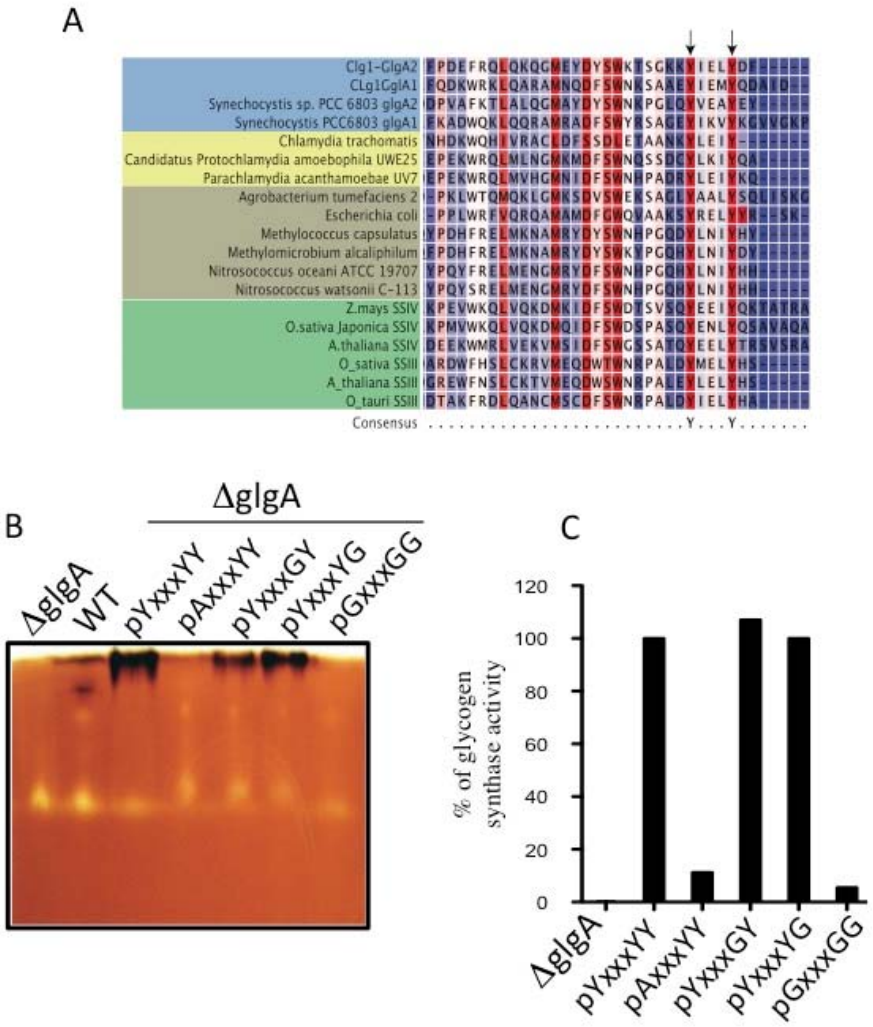


**Supplemental Figure 4**. (**A**) a YxxxY motif is highly conserved at the C-terminus of glycogen/starch synthase of plants and bacteria. Several allelic mutants were produced to investigate the role of tyrosine residues in the glycogen synthase activity of *E.coli*. Reverse primers were designed to replace either the first tyrosine residue (AxxxYY) or second tyrosine residue (YxxGY; YxxxYG) and all tyrosine residues (GxxxGG) by alanine or glycine residues. As control, the *GLGA* gene was amplified using reverse primer (YxxxYY). PCR products were cloned into the pET15 expression vector and used to transform a *ΔglgA* mutant strain of E.coli. (JW3392-1 from E.coli stock center). (**B**) Crude extracts of *ΔglgA*, WT and recombinant proteins were loaded onto glycogen synthase activity gel (i.e zymogram) and (**C**) glycogen synthase activities were measured by $^{14}$C-ADP-glucose incorporation assay as described in the methods section.