

Supplementary Materials

Biochemical characterization and cold-adaption mechanism of A PL-17 family alginate lyase Aly23 from marine bacterium *Pseudo-altermonas* sp. ASY5 and its application for oligosaccharides production

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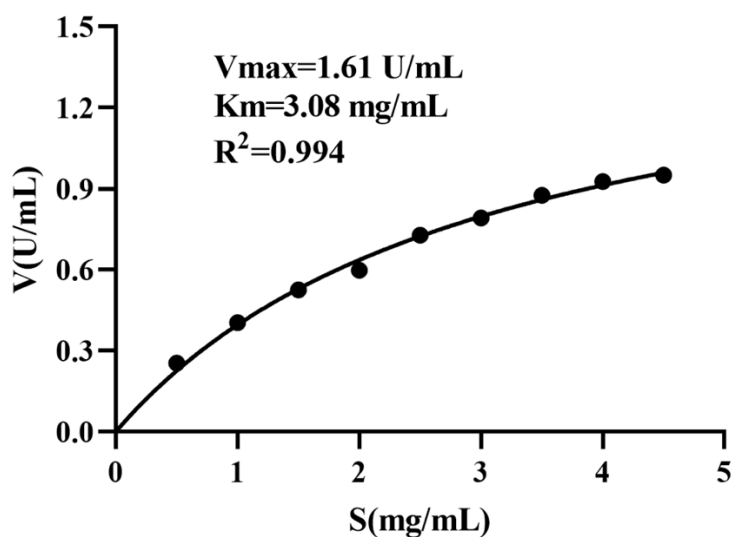


Figure S1. The nonlinear fitting calculation of the kinetic parameters of Aly23.

