AMYOTROPHIC LATERAL SCLEROSIS SOCIETY OF CANADA
SOCIÉTÉ CANADIENNE DE LA SCLÉROSE LATÉRALE AMYOTROPHIQUE
3000 Steeles Avenue East, Suite 200, Markham, Ontario L3R 4T9
Tel. 905-248-2052 • Fax: 905-248-2019 • Toll Free:1 800 267-4257

ALS Canada-Brain Canada Career Transition Award Recipient Announcement

The ALS Canada-Brain Canada Career Transition Award is a new program for 2015 that aims to identify and engage rising stars pursuing innovative research in labs and academic institutions in Canada. This award has the long-term goal of developing the next generation of scientists across various disciplines within basic and clinical sciences, contributing to knowledge generation and translation in ALS. The award will provide the necessary support to senior postdoctoral trainees as well as recently hired junior faculty members to secure or maintain a faculty job in Canada. To fulfil this mission, ALS Canada and Brain Canada (The Partners) will provide a five (5) year award to support talented young investigators to pursue advanced postdoctoral training and transition into a junior faculty position at a Canadian institution OR a three (3) year award to establish an independent ALS-oriented research program as a junior faculty member. In the case of a postdoctoral awardee, the training portion may be carried out in the individual's current institution or another institution approved by ALS Canada and Brain Canada, and is not restricted to Canada. The expectation is that this additional training will allow award recipients to increase their knowledge and skills to enhance their continuation in a career in ALS-related research and improve their competitiveness for or in junior faculty positions in Canada.

For an Assistant Professor, the award provides three years of funding in the total amount of $315,000. Per annum, this includes $60,000 for salary, $20,000 for operating funds and $25,000 to hire a graduate student for their lab. For a postdoctoral fellow, the total is up to $425,000 as they are provided two years of salary at $55,000 to nurture their research during the time in which they are applying for Assistant Professor positions. The subsequent three years of funding are contingent upon securing such a position and would be equivalent to that provided to an Assistant Professor.

Development of a Career Transition Award was one of the key initiatives put forth by the Strategic Planning for Research conducted by the ALS Canada Scientific & Medical Advisory Council (SMAC) in September 2013. Partnership with Brain Canada and funds from the ALS Ice Bucket Challenge bolstered the implementation of this new program and allowed for funding to support the early careers of two promising young ALS researchers from a very strong pool of applicants.

The recipients of the inaugural ALS Canada-Brain Canada Career Transition Award are:

Chantelle Sephton, PhD is an Assistant Professor in the Department of Psychiatry and Neuroscience at Université Laval in Québec City since July 2014. Previously, Dr. Sephton was a Faculty Instructor and postdoctoral fellow at University of Texas Southwestern Medical Center in Dallas under the supervision of Dr. Gang Yu and she obtained her BSc (2002) and PhD (2007) at the University of Saskatchewan. During her time at UT Southwestern, Dr. Sephton published a number of manuscripts in reputable journals that contributed to our knowledge of the key ALS genes/proteins TDP-43 and FUS. Several of her discoveries are already well cited in the field.

The title of her proposal for the Career Transition Award is Mechanisms of synaptic dysfunction in amyotrophic lateral sclerosis and it will focus on unique roles of FUS (an ALS gene/protein) at the junction where neurons connect, called the synapse. Most of the work done on FUS focuses on its functions in the central region of the neuron called the cell body. When there is a mutation in the FUS gene, it causes ALS and it is important to consider all ways in which this altered FUS can cause motor neuron degeneration. By focusing on the synapse, Dr. Sephton will carve a niche in the field of ALS research that not only should reveal important information on its effects when the disease is occurring, but will also complement the work being done by others in the cell body. Undoubtedly, the discoveries that are made over the next three years in the Sephton lab will either reveal information that will lead to a better understanding of how ALS occurs or hopefully provide new targets for therapy in an effort to make ALS a treatable, not terminal disease (likely both!).

Dr. Sephton states that her career goal is to develop a strong training program for her lab to contribute over the years to advancing the field of ALS research. She aims to be an active collaborator with other members of the Canadian community and work toward a status to effectively educate and advocate the public and government about the needs of ALS research. We are delighted to be supporting Dr. Chantelle Sephton early in her career as a future superstar in the field of ALS research.

Gary Armstrong, PhD, MSc is a senior postdoctoral fellow in the laboratory of Dr. Pierre Drapeau at Université de Montréal since 2009 when he completed his PhD at Queen's University, and received a Governor General's

Academic Gold Medal in the process. He also received four separate awards as the top ranked teaching assistant during his graduate work, and has been the recipient of an astounding five postdoctoral fellowships during his time in the Drapeau lab. In addition, his postdoctoral work to date has yielded multiple manuscripts in highly regarded journals and he has even been successful as a principle investigator on a $150,000 grant funded by the Weston Brain Institute in 2014. Dr. Armstrong's expertise has been in uniquely assessing the ability of neurons in genetic ALS zebrafish models to properly transmit signals through a process called electrophysiology.

The title of his proposal for the Career Transition Award is Mechanisms of glutamatergic neuronal dysfunction in genetic models of ALS and it will focus on comprehensively studying impaired transmission of signals (from the brain) at the location where neurons and muscles meet, called the neuromuscular junction. Recent evidence from a number of labs has indicated that errors in neurotransmission of signals might be one of the first pathological effects in ALS. Using electrophysiology in zebrafish creates a novel way to study these defects and to gain an understanding in a way that might reveal new targets for therapy. In addition, Dr. Armstrong aims to revolutionize the use of zebrafish as a model for studying ALS. Using a new method called 'clustered regularly interspaced short palindromic repeats/cas9 (CRISPR/cas9)', which allows for efficient editing of genetic material in living organisms, he will create numerous zebrafish models that have unique alterations in ALS genes, like those encoding TDP-43 and FUS, to get a better understanding of how they cause motor neuron degeneration. Such experiments previously were not feasible on this scale in an animal model of the disease and should spark many new discoveries. In combination, these two lines of research put Dr. Armstrong in a tremendous position to take the next step in his career and to establish his own laboratory.

Dr. Armstrong is committed to accelerating the pace at which our achievements will make ALS a treatable, not terminal disease. He states "Understanding these synaptic defects will form a cornerstone for the successful creation of the next generation of therapeutics to treat ALS. But I believe that the future generations of genome editing technologies that can fix deleterious point mutations hold great promise for not only treating ALS, but curing it. My research vision is to further advance these genome editing technologies". ALS Canada and Brain Canada are proud to provide funding for Dr. Gary Armstrong as he makes this transition from trainee to permanent contributing member of the Canadian ALS research community and we look forward to the impact he will make on our understanding of the disease in the years to come.

Information provided by:

David Taylor, PhD
Director of Research
ALS Society of Canada
3000 Steeles Avenue East, Suite 200
Markham, Ontario L3R 4T9
(T) 905-248-2052 ext. 202
(TF) 1-800-267-4ALS (4257)
(M) 647-972-4008
www.als.ca

August 12, 2015