

An update on the potential role of endogenous and exogenous glycation on human health

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The scientific field of glycobiology comprises a broad area of research. What unites all the researchers in this field is the study of the structure, biosynthesis, and biological functions of saccharides. Of these a tremendous amount of research has been done on glycoconjugates which refers to all types of biological molecule that link to some saccharides. Among these glycoconjugates are the glycoproteins found *in vivo*. The glycosylation of proteins is an enzymatic biochemical process that attaches saccharides covalently to amino acids. It leads to post-translational modifications of proteins which are often crucial for the functionality of such glycoproteins. Another type of glycoprotein is formed by the Maillard reaction, also called glycation. In this case enzymes are not involved in the modification of proteins but rather it is random chemical reactions that are concerned. Due to their chemical properties lysine and arginine are the main targets of glycation on proteins. In mammalian tissues and cells, the main saccharides which react with amino acids are sugars with a reducing function, such as glucose, ribose and glyceraldehyde. Despite their low concentration *in vivo*, oxoaldehydes play a significant role in glycation due to their high chemical reactivity on amino groups. Endogenous glycation often disturbs not only the structure but also the function of proteins and in turn affect the functioning of organs and tissues during ageing, kidney failure and metabolic disorders. This keynote lecture will summarize the ongoing research on glycation with a specific focus on the exposure to dietary glycated proteins (exogenous glycation) and its health consequences.

Biography

Prof. Tessier received his Ph.D in glycation from the Institut National Agronomique de Paris in 1997. Following his Ph.D., Prof. Tessier accepted a postdoctoral position at CWRU, and a few years later a position at CALTECH. His research then focused on the discovery of glycation products. Prof. Tessier took up an academic position in 2003 at UniLaSalle, France. Since 2015 Prof. Tessier has been appointed Professor at the Lille University, France. The goal of his research is to understand how glycation products affect the safety and the nutritional quality of food, and how an exposure to these products affects health.