

**Structure of Stationary Phase Survival Protein SurE from *Thermus thermophilus***

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Stationary-phase survival protein SurE is a metal ion-dependent phosphatase which is distributed among eubacteria, archia and eukaryotes. In *E. coli*, it is necessary for survival during the stationary phase, but the physiological role of SurE is not clear. Crystal structures of SurE from *Thermotoga maritima* and *Pyrobaculum aerophilum* have been determined, which revealed that SurE forms a dimer that assembles into a tetramer.

We report here the crystal structures of SurE from *Thermus thermophilus* HB8 (SurE<sub>ther</sub>) in a few different space groups. The SurE<sub>ther</sub> structure consists of a globular Rossmann fold domain and a protruded domain that mediates tetramerization as so far-reported structures. However, the angle between the protruding domain and the Rossmann fold domain of SurE<sub>ther</sub> is different. As a result, the dimeric- and tetrameric-structures of SurE<sub>ther</sub> were quite different from the known SurE structures. We studied the self-associative properties of SurE<sub>ther</sub> in solution using the sedimentation equilibrium analytical ultracentrifugation. Phosphatase activity assays of SurE<sub>ther</sub> is in progress, and its substrate specificity seems to be strict compared to SurE from other species. The relationship between enzymatic property and the variant oligomeric structure of SurE<sub>ther</sub> will be discussed.

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