

RAPPORT

SCHULICH SCHOOL OF MEDICINE & DENTISTRY
WESTERN UNIVERSITY / ALUMNI MAGAZINE / 2012



**CHANGING
THE WORLD**

**PRESCRIPTION
FOR A BRIGHT
FUTURE**

**THE RISE OF
EVIDENCE-BASED
MEDICINE**



Schulich
MEDICINE & DENTISTRY



Western



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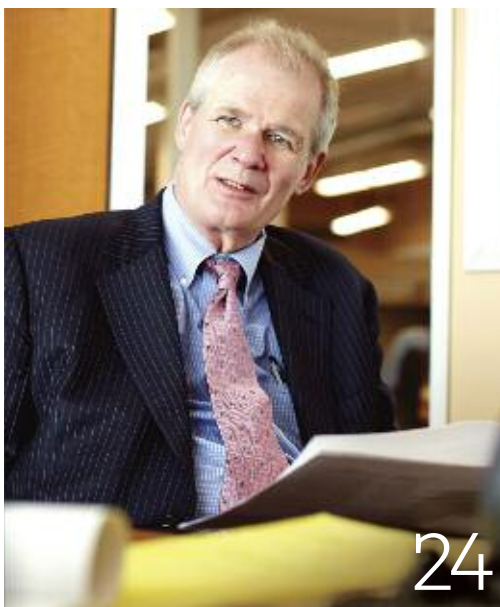
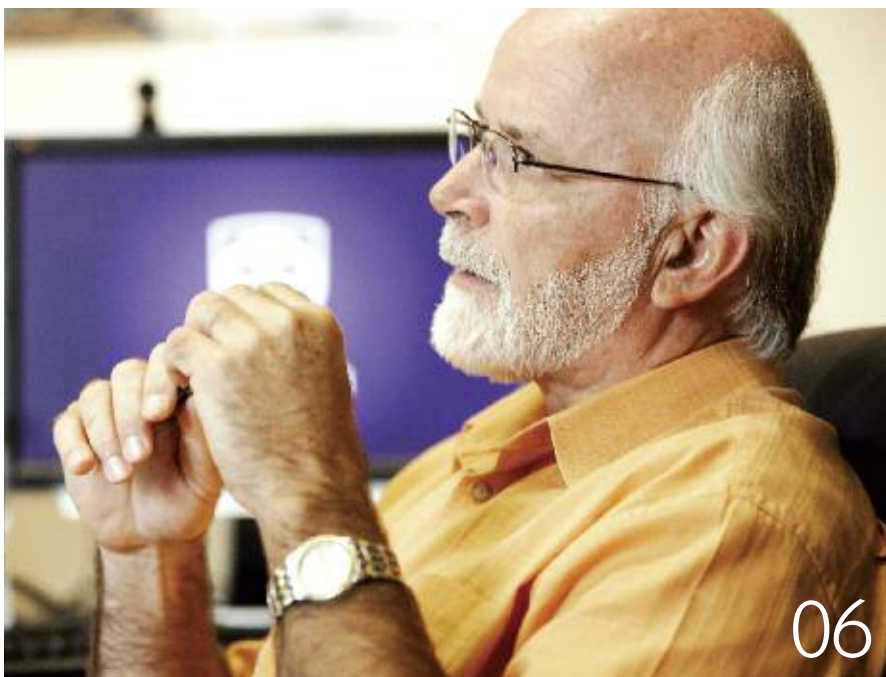
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SCHULICH MEDICINE & DENTISTRY

The Schulich School of Medicine & Dentistry is focussed on research and education programs to shape the future of health care in Canada and around the world. With its flagship programs in dentistry and medicine and its world class research investigators and teams, including those at Robarts Research Institute, the School brings innovation every day to patient care, medical knowledge, health education and health policy.

RAPPORT

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DEAN'S MESSAGE



Recently, I was asked to shed some light on the theme of the School's ten-year strategic plan "Optimizing Life-long Health." At the heart of the plan is the commitment to focus our energy and resources on advancing our knowledge and treatment of diseases that are inherent to aging, and in doing so, recognize that many find their origin even before birth. We will do so with the understanding that we have a societal responsibility to ensure not only that healthy aging is an attainable goal, but that our School is at the forefront of defining new health policy, educational paradigms and research strengths to achieve this.

Our approach is ambitious and unique; yet, as a national leader and one of Canada's oldest medical schools, it's time for us to take this bold approach.

Supporting this work is a dedicated decanal group, all of whom have taken on tremendous responsibility ensuring our goals are achieved.

They are surrounded by some of the country's best clinician scientists and academic leaders who are focussing on some of the most pressing health care issues of the day and tomorrow, creating innovative education programs for a new generation of students who have never known a world without email, the internet or computer games.

There is no shortage of examples of the incredible work underway across our School. On the research front, for instance, there is a renewed energy as we break new ground in pharmacogenomics, and brain imaging, and begin clinical trials for a new HIV vaccine.

Our education programs, including one of the finest models of distributed medical education in Canada, are critical to engaging all of Southwestern Ontario in our quest for excellence and innovation. We continue to strengthen these bonds. In the upcoming year, we will introduce new programs such as the Master of Public Health as cornerstones of our health care programs and policy development.

Today, a school of medicine and dentistry will only thrive if it undertakes its work in a global context and develops a clearly defined strategy on internationalization. We are doing this. At Schulich Medicine & Dentistry our education and research programs are well positioned globally and continue to grow in that direction. Our students enthusiastically embrace the global opportunities offered to them and they are impacting health care around the world while following in the footsteps of our alumni who have forged a strong global reputation for the School.

So much of our success in achieving the future education, research and health care needs of our region and partners around the world will be achieved through the generosity of our friends and alumni. And we are firmly entrenched in a fundraising campaign to raise \$145 million to ensure our goals become reality.

I am exceedingly proud of our accomplishments and energized by our future capacity. Undoubtedly it will be the collective commitment, dedication and enthusiasm of faculty, researchers, staff, students, friends and alumni who will see our ten-year plan through to fruition.

A handwritten signature in black ink, appearing to read "Michael J. Strong", enclosed within a circular flourish.

Dr. Michael J. Strong

Dean, Schulich School of Medicine & Dentistry
Interim Scientific Director, Robarts Research Institute

CHECK-UP



Michael Strong and Arthur Hudson

Commitment to ALS research recognized with Diamond Jubilee Medals

■ Drs. Michael Strong and Arthur Hudson were honoured with Diamond Jubilee Medals in recognition of their continuing contributions to the ALS community. Dr. Strong, Dean, Schulich Medicine & Dentistry and Interim Scientific Director of Robarts Research Institute, was recognized for his work in advancing ALS research and clinical care, and for his continuing efforts to share his passion to new generations of students, clinicians and researchers. Dr. Hudson, a professor in Clinical Neurological Sciences, was recognized for his role and leadership as a founding member of the ALS Society of Canada, and for his work in establishing the first multidisciplinary care clinic in Canada, only the second in North America.

The Diamond Jubilee Medal was created to celebrate Queen Elizabeth II's 60 years as the monarch of the United Kingdom and its current and past commonwealth nations. The Medal was awarded to outstanding community leaders across Canada.



Attendees enjoy the day at inaugural global health conference

Inaugural global health conference resounding success

■ The Office of Global Health at Schulich Medicine & Dentistry hosted its first ever global health conference, *Transcending Borders Towards Global Health*. A diverse audience of more than 300 individuals shared their passion for global health during the three day conference.

Building on the goal of discovering sustainable pathways, the conference explored five main global health themes: Marginalized and Healthy Communities; EcoHealth; Advocacy and Policy;

International Health and Ethics; and Education. Conference participants engaged in action-oriented workshops, symposia, plenary panels, arm chair discussions, poster presentations and social activities to learn more and network with their colleagues. Attendees were welcomed by opening remarks, including words from Deb Matthews, Ontario's Minister of Health and Long-Term Care, and Dr. Margaret Chan, Director-General of the World Health Organization.

Two faculty members named to the Order of Canada

■ Drs. Cecil Rorabeck and Robert Bourne were both honoured with appointments to the Order of Canada for their contributions to the field of orthopaedic medicine.

Dr. Rorabeck was appointed an Officer of the Order of Canada for his role in advancing the field of orthopaedic medicine, specifically in the area of joint replacement, and for his leadership within his professional community. Dr. Bourne was named a Member of the Order of Canada for his work in improving the quality of hip and knee replacement prosthetics for thousands of people across Canada.

The Order of Canada is one of the country's highest civilian honours, recognizing outstanding achievement, dedication to community and service to the nation.



Dr. Cecil Rorabeck



Dr. Robert Bourne

CHECK-UP

Epilepsy program celebrates 35 years

■ The Epilepsy Program, part of the Department of Clinical Neurological Sciences at Schulich Medicine & Dentistry celebrated 35 years of excellence in treating patients with epilepsy. In the early 1970s, Dr. Warren T. Blume, a neurologist and epileptologist and Dr. John P. Garvin, a neurosurgeon and neurophysiologist saw the need for a specialized epilepsy unit in Southwestern Ontario. Established in 1977 through grants from Western University, the Richard and Jean Ivey Fund and the London Health Association, the program is now one of the largest centres for the treatment of epilepsy in Canada and is renowned world-wide. Today, the team is comprised of neurologists, neurosurgeons, nurses, psychologists, EEG technologists, neuropathologists, neuroradiologists, and neurophysiologists all working together on the management of epilepsy.



Neurosurgeon John Garvin and neurologist Warren Blume co-chair University Hospital's Epilepsy Unit



Moira Stewart



Stanley Dunn

International reputations earn professors distinguished honour

■ Each year, Western University names a select few faculty members as Distinguished University Professors. The award was created to honour faculty who have built a record of excellence in the areas of teaching, research and service over a substantial career at Western. This year, Moira Stewart and Stanley Dunn, both of Schulich Medicine & Dentistry, were named with the honour.

Moira Stewart, a professor in the Department of Family Medicine, is considered an international leader in research methods in primary health care. Her research program created a database using the international classification of primary coding within an electronic medical record, a first in Canada. She holds the Dr. Brian W. Gilbert Tier 1 Canada Research Chair in Primary Health Care, and with her leadership, the Centre for Studies in Family Medicine has

grown in funding and scope, currently staffing ten researchers and attracting more than \$8 million in grants annually.

Stanley Dunn has made important advancements and achieved international recognition in the field of bioenergetics and bioinformatics. His work has been published in numerous journals such as *Biochemistry*, *Bioinformatics*, *The Journal of Biological Chemistry*, and the *Journal of Molecular Biology*. Impressively, his published papers have received more than 3,000 citations to date with a current citation rate of nearly one every other day. Since 1983, his laboratory has been funded by the Medical Research Council of Canada, now the Canadian Institutes of Health Research (CIHR). With his current CIHR grant awarded for another five years, Dunn has received 30 years of continuous funding throughout his career.

“Moira Stewart and Stanley Dunn emulate the motivation behind why the Distinguished University Professorship award was created.”

Dean, Michael J. Strong

New Master of Public Health Program coming in 2013

■ The Schulich Interfaculty Program in Public Health is developing a new program offering, a Master of Public Health (MPH). Expected to begin in 2013, the 12-month, case-based program will be taught by faculty members from a diverse range of faculties including, Education, Engineering, FIMS, Health Sciences, Law, Science, Social Science, Ivey School of Business and Brescia University College. This program is unique to Canada as there is currently no other 12-month, case-based public health program featuring such a diversified range of faculty involvement.

Housed in a brand new building on campus, the professional, non-thesis based program will accept 20 to 40 students per year with a goal of developing leaders and change agents in public health. To learn more, please visit www.schulich.uwo.ca/publichealth

Vice Dean first Canadian to receive prestigious Fellowship



Dr. Harinder Sandhu

■ Dr. Harinder Sandhu, Vice Dean and Director of Schulich Dentistry has been selected as the American Dental Education Association (ADEA)/Sunstar Americas, Inc./Harry W. Bruce Jr. Legislative Fellow, marking the first time the ADEA has awarded the fellowship to a dental educator outside the United States.

Through his fellowship, Sandhu will spend three months in Washington, D.C. as a staff member in the ADEA Policy Centre, Advocacy and Governmental Relations Office, becoming involved in the Congressional process, bringing forth issues that relate to dental education, dental research and overall oral health. The fellowship represents an essential link, ensuring dental professionals and educators are communicating and working with legislators on policies and funding to benefit oral health in the United States.

Driving innovation through collaboration

■ Schulich Medicine & Dentistry teamed up with the Lawson Health Research Institute to present the first ever London Health Research Day. With more than 600 attendees, 324 posters and 30 platform presentations by graduate students, the newly created London Health Research Day was a great success. Combining the Margaret Moffat Research Day Competition and the Lawson Health Research Day, London Health Research Day offered more opportunities for

collaboration, presentation and recognition.

Dr. Jon Stoessl, Professor and Head of the Division of Neurology at the University of British Columbia, a Member of the Order of Canada, holder of a Canada Research Chair in Parkinson's Disease, and a Western alumnus, offered the key note speech.

Building on the success of the 2012 event, the date for the 2013 London Health Research Day has already been set for Tuesday, March 19.



