

W0374

Crystal Structure of Dehydroquinase from *Archaeoglobus fulgidus*. Travis Gallagher, Natasha Smith, Hal Monbouquette, Imke Schroeder, NIST, Gaithersburg, MD 20899.

The structure of the dehydroquinase (DQ) from *Archaeoglobus fulgidus* has been solved by the SIRAS method and is reported at 2.5 Å resolution. While DQ structures from several bacteria are known, this is the first from a thermophile, and thus enables a comparison illuminating evolutionary and thermostability effects. The previous structures are subdivided into two classes primarily on mechanistic grounds: type I and type II. The present structure belongs (along with all archaeal DQ's) to type I. The structure comprises a dimer of 8-stranded beta barrels, as expected from its homology (30% identity) to the known structure from *Salmonella typhimurium*. The protein's distribution of charges, active site environment, molecular and crystal packing, and other features are described and compared with precedent structures.