

IMHA

Advancing the Science of Arthritis, Rehabilitation, Bone, Muscle, Skin and Oral Health

Institute of Musculoskeletal Health and Arthritis

On the Move!

Summer 2007 | Volume 5 | Number 2

Scientific Directors' Column

As you already know, on January 1, 2007, I took up the reins as the second Scientific Director of IMHA from my predecessor, Dr. Cy Frank. It has been a busy time for me of both "learning the ropes" and jumping into all the immediate activities of a dynamic Institute.

Amongst initial news of prime importance for the IMHA research community was the recent announcement of results from the September 2006 Canadian Institutes of Health Research (CIHR) Operating Grants Competition. The low success rate is a concern for me, IMHA's Institute Advisory Board and all IMHA researchers, since many excellent proposals could not be funded. I was therefore extremely pleased that IMHA, in spite of its own reduced budget, was able to fund 10 proposals for one year through its Priority Announcement program. While not enough, I hope the community will recognize that IMHA is committed to working with its partners to leverage funds for support of as much outstanding research to improve the health of Canadians as it can.



Dr Jane Aubin
Scientific Director

You will notice that we have expanded IMHA's "look" to capture the complete range of research activities of IMHA investigators: from molecules to bedside to population in IMHA's six focus areas and three priorities. One of IMHA's key activities over the next few months is a review of IMHA's five-year Strategic Plan. Our Institute Advisory Board will meet in August to help shape the directions for the Institute's next five years and we want to hear from you about what you see as important priorities and opportunities that will help shape our future. Paramount in our discussions will be defining ways to expand our existing research excellence, increase capacity for doing excellent research, and translating our research output for maximum benefit to Canadians and others.

I have also been "getting my feet wet" in the administration of the CIHR, through my participation in CIHR's recently formed Research and Knowledge Translation Committee (RKTC).

(Continued on next page)

INSIDE THIS ISSUE

- Scientific Director's Column
- Research Highlights
- Applauding Research Excellence
- What's New at NIH?
- Letters to the Editor

Alphabet Soup

- RKTC** *Research and Knowledge Translation Committee*
- EGKT** *End-of-Grant Knowledge Translation*
- KETF** *Knowledge Exchange Task Force*
- PHSI** *Partnerships in Health Services Innovation*
- STIHR** *Strategic Training Initiative in Health Research*
- DMD** *Duchenne Muscular Dystrophy*
- SLE** *Systemic Lupus Erythematosus*
- CADR** *Canadian Association of Dental Research*
- NRP** *Neuromuscular Research Partnership*

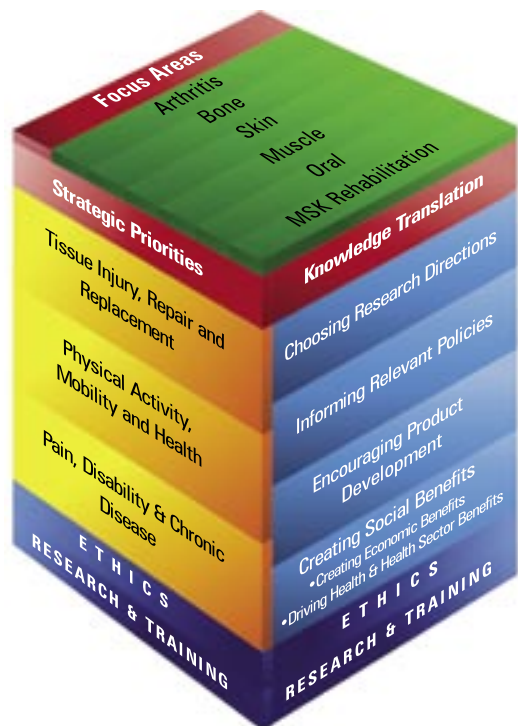
www.cihr-irsc-gc.ca

RKTC was created in response to the International Review Panel's suggestion that CIHR have a single committee to account for all research-related decision-making within CIHR, including recommendations on the allocation of the grants and awards budget. RKTC, which meets once a month, consists of the scientific directors of the institutes as well as CIHR's president, vice presidents, director of ethics, and chief financial officer. The Committee is responsible for all research and knowledge translation decision-making within CIHR in accordance with the CIHR Act and the overarching strategic directions set out by the Governing Council. You can learn more about RKTC by visiting its web page at: html.www.cihr-irsc.gc.ca/e/33807.html