Anna Lambrinos



Erin MacDonald



Dwayne Jackson, Nicole Noviello and Baraa Ai-Knazraj



Dr. John Noseworthy

Second honorary degree in School's 130 year history conferred

■ Dr. John Noseworthy, president and CEO of the renowned Mayo Clinic, received a Doctor of Science, honoris causa at the 2012 Doctor of Medicine (MD) Convocation. Dr. Noseworthy completed a residency in neurology and neuropathology at Western in 1978-79. He then became a member of the University's Department of Clinical Neurological Sciences in the 1980s. Upon joining the Mayo Clinic, the first and largest integrated, not-for-profit group practice in the world, he spent a ten-year term as Chair of its Department of Neurology, followed by a three-year term as both the Vice-Chair of the Mayo Clinic Rochester Executive Board and the Medical Director for Development. He became president and CEO of the Mayo Clinic in 2009.

With this honour, Dr. Noseworthy becomes only the second person to receive an honorary degree during the MD Convocation, with the first being awarded in 2008 to Seymour Schulich, the School's benefactor.

LEADERSHIP



FROM LEFT TO RIGHT:
Denise Figlewicz, PhD, Vice Dean, Research & Innovation;
Dr. Michael J. Strong, Dean, Schulich School of Medicine & Dentistry;
Dr. Bertha Garcia, Vice Dean, Education; Dr. Harinder Sandhu, Vice Dean, Dentistry;
Dr. Margaret Steele, Vice Dean, Hospital & Interfaculty Relations



PRESCRIPTION FOR A BRIGHT FUTURE

BY PAT MORDEN

"First off, I hate strategic planning."

That's Dr. Michael J. Strong, Dean of the Schulich School of Medicine & Dentistry, and co-author of a new ten-year strategic plan for the School.

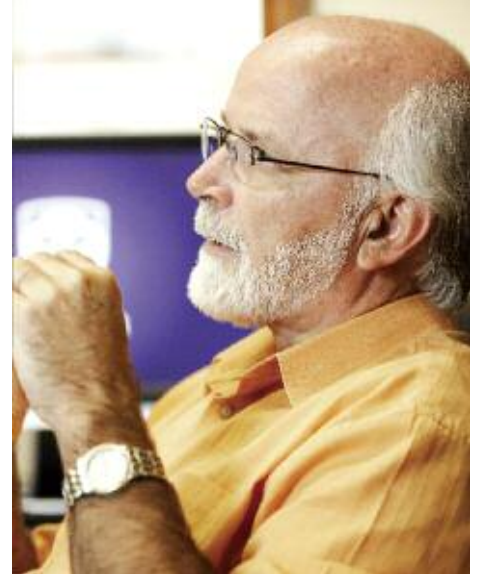
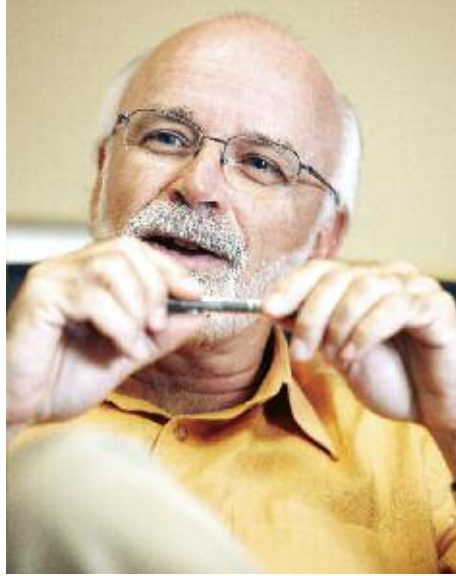
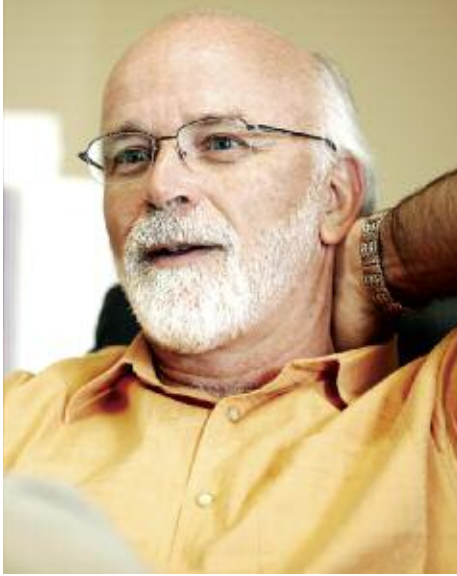
Turns out Dr. Strong doesn't really mind planning; he just hates to see the effort gather dust on a shelf. That's why he set out to create a plan with broad buy-in and a long time frame, and built a senior leadership team with the commitment and skills to achieve it.

The plan is ambitious, calling for the School to become "a global leader in optimizing life-long health through innovations in research, education and active engagement with our communities" by 2021. To get there, it lays out six major strategic directions, with goals and metrics under each one (see pg. 9).

"The perception on my part was that we as a School were punching below our weight," says Dr. Strong in explaining the stretch goals he helped create. "We have a really solid education platform: it's the research side of the equation where we have huge opportunities."

Dr. Strong himself is a renowned clinician-scientist. Before becoming Dean he spent a decade as Chief of Neurology in London hospitals, and co-Chair of the Department of Clinical Neurological Sciences. "I didn't just wake up one morning and think, 'I want to be Dean,'" he says with a characteristic twinkle. "In fact, there are many moments when I wake up and wonder what I've done!" He was approached by the former Dean, Carol Herbert to consider the position and saw the potential to make real progress at the School. →

LEADERSHIP



“Look at the people we’ve got... with this team there’s no question we’re going to be an absolute top performer in our areas of focus.”

Dr. Michael J. Strong, Dean, Schulich School of Medicine & Dentistry

Dr. Strong started his tenure by laying out his bold vision through a series of town hall meetings. Then he challenged others to comment on, modify, and add to the vision. Over the next nine months there were a series of focus groups, workshops and retreats. Ultimately 20 specific objectives were developed, with metrics for each one at various points across ten years.

As the vision came into focus, Dr. Strong set about building a powerful team that would be responsible for making it happen. “Every person around the table, including myself, has been assigned to one or more of the strategic objectives,” he says. “We are accountable to each other and the rest of the School for moving toward our goals.” There are now four Vice Deans working closely with the Dean.

London, Ontario native Dr. Margaret Steele, Vice Dean Hospital & Interfaculty Relations, worked at the then London Psychiatric Hospital as a teenager. She completed a degree in microbiology and immunology and an MD,

and then trained in child and adolescent psychiatry. Shortly after she joined the faculty at Schulich Medicine & Dentistry, she completed a Masters of Higher Education with a cohort of other professors. Her talent and taste for administration was clear, and Dean Herbert suggested she attend a one-year leadership program at Drexel University. From Chair and integrated Site Chief for Child and Adolescent Psychiatry, she moved to Assistant Dean Strategic Initiatives, Acting Associate Dean Clinical Affairs, and then into her current role.

One of Dr. Steele’s key responsibilities in the strategic plan is leading the creation of a formal Academic Health Sciences Network in Southwestern Ontario (AHSN). One of five AHSN’s in Canada, it will bring universities and colleges in the region together with health care organizations with the goal of integrating research and education, and ultimately improving patient and population health outcomes.

Dr. Steele is working on a variety of other projects that fit within the objectives of the

strategic plan, including a new Office of Faculty Affairs and a talent management initiative in collaboration with the London hospitals being launched this fall. “I think the skills of child psychiatry really help in administration,” she says. “Our skill is listening and asking questions. Working with kids you learn how to work within a variety of systems. This is really a natural segue for me.”

Her colleague Dr. Harinder Sandhu traveled much further to find a professional home at Schulich Medicine & Dentistry. Dr. Sandhu, who is Vice Dean Dentistry, grew up and trained as a dentist in India. In North America he completed a PhD and post-doctoral fellowship in anatomy, and specialty training in periodontics. He arrived at Western in 1985 and like Dr. Steele, was immediately identified as having leadership potential. At the urging of former Dean of Dentistry Ralph Brooke, he began to gain both education and experience in academic administration. “Once I started, it came naturally,” he says. “I didn’t know I had the leadership



OPTIMIZING LIFE-LONG HEALTH STRATEGIC PLAN & DIRECTIONS 2011-2021

**Create knowledge in the science of
healthy and successful development
and aging across the life span**

**Strengthen knowledge translation
to achieve health benefits for
individuals and populations**

**Become a destination of choice for
exceptional education and learning**

**Develop sustainable partnerships,
networks and global initiatives**

**Lead in programs that foster the
growth and success of faculty and staff**

**Enhance communications and
profile for greater impact**

skills which I was ultimately able to use. Along the way, everybody has been very supportive of my growth."

Dr. Sandhu and his team in dentistry are working on a variety of initiatives. They want to prepare dentistry graduates to play a broader role in their communities, increase the amount of high quality research, and develop a dental outreach service across the south west, addressing under-served populations. In line with the University's internationalization agenda, they are looking for opportunities to collaborate with dentistry schools internationally.

Dr. Bertha Garcia, Vice Dean Education, grew up in Lima, Peru in a family of doctors. She trained in Calgary as a pathologist, which she saw as an opportunity to solve medical mysteries. Early on, she fell in love with teaching. "I grew up in a very traditional system where the professor is far away from you and you just listen, take notes and study for exams. I kept watching my teachers and thinking there has to be a better way to engage students." She has clearly found that better way: she has received the University's highest teaching award and the prestigious national 3M Teaching Fellowship. Now she admits that teaching is "almost an addiction"—something she can't give up, even with her extensive administrative responsibilities.

Dr. Garcia served as Chair and Chief of Pathology, and then in 2008 took on additional responsibility as Vice Dean of Education in preparation for the launching of the Windsor Program. She is now responsible for all the MD, residency, fellowship and distributed education programs in the School, and continuing professional development.

Among the projects she is currently leading is an effort to internationalize Schulich Medicine & Dentistry's continuing professional development programs, many of which are already offered at a distance. The School is

also launching a Master of Public Health program using a case-based learning methodology, and building public and population health into all teaching programs. Dr. Garcia and her team are also exploring the introduction of a third-year medicine clerkship program that will be fully completed in small communities outside London.

Also under her leadership, the student support office is changing its focus from fixing problems to promoting wellness. "We want to guide students better through their years with us, so they graduate healthy, excited about their experience, and with a good outlook on life."

Denise Figlewicz, PhD, a Chicago native, was a researcher in molecular genetics and neurochemistry for more than 25 years. She played a key role in identifying the first gene associated with ALS. She made the difficult decision to leave the lab in 2006, becoming Research Director and later the Vice President of Research at the ALS Society of Canada. Her position as Vice Dean, Research & Innovation at the School is an opportunity, she says, to bring her experience and understanding of the researcher's perspective to bear on a wider research community.

Figlewicz and her team will work closely

with investigators to identify and realize new funding opportunities, build collaborations, and foster translational research and commercialization. "Funding bodies are looking for a more interdisciplinary approach to research," she says. "Western offers a great opportunity for our researchers to engage with people in other faculties." A special focus will be developing a research program for Schulich Medicine & Dentistry – Windsor Program.

Figlewicz knows that research funding is scarce in Canada today and is prepared to lobby for more. "Although I love Canadian politeness, sometimes that more assertive American style can be advantageous," she says with a smile. "I'm a good listener, but when I think it's the moment to speak out, I speak out."

She knows the School's strategic plan sets the bar high, but Figlewicz is undaunted. "It will happen," she says simply. Dr. Sandhu agrees, adding that the key success factors are Dr. Strong's energetic leadership and the wide buy-in across the School. "We have a very strong Dean—no pun intended," adds Dr. Steele. "He's energized, very respectful of people's ideas, and terrific to work with."

Dr. Garcia sees measurement as critical to realizing the plan. "We're meticulous about managing the goals and staying on track," she says. She knows funding is tight, but her experience tells her that there are always innovative ways to make things happen when there's a will. "I feel we have momentum, and that creates energy."

Dean Strong shares the confidence of his Vice Deans and in turn credits them with making it all possible. "Look at the people we've got, their dedication to this vision, their skill sets. With this team there's no question we're going to be an absolute top performer in our areas of focus. And when we do that, we'll attract the best faculty, the best students, the best research." ■

REACHING OUT TO THE REGION

MEDICAL TRAINING OPPORTUNITIES IN RURAL AND REGIONAL COMMUNITIES PLAY A KEY ROLE PROVIDING A WELL-ROUNDED EDUCATION

Dr. Amita Dayal, MD '03, personifies distributed medical education. She was involved in almost every program offered by SWOMEN while attending medical school, and chaired the Rural Medicine in Action student group. Today, she is practicing in Port Perry, ON.

BY JENNIFER PARRAGA

It was just two years ago, when the World Health Organization recommended that undergraduate students in health disciplines be exposed "to rural community experiences and clinical rotations, as these can have a positive influence on attracting and recruiting health care workers to rural areas."

