Health Research Caucus
Diabetes Research and Innovation in Canada

PRESENTER SUMMARY

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TDAG51 as a novel mediator of age-onset obesity and diabetes

Richard Austin
PhD

Dr. Austin is a Professor in the Department of Medicine, McMaster University and is the Amgen Canada Research Chair in Nephrology, St. Joseph's Healthcare Hamilton. He is currently the Research Director at the Hamilton Centre for Kidney Research and is a Career Investigator of the Heart and Stroke Foundation of Canada.

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Dr. Austin is a molecular geneticist with a long standing interest in diseases of the heart and kidney. He and his research group have published over 100 peer-reviewed papers, book chapters and review articles.

The overall goal of Dr. Austin's research program is to identify and characterize the underlying genetic factors that either cause or protect from diabetes and cardiovascular disease.

Some of the major discoveries in Dr. Austin's laboratory include (i) defining the role of a specific form of cellular stress, termed endoplasmic reticulum (ER) stress, in the development of diabetes and vascular disease, (ii) demonstrating a causal role of TDAG51 in vascular disease and obesity, and (iii) determine how specific antibodies in human blood contribute to vascular disease and cancer.

A recent discovery by Dr. Austin and colleagues has now shown that TDAG51 is a major regulator of insulin signaling. Genetic ablation of the TDAG51 gene in mice leads to age onset diabetes and mutations in the human TDAG51 gene are associated with an increased risk of cardiovascular disease. Furthermore, the development of age onset diabetes correlates with decreased expression of the TDAG51 gene in obese mice as well as mice fed high fat diets.

These preclinical studies will provide a solid foundation for the development of novel strategies aimed at regulating TDAG51 expression and/or activity as potential therapies to prevent or delay the onset of diabetes and obesity.

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