



**Figure S1.** The main pathway of trehalose metabolism.

The ‘TPS-TPP’ pathway of trehalose metabolism involved two key enzymes, trehalose-6-phosphate synthase (TPS) and Trehalose phosphate phosphatase (TPP), and this process can be divided into two steps. Firstly, TPS catalyzes the substrate, uridine diphosphate-glucose (UDP-Glc) and glucose-6-phosphate (Glc-6-p), to synthesize Trehalose-6-phosphate (T6P). Secondly, T6P is dephosphorylated by TPP to form trehalose. However, trehalose is eventually hydrolyzed by trehalase into two molecules of glucose [1–5].

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