Medical education at the Schulich School of Medicine & Dentistry is a shining example of this approach through its focus on distributed medical education (DME). Opportunities abound for students and learners, to experience the provision of health care in rural and regional settings. What makes the Schulich Medicine program so unique is the diversity of its rural and regional training options.

It all begins for undergraduate medical students at the end of their first year of study when they participate in Rural & Regional Discovery Week.

During the much anticipated week, students enthusiastically shadow physicians and other health care practitioners gaining clinical experience and exposure to rural and regional medicine. "I had a fantastic week," says Lauren Gordon, who joined three of her classmates in Hanover this past spring. "The doctors have been great, teaching us things that we normally wouldn't get to learn in an urban hospital. For instance, I learned how to put in an IV, I learned how to give injections and I learned a lot about taking a history in a physical." As part of the

program, these future doctors also visit local high schools sharing their medical school experiences and enjoy all the host community has to offer whether it's hiking, sailing or dining out.

In their third year, all students are required to complete a community clinical clerkship rotation. Through interaction with patients in hospitals, medical offices and ambulatory settings, students gain invaluable knowledge about the differences between care in rural and regional settings to that provided in urban and academic centres.

The Southwestern Ontario Medicine Education Network (SWOMEN) is a major force that ties all of this together for the students, the School and the participating hospitals and communities.

Founded in 1997 by Dr. Jim Rourke, the network was originally called the Southwestern Ontario Rural Medicine Education, Research and Development program. It expanded over time to reflect the involvement of regional communities across Southwestern Ontario and became known as SWOMEN in 2001 when the School established training in Windsor.

Today it provides programs for undergraduate and postgraduate medical studies in more than 45 communities from Tobermory to Leamington.

In addition to Discovery Week and the third-year clinical clerkship rotation, SWOMEN also offers opportunities for pre-clerkship summer electives; MEDQUEST, providing students with a six-week experience combining clinical placements, teaching and interaction with secondary school students; a clinical electives program; Year 4 electives, Ontario Students pre-clerkship and visiting student electives programs. They have also developed a post graduate visiting clinical electives for residents.

SWOMEN also plays a key role in recruiting preceptors who serve as mentors and teachers to the future physicians in all the participating sites.

"As a medical school, it is our responsibility to provide students with a well-rounded education. This includes exposure to the practice of medicine in urban, rural and regional settings, as well as those around the world," says Shamim Tejpar, Assistant Dean, Rural & Regional Medicine. "We are proud of the current programming and continue to identify new ways to expand and enhance it through new partnerships." ■

“It is one thing for educators and administrators to envision distributed medical education, but without committed and visionary medical students willing to tolerate the inevitable glitches and engage fully as partners in building a new educational model, the Windsor Program could not have succeeded.”

**Dr. Carol Herbert, former Dean,
Schulich School of Medicine & Dentistry**



Charter Class graduates Melissa Tenbergen, Jeff Mascarenhas, Kimberly Luu, Megan Holmes, and Adam Slomer with Boxhead, the official mascot of the Windsor Class of 2012



Diane Farquhar; Gloria Bortolin, Clinical Skills Facility Coordinator; Eamonn Rogers, MD '12; Caitlin Thompson, MD '12; Mike Farquhar, Windsor Program Student Affairs Officer



Gerry Cooper, PhD, Associate Dean, Windsor Program; Dr. Margaret Steele, Vice Dean, Hospital & Interfaculty Relations; Alan Wildeman, PhD, President, University of Windsor; the Honourable Dwight Duncan, Ontario Finance Minister and the Windsor Program Class of 2012

WINDSOR PROGRAM GRADUATES

2012 MARKED THE WINDSOR
PROGRAM CHARTER CLASS
GRADUATION

For many years, the hospitals in Windsor have served as a home to students from Schulich School of Medicine & Dentistry. As a centre supporting clerks in their third-year rotation initially, it is a partnership that has strengthened thanks to committed leadership and physicians working together to enhance medical education and care. Thanks to a very fortuitous conversation between former Schulich Medicine & Dentistry Dean, Dr. Carol Herbert and Dr. Ross Paul, then president of the University of Windsor, an exciting change ensued. Their discussion focussed on the potential for an expanded clinical medical education program in Windsor.

After many years of planning that

included a coalition of academic, community, medical and political leaders, and four long years of classes, the Schulich Medicine & Dentistry—Windsor Program came of age when the Charter Class celebrated its graduation in May 2012. The special occasion did not go unnoticed. Not only did these new doctors have the opportunity to enjoy their achievements with their parents at the convocation ceremony in May, they were celebrated by the community of Windsor, hospital partners, politicians and health care advocates alike. In fact it was a week of celebrations that included barbecues, community events and a private party for the new doctors and their families. ■

RESEARCH PROFILE



“Schulich Medicine & Dentistry arguably has the largest and most robust group of pharmacogenomics researchers and physicians in Canada.”

—Dr. Richard Kim, Chair
Wolfe Medical Research Chair in Pharmacogenomics
Schulich School of Medicine & Dentistry

LET'S GET PERSONAL

HOW DR. RICHARD KIM IS USING PHARMACOGENOMICS TO CHANGE THE WAY DRUGS ARE ADMINISTERED

BY HAILEY EISEN

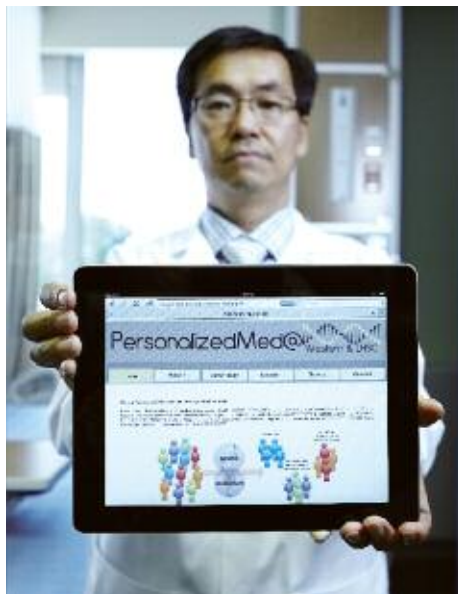
Most people buy shampoo based on their hair-type and shop for shoes based on their foot size and shape. Yet, the majority of prescription medications are administered in a one-size-fits-all manner, with the expectation, or hope, that patients will respond to them in the same way. According to Dr. Richard Kim, Wolfe Medical Research Chair in Pharmacogenomics at the Schulich School of Medicine & Dentistry, this is no longer the most effective way of practicing medicine.

The 2011 National Health Expenditure indicates that Canadian drug spending totaled \$32 billion, more than all physician services combined, and second only to hospital spending which totaled \$58.4 billion. "A large portion of drug spending results from adverse reactions—the fourth leading cause of death among hospitalized patients, toxicity, and medications that don't work," Dr. Kim explains.

In an attempt to reduce these numbers and improve patient care, Dr. Kim is working toward an individualized approach to drug administration. With a focus on pharmacogenomics, the branch of pharmacology which addresses the influence a person's genetic makeup has on his or her response to a particular drug, Dr. Kim is leading the way in making personalized medicine a reality.

"Schulich Medicine & Dentistry arguably has the largest and most robust group of pharmacogenomics researchers and physicians in Canada," says Dr. Kim, who was recruited to Western from Vanderbilt University in 2006 to serve as head of Clinical Pharmacology, Department of Medicine. "I believe I was the first physician in Canada to start a personalized medicine clinic."

At his London-based clinic, Dr. Kim



Dr. Richard Kim

works with patients taking medications including the blood thinner, Warfarin; statins, a class of cholesterol lowering drugs; and the breast cancer drug, Tamoxifen. He does this with the goal of providing more effective treatments with fewer side effects.

The personalized Warfarin clinic was Dr. Kim's first and since 2008 more than 400 patients have been offered genomics guided drug therapy.

In 2009, Dr. Kim began working with oncologists at the London Regional Cancer Program (LRCP) to address genetic defects in women taking Tamoxifen. "One in 11 Canadians have a deficiency in a particular metabolizing enzyme, preventing them from converting

Tamoxifen into its active form called endoxifen," Dr. Kim explains. These women are more at risk for breast cancer recurrence.

Dr. Kim's clinic, funded by research grants, performs active genotyping and measures drug levels in the blood. Utilizing advanced analysis technologies, he's able to provide an assessment to the referring physicians including suggestions for alternative treatments.

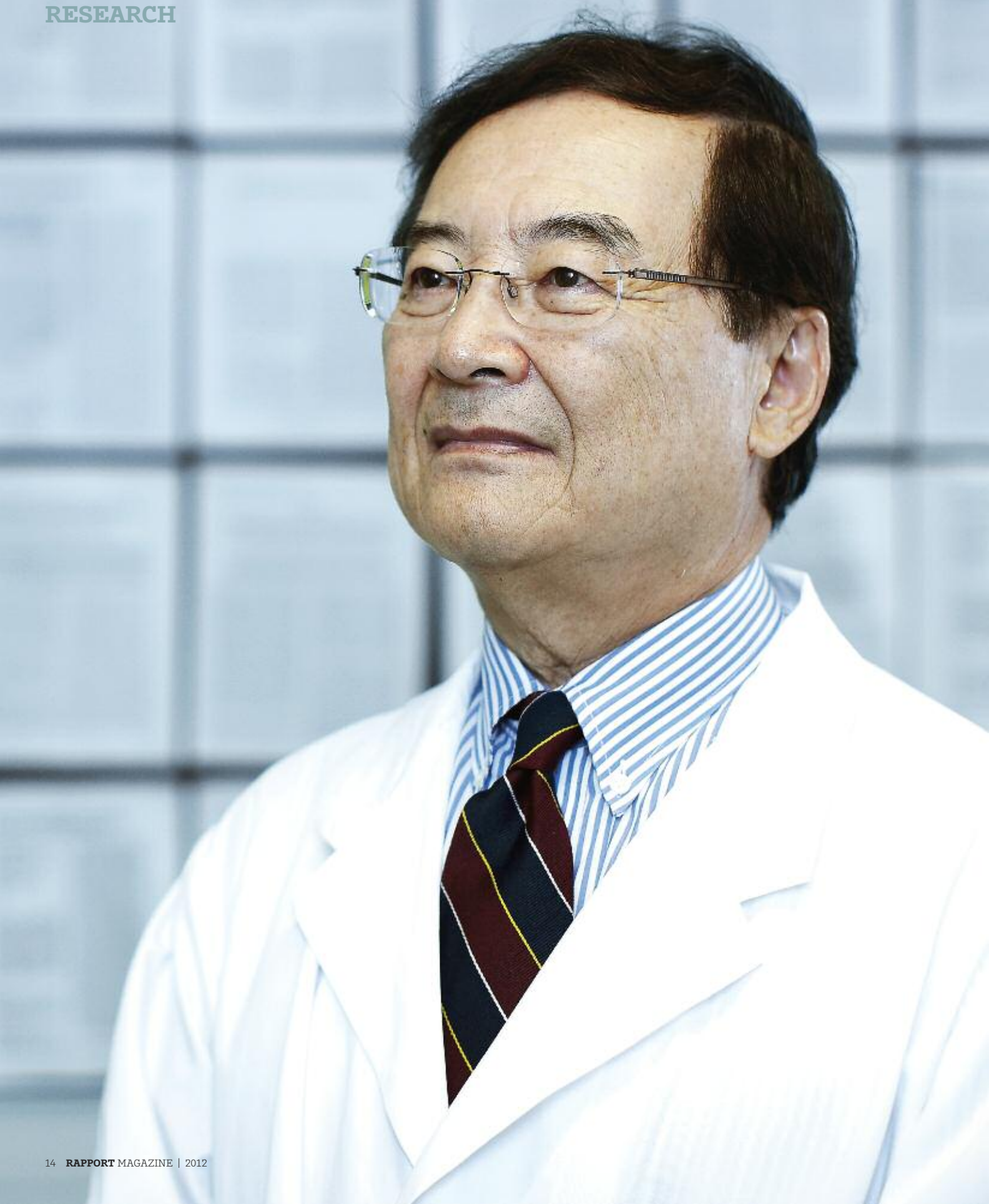
The future of personalized medicine is dependent on human genome mapping. Whereas the first human genome sequence mapped in 2001 cost billions of dollars, technological advancements have lowered that cost to approximately \$10,000. Within the next five years, the '\$1,000 human genome' is expected to become standard.

"This information is clinically ready, and our hope is that the Ministry of Health and Long-Term Care will start covering genetic tests, making them more widespread."

At Schulich Medicine & Dentistry, Dr. Kim is working with the next generation of physicians—the pioneers of this new wave of medicine. "Medical students, as well as residents and fellows at our London hospitals will be first to experience the impact of personalized medicine and learn how pharmacogenomics can support better decision making," he says.

Dr. Kim is now working on a personalized medicine program focussed on the individualization of drug therapy for cancer, vascular disease, and advanced drug reaction prevention among hospitalized patients. "We have been working hard at the bench and bedside, and we're now poised to move forward in a large-scale way." ■

RESEARCH



LIFE CHANGING RESEARCH

HIV VACCINE MOVES TO CLINICAL TRIALS

BY CRYSTAL MACKAY

Chil-Yong Kang's, PhD, modest office is tucked away at the back of a busy research lab on the edge of Western's campus. There, he sits poring over data, with research papers and articles scattered across his cluttered desk, and only looks up to smile.

