P007 Crystal structure of H55S Xanthomonas campestris tryptophan 2,3-dioxygenase

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Tryptophan 2,3-dioxygenase (TDO) from Xanthomonas campestris is a highly specific heme-containing enzyme from a small family of homologous enzymes which includes indoleamine 2,3-dioxygenase (IDO). The structure of wild type (WT TDO) in the catalytically active, ferrous [Fe (II)] form and in complex with its substrate L-tryptophan (L-Trp) was recently reported [Forouhar et al. (2007) Proc. Natl. Acad. Sci. USA 104, 473–478] and revealed that histidine 55 hydrogen bonds to L-Trp, precisely positioning it in the active-site and implicating it as a possible active site base. In order to probe the role of the active-site residue histidine 55 it has been substituted by alanine and serine. Here we report the 2.8 Å resolution crystal structure of the H55S mutant enzyme in a binary complex with the substrate L-Trp.