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Title: Role of Inflammation in Type 2 Diabetes

Abstract:

Obesity is characterized by chronic inflammation with macrophages infiltrating metabolic organs and increased pro-inflammatory cytokines that are causally associated with insulin resistance and type 2 diabetes. This lecture will discuss the role of GRP78 and IL-10 in modulating macrophage function and insulin resistance and how maternal intake of a high-fat diet during pregnancy has lasting effects on the metabolic health of offspring, ending with some unpublished data on macrophage signaling in nonalcoholic fatty liver disease.

Biography

My research for 30 years focused on obesity and type 2 diabetes, and I have made a significant contribution to the field with 183 peer-reviewed publications, mostly in high-impact scientific journals. My past research has elucidated the mechanism of obesity-mediated insulin resistance and the molecular pathways by which fatty acids affect insulin signaling and glucose metabolism in skeletal muscle and liver. I have recently explored the molecular link between inflammation and insulin resistance, focusing on the macrophage and cytokine regulation of insulin action and energy metabolism using elegant metabolic procedures and molecular approaches. Our findings that macrophages and cytokines regulate insulin resistance have been cited by many important papers in the field, and my publications have received more than 34,000 citations. As a leading expert in metabolism and Director of Metabolic Disease Research Center, I have investigated more than 400 transgenic mouse models of human diseases, collaborating with academic and industry researchers worldwide to delineate the pathogenesis of type 2 diabetes and conduct industry- standard drug trial studies for new therapies. My scientific expertise is shared globally as an Adjunct Professor at Seoul National University, Adjunct Investigator at Harvard Medical School, Dean's Advisory Board at the University of Hong Kong, External Advisory Committee of Johns Hopkins University, Chair of NIH and American Heart Association Grant Review Committee, and scientific advisory boards of pharma. My research over the years has greatly advanced our understanding of important biological events surrounding metabolic diseases and continues to contribute toward finding new therapies to treat aging humans.