At first glance, you would never imagine by his humble demeanor that this man holds the key to unlocking one of the world's most devastating diseases and the work being done in his lab is on the brink of saving millions of lives around the globe.

Schulich Medicine & Dentistry researcher Kang and his team have been working for the past three decades to find a solution to stop the spread of Human Immunodeficiency Virus (HIV), and were recently given the green light to start phase one human clinical trials on a vaccine developed in their lab. Since its discovery in 1981, the virus, which is part of the retrovirus family and leads to the development of Acquired Immunodeficiency Syndrome (AIDS), has led to approximately 30 million deaths worldwide and currently has a rate of infection of 2.5 million people per year.

In Canada alone, where infection rates are considered low compared to other countries, more than 65,000 people are living with the disease.

"An HIV vaccine would be an extremely powerful addition to the arsenal of prevention tools to put an end to the pandemic, both within Canada and worldwide," says Monique Doolittle-Romas, Executive Director of the Canadian AIDS Society.

The first reported cases of HIV/AIDS in Canada came to light in the early 1980s, and at that time Kang and his team were working on similar viruses also part of the retrovirus family.

"When we first saw HIV, my team didn't begin studying it right away," he says. "We thought someone else would solve the problem very quickly because of the knowledge we already had of retrovirology. It turns out, it wasn't so easy."

More than half a decade later, when no scientist had made any progress, Kang and his team turned their efforts toward investigating how and why the virus replicates in the body. They eventually used the knowledge gained in their lab to start working on a vaccine.

On December 16, 2011, after nearly three decades of work, Kang and his team received official approval from the U.S. Food and Drug Administration (FDA) to begin clinical trials in humans.

"That day was incredible," Kang says. "We knew the FDA had the most stringent conditions to pass any human vaccine for clinical trials, and if we could pass their stringent conditions, then we could get approval anywhere else in the world."

What made FDA approval so daunting is also what makes Kang's approach different from anything that has been done before. The vaccine uses a genetically modified version of the inactivated HIV gene. Without the modifications, the virus is too dangerous to grow in amounts large enough to create a vaccine; and even with the modifications the virus still has to be killed using both chemical and radiation methods to be sure the virus is completely inactive. →

RESEARCH



Chil-Yong Kang, PhD, in his office

If there is even a single live virus in any dose of human vaccine, it is one too many.

Before giving the green light, the FDA needed Kang's team to demonstrate that there were no residual infectious virus particles in any of the vaccine. Once they demonstrated that, the approval to start human trials came quickly.

Phase one of the clinical trial began in March of this year with a group of 32 HIV-positive subjects. The trial uses a double-blind placebo control to evaluate the safety of the vaccine. Phase two will use a larger group of HIV-negative subjects in the high-risk population to evaluate the body's response to the vaccine and phase three will be done world-wide on a large scale and will be the true test to show if the vaccine is in fact effective in protecting people against HIV infection. Those results are still at least another five years away.

"Five years seems very long," says Kang. "But when you compare it to the three decades since the discovery of the disease, I think it will go by very fast."

And Kang is already preparing for positive results. He has partnered with Sumagen Canada,

the Canadian branch of Korean pharmaceutical venture company, Sumagen Co. Ltd. which has been producing the vaccine for clinical trials and holds the patent on the vaccine for mass production and distribution. Kang has also been working with the World Health Organization (WHO) and the Joint United Nations Programme on HIV/AIDS (UNAIDS) to discuss how the vaccine will be distributed to the world-wide population.

Kang personally met with the leaders of the WHO/UNAIDS HIV Vaccine Initiative at their annual meeting in Geneva to discuss how these world-wide organizations can assist with making sure that the most high-risk populations have access to the vaccine.

Dr. Paul De Lay, Deputy Executive Director, Programme, for UNAIDS says, "Overcoming cost constraints and production bottlenecks will be critical factors in achieving population level impact on the HIV epidemic, especially in high prevalence, low and middle income countries around the world."

And here lies the conundrum; the highest prevalence of HIV/AIDS is in Sub-Saharan Africa

where more than 22.9 million people are living with the disease; that's nearly 25 per cent of the population in countries like Botswana and Swaziland. However, these countries have significant economic challenges and are unable to afford a vaccine if and when it proves successful.

That's why Kang and his partners at Sumagen have made a commitment to UNAIDS that these populations will have access to the vaccine free-of-charge.

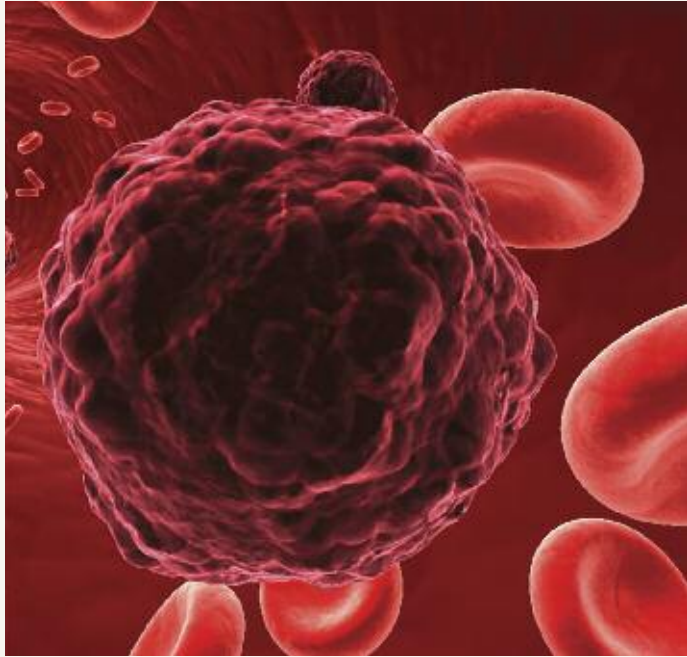
"Professor Kang's and Sumagen's commitment to persevering with their distinctive strategy, and if successful, to donating the resulting vaccine for people in developing countries, is inspiring and admirable," says De Lay.

Kang looks to the next five years with hope and optimism, and his team is already beginning work on a therapeutic vaccine that could help to reverse the infection in those who have already contracted the virus.

"If we can do that," says Kang leaning back in his chair, an awe-inspired smile spreading across his face, "then we can have a real impact on controlling HIV infections and we can save millions of lives. That would be tremendous." ■

DISCOVERY

**THE RISE OF EVIDENCE-
BASED MEDICINE**



Microscopic styled visualization of a cancer cell

Could feeding cancer stop it from spreading?

Dr. Geoffrey Pickering is turning cancer research on its head by proposing that increasing the blood supply to a tumour (in effect, feeding the tumour) could actually prevent cancer from spreading to other parts of the body. Previous research had suggested a more intuitive route—that starving a tumour of its blood supply could prevent it from spreading, however that method has shown limited success to date.

“The concept of deliberately improving the blood supply to a tumour may sound counterintuitive, but we believe it has real potential to stop the tumour from spreading—to render it nonaggressive.” In fact, Dr. Pickering’s theory is that starving tumours may actually make them more aggressive, rather than less. With a \$200,000 Innovation Grant from the Canadian Cancer Society, he will test his tumour-feeding idea which, if correct, could revolutionize the way cancer patients are treated.

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Catching the SPIRIT

The Smarter Prostate Imaging and Interventions Program

For Aaron Fenster, PhD, Imaging Director, Robarts Research Institute—the goal is always the same—improving medical outcomes for people. The world-renowned scientist recently received new funds from the Ontario Institute for Cancer Research to further enhance imaging research in Ontario and to develop improved imaging tools for more personalized diagnosis and treatment of cancer patients world-wide.

The Smarter Prostate Imaging and Interventions (SPIRIT) program, led by Fenster, is intended to reduce over-diagnosis of prostate cancer and reduce illness caused by treatment. Fenster will develop a suite of emerging imaging techniques to better distinguish the aggressiveness of the cancer.

Prostate cancer remains the third most common cause of cancer death in Canadian men. Fenster’s improvements to prostate imaging will allow for a greater degree of personalization in diagnosis and ultimately more effective treatment.

Mapping the way to recovery

Research is now looking beyond spinal cord injuries in patients to better understand what is happening in the brain. Robert Bartha, PhD, is looking not only at the mechanisms of the spinal cord, but also, how the brain responds to injury, and whether there is an ability in the brain to compensate for that injury.

Spinal degeneration is an unavoidable part of aging. As it occurs, it can lead to compression of the spinal cord causing problems with dexterity, numbness in the hands, the ability to



Motor neuron, showing cell body, nucleus, dendrites, axon, and neuroglial cells

GETTY IMAGES INC.

walk and, in some cases, bladder and bowel function. Bartha and his team are mapping the changes that occur in the motor cortex of the brain after spinal compression. These biochemical maps will help us determine whether or not the condition is reversible, and which patients may ultimately benefit from treatment.

Guiding doctors to stop strokes and save patients

Prevention, treatment and rehabilitation

Dr. Henry Barnett’s extraordinary contributions to stroke research have changed the management of millions of stroke patients around the world. The implementation of his research has prevented an unaccountable number of strokes and continues to save lives. And now he has teamed up with long-time colleague and

fellow Robarts researcher, Dr. David Spence to help physicians help their patients.

They wrote and edited *Stroke Prevention, Treatment and Rehabilitation*, a comprehensive guide for doctors to help their patients minimize the risk of stroke. Stroke prevention, treatment and rehabilitation have come a long way in the time since Neurologist Dr. Spence began treating patients. Now doctors know “time is brain,” and the faster an ischemic stroke is treated, the less irreversible damage it will cause.

Taking off your SOX

How the protein SOX9 impedes spinal cord regeneration

Scientists believe the lack of cell regeneration after spinal cord injuries can be attributed to the scar tissue that forms and inhibits nerve growth at the site of injury. Arthur Brown, PhD, received a grant from Canadian Institutes of Health Research to study a protein he has identified that may control regeneration in the injured spinal cord.

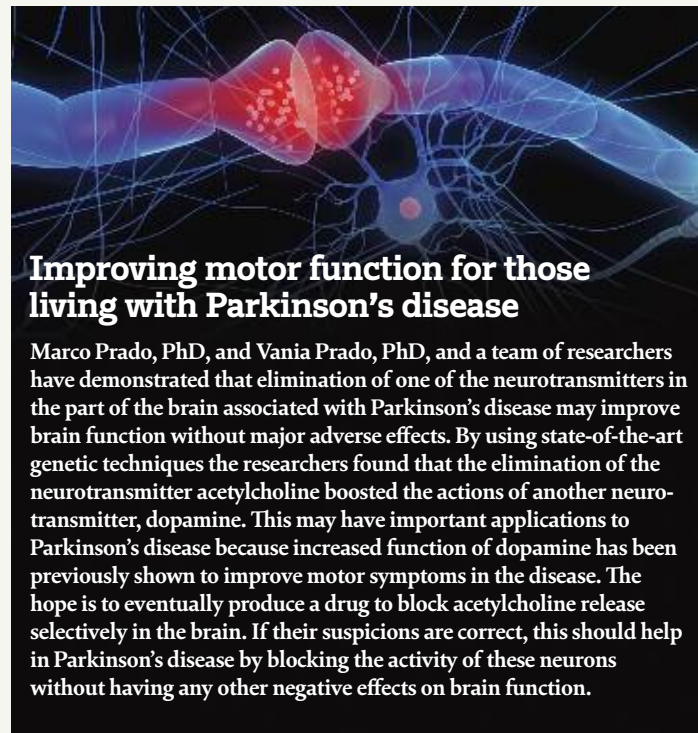
Called SOX9, this protein acts as a kind of construction foreman, who coordinates the formation of unwanted scar tissue, which impedes spinal cord regeneration following injury. SOX9 executes two functions detrimental to nerve recovery: increasing activity of genes that build a ‘brick wall’ of scar tissue, inhibiting nerve re-growth; and decreasing activity of genes that construct the ‘scaffold’ upon which damaged nerves re-grow and thrive.

Ultimately, Brown hopes his discovery will lead to the development of a drug that will actually change the composition of the scar tissue that forms after spinal cord injury, thereby promoting regeneration of damaged nerves and helping patients heal.

Promising new therapeutic target for aggressive breast cancer

Lynne-Marie Postovit, PhD, has identified a new therapeutic target for advanced breast cancer which has shown tremendous promise. It has been determined that breast cancers, specifically those very aggressive, invasive breast cancers that spread, express an embryonic protein called Nodal and the expression of this protein is correlated with more blood vessels in the tumour. The young award-winning scientist and her team have shown that if they target this embryonic protein, blood vessels will collapse within the tumour, leading to decreased oxygen levels and tumour cell death.

“Ultimately it would be nice to target Nodal in patients who already have quite advanced, well-vascularized tumours as a new option for therapy,” says Daniela Quail, first author on the research and a PhD candidate in the Postovit lab. “Currently, patients like this don’t have many options.” Thanks to research being done in the Postovit lab there may soon be one more.



