



Plant Biology

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Leszek A. Kleczkowski is professor of plant physiology at the Department of Plant Physiology, Umeå Plant Science Centre, Umeå University (Sweden). He received his Ph.D. in Biochemistry in 1985 from the University of Missouri, Columbia (USA). His major research interests at that time were enzymology of photorespiration and redox regulation. For the last 30 years, his research focuses on mechanisms leading to the formation of nucleotide-sugars (especially ADP-glucose and UDP-sugars), which are involved in hundreds of glycosylation reactions, e.g. synthesis of sucrose, starch, cell wall components, etc. The function of relevant enzymes was elucidated both in vitro, by studying purified proteins, and in vivo, using transgenic plants and specific inhibitors. His work, based on comprehensive analyses of substrate specificities and protein structure/ function properties, has helped to re-classify the various UDP-sugar synthesizing enzymes as one family, sharing a common structural blueprint. His other areas of interest include mechanisms of regulation of sugarresponsive genes as well as cell energetics. The latter have resulted in a series of opinion papers (with Prof. A.U. Igamberdiev), where the key role of adenylate kinase was elucidated in regulating both adenylate and free magnesium homeostasis in cellular compartments. More information on: https://www.researchgate.net/profile/Leszek_Kleczkowski.