

Special edition of *Amino Acids* of selected papers from the eleventh international symposium on the Maillard reaction, September 16–20, 2012

Naila Rabbani · Paul J. Thornalley

Published online: 19 December 2013
© Springer-Verlag Wien 2013

We introduce this special edition of *Amino Acids* with selected papers from the eleventh international symposium on the Maillard reaction held in Nancy, France, September 16–20, 2012. Glycation of proteins occurs by a complex series of sequential and parallel reactions called collectively the Maillard reaction—named after the leading pioneer of glycation research, Louis Camille Maillard (1978–1936). Glycation researchers gathered at the symposium in 2012 organised by the International Maillard Reaction Society to commemorate the centennial of Maillard reaction research and review achievements and current standing of glycation research. In this special edition there are selected papers from this meeting. Subjects of study include: the involvement of advanced glycation endproducts (AGEs) in complications of diabetes, association of AGEs with insulin secretion, enzymatic metabolism of early glycation adducts, absorption into the body of early and advanced glycation endproducts (AGEs) of dietary origin, association of AGEs in dietary protein with chronic disease, the study of the effect of AGEs on bacterial growth and inhibition of AGE formation by natural products.

The Centennial Maillard Symposium began with a presentation by Nobel laureate Jean-Marie Lehn (University of Strasbourg, France) on “Towards a chemistry of complex matter”. The Maillard reaction exemplifies how a

relatively simple chemical reaction of a reducing sugar or sugar derivative with an amino group becomes highly complex through multiple parallel and sequential reactions. In recent decades there has also been increasing awareness of dicarbonyl compounds and metabolites reacting with guanidino groups in the Maillard reaction. This expands the locus of glycation adduct formation from N-terminal and lysine side chain amino groups in amino acids and proteins to guanidino groups of arginine and arginine residues in proteins. Indeed, arginine-derived AGEs are now considered to be quantitatively major AGEs in physiological systems.

In 100 years the Maillard reaction has seen applications in chemistry, food, nutrition, health and disease, microbiology and clinical diagnostics and repeated, on-going development of applications in pharmacology and therapeutics. We celebrate the achievements of Louis Camille Maillard in glycation research and suggest that, if he was here today, he would marvel at the advances and development that led from his earlier studies.

Conflict of interest Both authors declare there is no conflict of interest.

N. Rabbani (✉) · P. J. Thornalley
Clinical Sciences Research Laboratories, Warwick Medical School, University of Warwick, University Hospital, Coventry CV2 2DX, UK
e-mail: n.rabbani@warwick.ac.uk

P. J. Thornalley
e-mail: P.J.Thornalley@warwick.ac.uk