Improving motor function for those living with Parkinson's disease

Marco Prado, PhD, and Vania Prado, PhD, and a team of researchers have demonstrated that elimination of one of the neurotransmitters in the part of the brain associated with Parkinson's disease may improve brain function without major adverse effects. By using state-of-the-art genetic techniques the researchers found that the elimination of the neurotransmitter acetylcholine boosted the actions of another neurotransmitter, dopamine. This may have important applications to Parkinson's disease because increased function of dopamine has been previously shown to improve motor symptoms in the disease. The hope is to eventually produce a drug to block acetylcholine release selectively in the brain. If their suspicions are correct, this should help in Parkinson's disease by blocking the activity of these neurons without having any other negative effects on brain function.

Prostate Cancer remains the third most common cause of cancer death in Canadian men. Fenster's improvements will allow for a greater degree of personalization in diagnosis and ultimately more effective treatment.

Surprising research findings

Vitamin B therapy may have a negative impact on kidneys

The use of vitamin B to stop kidney damage in people with diabetes needs a closer look, and those with kidney damage now taking high vitamin B doses, should stop. That is the advice from Dr. David Spence who found surprising results in a study looking at the effects of vitamin B therapy on diabetic nephropathy. Diabetic nephropathy is kidney disease or damage that is a complication which affects over 40 per cent of diabetics.

Dr. Spence began a study of people with kidney disease, anticipating that people who received high dose vitamin B therapy (folic acid, vitamin B6 and vitamin B12) could see improved kidney function and suffered from fewer heart attacks and stroke, compared with those on placebos.

What he learned was that the opposite was true. Those people receiving high dose vitamin B therapy had significantly greater worsening of kidney function; they also had twice as many heart attack and stroke incidents.

SHEDDING LIGHT ON THE ALZHEIMER'S BRAIN

ROBARTS SCIENTIST ROBERT BARTHA
BELIEVES IMAGING IS KEY TO EARLY
DETECTION AND PREVENTION

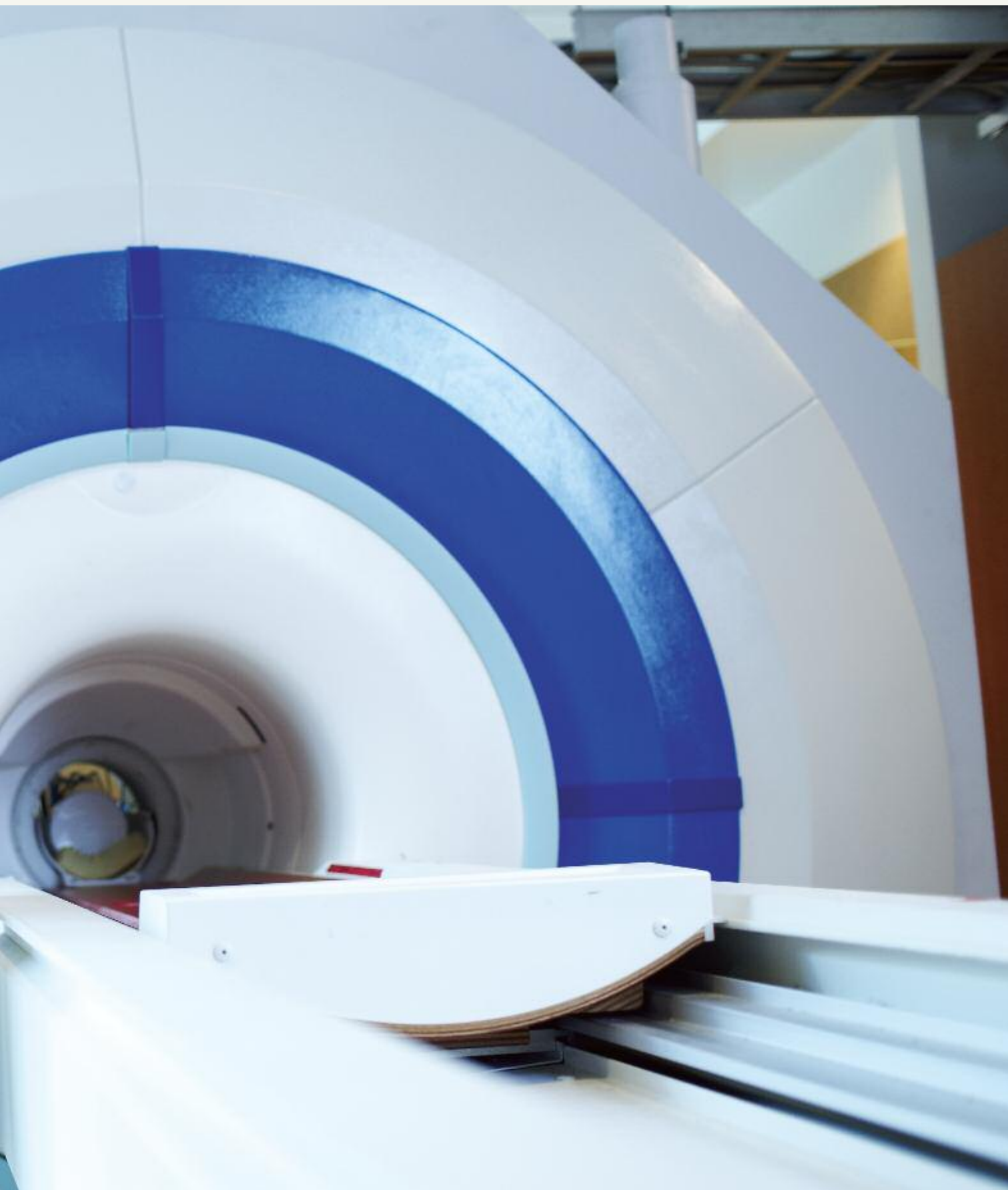
BY HAILEY EISEN

As anyone who knows a person living with Alzheimer's disease can attest, the disease has devastating implications for the individual who slowly slips away into confusion and memory loss, and for the family and caregivers who carry the weight of this irreversible diagnosis. It's with this in mind that Robert Bartha, PhD, a scientist with Robarts Research Institute and Associate Professor of Medical Biophysics, Schulich School of Medicine & Dentistry, works fervently within the Imaging Research labs at Robarts. With a primary focus on diseases of the brain, and a particular interest in Alzheimer's disease, Bartha anticipates a day when early detection through advanced imaging techniques followed by drug treatments will be successful in bringing this debilitating disease to a halt.

Currently, Alzheimer's is only diagnosed through clinical and neurocognitive assessments (i.e., memory testing, problem solving, etc.) and a definitive diagnosis is only possible after death through an autopsy. →



Robert Bartha, PhD

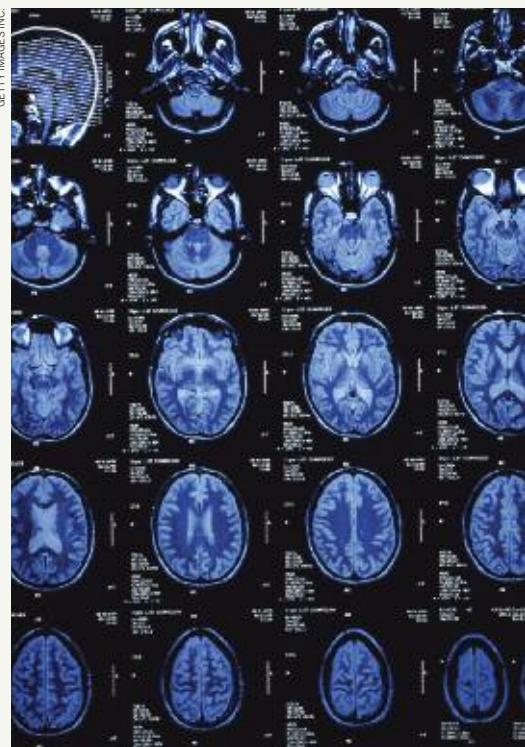


ROBARTS DISCOVERY

According to the Alzheimer's Society of Canada, if there is no medical breakthrough within the next 25 years, more than four million Canadians will have developed Alzheimer's disease or a related dementia. This will be a dramatic increase from 2010 when 500,000 Canadians were reportedly living with the disease. The economic implications are equally as shocking: with 2010 reports indicating the cost of dementia in Canada at \$22 billion annually, and predictions climbing to approximately \$153 billion annually within a generation, if nothing changes.

Things will change, if Bartha has any say in the matter. For years, Bartha and his team have been collaborating with Dr. Michael Borrie, Professor, Schulich Medicine & Dentistry and geriatrician at St. Joseph's Parkwood Hospital in London, to examine normal elderly adults in comparison to those individuals with mild cognitive impairment (MCI) and those with Alzheimer's disease. In developing and utilizing new magnetic resonance imaging (MRI) methods, Bartha is able to observe disease in the human brain and investigate how it progresses.

"We study the anatomy of the brain and how that changes with MCI and Alzheimer's," he explains, "we've also gone beyond that to look at the metabolism and chemistry of the brain using magnetic resonance spectroscopy (MRS)."



"Unfortunately, now, by the time someone experiences symptoms of Alzheimer's, irreversible damage has already taken place," Bartha explains. "The disease takes hold decades before the first symptoms appear."

The ultimate goal: establish a noninvasive technique to identify subtle changes in the brain, which indicate the presence of Alzheimer's long before an individual experiences cognitive decline or memory loss. "Unfortunately, now, by the time someone experiences symptoms of Alzheimer's, irreversible damage has already taken place," Bartha explains. "The disease takes hold decades before the first symptoms appear."

Bartha and his team continue to receive accolades for their groundbreaking work. In 2008 they utilized MRI scans obtained through the Alzheimer's Disease Neuroimaging Initiative sponsored by the National Institutes of Health, to track anatomical changes to the brain based on high precision techniques they had developed in-house. In doing so, they identified clear evidence that increases in the size of the brain ventricles (fluid filled cavities in the brain) can be directly associated with cognitive impairment and Alzheimer's disease. "Those findings gave us hope that a technique like the one we developed could help predict which patients experiencing MCI would go on to have Alzheimer's disease."

More recently, Bartha and his team were able to take brain imaging to the next level by utilizing MRI and MRS technology to examine the brain's metabolic function. Their most significant findings, published in the journal *Neurobiology of Aging* in 2011, showed reduced levels of hippocampal glutamate (the major excitatory transmitter in the brain) in individuals with MCI and Alzheimer's. "From this we were able to hypothesize that neurons in the brain's hippocampus were actually becoming dysfunctional before dying," he explained. "Going forward, the measurement of glutamate should help us predict, more accurately than anatomical imaging, which patients are at higher risk for Alzheimer's disease than others." →

FACTS ABOUT ALZHEIMER'S DISEASE:

45%

OF PEOPLE AGE 85 AND OLDER HAVE ALZHEIMER'S DISEASE

13%

OF PEOPLE AGE 65 AND OLDER HAVE ALZHEIMER'S DISEASE.

COSTS THE HEALTH SYSTEM AN ESTIMATED

\$22

BILLION PER YEAR



Robert Bartha, PhD

All of this forms the basis for even more exciting research using Robarts' 7.0 Tesla MRI machine, the only one of its kind in Canada. Providing higher magnetic field strength than the 1.5 or 3.0 Tesla machines typically used in hospitals, the 7.0T scanner makes it possible to view the entire brain with increased clarity, allowing them to better visualize of areas such as the hippocampus where metabolic change is taking place. "When you're not sure what you're looking for, the increased resolution is extremely beneficial," says Bartha. "But, once we identify glutamate as a biomarker, we'll be able to develop techniques that enable clinicians to measure for it using a 3.0T scanner, which they're more likely to have access to."

Translating his research efforts to the clinical setting is a key component of Bartha's work. His group is working to develop a user-friendly interface that can be utilized by doctors to improve patient care. The goal of this tool would be to enable physicians to enter patient data (derived from MRI scans) then retrieve an analysis based on key markers and compare those to the average

"There is a great feeling of personal satisfaction that is achieved with each new discovery and problem that is solved particularly those that lead to the potential for a positive impact on health care."

for that population. "We are hoping to work with the Centre for Imaging Technology Commercialization (CImTeC), an initiative that helps imaging scientists converge with small and medium-sized Canadian enterprises."

Bartha's team is also involved in clinical drug trials attempting to identify, via imaging techniques, drugs that may be able to successfully stop the progression of the disease. Finally, they are also working to develop a new class of contrast agent that would work with MRI scans to identify early changes in Alzheimer's disease within the brain. "The success of this project is still many years from being realized, and the outcome remains high-risk because we are not sure if it's going to work," he says.

Still the group forges ahead, keeping in mind the ultimate goal of a future without Alzheimer's disease. "There is a great feeling of personal satisfaction that is achieved with each new discovery and problem that is solved particularly those that lead to the potential for a positive impact on health care." ■

THE RISE OF EVIDENCE-BASED MEDICINE

HOW ROBARTS CLINICAL TRIALS INFLUENCES GLOBAL PATIENT CARE

BY HAILEY EISEN

Robarts Clinical Trials was one of the original scientific groups within Robarts Research Institute when it was founded in 1986. Today, more than twenty years later, the group is conducting more than 30 multi-centre trials at 400 sites world-wide and has two internationally configured offices: Robarts Europe in Amsterdam and Robarts West in San Diego, California.

