Alaska Highway News

From Fort St. John to New Jersey

Former resident will use $16M USD award to further study neurological diseases at Coriell Institute

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Former Fort St. John resident Roderick Corriveau followed his passions all the way to New Jersey where he works for the Coriell Institute as an associate professor and principal investigator for the Human Genetics Resource Center DNA and Cell Line Repository. Last Friday, Corriveau found out that after a nationwide competition to determine the future home of the National Institute for Neurological Disorders and Stroke (NINDS) Human Genetics Resource Centre, known as the NINDS Repository, the Coriell Institute for medical research was awarded a five-year, $16.3 million ($17,897,334.47 in Canadian dollars) contract from the National Institutes of Health.

“It’s tremendous, it hasn’t been an easy economic time anywhere in North America and to be able to continue doing this kind of cutting edge work and supporting gene discovery that could have a positive impact on human health, I mean, I feel very lucky,” he said.

Corriveau grew up in Fort St. John and was on the Canadian National speed skating team. He left when he was 18 to attend Simon Fraser University, then moved on to the University of California in San Diego studying in neurosciences, where he received his Ph.D. in 1994.

The Institute was originally awarded the opportunity to establish the repository in 2002. During the first five years of the project, 23,785 individuals donated their samples and clinical data through the participation of 189 clinician scientists from nine different countries, which resulted in over 90 publications regarding the discovery of genetic risks for ALS, Parkinson’s disease, stroke and epilepsy.

Pictured above: Technicians working in one of the cryogenic storage tanks that make up Coriell Institute’s world-leading biobank. This biobank stores all of the cells obtained for the NINDS repository.

“I think it was our ability to handle clinical data and our track record in supporting genetic research to discover risk factors and genes that are important for heritable disease,” explained Corriveau. “Coriell has been around since the 1950’s and it was founded by Lewis Coriell, who developed human cell lines that were used by Jonas Salk in developing the Salk vaccine for polio, so there’s a long track record of supporting human biomedical research.”

On September 30 of last year, the NINDS Repository at Coriell began its work under the new contract with the goal of collecting and distributing 30,000 new and unique genetic samples.

As for what the repository means, Corriveau explained how they'd now be able to add to their original work.

"Our institute has banked a little bit of clinical data in the past but the NINDS Repository, it really has, it's what called a genotype, phenotype project. In addition to just studying just the DNA, we're also studying the clinical records of the people so medical doctors submit the samples and if it's a sample for Parkinson's disease, for example, we get information about the different types of symptoms they have in that Parkinson's disease and that information is used for a more detailed genetic study of how genotypes DNA go together with Phenotype, the clinical data," Corriveau explained.

He said that most heritable diseases, such as heart disease, are complex, meaning there's more than one gene involved. There are exceptions where diseases, such as Huntington's disease only has one gene involved, and if the gene is mutated the person ends up with Huntington's.

"Whereas for Parkinson's disease, most cases of Parkinson's disease, more than 80 per cent are probably called by multiple genes, multiple risk factors, in terms of genetics and also working with the environment. Discovery of those complicated, multiple genetic risk factors, that's what we're all about. That's why this project exists. So traditional projects focused on the diseases that were one gene, one disease, this project is about genetically complex disorders, heritable disease that can't be attributed to just one gene, and all of the disorders that we bank are like that," Corriveau said.

There are two major parts to the current project.

One part is that the samples and the DNA are made available to researchers and they use those samples to study or discover genetic risk factors for epilepsy, ALS, stroke and Parkinson's disease.

"We need to make sure we give them the best possible quality DNA and data so that they can do these genotype/phenotype studies to discover genetic risk factors. It's science and service combined," he said.

The other big part is studying genetic ancestry, which Corriveau said is an original research part of the study.

"It turns out that our ancestry or our race impacts our heritable risk for different diseases. For example, African Americans have more genetic risk for cerebrovascular disease, stroke. And again African Americans it's harder for conventional treatment for Hepatitis C to work in African Americans, and Caucasians are more susceptible to anaemia for example," he said, adding that because many people in North America are mixed-race, they're trying to have those people understand what their genetic race is by looking at their DNA.

Corriveau will be returning to the area to visit his father and family in September, and plans on playing a few games of Texas Hold 'Em poker with his cousins. He's been working at Coriell for the past three years and said he's got some dreams.

"What I would love to see is the discovery of genetic risk for, I don't hope for the world, even one gene, even discover one genetic risk factor for Parkinson's disease that would make it possible to either prevent the onset of Parkinson's disease or treat the symptoms for Parkinson's disease successfully and for a much longer time then what's possible now. Even just one break through success in neurological disease would be wonderful," he said of what it is he hopes to achieve with the help of the NINDS repository.