Researchers across North America team up to find genetic markers for autism

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A medical researcher at the University of Alberta is working with scientists from across North America to find out if there are genetic markers for autism. More than 15 scientists will examine DNA samples from children with autism and their infant siblings to see if the siblings are at high risk.

And if siblings are at high risk for developing autism, could intervention start before symptoms develop?

"If there's a family of a child with autism, they of course wonder what the risk for the younger infant is," says Lonnie Zwaigenbaum, a U of A researcher with the Department of Pediatrics in the Faculty of Medicine & Dentistry, who is the principal investigator for the two-year study.

"We want to know if it's possible to use genetic biomarkers as a way of giving these families a more accurate estimate of what that sibling's risk is. If there was a way of using genetic biomarkers to identify infants at high-risk before the more overt manifestations of autism were obvious, it would really open the door to provide support and intervention at earlier stages of development."

According to the Autism Speaks' Canadian website, autism, part of a group of disorders known as Autism Spectrum Disorders (ASD), is a complex neurobiological disorder that typically lasts throughout a person's lifetime. The disorder is characterized by varying degrees of impairment in communication skills and social abilities, and also by

repetitive behaviors. Autism, which is more common among boys than girls, affects 1 in 88 children, according to the Centers for Disease Control and Prevention.

Zwaigenbaum is working with scientists in Toronto, Hamilton, Halifax and various American universities including: the University of Washington, UC Davis, Vanderbilt, UC San Diego, Kennedy Krieger Institute/John's Hopkins University, and the University of Miami.

This research initiative is funded by the Simons Foundation and by Autism Speaks. The $1.3 million in funding will go towards the creation of a biorepository: a collection of DNA samples and other biospecimens from families with a child with autism and a younger infant, to complement the clinical data. This collection will be mined by this research group and the broader scientific community studying autism. Additional funding provided by Autism Speaks and Autism Speaks Canada will support the analysis of the collected blood samples.

"Further studies of genetic risk factors will help us understand the full spectrum of autism," says Gerald D. Fischbach, scientific director of the autism research initiative and director of life sciences at the Simons Foundation. "It is essential to identify such markers in young children. Lonnie Zwaigenbaum is one of the leaders in studies of infant siblings of children known to be on the autism spectrum. This vulnerable population would be best served by early diagnosis and that is the goal of this project."

Geri Dawson, chief science officer for Autism Speaks, added: "Autism Speaks is proud to continue to support this collaboration of researchers studying high risk siblings through the establishment of a biorepository. This data will be crucial to better understanding the underlying genetic and environmental risk factors in ASD."

Zwaigenbaum, who is also the co-director of the Autism Research Centre at the Glenrose Rehabilitation Hospital, says researchers also hope to uncover explanations as to why siblings who both have autism can have differences in the way the disorder presents itself in each child. The Autism Research Centre is based at the Glenrose Rehabilitation Hospital, a leader within Alberta Health Services (AHS), serving families with both a multidisciplinary autism clinic and dedicated ASD research centre.

Provided by University of Alberta Faculty of Medicine & Dentistry