

Sparking innovation



▲ From left, Les Boris, Jackie Work and Patrick Deane at the gift announcement.

The Faculty of Health Sciences has received three exceptional gifts this past year that will enable us to make important contributions to improve health care in Hamilton, Canada and around the globe.

■ In February, Marta Boris, Jackie Work and Les Boris gave a \$30-million gift to the Michael G. DeGroot School of Medicine. It will allow for the development of a new and forward thinking out-patient ambulatory health-care clinic to provide care to local citizens and serve as a model for the next step in health care.

Of the total, \$24 million is designated to establish The Boris Family Centre in Human Stem Cell Therapies, speeding up the commercial development of McMaster discoveries.

■ In March, the Chanchlani Research Centre celebrated its grand opening. The new centre, funded by a \$1-million donation from Vasu and Jaya Chanchlani, is dedicated to understanding the genetic and environmental causes of common diseases among diverse cultural groups, women and the socially disadvantaged. The couple has also given an additional \$250,000 to fund an award for an international scholar in the field.

Jaya and Vasu Chanchlani provided foundation funding for the Chanchlani Research Centre. ►

■ In September, Suzanne Labarge again placed her confidence in McMaster by providing \$10 million for the Labarge Optimal Aging Initiative. The project will promote important multi-disciplinary research at McMaster and also allows the creation of a web gateway to evidence-based information for older adults, their caregivers and health professionals.

Parminder Raina, the Raymond and Margaret Labarge Chair in Research and Knowledge Application for Optimal Aging (left), with Suzanne Labarge. ▼



Engaging the community



▲ Michael G. DeGroot with patients and family members at the opening of the Michael G. DeGroot Pediatric Intensive Care Unit at McMaster Children's Hospital.

■ The new Michael G. DeGroot Pediatric Intensive Care Unit at McMaster Children's Hospital opened in June. The state-of-the-art facility was made possible by a \$10-million donation by Michael G. DeGroot, which was part of a \$105-million gift he made to McMaster in 2003. It features 12 rooms focused on privacy and family-centred care.

■ Construction on the new McMaster Health Campus in downtown Hamilton is to start in late 2012. To be located on the corner of Main and Bay streets, the building will open in 2015. McMaster University purchased the property from the Hamilton Board of Education and took possession in early August. The facility is needed as the medical school's Department of Family Medicine has grown from 80 residents in the two-year program to the 200 residents by 2014.

■ The new Halton McMaster Family Health Centre began the first phase of the redevelopment project at Joseph Brant Memorial Hospital. The new centre is being designed for patient comfort, will care for 10,000 patients and expects 45,000 visits a year at the first-floor clinic.

■ The Niagara Regional Campus of the Michael G. DeGroot School of Medicine celebrated its new home in the Cairns Family Health and Bioscience Research Complex on the Brock University campus in St. Catharines in September. The school now occupies one-third of the ground floor in the building, which includes two clinical skills rooms, a continuous presence room with an open videoconference link to the Hamilton and Waterloo campuses, a 50-seat wireless lecture theatre, a computer laboratory with 30 seats doubling as the library, and an anatomy lab.

■ A Maclean's magazine blog, established with the support of the McMaster Health Forum, won the 2012 Excellence in Digital Health Reporting award from the Canadian Medical Association. Julia Belluz, who writes Science-ish, a joint project of Maclean's, The Medical Post and the Forum, checks the latest health headlines against the best available research evidence.

▼ Artist's rendering of the southwest view of the downtown Hamilton McMaster Health Campus



■ The School of Nursing celebrated 65 years of nursing graduates in May by unveiling the Henrietta Alderson Gallery of Graduates. The graduates' photographs all stretch down a long hall in the centre of the school. The gallery was named for one of the school's first professors, Henrietta Alderson.