Knowledge translation (KT) also continues to be very important for IMHA, as it is for CIHR. We were therefore fortunate to hear, during IMHA's Institute Advisory Board meeting at the end of February 2007, from Dr. Ian Graham, Vice President of Knowledge Translation and Partnerships at CIHR, about CIHR's perspective on KT. I'd like to summarize some of CIHR's and IMHA's KT activities.

Knowledge Translation at CIHR

KT is about making users aware of research knowledge and facilitating their use of it, closing the gap between what we know and what we do, and moving knowledge into some type of action. CIHR supports two categories of KT: the end-of-grant knowledge translation (EGKT), where the researcher develops and implements a plan for making users aware of the knowledge that has been gained from the project; and KT that is integrated with, or embedded in, the research process.



End-of-grant KT is familiar to most researchers and can take a variety of forms, from conference presentations, to publication in open access peer-reviewed journals, non-peer reviewed publications and web postings — to name a few. This type of KT reports new knowledge and should highlight the potential importance/impact of using the findings, the strength of the evidence supporting the findings; who will most benefit and should be provided the findings; what is known about effective strategies to reach the audience(s), what is practical and feasible to do, and who else should be involved in KT efforts.

Integrated KT is a way of doing research that is collaborative, action-oriented, and involves the co-production of knowledge with researchers engaging the stakeholders who are the end users. It's really about involving stakeholders in the entire research process. These stakeholders can be investigators from different disciplines, teams, even countries; and/or policy makers, decision makers, research funders, the public, health care providers, private industry, or the media. Several IMHA-sponsored workshops and consensus conferences have used an integrated KT model to set new strategic research priorities and have involved stakeholders in:

- *Shaping the research questions;*
- *Deciding on the methodology;*
- *Helping with data collection and tools development;*
- *Interpreting study findings;*
- *Crafting the message and disseminating the research results; and/or*
- *Moving the results into practice.*



CIHR has introduced a number of both end-of-grant and integrated KT initiatives to help advance knowledge translation.

These include:

- *Institute strategic initiatives (integrated KT)*
- *KT workshop and symposium opportunities*
- *Partnerships in Health Services Innovation (PHSI) (integrated and EGKT)*
- *Knowledge to Action strategic initiative (integrated & EGKT)*
- *Synthesis Request for Application (integrated KT)*
- *KT award: regional and national*
- *Fellowship priority announcements*
Knowledge Translation
Health communications

CIHR is also planning to produce Pan-CIHR KT Case-books that will provide the institutes with an opportunity to showcase their success stories as well as learn from not-so-successful approaches.

The Knowledge Translation Branch is also planning to develop examples of KT activities for applicants and KT review criteria for peer-reviewers; and review and revive grants and award investments in existing and new KT research, training, and synthesis activity.

Knowledge Translation at IMHA

For its part, beyond its workshop and consensus conference models, IMHA has introduced four key initiatives to date to help advance knowledge translation:

In the fall of 2004, IMHA launched the Knowledge Exchange Task Force (KETF) that comprises stakeholders committed to translating research knowledge to end users and to helping identify new research priorities.

In June 2006, the Institute launched its first KT Request for Applications (RFA) module, where researchers apply for up to \$25K in additional funds by including a detailed proposal in their operating grants for implementing KT. The proposal must be aimed at one of three targets: Improving the Canadian health system; improving the health of the Canadian population; or improving the Canadian economy.

IMHA is currently developing a “Just-in-time” KT database to facilitate the reception of reports from IMHA-funded researchers, as per RFA requirements. Research results and metrics will be mapped into IMHA’s KT impact areas.

