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High Resolution Analysis of Follicular Lymphoma Genomes

Status	Current
Competition	III
Sector	Health
Genome Centre	Genome British Columbia
Project Leaders	Marco Marra, Joseph Connors & Randy Gascoyne

Project Description

The body's immune system, made up of nodes, lymphatic vessels and other tissues, is needed to fight infection. One of the most common cancers of the immune system in Canada is follicular lymphoma, a disease in which the malignant cells have "swapped" or rearranged parts of chromosomes 14 and 18. This genomic rearrangement in turn leads to an accumulation of damaged cells. With time other genetic changes can occur in the follicular lymphoma cells that bring on a more aggressive form of the disease – diffuse large B cell lymphoma.

This project – High resolution analysis of follicular lymphoma genomes – aims to study the genomic rearrangements using cutting-edge techniques. The project is led by Dr. Marco Marra, Senior Scientist at the Genome Sciences Centre of the BC Cancer Agency, Dr. Joseph Connors, a professor at UBC and chair of the Lymphoma Tumor Group at the B.C. Cancer Agency, and Dr. Randy Gascoyne, a hematopathologist at the BC Cancer Agency, who is also the Canadian member of the International Lymphoma Study Group.

This project represents the first time any group has applied these technologies to profiling the genomes from a human cancer, according to Dr. Marra. The project team will undertake a high resolution analysis of 24 lymphoma genomes, including detailed study of the rearranged parts of chromosomes 14 and 18, in order to determine the actual chemical structure of the rearranged DNA. Once the function of these genes and the genetic consequences of the DNA rearrangements are identified, researchers expect to use them as new diagnostic and prognostic markers and potential targets for new therapies.