# What is megalosaccharide? : Novel megalosaccharide production with engineered glycosylase enables us to learn its function.

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We are interested in reaction mechanism of glycosylases (enzymes to hydrolyze/synthesize saccharides), since the mechanism enables us to produce very valuable oligo-/megalo-/poly-saccharides to be applied for food-/nano-/medical-technology etc. Our presentation addresses the molecular mechanism of glycosylase to produce megalosaccharide (MS) together with the remarkable function of MS. A scientific term of MS, proposed in 1959, is defined as sugar-size, which ranges between oligosaccharide (DP=2-9; DP being numbers of monosaccharide units to comprise carbohydrate) and polysaccharide (DP>100). However, this term became obsolete, since no efficient production method was available, even though its excellent function was expected. Recently, we found the engineered dextran dextrinase produced the linear α-1,6-glucosyl MS (isomaltomegalosaccharide; IMS), enabling us to analyze the function of MS for the first time. IMS exhibited the remarkable action to solubilize compounds belonging to BCS-II (Biopharmaceutics Classification System Class II), like foodstuff flavonoid; azo-dye chemicals; and some medical agents.