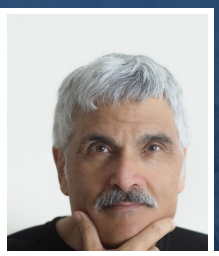
Using Novel Genetics Tools to Understand and Combat Diabetes



CURRENT RESEARCH

Exploring the role of novel genes and the intestinal microbiome in insulin secretion

Type 2 diabetes is an increasing global epidemic, accelerated by chronic obesity in the aging population. Although 80% of those with type 2 diabetes are obese, most obese individuals are not diabetic. Dr. Alan Attie, Jack Gorski Professor of Biochemistry at University of Wisconsin-Madison (UW Madison), seeks to understand this dichotomy by exploring the genetic factors that affect the diabtes susceptibility of obese individuals. He is applying a novel genetics platform for discovering genes in complex metabolic diseases, integrating exquisite physiological studies with state-of-the art genomics and proteomics, to discover pathways leading to disease.

Typically, type 2 diabetes occurs when beta-cells, which produce insulin in the pancreas, are unable to meet the increased demand for insulin caused by obesity. Non-diabetics are able to effectively adjust their insulin secretion to meet this increased demand, but in diabetic individuals, the beta-cells fall short. Dr. Attie and his team of experienced technicians, postdoctoral fellows, graduate students, and a senior scientist collaborate extensively with statisticians and researchers at UW-Madison and Jackson Laboratory. Their genetic pipeline uses a mouse outbred stock that represents as much genetic diversity as the human population. Essentially all of the gene loci he is finding have counterparts in the human genome.

Current research includes:

- The Genetics Pipeline Screen - Dr. Attie and his team collaborate with researchers from Jackson Laboratory to screen an outbred population of mice derived from eight inbred strains. This novel platform enables them to interrogate the entire genome and identify the gene loci that directly...

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AFFILIATION

University of Wisconsin-Madison

EDUCATION

- Ph.D., Biology 1980,University of California, San Diego

AWARDS

- Fellow of the American Association for the Advancement of Science, 2015
- Co-organizer, Keystone Symposium, Pathogenesis of Diabetes: Emerging Insights into Molecular Mechanisms, 2012
- Marija Dokmanovic-Chouinard Memorial Lecture, Naomie Berrie Diabetes Center, Columbia University, 2011
- Visiting Professor, Cleveland Clinic Dept. of Cardiovascular Medicine, 2006
- Co-chairman, Atherosclerosis Gordon Conference, 2003
- and 2 more...

RESEARCH AREAS

Life Science, Metabolic / Diabetes

FUNDING REQUEST

Your contribution will help fund Dr. Attie's continued research in understanding and identifying genes that play a critical role in the development of type 2 diabetes. The costs necessary to pursue this innovative research total $750K/year. Your funding will support bringing new scholars into this field, genetic screens, and the bioinformatics infrastructure required to analyze high-volume data. Diabetes is an increasing epidemic that can only be stopped through novel therapeutics; fund Dr. Attie.