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Structure of EstA esterase from psychrotrophic *Pseudoalteromonas* sp. 643A covalently inhibited by monoethylphosphonate.

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Streszczenie

The crystal structure of the esterase EstA from the cold-adapted bacteriumPseudoalteromonas sp. 643A was determined in a covalently inhibited form at aresolution of 1.35 A˚. The enzyme has a typical SGNH hydrolase structureconsisting of a single domain containing a five-stranded beta-sheet, with threehelices at the convex side and two helices at the concave side of the sheet, and isornamented with a couple of very short helices at the domain edges. The activesite is located in a groove and contains the classic catalytic triad of Ser, His andAsp. In the structure of the crystal soaked in diethyl p-nitrophenyl phosphate(DNP), the catalytic serine is covalently connected to a phosphonate moiety thatclearly has only one ethyl group. This is the only example in the Protein DataBank of a DNP-inhibited enzyme with covalently bound monoethylphosphate.

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