In the fall of 2007, IMHA expects to hold a “Train-the-Trainer” KT institute for new investigators involved in the Institute’s Strategic Training Initiative in Health Research (STIHR) program. Trainees from each STIHR will be trained in the broad and practical aspects of KT

(in all four of CIHR’s pillars: biomedical research; clinical research; health services and health systems research; and population health research, and its social, cultural, and environmental dimensions). The trainees will then take these KT modules to their respective STIHR centres and institutions to train others.

IMHA will continue to be very active during this fiscal year and I am looking forward to hearing from you about ways to meet the many challenges involved in making IMHA’s vision to eradicate the pain, suffering and disability caused by arthritis, musculoskeletal (MSK), oral and skin conditions a reality.

Write to me at: IMHA@cihr-irsc.gc.ca to share your views in preparation for our August strategic planning.

.....

Applauding Research Excellence

IMHA Quality of Life Research Awards

The annual IMHA Quality of Life Research Awards acknowledge six investigators who have excelled in research that crosses one or more of the IMHA’s focus areas of arthritis, musculoskeletal (MSK) rehabilitation, bone, skeletal muscle, skin and oral health and three research priorities: tissue injury, repair and replacement; physical activity, mobility and health; and pain, disability and chronic diseases.

IMHA’s 2006–2007 Quality of Life Award recipients:

Dr. Dale Laird (overall award winner) of the University of Western Ontario, is investigating how mutations in connexins (proteins required for communication between cells) affect the epidermis of the skin. Mutations in these proteins can inhibit normal cell function and cause various human diseases, including skin diseases, neuropathies and deafness. Understanding how the mutations contribute to disease may lead to improved treatments of skin diseases and other conditions

Dr. Daniel Grenier, Université Laval, is using innovative approaches to obtain new information on the mechanisms by which periodontal pathogens, more particularly *Porphyromonas gingivalis*, lead to the development of periodontitis (gum disease). This research is expected to lead to the development of better treatments for the management of severe periodontitis.



Dr. Bernard Jasmin, University of Ottawa, is studying a potential treatment for Duchenne Muscular Dystrophy (DMD) by determining the efficacy of increasing levels of a protein called utrophin. *(Continued on next page)*

Research

Highlights

CIHR investigators' device aims to detect melanoma skin cancer quickly and easily

Most skin cancers can be cured, if caught early enough. Although about 70 per cent of mole (or nevus) biopsies are found to be false positive, only 30% of melanomas are thought to arise from a mole. The majority of melanomas are believed to arise spontaneously, and so can be easily missed by a doctor's visual inspection.

CIHR-funded researchers Drs. Harvey Lui and Haishan Zeng from the University of British Columbia and the Vancouver Coastal Health Research Institute have been developing an optical device that may provide an easy, fast and non-invasive way of detecting cancerous skin lesions like melanoma.

Skin emits a kind of fluorescence when it is illuminated,



and the melanin in skin— what gives people a tan — fluoresces brightly with a unique pattern under the near infrared illumination of the optical device. Melanomas make specific patterns under the probe

portion of the device, which is connected to a computer-controlled measurement system.

This provides instant information to help identify more early cancerous lesions for biopsy. By providing more accurate diagnoses, the device will help reduce the number of unnecessary biopsies, benefiting patients and significantly reducing the cost to the healthcare system. Lui and Zeng expect that, in the future, their device could also be used to detect cancer in internal organs by miniaturizing the probe with optical fiber bundles.

Drs. Lui and Zeng have so far conducted clinical trials on more than 50 patients and the University has patented the device. The researchers are now refining the device and will conduct a large-scale clinical trial using the refined clinical prototype. The two investigators are also looking for industrial partners to speed up the process of transferring this technology to clinical use.

(Applauding Research Excellence continued)

Dr. Hongyu Luo, Centre Hospitalier de l'Université de Montréal (CHUM), is looking at the role of a soluble protein called DcR3 that is abnormally high in 20 per cent of patients with systemic lupus erythematosus (SLE), the most common and serious form of lupus. This may eventually result in better diagnosis and treatments.

