

Poster Presentation

MS53.P32

Human intestinal glucosidases MGAM and SI: Roles in Health and Disease

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The way to a person's heart is through their stomach - not just their heart. All aspects of health are affected by sources of nutrition; not just health but social and political issues, too. The metabolism of starch into glucose is linked directly to the development of the human brain. There is considerable interest worldwide into the processing of starch and other foods by the intestinal microbiome. This talk will focus on the main mammalian intestinal enzymes that process starch, their structures, functions and potential roles in human health and disease. The alpha-glucosidases maltase-glucoamylase (MGAM) and sucrase-isomaltase (SI) are resident in the small-intestinal lumen and are responsible for generating glucose from a wide variety of starch structures. Their malfunction is responsible for many nutritional intolerances and diseases including diabetes, gastrointestinal cancers and obesity. A pediatric nutritional disorder directly associated with mutations in SI, Congenital Sucrase-Isomaltase Deficiency (CSID) has significant occurrence, especially in northern and indigenous populations. The structural analyses presented in this talk will shed light on the molecular basis for this disease, as well as the development of inhibitor analyses that are designed to investigate the roles of human intestinal glucosidases in health and disease.

Keywords: glycoside hydrolases, nutritional science, starch digestion