A *Saccharomyces cerevisiae* maltotriose transport protein: structure and regulation.

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The rate and extent of sugar utilisation in yeast is controlled by: environmental factors, the ability of yeast to transport sugars, and the rate of the subsequent metabolism. During starch fermentation, *Saccharomyces cerevisiae* ferments glucose and maltose, leaving the larger dextrins unfermented. In addition, maltotriose is fermented incompletely. Among *S. cerevisiae* maltose transporters, *MAL11/AGT1* (Chr. VII) shows the best affinity for maltotriose up-take (KT50). The objective of this study is to understand and enhance maltotriose transport in yeast. The regulation of *AGT1* gene expression can play a major role in the ability of yeast to transport maltotriose. It has been found in literature that glucose represses *AGT1* expression, and that maltose and maltotriose can act as *AGT1* inducers or activators, similar to the *MALX1* genes. In addition, the exclusive regulatory effect of oxygen on *AGT1* expression was evaluated in this study. The transporting ability of different Agt1ps was determined and their protein structures were compared. These results give clearer insight on the factors that influence the transport of maltotriose into the yeast cell.