"We are a prime example of a globally focussed research enterprise that provides important scientific and economic benefits to Western University and London. The majority of our 85-person staff is based in this city and our scientists are Western faculty members," says Dr. Brian Feagan, the group's Director.

"Randomized controlled trials are the gold standard for the evaluation of new treatments and diagnostic tests in medicine. No therapy is approved without undergoing these studies," explains Dr. Feagan, a specialist in Gastroenterology.

Dr. Feagan has led the group as a clinician-investigator over the past 15 years. His predecessor, Dr. Henry Barnett, the founding Director of the group, was strongly committed to performing high quality clinical trials. In fact, the randomized trials led by Dr. Barnett that identified aspirin as effective therapy for stroke prevention, resulted in one of the most important medical discoveries of the 20th century. Following the aspirin trials, Robarts conducted a landmark National Institutes of Health sponsored study, The North American Symptomatic Carotid Endarterectomy Trial (NASCET) conducted at more than 100 sites and spanning ten years. NASCET defined the optimal management of carotid endarterectomy for the prevention of stroke in patients with carotid stenosis.

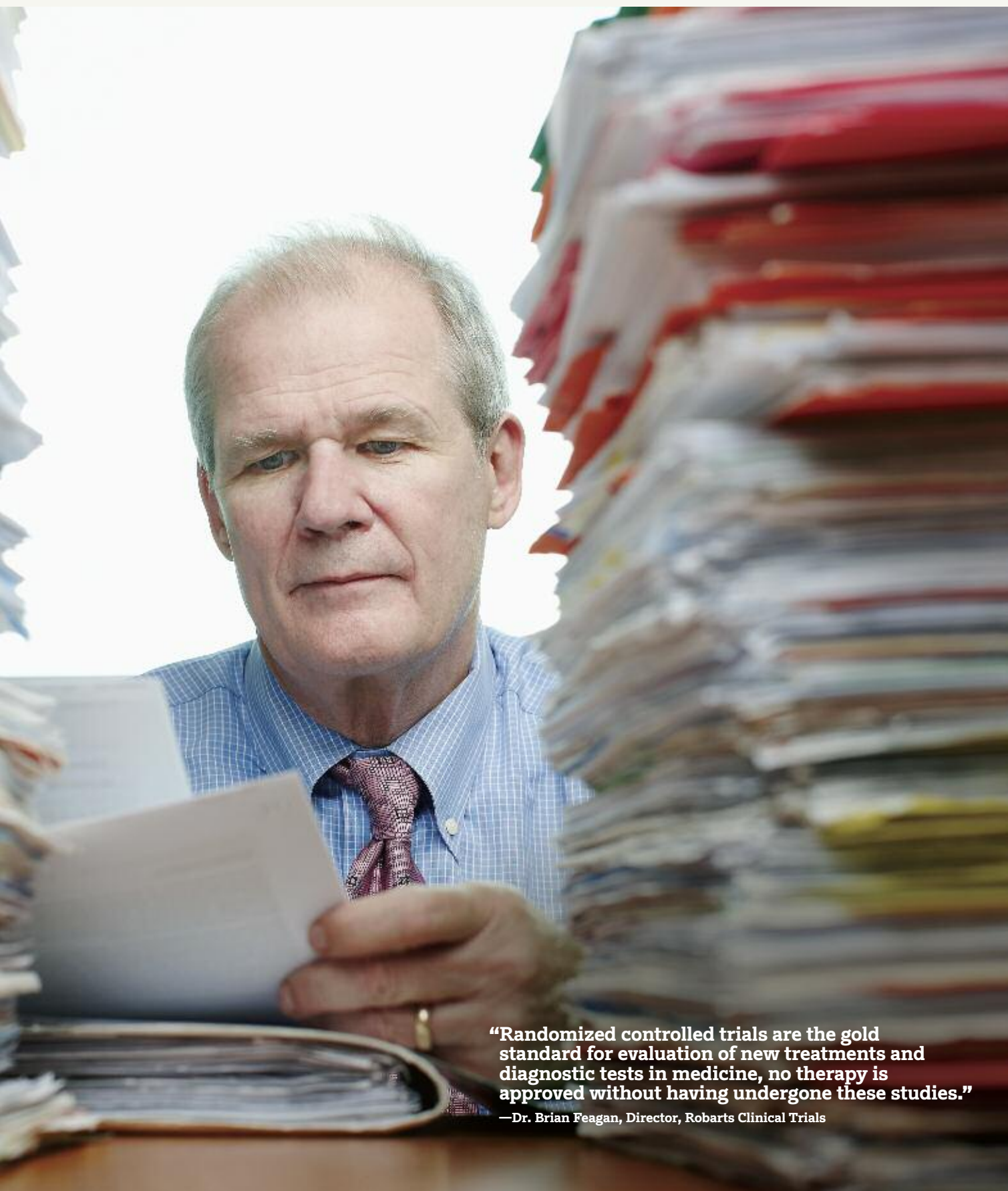
According to Dr. Feagan, the results of NASCET are arguably the most important discovery that medicine in London has ever produced.

Under Dr. Feagan's leadership, the clinical trials group has built upon the legacy of NASCET and his international reputation in the treatment of inflammatory bowel disease (IBD). Important discoveries that originated from randomized trials conducted by the group in the past decade include the identification of methotrexate as a treatment for Crohn's disease, clarification of the role of arthroscopic surgery in the management of knee arthritis and identification of new approaches for the evaluation of care processes in complex diseases.

A perfect example of Robarts rare capability for conducting 'bench to bedside' research, began a decade ago when Robarts began collaborating with Millennium Pharmaceuticals to develop a novel new drug treatment for IBD. This initiative began when Robarts scientist Andrew Lazarovitz tested the prototype molecule in the laboratory. Subsequently, the group took the program forward to early phase studies in patients. Robarts scientists have since been involved in every aspect of the successful development including protocol design, trial management, data analysis, and interpretation. Vedolizumab, a monoclonal antibody that selectively inhibits white blood cell trafficking to the intestine will soon be evaluated by regulatory authorities as a new treatment for patients suffering from ulcerative colitis and Crohn's disease.

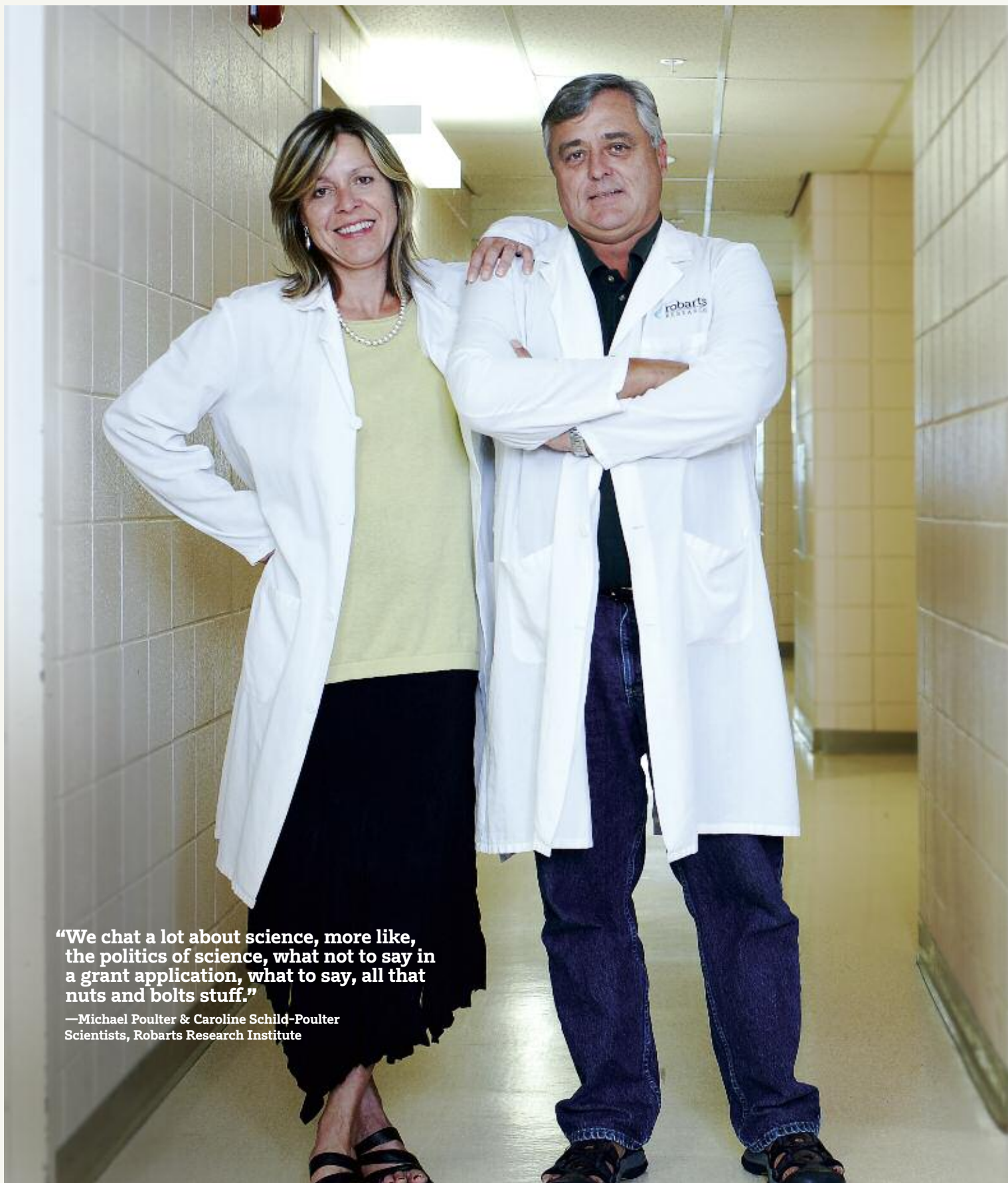
Internationally recognized for its unique capabilities in the design and conduct of IBD trials, the Clinical Trials team is committed to improving human health both locally and internationally. ■





“Randomized controlled trials are the gold standard for evaluation of new treatments and diagnostic tests in medicine, no therapy is approved without having undergone these studies.”

—Dr. Brian Feagan, Director, Robarts Clinical Trials



"We chat a lot about science, more like, the politics of science, what not to say in a grant application, what to say, all that nuts and bolts stuff."

—Michael Poulter & Caroline Schild-Poulter
Scientists, Robarts Research Institute

ROBARTS DISCOVERY

PARTNERS IN LABS AND LIFE

MICHAEL POULTER AND CAROLINE SCHILD-POULTER
SHARE A PASSION FOR MEDICAL RESEARCH

BY KATHY WALLIS

When Michael Poulter and Caroline Schild-Poulter sit down to dinner, they admit, “We chat a lot about science,” or as he jokes, “More like, the politics of science, what not to say in a grant application, what to say, all that nuts and bolts stuff.” The married Robarts Research Institute scientists have different fields of research and separate laboratories, but still, there is an undeniable partnership.

“We read each other’s grants and help each other in certain aspects. We’re also collaborating on one of Mike’s projects,” says Schild-Poulter.

The two first met at the National Institutes of Health in Bethesda, Maryland where she spent two years while working toward her PhD at the University of Lausanne in Switzerland. He was there as a Postdoctoral Fellow, having earned his PhD from McGill.

Poulter took another fellowship in Strasbourg, France, close enough to Switzerland for them to get married in 1992, a year before Schild-Poulter completed her degree. After a stint in France, the two landed jobs in Ottawa, and then in January of 2006, made the move to Robarts Research Institute.

An Assistant Professor in Biochemistry, Schild-Poulter studies cancer and DNA damage. She identified a protein called RanBPM which is directly involved in apoptosis, the process whereby damaged cells self-destruct. In cancer, the cells don’t initiate apoptosis despite having genetic defects. “We have made a lot of progress on this discovery,” she says.

Along with government support, Schild-Poulter’s research has private funding from Marilynne Fuller, whose husband died of cancer. “She was looking to support a scientist working on cancer projects,” explains Schild-Poulter. “When I meet with her, I have to think more globally about how the research is going to benefit the general community. It helps to step back and look at the big picture.”

Poulter researches gene expression in neurons, and how that may impact diseases such as epilepsy and depression. He showed how there were changes in the DNA in the brains of those who committed suicide compared to those who died of other causes such as heart attack. That research requires further funding.

In the meantime, the Professor in Physiology and Pharmacology, and Director of the Graduate Program in Neurosciences is investigating why anti-seizure drugs fail to work in about 30 per cent of people with epilepsy. The only alternative to medication is to pinpoint the spot in the brain where the seizures originate, and to surgically remove that tissue. Poulter’s team is in the operating room to retrieve that tissue for testing.

“The epilepsy work has branched into epigenetics as well. I just received funding last year from the Ontario Brain Institute, and we’re looking at changes in DNA structure from people who had epileptic foci removed from their brains.” It’s work that could lead to improved anti-convulsive medications, and no doubt, to a lot of interesting dinner conversations. ■

ALUMNI PROFILE

"Understanding we as physicians have an enormous position of privilege in society, made me realize that with privilege comes enormous responsibility."