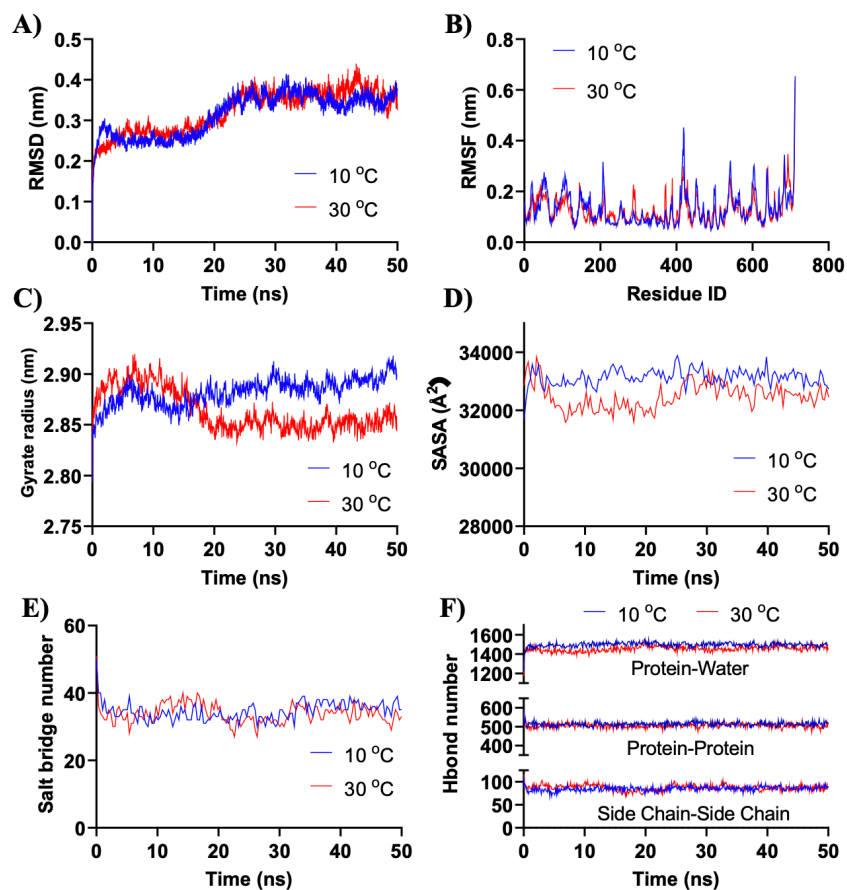


Figure S2. (A) RMSDs of alpha carbon atoms in 50 ns MD simulations as a function of time relative to the initial structure of Aly23 at different temperatures. (B) RMSFs of the alpha carbon atoms in 50 ns MD simulations of Aly23 at different temperatures. (C) Gyrate radius of Aly23 structure in 50 ns MD simulations as a function of time at different temperatures. (D) SASA of Aly23 structure in 50 ns MD simulations as a function of time at different temperatures. (E) Salt bridge number of Aly23 in 50 ns MD simulations as a function of time at different temperatures. (F) Hydrogen bonds of Aly23 in 50 ns MD simulations as a function of time at different temperatures.

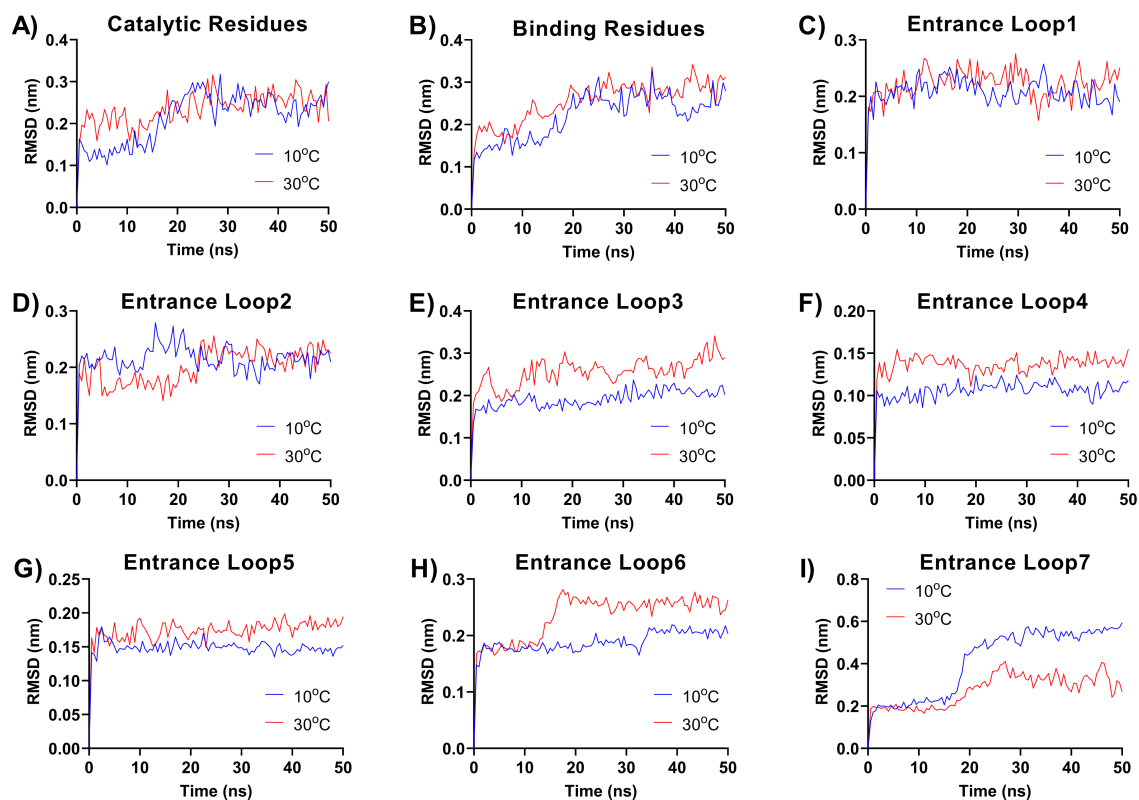


Figure S3. RMSDs of alpha carbon atoms of catalytic residues (A), binding residues (B) and seven entrance loops (C-I) of Aly23 in 50 ns MD simulations as a function of time relative to the initial structure at different temperatures.