

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

Volume 4, Number 3

*dedicated to curing the lymphoid cancers*

December 2014

## INSIDE THIS ISSUE

- Recent accolades
- Exciting updates from Victoria- the IROL project

This issue of the newsletter will highlight the important work done by the research team at the Deeley Research Centre, BCCA Vancouver Island Centre in Victoria.

### **Congratulations!**

In recognition of all of the hard work done by the members of the *Centre for Lymphoid Cancer* over the last several months, here are some of the highlights:

- Dr. Christian Steidl was awarded the 2014 UBC Faculty of Medicine Distinguished Achievement Award for Excellence in Basic Science Research.



- Dr. David Scott was awarded a research grant from the Lymphoma Research Foundation to study lymphoma in adolescents and young adults.
- Dr. Daisuke Ennishi, a Research Fellow in Dr. Randy Gascoyne's lab, was recognized by the Canadian Hematology Society with a Research Abstract Award for his submission on the clinical significance of genetic aberrations in diffuse large B cell lymphoma.
- Jay Gunawardana, a PhD student in Dr. Stiedl's lab, was awarded the 2014

Canadian Institutes of Health Research (CIHR) Institute of Cancer Research Publication Prize for his publication in the prestigious journal *Nature Genetics* for work discovering recurrent mutations in primary mediastinal B cell lymphoma and Hodgkin lymphoma.

- Dr. Gascoyne was honored to present his work using next-generation sequencing that has both enhanced the understanding of the genomic basis of non-Hodgkin lymphoma and translated into specific, targeted therapies for patients at the Presidential Symposium at the American Society of Hematology Annual Meeting in San Francisco in December.



### **The Immune Response to Lymphoma (IROL) project**

At the BC Cancer Agency in Victoria, Drs. Julie Nielsen, Brad Nelson, Nicol Macpherson and research intern Colin Sedgwick are developing an entirely new form of treatment for lymphoma that uses the power of genomics to turn a patient's immune system against their cancer. We all know that the immune system protects us from the flu and other common viruses, but did you know that it can also recognize and kill cancer cells? The immune system functions by surveying the body and looking for anything abnormal, and that includes cancer. Unfortunately, however, sometimes cancer is able to develop strategies to evade the

immune system. Thus, there is considerable research throughout the world to develop new treatments to enhance the immune response to cancer. This research has shown such promise that the prestigious research publication, **Science** deemed cancer immunotherapy the Breakthrough of the Year in 2013.

The BC Cancer Agency's "Immune Response to Lymphoma" (IROL) team is particularly interested in the killer T cells of the immune system. Individuals have billions of T cells each of which recognizes a different foreign target. For example, one T cell may recognize the flu virus while another recognizes chicken pox. The IROL team is interested in killer T cells because they can detect and directly destroy cancer cells. In order to use T cells to fight cancer, researchers are working to identify suitable targets that are recognized by T cells. Ideal targets are unique to cancer cells and not found in any normal cells. This helps prevent side effects of therapy.

Cancer is caused by genetic mutations (mistakes) that provide cells with abnormal growth properties. As these mutations accumulate, a normal cell can become cancerous. Since these mutations are unique to each cancer, they are particularly good targets. Fortunately, mutations can be detected by T cells.

The past two years have been very exciting for the IROL team. Last year, using state-of-the-art techniques for identifying cancer-specific T cells, they identified a common lymphoma mutation that is recognized by the immune system. They have now received funding to assess this specific mutation as a potential therapeutic target. This funding will allow them to perform all the experiments required prior to initiating a clinical trial of T cell therapy targeting this mutation in lymphoma patients.

In addition, the IROL team is collaborating with other researchers within the *Centre for Lymphoid Cancer* and the *BCCA Genome Science Center* who are using modern genomic technology to identify mutations in lymphoma biopsies. Thanks to the generous participation of over 100 lymphoid cancer patients, we have been able to perform a large-scale analysis to identify commonly mutated genes. After identifying mutations in most samples, researchers performed the first-ever studies assessing the immune response to a

collection of mutations in lymphoma. Their results indicate that they can frequently induce T cell responses to these mutations.

To our knowledge, the IROL research team members are the only researchers in the world developing this strategy in lymphoid cancers. Their current funding for this research is coming to a close, but they hope to secure funding to pursue this as a strategy for a future clinical trial as part of their Cancer Immunotherapy Program.



### Thank you!

We in the CLC thank you for all of your support over the past year and look forward to more great research in 2015. We couldn't do it without your help. From all of us here at the *Centre for Lymphoid Cancer* we wish all of you a very happy holiday season.



---

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

**Editorial Assistant:** Arla Yost

---

**Want to receive a copy of this Newsletter?**

email [clc@bccancer.bc.ca](mailto:clc@bccancer.bc.ca)

Back issues: <http://www.bccrc.ca/dept/cflr/clc-newsletter>