

# British Columbia Cancer Agency Centre for Lymphoid Cancer *Newsletter* *Lymphoma ♦ Leukemia ♦ Myeloma*

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*dedicated to curing the lymphoid cancers*

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### Spotlight on a Researcher: Dr. Laurie Sehn



Dr Laurie Sehn is currently Clinical Associate Professor with the British Columbia Cancer Agency and University of British Columbia, Canada. She has been a medical oncologist and clinical investigator at the BC Cancer Agency since 1998, and is currently the Chair of the Lymphoma Tumour Group. Dr Sehn graduated from McGill Medical School, Montreal, Canada, in 1991 and received her training in Internal Medicine at Columbia Presbyterian Medical Center, Columbia University, New York, USA. She was trained in Hematology/Oncology at the Dana-Farber Cancer Institute, and Brigham and Women's Hospital, Harvard University, Boston, and received a Masters of Public Health degree from Harvard School of Public Health, Harvard University, in 1997. Prior to returning to Canada, she spent a year at the Dana-Farber Cancer Institute with the Bone Marrow Transplant service. Dr Sehn has been a member of the Board of

Directors for Lymphoma Foundation Canada since 2002, where she serves as the Director of Research Fellowships and is the Chair of the medical advisory board for the International Lymphoma Coalition. She has also served as a member of the editorial board of Journal of Clinical Oncology and Leukemia Lymphoma, and is currently an associate editor for the premier hematology journal Blood.

She is an active member of the Centre for Lymphoid Cancer with research interests that include all of the lymphoid cancers with particular interest in the biology and treatment of large cell lymphoma, the application of new imaging techniques such as PET scanning to lymphoma management and innovative new approaches to treatment. She is the lead investigator of several major new clinical trials focusing on the therapy of large cell lymphoma.

### Spotlight on Research: Lymphoma and Exercise

We thought you would want to know about a recently published study, done in collaboration with CLC members Drs. Connors and Gascoyne. This study shows that vigorous physical activity over your lifetime may lower your risk of non-Hodgkin lymphoma (NHL).

This case-control study found that the most physically active participants had a lower risk for NHL than the least active participants, and that vigorous physical activity in particular was the most effective at lowering this risk. The data used for this study were collected between 2000 and 2004 from 820 NHL patients of various ages and 848 randomly selected controls matched for age, gender and residential location. Information about demographic characteristics and various possible lymphoid cancer risk factors, including lifetime physical activity was collected using a questionnaire. For

each decade of life (i.e. ages 10-19 years, 20-29 years, etc), participants were asked to record the average number of days per week and hours per day that they performed mild, moderate and vigorous physical activity. The researchers found that those who engaged in the most intense physical activities throughout their life had up to a 30 percent lower risk for non-Hodgkin lymphoma compared to people who exercised less.

According to the first author of the study, Dr. Terry Boyle, "We found that the most physically active participants had a lower risk for non-Hodgkin lymphoma than the least active participants. We found that vigorous-intensity physical activity in particular, such as activities that increase breathing and heart rates to a high level, was the most effective at lowering risk." He also added that these observations are sufficiently important that a major effort will be made to verify them by pooling results from several studies to investigate the topic further.

To see the full report of this interesting study you can access the paper here: [Lifetime physical activity and the risk of non-Hodgkin lymphoma](#)

### **Spotlight on Research: Gene Expression Profiling**

How all of our cells, both normal and malignant, behave is determined by the genetic instructions called genes contained in the chromosomes in each cell. Instructions are passed from each gene to a messenger chemical called RNA (ribonucleic acid) to a final protein that does the work in the cell. It is now possible to measure the amount of messenger RNA produced from thousands of genes in each cell. By comparing the amount of messenger RNA being made in malignant cells to the amount being made in normal cells a gene expression profile can be assembled that tells us which genes are overactive and which genes are underactive in lymphoma cells.

Our CLC research team, led by one of our new researchers, Dr David Scott, has been at the lead of making use of gene expression

profiling to learn about lymphoid cancers. In several research reports Dr Scott and our research team have been able to show that the gene expression profile of malignant cells from diffuse large B cell lymphoma enables us to separate diffuse large B cell lymphomas into three major types: GCB type (germinal center B cell) diffuse large B cell lymphoma is highly treatable and often cured with modern chemo-immunotherapy. Activated B cell type of diffuse large B cell lymphoma is much more difficult to treat and has therefore become the focus of several new clinical trials including those being led by Dr Laurie Sehn for our group. Finally, there is a special type of diffuse large B cell lymphoma called primary mediastinal large B cell lymphoma that is typically seen in younger, often female, patients. With proper chemo-immunotherapy this type of lymphoma is frequently cured.

Determining the type of lymphoma by using gene expression profiling has been studied by Dr Scott. Working with a company called NanoString Technologies based in Seattle he has developed a new, fast, reliable method to assign the subtype of diffuse large B cell lymphoma that is rapidly becoming the standard method around the world. In addition, Dr Scott is busy applying this method of gene expression profiling to other lymphoid cancers including Hodgkin lymphoma. We are quite fortunate to be conducting this cutting edge research right here in BC. You can find a couple of key research papers describing Dr Scott's work at <http://www.ncbi.nlm.nih.gov/pubmed/24398326> and <http://www.ncbi.nlm.nih.gov/pubmed/23182984>.

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**Editorial Board:** Joseph M Connors, MD; Laurie Sehn, MD; Kerry Savage, MD

**Editorial Assistant:** Arla Yost

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