—Samir Sinha, MD '02

CHANGING THE WORLD

RECOGNIZING ACHIEVEMENTS THROUGH THE ALUMNI OF DISTINCTION AWARDS



Lillian Fuller, MD '47; LLD '02



Noam and Beryl Chernick MD '62



David Lawton, DDS '71



Michael W. Salter, MD '82

The Schulich School of Medicine & Dentistry has more than 13,000 alumni living around the world. Each year, we are proud to recognize the achievements of a few through the Alumni of Distinction Awards. The recipients are leaders in their field who live the values of the School and through their dedication are making the human experience and life's journey better.

Samir Sinha, MD '02

YOUNG ALUMNI AWARD

Dr. Samir Sinha is leading the way for an improved health care system for the people of Ontario. A proud Western alumnus, Dr. Sinha is a Rhodes Scholar, who has worked in England and Johns Hopkins University. It was during his time as a young medical student at the Schulich School of Medicine & Dentistry, Dr. Sinha developed his passion for caring and advocating for marginalized populations. "While at medical school, the values of respect, partnership and advocacy were impressed upon me. I learned these from my classmates, mentors in the classroom and on the wards in the hospitals," says Dr. Sinha. "Understanding we as physicians have an enormous position of privilege in society, made me realize that with privilege comes enormous responsibility." Today he is described as a visionary. And he is directing his passion, energy, compassion and knowledge to the field of geriatric medicine. In a very short time, Dr. Sinha, now Director of Geriatrics at Mount Sinai Hospital has made significant changes to the way in which care is provided to older patients.

Lillian Fuller, MD '47, LLD '02

PROFESSIONAL ACHIEVEMENT AWARD

Quiet, competent, and gentle are a few of the words used to describe Dr. Lillian Fuller. As one of a handful of women graduating from Medicine in 1947, Fuller could easily be characterized as determined, resilient, and a trailblazer. Following graduation she settled in Houston, TX, at the Anderson Cancer Centre. She was hired as a senior radiation oncologist,

promoted to full professor and served as Deputy Head, Department of Radiation Oncology. During her career, she introduced a cross-fire technique for kilovoltage equipment to eradicate abdominal disease. Working with the renowned Dr. Gilbert Fletcher, she was the first to treat Stage III Hodgkin's disease definitively with irradiation. Dr. Fuller remains close with her classmates, and along with Dr. Allen Woolever raised nearly \$100,000 for a graduating student scholarship. Her advice to future generation of medical students beginning their careers: "Keep your eyes open for opportunities, discuss offers with trustworthy people in the specialty and pay attention to your instincts."

Noam and Beryl Chernick, MD '62

COMMUNITY SERVICE AWARD

Partners in life and career, Noam and Beryl Chernick have been changing the world by strengthening the family unit and personal relationships for people of all ages. Today they are recognized as Canadian pioneers in marriage and sexual dysfunction counselling. Initially, both were inspired by Beryl's father to pursue medicine. Following their graduation and a fellowship they undertook a postdoctoral fellowship focussed on marriage counselling and family life education at Bowman Gray School of Medicine in North Carolina. There they learned a more holistic approach to care. "This experience reoriented us to looking beyond the presented signs and symptoms." The Chernicks formed a co-therapy team, counselling couples with marital and sexual dysfunction, founded the Board of Examiners in Sexual Therapy and Counselling in Ontario, and developed programs, produced audiotapes and movies and wrote a best-selling book *In Touch*. They focussed on a philosophy of holistic care throughout their career. They believe physicians need to keep this in mind. "To paraphrase the great medieval physician and philosopher, Moses Maimonides," says Beryl, "in each sufferer, see the unique human being."

David Lawton, DDS '71

DENTAL ALUMNI OF DISTINCTION AWARD

Dr. David Lawton embodies the values of Schulich Dentistry—excellence in the provision of care, good moral and ethical character, and a willingness to give back to one's profession and community. While managing a busy practice in Harrow, a small rural and underserved community, he commuted to St. Clair College to teach dental assistants and hygienists with a goal to advance knowledge to the next generation of dental practitioners. It was years later after viewing a presentation by a colleague who had done work in Sartarem, Brazil, that Dr. Lawton was inspired to do more. "Really," he says, "it was a mixture of curiosity about foreign cultures, a sense of adventure and a desire to offer services where they were sorely needed." He then dedicated his time to serving remote communities in the world, including Africa, South America and Canada's Arctic, while maintaining a special interest in disabled children and adults in his home community.

Michael W. Salter, MD '82

BASIC SCIENCE AWARD

Dr. Michael Salter is considered one of Canada's foremost neuroscientists having made significant contributions to the understanding of fundamental processes that govern the function of the nervous system in health and its dysfunction of disease. A leader in pain research, Dr. Salter has produced more than 145 peer-reviewed publications many of which appear in the world's leading scientific journals. Today, he can be found in the lab, classroom and around the board room table at SickKids and University of Toronto where he serves as a senior scientist; Head of the Research Institute's Neurosciences and Mental Health Program; Associate Chief, Science Strategy; and a professor in the Department of Physiology. In addition to training 16 graduate students and 39 post-doctoral students, Salter serves as vice president of NoNO Inc., a biotech company that was started on the basis of a molecule he helped design and develop to treat neuropathic pain and stroke. ■

DEVELOPMENT





THE WESTERN EXPERIENCE

CAMPAIGN INVESTMENT HELPS TO DELIVER AN ACADEMIC EXPERIENCE SECOND TO NONE

BY CHRISTINE WARD

Every Western grad has had it. It is “The Western Experience”, and the Schulich School of Medicine & Dentistry is committed to ensuring that the world-class academic experience you enjoyed is proving even more transformative for the generations to follow. The School is a cornerstone priority in The Campaign for Western. For its part, Schulich Medicine & Dentistry has a goal to raise \$145 million over the next six years to enrich the experience of students and to achieve its potential to become a national and global leader in optimizing life-long health through innovations in research, education and active engagement with our communities.

Four key areas for support have been identified as integral to the advancement and growth of the School including Student Awards, Teaching Excellence, Academic and Research Programs, and Infrastructure. And donors will play a significant role in helping the School achieve its goals. “It is clear that the support of our donors will be integral to our success,” says Dr. Michael J. Strong, Dean, Schulich Medicine & Dentistry. “By investing in our School and Western University through this campaign, donors will, in a very tangible way, be helping to create the foundations of a truly meaningful transformation of the School that will benefit not only the health of our region, but Canadians as a whole.”

Academic and Research Programs Spark innovation and learning

Rob Cuddy (BA '76) has seen firsthand why moving research out of the labs and into the lives of people is critically important. The owner of Waterloo, Ontario's East Side Mario's watched his father, Mac, succumb to multiple sclerosis in 2006 and Cuddy's wife Jane is also battling the disease.

Building on his father's original \$1 million gift to establish the A.M. Cuddy Wing at Robarts Research Institute, Cuddy has contributed more than \$100,000 to help Western researchers capture microscopic images of the central nervous system in MS patients. Ravi Menon, PhD, and his team are using the high-tech MRI images for early diagnosis and monitoring of the disease.

“Dad invested in bricks and mortar, so Ravi and his team had a place to work,” says Cuddy. “We're providing the seed money to get the research done.”

In 2011, Cuddy contributed \$50,000 from a sell-out performance featuring his cousin Jim Cuddy and Jim's band Blue Rodeo. The money helped to leverage close to \$1 million in grants. In 2012, Canadian songstress Serena Ryder helped to raise another \$52,000 for the cause.

Schulich Medicine & Dentistry plans to change lives for the better through campaign investments in research and academic programs of global significance, including neuroscience, public health and vascular disease. →

For its part Schulich Medicine & Dentistry has a goal to raise \$145 million over the next six years to enrich the experience of students and to achieve its potential to become a national and global leader.

Student Awards

Increase support for students to excel

This spring, Dr. Kalpa Shah (MD '12) was completing a clerkship elective in a private medical clinic in Tanzania when she faced her toughest diagnosis ever.

"We had a patient with HIV who was off her meds and confused. We weren't sure if she had an infection, if it was AIDS or even brain cancer." In a rural clinic with limited access to diagnostic testing, Shah had to treat based on clinical experience alone.

The experience made her a more resourceful doctor, ever mindful of the technology and tests available to Canadian physicians and of the benefits of private support.

Shah's travels were made possible by the Dr. Rob Tingley Class of '95 Developing Countries Award established in memory of Tingley (MD '95), who had an equally "life altering" learning experience in Kenya before passing away in 2004. Today, the Class of '95 is looking to double the endowment to help two medical students spend a portion of their final year studying outside of Canada. "It's first about honouring Rob," says Dr. Jeff Blackmer (MD '95), Tingley's classmate and childhood friend, "but wouldn't it be great to have more of tomorrow's doctors open their eyes to the world?"

Bursaries, entrance awards and global opportunity awards for Schulich Medicine & Dentistry students are all priorities for the School and for the campaign.

Teaching Excellence

Attract and retain the best faculty

If all goes according to plan, Dr. Davy Cheng will be one of 100 new endowed chair holders at Western and Canada's first Chair in Evidence-based Perioperative Clinical Outcomes Research (EPiCOR).

The internationally recognized anesthesiologist is also one of the world's leading evidence-based researchers. Dr. Cheng pioneered and established the current practice in fast track cardiac anesthesia and surgery recovery improving the outcomes and resource utilization in cardiac surgery patients around the world. His evidence-based knowledge translation research has developed into practice guidelines for drugs, medical devices, surgical procedures and technologies in perioperative acute care internationally.

The campaign is focussed on attracting and retaining the best teachers and researchers to lead our students, improve patient care and manage

precious health care resources. As the EPiCOR Chair, Dr. Cheng plans to launch a medical school training centre for evidence-based research and health policy development. He will both translate research knowledge to best practices for patient care, assess the results and develop new practice guidelines and policies with all clinical specialties.

More than \$800,000 has been donated toward the \$1.5 million goal, which will be matched by Western. The EPiCOR chair is part of a campus-wide strategy to grow the number of endowed chairs from 17 to 117, including Schulich School of Medicine & Dentistry appointments in Orthopaedics, Cardiac Imaging, Urology and Surgical Innovation, to name a few.

"This is another step toward establishing Western and Schulich Medicine & Dentistry as centres of excellence in evidence-based knowledge translation research," says Cheng. "We want to deliver the evidence for best practice care that ensures the best possible outcomes for all our patients."

Infrastructure

Create the perfect palette for learning

Ask Schulich School of Medicine & Dentistry students about the Western Experience and they'll likely describe how the right spaces and the right equipment make for a world-leading research and learning environment.

That, in fact, is the goal of Robarts Research Institute scientist Stephen Ferguson, PhD. The director of Western's Molecular Brain Research Group is committed to attracting the resources he needs to purchase one of the most powerful microscopes in the world. The super resolution multiphoton microscope will be one of the first in the world to defy the perceived laws of physics to visualize the smallest but most important particles within a cell.

"The equipment is essential to the school's scientists focussed on discovering cures for diseases of the brain," he explains. "It will enable us to recruit the most talented students and researchers from around the world."

The multiphoton microscope is just one of the ways in which the fundraising campaign will help to deliver the infrastructure students and faculty need to discover and achieve. Plans are also underway for a new building to house the Schulich Interfaculty Program in Public Health, the Department of Family Medicine and state-of-the-art research equipment used to enhance patient care. ■

THE CAMPAIGN FOR WESTERN

\$750 M
GOAL

\$267 M
FOR STUDENTS

\$218 M
FOR FACULTY

\$163 M
FOR PROGRAMS

\$102 M
FOR INFRASTRUCTURE

EDUCATION PROFILE



A FAMILY TRADITION OF GLOBAL CARE

INSPIRED BY HER UNCLE, KAYLEIGH MACINTOSH CONTINUES THE FAMILY LEGACY OF CARE

Kayleigh MacIntosh works in a clinic in Guatemala

BY CRYSTAL MACKAY

From journeying down the winding back roads in rural Guatemala, to practicing dentistry in small-town Ontario, Schulich Dentistry graduate Kayleigh MacIntosh says the goal is the same; to encourage total oral health in underserved populations where access to care is limited. MacIntosh spent part of the past four years of her dental training volunteering her time providing oral hygiene education and service in Guatemala, and now plans to set up practice in the rural community of Wiarton on the Bruce Peninsula.

MacIntosh's decision to practice dentistry stemmed from an interest in both art and science, and an intense dedication to wanting to help others. "When I looked into dentistry I realized it was the perfect blend of being able to use my hands and also practice in a health profession." Providing care to those

most in need is what has brought her the greatest satisfaction while practicing dentistry.

It was her uncle, Dr. Tom Rice, a long-time faculty member with Schulich Dentistry who first inspired her to become involved in social advocacy and global outreach. He has provided care to underserved populations for the past decade in South America and Africa and his stories of adventure and personal growth encouraged MacIntosh to become involved. During her four years in dental school, she joined Dr. Rice on trips to Guatemala to embark on "dental journeys."

