

## Focus on Faculty #18

### Koren Mann



[Dr. Koren Mann](#) is an Associate Professor in Oncology and has recently been appointed Director of the Molecular and Regenerative Medicine Axis at the Lady Davis Institute for Medical Research. After a prestigious Fulbright Fellowship in Germany, she attended Boston University in Pathology/Immunology, where she received her PhD under the mentorship of Dr. David H. Sherr. Here, she developed her interest in environmental health and the toxicological effects on the immune system. During a postdoctoral fellowship with Dr. Wilson Miller here at McGill, she studied arsenic as a chemotherapeutic. She has had an independent research program since 2009 that links her interests in metals, such as arsenic and tungsten, with that of immunotoxicology, using cell culture and mouse models.

Dr. Mann studies how exposure to metals leads to adverse health consequences. In particular, she investigates the toxic effects of arsenic and tungsten on the immune system and how this can lead to several different pathologies. Currently, she has projects investigating arsenic-enhanced atherosclerosis and tungsten effects on bone, B lymphocytes, and breast cancer metastases. In addition to her toxicology focus, Dr. Mann has been an active member of the Lymphoma Translational Research Group at the Jewish General Hospital. Her main focus has been on developing clinical correlates for lymphoma trials, working closely with Drs. Sarit Assouline and Nathalie Johnson. Dr. Mann's laboratory has been funded by NIH, CIHR, NSERC, CFI, FRQS, Leukemia Research Foundation, and Leukemia and Lymphoma Society of Canada. She is also the Scientific Director of the LDI Flow Cytometry Core, and has developed methods using multi-parameter flow cytometry to image many lineages of the immune system. More recently, she has participated in the development of a new multi-faculty Environmental Health group that is active across the McGill campus.

Dr. Mann's laboratory was the first to develop a mouse model of arsenic-enhanced atherosclerosis using environmentally-relevant concentrations of arsenic. She has made important contributions

to this field and as such, was asked to serve on a U.S. National Academy of Sciences panel to assess the risk of inorganic arsenic exposure to human populations. Also, she currently serves as Secretary/Treasurer of the Metals Specialty Section in the Society of Toxicology.

Outside of work, Dr. Mann tries to spend as much time as possible with her husband and daughter. They enjoy traveling together and exploring new places. She also enjoys cooking, needlework, and spending time in her garden when the weather allows.

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

Bolt AM, Grant MP, Wu TH, Flores Molina M, Plourde D, Kelly AD, Negro Silva LF, Lemaire M, Schlezinger JJ, Mwale F, **Mann KK**. Tungsten Promotes Sex-Specific Adipogenesis in the Bone by Altering Differentiation of Bone Marrow-Resident Mesenchymal Stromal Cells. *Toxicol Sci*. 2016 Apr; 150(2):333-46.

Bolt AM, Sabourin V, Molina MF, Police AM, Negro Silva LF, Plourde D, Lemaire M, Ursini-Siegel J, **Mann KK**. Tungsten targets the tumor microenvironment to enhance breast cancer metastasis. *Toxicol Sci*. 2015 Jan;143(1):165-77.

Kelly AD, Lemaire M, Young YK, Eustache JH, Guilbert C, Molina MF, **Mann KK**. In vivo tungsten exposure alters B-cell development and increases DNA damage in murine bone marrow. *Toxicol Sci*. 2013 Feb;131(2):434-46.

Lemaire M, Lemarié CA, Molina MF, Schiffrin EL, Lehoux S, **Mann KK**. Exposure to moderate arsenic concentrations increases atherosclerosis in ApoE<sup>-/-</sup> mouse model. *Toxicol Sci*. 2011 Jul;122(1):211-21.