

## Focus on Faculty #41

### Arezu Jahani-Asl



[Dr. Arezu Jahani-Asl](#) is an Assistant Professor in the Gerald Bronfman Department of Oncology. Her laboratory is part of the Molecular and Regenerative Medicine Axis at the Lady Davis Institute of the Jewish General Hospital. Her research has been funded by the Natural Sciences and Engineering Research Council of Canada (NSERC), the Canadian Institutes of Health Research (CIHR), The Brain Tumour Charity (in the United Kingdom), Fonds de Recherche du Québec – Santé (FRQS), and Canada Foundation for Innovation (CFI). She is presently an FRQS Scholar in glioblastoma biology (Junior 1).

Dr. Jahani-Asl was born and raised in Mahabad, a city surrounded by mountains in the Kurdistan region of Northern Iran. After receiving her high school diploma, her parents arrived in Canada where she decided to pursue undergraduate studies in Human Biology at the University of Toronto. After graduating in 2000, she completed a Master of Science degree in Cellular and Molecular Medicine at the University of Ottawa, and Ottawa Hospital Research Institute. She studied the molecular mechanisms that regulate PI3K/AKT signaling in the context of chemoresistance in ovarian cancer. She then joined the Department of Neuroscience to pursue a PhD degree in Neuroscience and graduated in 2009. She studied neuronal cell death and the role of mitochondria in acute brain damage in the laboratory of Dr. Ruth Slack. In 2009, Dr. Jahani-Asl joined the laboratory of Dr. Azad Bonni at Harvard Medical School to pursue postdoctoral training where she studied the molecular mechanisms regulating the pathogenesis of glioblastoma.

She joined the Faculty of Medicine at McGill University and the Lady Davis Institute for Medical Research in July 2015, where she established her laboratory dedicated to the study of brain tumours. The main goals of research in the Jahani-Asl laboratory are to identify the molecular mechanisms that underlie the pathogenesis of brain tumours. In particular, the studies are focused on adult glioblastoma, a cancer of the brain for which, presently, there is no cure. Dr. Jahani-Asl is addressing how these tumours form and grow. She is using human brain tumour stem cells as well as mouse neural stem cells together with a combination of molecular and cell biology

techniques and imaging to identify the fundamental principles and mechanisms that drive the tumorigenic property of these tumour cells. These studies can provide key steps towards the understanding of key regulators of glioblastoma and how to target those key players in the cancerous brain. On-going projects in her lab include molecular profiling of glioblastoma tumours and the study of the oncogenic EGFRvIII/STAT3 signaling pathway. She was the first to identify that the cytokine receptor, OSMR, plays a key role in the regulation of the EGFRvIII/STAT3 oncogenic pathway in human brain tumour stem cells. She also discovered that OSMR is required for EGFRvIII function and brain tumour formation. A major goal of research in her lab is to gain a better understanding of how OSMR functions in glioblastoma tumours, and to develop an OSMR-based targeted therapy for the treatment of that malignant cancer.

Besides her research work, Dr. Jahani-Asl enjoys spending time with her husband and 8 year old son, music, reading, and nature - including cliff walks. Her favorite nature spots have been the Cabot trail on Cape Breton Island, and Grand Manan Island, New Brunswick.

We asked Dr. Jahani-Asl to list a few of her articles whose work she is particularly proud of or enjoyed the most. This is what she provided:

**Jahani-Asl A**, Yin H, Soleimani VD, Haque T, Luchman HA, Chang NC, Sincennes MC, Puram SV, Scott AM, Lorimer IA, Perkins TJ, Ligon KL, Weiss S, Rudnicki MA, Bonni A. Control of glioblastoma tumorigenesis by feed-forward cytokine signaling. *Nat Neurosci.* 2016 Jun; 19(6):798-806.

**Jahani-Asl A**, Huang E, Irrcher I, Rashidian J, Ishihara N, Lagace DC, Slack RS, Park DS. CDK5 phosphorylates DRP1 and drives mitochondrial defects in NMDA-induced neuronal death. *Hum Mol Genet.* 2015 Aug 15; 24(16):4573-83

**Jahani-Asl A**, Cheung EC, Neuspiel M, MacLaurin JG, Fortin A, Park DS, McBride HM, Slack RS. Mitofusin 2 protects cerebellar granule neurons against injury-induced cell death. *J Biol Chem.* 2007 Aug 17; 282(33):23788-98.