Dr. Joy MacDermid, McMaster University, is conducting a randomized, multi-centre, national trial to determine whether an arthroscopic, or mini-open, repair of the rotor cuff provides a better quality of life than other currently used surgical repair techniques for people with rotator cuff tears.

Dr. Morris Manolson, University of Toronto, is researching ways to potentially treat inflammatory types of arthritis (e.g., rheumatoid arthritis, lupus) by studying bone re-absorption and the affect of bone cells called osteoclast-specific a3V-ATPase subunits.

.....

Janka Hegedus wins top poster prize at the 2006 Canadian Student Health Research Forum for ALS research



Janka Hegedus and Dr. Klaus Wrogemann, IMHA Institute Board Member, presenting award on behalf of CIHR

Janka Hegedus, Ph.D., is a new investigator and medical student at Dalhousie University in Halifax. While still a Ph.D. student at the University of Alberta in the summer of 2006, Ms. Hegedus, her supervisors and peers were looking to identify the reasons that nerve cells controlling muscles preferentially degenerate in familial amyotrophic lateral sclerosis (fALS). ALS, also known as Lou Gehrig's disease, is a progressive and ultimately fatal neuromuscular disease, affecting about 3,000 Canadians.

The study led Hegedus to develop the IMHA-sponsored Gold prize-winning poster at the 2006 Canadian Student

Health Forum (CSHRF): *Activity-dependent conversation saves motor units in a transgenic mouse model of amyotrophic lateral sclerosis.* In the poster, Hegedus and her colleagues, Drs. Tessa Gordon and Charles Putman, presented evidence that in a mouse model of ALS, increased physical activity conferred protection because it converted nerve cells and muscle fibers to slower phenotypes, which are less vulnerable in ALS.

The Canadian Student Health Research Forum

The Canadian Student Health Research Forum (CSHRF), now in its 18th year, is held annually at the University of Manitoba in Winnipeg. The Forum provides a venue for health research trainees from across Canada to present their work, network and be recognized for the excellence of their contributions. The top 1 per cent of graduate students in the health sciences (pan-CIHR) nationally is invited, with approximately 100 students attending. IMHA began its support of CSHRF in 2006, and is helping to fund up to 15 researcher trainees who have been nominated by their universities travel to the Forum.

In addition to research poster days, the Forum also features awards for excellence, tours and social events as well as a one-day symposium on a cross-disciplinary scientific theme by some of the world's leading scientists in that field. The 2007 Forum will be held from June 6–7, with this year's symposium topic being Cardiovascular Health.

CIHR Operating Grant: Neuromuscular Research

In 2005, IMHA joined the Institute of Genetics, the Institute of Neurosciences, Mental Health and Addiction, and CIHR, in partnership with the ALS Society of Canada and Muscular Dystrophy Canada, in the Neuromuscular Research Partnership Competition (NRP). Since its inception in 1999, the NRP has awarded more than 70 operating grants to discover the causes, treatments and an eventual cure for neuromuscular disorders. In 2007, the partners in the NRP will jointly invest an additional \$1.75 million in research on neuromuscular disorders. Notification of decisions for the Request for Applications (RFA), launched in December 2006, is expected July 30, 2007.

CADR-IMHA

Student Research Awards

In the fall of 2005, IMHA joined with the Canadian Association of Dental Research (CADR) in announcing up to six annual student research awards, consisting of first and second place in two major categories: the Senior Category (two awards in basic science research and two awards in clinical research), and the Junior Category (two awards). The two most highly ranked applicants are also offered the opportunity to represent Canada in the international Hatton Awards Competition sponsored by Unilever and the International Association for Dental Research (IADR). In March 2007, the IADR /Hatton Awards Competition was held in New Orleans, Louisiana.

