Is Fish Oil the Secret to Fighting Depression?

Training a New Generation of Researchers to Battle Depression

Sunnybrook brain scientist Dr. Krista Lanctôt and research colleagues are exploring the effects of Omega-3 fatty acids on depressed patients suffering from Coronary Artery Disease (CAD).

This research is funded by the Ontario Mental Health Foundation and now these senior scientists are able to help a new generation of researchers receive innovative training and mentoring in the area, thanks to a six-year, $1.8 million Canadian Institutes of Health Research (CIHR) Strategic Training Initiative in Health Research in Neurodegenerative Lipidomics.

“The goal of our research is to optimize the pharmacotherapy of neurodegenerative disorders, so we’re really excited about lipidomics because we think that it can help us answer several of the questions that have been plaguing us in depression research,” says Dr. Lanctôt, also a full professor of Psychiatry and Pharmacology at the University of Toronto. “We have a lot of problems with the heterogeneity of the disease, and we think that lipidomics can help us to solve them. We also need to be able to predict who will respond to treatments and have biomarkers for the people who are going to respond.”

Dr. Lanctôt understands the value in approaching research from multiple perspectives and disciplines. With this new CIHR funding, her trainees will be able to work with graduate students and post-doctoral fellows in laboratories at the University of Ottawa using the power of mass spectrometry to identify those lipids in the blood of depressed patients that are affected by dietary fish oil supplements.

The lipid profile of a CAD patient may be an important predictor of treatment response to omega-3 fatty acids and their ability to reduce depressive symptoms as well as a key indicator of depressive symptoms in CAD patients. If so, therapeutic treatments could be developed to target specific lipids to enhance their mechanisms of action to reduce depression in these patients.

This unique trans-institutional training program, led by Drs. Steffany Bennett and Daniel Figeys, is a collaborative initiative between the University of Ottawa, Carleton University, University of Toronto, Sunnybrook Health Sciences Centre, and Ottawa Hospital Research Institute (OHRI).

Training a new generation of researchers to fight depression. Is fish oil the secret? Krista Lanctôt leads the way.

OTTAWA, October 18, 2010 – Dr Krista Lanctôt is helping a new generation of researchers receive innovative, high-quality training and mentoring thanks to a 6-year $1.8M Canadian Institutes of Health Research (CIHR) Strategic Training Initiative in Health Research in Neurodegenerative Lipidomics.

With funding from the Ontario Mental Health Foundation, Dr. Lanctôt's laboratory at Sunnybrook Health Sciences Centre is exploring the effects of Omega-3 fatty acids (ω-3 FA) on depressed patients suffering from Coronary Artery Disease (CAD). With this new CIHR funding, her trainees will be able to work with graduate students and post-doctoral fellows in laboratories of Drs Daniel Figeys and Steffany Bennett at the University of Ottawa using the power of mass spectrometry to identify those lipids in the blood of depressed patients that are affected by dietary fish oil supplements. The lipid profile of a CAD patient may be an important predictor of treatment response to omega-3 fatty acids and their ability to reduce depressive symptoms as well as a key an indicator of depressive symptoms in CAD patients. If so, therapeutic treatments could be developed to target specific lipids to enhance their mechanisms of action to reduce depression in these patients.

This unique trans-institutional training program is a collaborative initiative between the University of Ottawa, Carleton University, University of Toronto, Sunnybrook Health Sciences Centre, and Ottawa Hospital Research Institute (OHRI) led by Dr Steffany Bennett (uOttawa). The program applies a targeted systems approach to integrative research that promotes and facilitates cross-disciplinary training and knowledge exchange in order to advance critical research in neurodegenerative lipidomics. The team focuses on training highly qualified students and early-career professionals to apply lipidomic technologies and strategies to identify and reverse pathogenic changes in lipid metabolism that render neurons vulnerable to Alzheimer Disease (AD), Parkinson's Disease (PD), depression, and stroke.

"Lipidomics uses the power of mass spectrometry, the depth of lipid biochemistry, the insight of neuronal cell biology, and, unique to our team, the communication afforded by hybrid visualization technologies to define the crucial role that brain lipids play in neurodegenerative disease and the demonstrate the impact of intervention," explains Program Director, Dr. Steffany Bennett.

Dr. Lanctôt, herself a neuroscientist and a pharmacologist, understands the value in approaching research from multiple perspectives and disciplines. "The goal of our research is to optimize the pharmacotherapy of neurodegenerative disorders, so we're really excited about lipidomics because we think that it can help us answer several of the questions that have been plaguing us. We have a lot of problems with the heterogeneity of the disease, and we think that lipidomics can help us [to solve these problems]. We also need to be able to predict who will respond to treatments and have biomarkers for the people who are going to respond." – Ask me about lipidomics videos: Ask Lanctôt

The training program supports its curriculum through its extended mentorship network of principal investigators and peer-mentors, as well as through award funding to undergraduates, graduate students, and post-doctoral fellows. In addition to hands-on

research, trainees are encouraged to reach-out and participate in the larger scientific research community through the program's support of authoring of joint publications, presenting work at conferences, and travelling to perform research in the field or with host labs around the world. The program also recognizes the challenges of collaborating across disciplines and supports the development of new integrative ways to connect and communicate.

In addition to Drs Lanctôt, Bennett, and Figeys, team members include Drs. J. Arnason, J. Baenziger, K. Baetz, D. Bickel, JF Couture, C. Messier, D. Park, M. Schlossmacher, R. Slack, J. Woulfe, and Z. Yao affiliated with uOttawa; A. Tandon and P. Fraser at Centre for Research in Neurodegenerative Diseases (CRND), University of Toronto; and S. Black at Sunnybrook Health Science Centre, Toronto.

The program accepts trainees in the fields of neuroscience, biology, architecture, engineering, medicine, psychology, analytical chemistry, and bioinformatics.

See what the other primary investigators of the CIHR Training Program in Neurodegenerative Lipidomics have to say about lipidomics.
Visit “Ask me about Lipidomics”
(https://www.med.uottawa.ca/lipidomics/askmeaboutlipidomics.html)

Come see and hear the research at the Neurolipidomics 2010 meeting held Monday November 22 at the Canadian Museum of Nature (240 McLeod Street, Ottawa ON). Visit our website to register for the meeting.
https://www.med.uottawa.ca/lipidomics/index.html

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For more information about the CIHR/STIHR program:
http://www.cihr-irsc.gc.ca/e/22174.html