Melanie Huntley

Young genetics researcher awarded with RSC honour

Melanie Huntley is a computational biologist who currently holds an NSERC postdoctoral fellowship and is a postdoctoral associate at Cornell University. She recently won the Academies of Arts, Humanities and Sciences of Canada (RSC) Alice Wilson Award for 2007. The award honours the memory of Alice Evelyn Wilson, FRSC, a world-renowned palaeontologist, one of Canada's foremost geologists, and the first woman elected to RSC in 1938. The award is given to a woman of outstanding academic qualifications who is entering a career in scholarship or research at the postdoctoral level.

Huntley's research focuses on the biology, function, and evolution of amino acid repeats within protein sequences, a topic at the forefront of genetics research, as amino acid repeats within proteins were virtually unheard of when she first began research in this area. Amino acid repeats are associated with several diseases of the human nervous system (such as Huntington's disease), making it research that could prove to be highly relevant in understanding the origin of neurodegenerative diseases.

Where repeats within proteins were once thought to be the protein equivalent of "junk DNA", they are now being recognized as functionally and evolutionarily significant sequence features. Huntley says one paradigm that seems to be most affected by the findings is the sequence, structure, function paradigm: amino acid repeats tend not to form consistent 3D structures, and are instead rather flexible, mobile and "disordered". But what makes Huntley's research so relevant to genetic research is that this inherent mobility appears to serve a major function in the day-to-day biology of cells, and therefore, life.

Huntley began her science studies at McMaster University, where she completed an Honours undergraduate degree in Biology and Mathematics in 2001 and spent summers in the university's bioinformatics and molecular evolution research lab. A PhD at McMaster followed, under Dr. Golding, and was completed in August 2006. The postdoctoral fellow position is one Huntley has held since the completion of her PhD, at Cornell University's Dept. of Molecular Biology and Genetics, under Dr. Andrew G. Clark.

Huntley hopes to apply her research in the broader areas of genetics, and contribute to a larger scientific understanding of the process of development. She has a vision that scientists will one day be able to trace and understand exactly how an organism goes from the genetic information and cellular composition of a single celled zygote, to a fully developed adult organism, and further through aging. This could have far reaching consequences for health related research. BB