Senior Clinical Category

*First place: Dr. Maryam Amin, University of British Columbia, Supervisor: Dr. Rosamund Harrison
Project: A model of parental behavior change: a qualitative study*

*Second place: Dr. Mario Brondani, University of British Columbia, Supervisor: Dr. Michael MacEntee
Project: Validation of a model of oral health-related quality of life*

Senior Basic Science Category

*First place: Dr. Limor Avivi-Arber, University of Toronto, Supervisor: Barry Sessle
Project: Extraction of rat mandibular incisor produces motor cortex neuroplasticity*

*Second place: Mr. Andrew Guzi, University of Western Ontario, Supervisor: Dr. Suzanne Bernier
Project: Inflammatory cytokines differentially regulate type II collagen enhancer in chondrocytes*

Junior Category

*First place: Ms. Maryam Fathimani, University of Toronto, Supervisor: Dr. Michael Glogauer
Project: The role of filamin A in osteoclastogenesis*

*Second place: Mr. Corey Felix, Dalhousie University, Supervisor: Dr. Richard Price
Project: Intra-pulpal temperature rise generated by high power curing lights.*



IMHA “On the Move II” and our student poster winners

In November 2006, IMHA hosted its second successful research and consensus conference – IMHA On the Move II – since the Institute began in 2001. The event which was held in Calgary, brought together 34 Canada Research Chairs with IMHA-related researchers at all stages of their careers. The conference also included an Open Forum during which stakeholders were invited to provide input to help shape IMHA’s research priorities for the next five years, as well as a poster session.

And the winners are...



Dr. Juliette Cooper, IMHA IAB Chair, Esfandiari, Rose, and Dr. Cy Frank, IMHA's former Scientific Director

Shahrokh Esfandiari and **April Rose**, Ph.D. students at McGill University in Montreal. Esfandiari who is in the faculty of Dentistry, won for his poster “On the Edge of Technology.” The poster outlines his study investigating the characteristics of dental clinicians in adopting new technologies in oral health. It is the first ever technology diffusion assessment study carried out in the oral health field. Among his conclusions is that dentists in hospital practices are more likely to adopt new technologies than their counterparts in solo and group practices. Esfandiari is currently conducting a national survey to determine why this is true.

Rose, who is in the department of Experimental Medicine, won for her poster “Breast Cancer metastasis to Bone: A Role for Osteoactivin.” The poster explains her study’s process of isolating breast cancer cell lines and identifying high levels of the gene Osteoactivin present in those cell lines that metastasize (spread) aggressively to bone. It is the first work to characterize Osteoactivin as a mediator of breast cancer metastasis to bone. On-going studies aim to identify the mechanisms by which osteoactivin promotes bone metastasis, with a view to possibly developing a targeted anti-metastatic therapy. Esfandiari and Rose each received a \$1,000 award.

What’s new at NIH?



Spitting image. Scientists funded by the U.S. National Institutes of Health (NIH) have taken a major step forward in using saliva as a non-invasive way to diagnose, at an early stage, a variety of diseases ranging from cancer to heart disease and osteoporosis. With \$85 million (US) from the NIH over four years, saliva researchers led by Dr. David Wong, Associate Dean of Research

at California’s UCLA School of Dentistry, have catalogued the molecular “alphabets” in human saliva, including all 1,500 proteins derived from the salivary gland genome. This molecular information will help investigators to search for specific changes in saliva components that would indicate a particular disease or altered function.

The concept is simple: use the readily accessible saliva as a diagnostic sample in an analogous manner to blood, which requires a needle and syringe to collect. One day not too far in the future, your dentist may ask you to spit in a test tube when you go for a check-up. Instead of just checking your oral health, s/he’ll will be getting a more complete image of your overall health.

Finding New Ways to Help People Salivate

There is new hope for the more than 170,000 Canadians who have difficulty swallowing and who suffer severe tooth decay and infections as a result of a permanently dry mouth. Dr. Simon Tran, a CIHR-funded periodontist at McGill University, is using electro-stimulation devices and adult bone marrow in two separate CIHR projects to repair salivary glands that are damaged as a result of the autoimmune disease Sjögren’s syndrome, or due to radiotherapy for head and neck cancer.

Letters to the Editor

Have an issue or question you’d like to raise?
We invite you to send a letter to the editor:

Email: imha@cihr-irsc.gc.ca

Join the IMHA database Register to receive news on funding opportunities, our newsletter and other updates!