

4- α -Glucanotransferase, an enzyme from *Pyrococcus furiosus*, catalyzes the hydrolysis of a glucose unit from a donor molecule, and transfers it to an acceptor molecule. The sequence of this enzyme is very much similar to 4- α -Glucanotransferase from *Thermococcus litoralis*. The donor and acceptor molecules are carbohydrates of varying length. The donor and acceptor sites are present within the enzyme only. The donor site is present in domain-I having catalytic residues Glutamate-124 and Aspartate-215, working in an acid-base catalysis kind of mechanism, similar in case of the enzyme from *Thermococcus litoralis*. The acceptor site is present in domain-II having interacting residues Histidine-369 and Arginine-372. The function of domain-III is not yet known.