"In a place like Guatemala, where the access to care just isn't there, you have much different problems and patterns of disease and you really see how much prevention and oral education is important in those places," she says.

As a student, MacIntosh also travelled

to Moose Factory, Ontario on the southern end of James Bay as part of Schulich Medicine & Dentistry's Dental Outreach Community Service (DOCS) program. And she is thrilled the School has made DOCS a part of the curriculum requiring all students to volunteer their time providing their services to those with limited access to care otherwise because of location or financial situation. She says it's the perfect way to demonstrate the importance of social responsibility to new dentists.

MacIntosh hopes to continue returning to Western to bring students on dental journeys, and is setting up her practice in the rural Ontario community of Wiarton in order to continue serving underserved populations. She says she has always wanted to practice in a rural community where patients are so appreciative and don't take good dental care for granted. ■

CREATIVELY INSPIRING YOUNG MINDS

JERRY BATTISTA CONTINUES TO REINVENT HIS APPROACH
TO TEACHING TO REACH HIS STUDENTS

BY JENNIFER PARRAGA

Visionary, mentor, researcher and teacher, Jerry Battista, PhD, Chair, Medical Biophysics, Schulich School of Medicine & Dentistry wears many hats throughout the day. Regardless of the role he plays—or hat he dons, his commitment to creativity, excellence and innovation remains at the core of all he does and inspires his students and colleagues to reach new heights.

This year, his commitment to innovation in teaching led him to presenting a graduate course in radiation biology without once stepping foot in a classroom.

Preparing months ahead of time, he adapted the course to the web, creating slides and then audio dubbing his voice over the slides to produce lectures. Students could then take the course using their iPad, iPod, BlackBerry or laptop. The result: enrollment almost doubled in the course, and one student attained the highest level of achievement ever in the course's history.

For the nationally recognized professor, becoming a better teacher is a never ending and creative process. "Whenever someone thinks they reached the end of the road and they are really good at this—they haven't looked hard enough," he says.

Teaching since 1988, Battista began

with no formal training in didactic teaching or pedagogy. His greatest challenge, early in his career, was learning how to distill complicated topics down to the essential features and how to focus on the fundamentals rather than the exceptions to the rules.

Today, teaching is very different than it was at the beginning of his career. While students' attitudes are ever changing, challenging teachers to adapt, he believes the biggest difference is the amount of information students have at their fingertips through the web.

He also believes that the learning process will continue to change, and universities will have to continue to innovate. "The idea of getting up in front of a lecture room, filling a whiteboard full of equations while echoing a book is dead," he says. "It has to be much more animated, interactive, engaging, and include video components."

Living true to his belief, Battista recently created a Mini Computed Tomography (CT) scanner and began using it as a teaching tool in undergraduate medical imaging classes.

The miniature version of the CT which safely uses light instead of x-rays, sits on a table top and rolls right into the classroom, negating the need for students to have to travel to hospitals after hours to learn how the machine works. Its

effectiveness was put to the test, when Battista taught high school students a physics and chemistry class. After a one hour lecture using the Mini CT they understood the imaging process. And now, his ingenuity and commitment to teaching is going global; the Mini CT is being manufactured and has sold to universities in Canada, the United States and Asia.

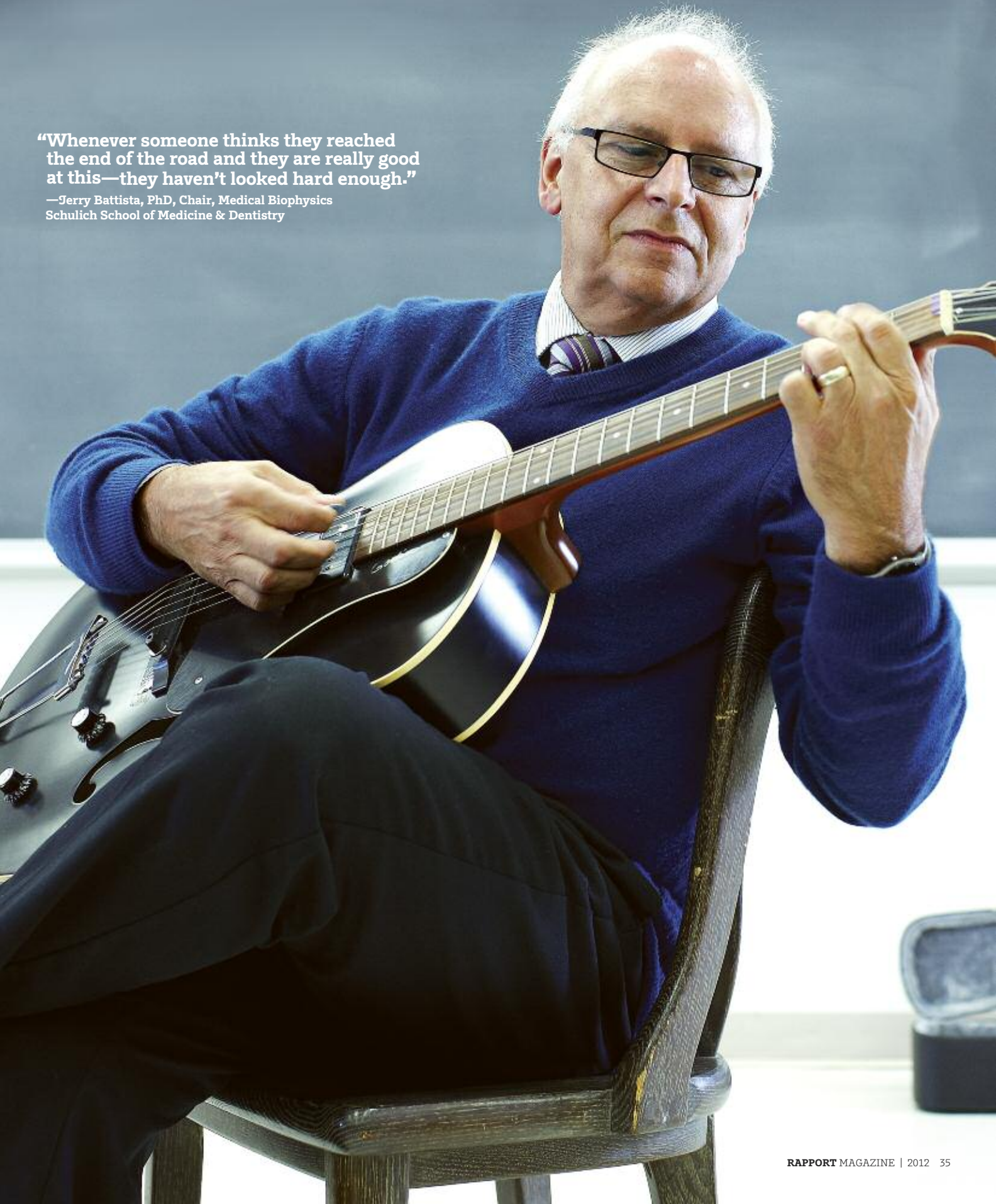
In the coming year, he will be introducing miniature versions of single-photon emission computed tomography (SPECT) and ultrasound technology into additional medical imaging courses.

And this past year, Battista integrated his love of music and his hobby of playing jazz music into a lecture that demonstrates the parallels between musical instruments with vibrating strings and a magnetic resonance imaging (MRI) machine using a guitar as an analogy. The lecture entitled "MRI and Guitars: Stay Tuned" has been delivered at Western, Dalhousie, Calgary and Queen's Universities.

In the end, the greatest rewards for Battista are, seeing the glitter in his students' eyes when they understand something that he has taught, and then seeing those same students ten years later when they are involved in research and teaching and being recognized for their achievements. ■

"Whenever someone thinks they reached the end of the road and they are really good at this—they haven't looked hard enough."

—Jerry Battista, PhD, Chair, Medical Biophysics
Schulich School of Medicine & Dentistry



AFTER CLASS

OPERATION GREEN

SAVING THE PLANET,
ONE SUTURE PACK AT A TIME

BY KATHY WALLIS



Dr. Nathan Stall, Co-founder



Windsor's Operation Green Team: (left to right) Alexis Taylor, Mackenzie Budimir-Hussey, Mathlang Ghai, Davy Tawadrous, Daviol Mikhail



800 lbs of surgical supplies ready to be shipped

It would take a fleet of garbage trucks ten across and 200 deep just to take away the amount of solid waste by volume generated every year in Canada from just one surgical procedure, a total knee replacement. And a lot of that waste is surgical supplies that were opened, but never used. "When you see some of the items that are being thrown away, and are still functionally useful, it's disappointing," says Dr. Yoan Kagoma.

He and then second-year medicine classmates Jen Bondy and Nathan Stall decided to do something about it. In 2010, they teamed up with orthopaedic surgeon

Dr. Douglas Naudie to launch Operation Green (operationgreen.ca). It's a student-led surgical supplies recovery program that contributes to international medical aid, while improving sustainability efforts in hospitals here at home. The group collects open, but unused surgical supplies such as gloves and suture packs, and ships them to Winnipeg to International HOPE, a humanitarian organization which distributes medical equipment and supplies to developing countries.

Operation Green has grown from having just one operating room, to being in seven hospitals in London, Windsor, Chatham and

Toronto. In just its first two shipments last year, 1,300 pounds of material worth almost \$27,000 were sent to International HOPE.

"The other thing we're proud of as an organization is the amount of awareness that we've been able to generate on the environmental impact of health care provisions," says Dr. Stall, who graduated along with Drs. Kagoma and Bondy in 2012. "We're seeing real change, with physicians and other health care professionals taking an interest, wanting to know how they can contribute, and being cognizant of how medicine, and the way we practice medicine, affects the environment on a day-to-day basis." ■



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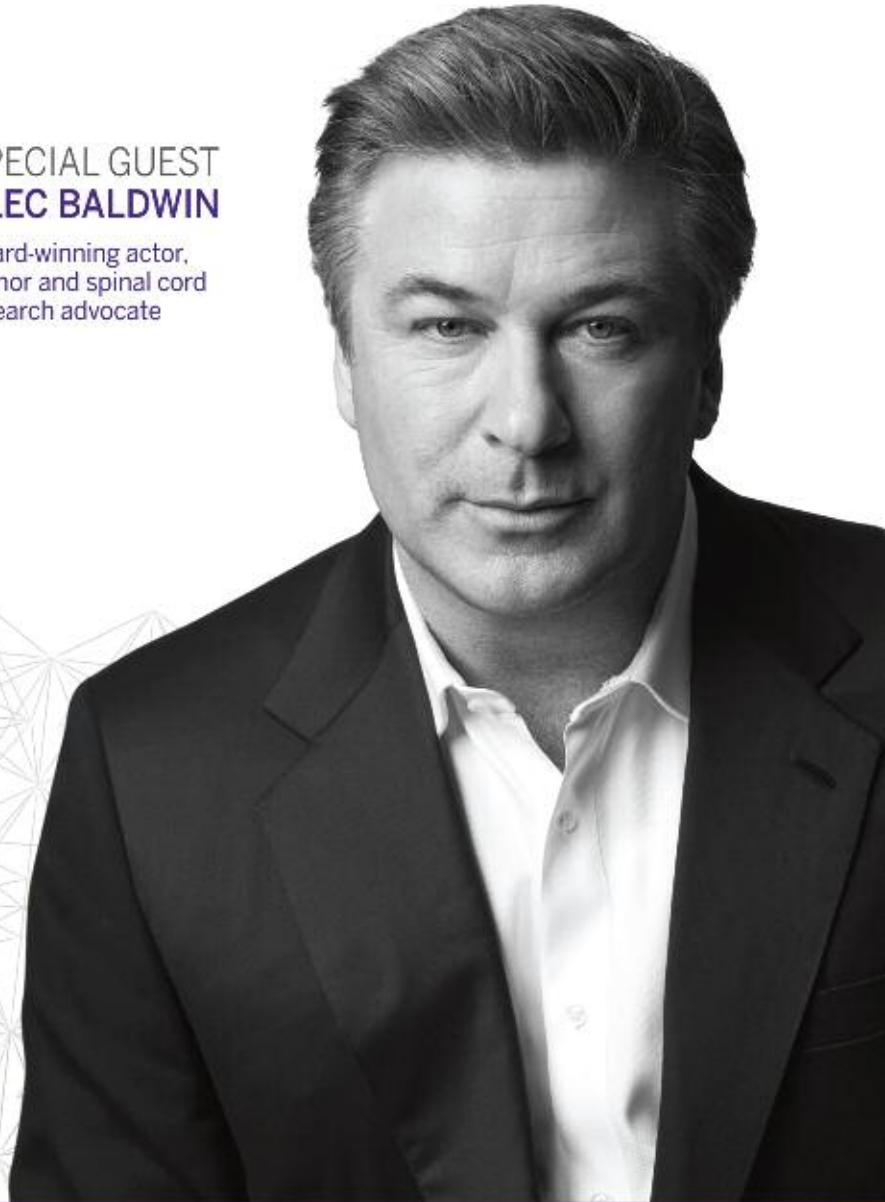
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ALEC BALDWIN

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