**Poster Presentation**

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## *Comparison of the Structures and Activities of Cg10062 with other 4-OT Enzymes*

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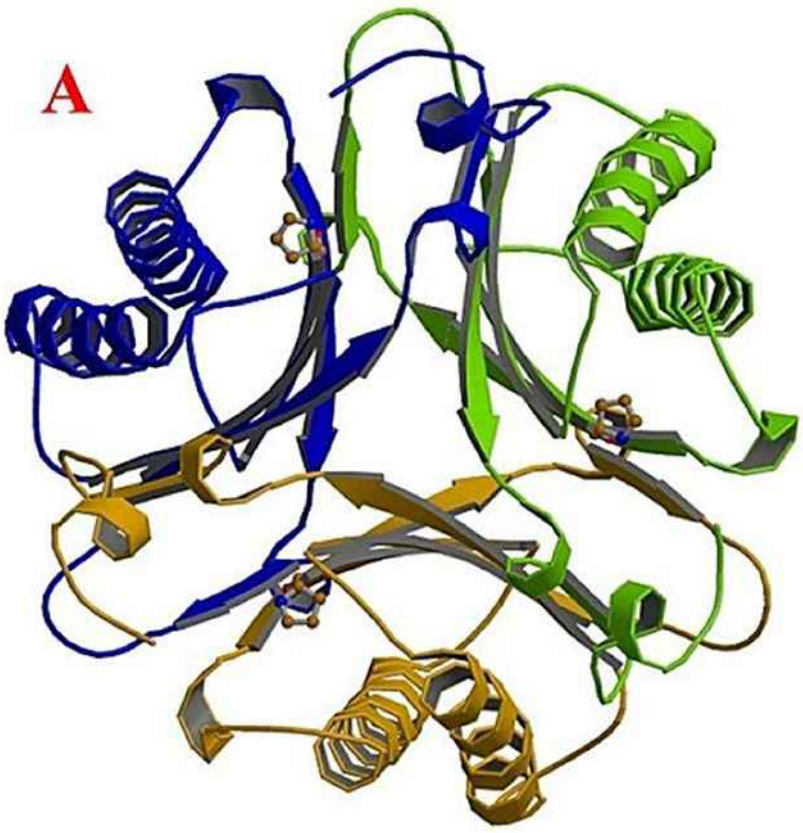
The tautomerase superfamily is a broad family of proteins represented by 4-oxalocrotonate tautomerase (4-OT), 5-(carboxymethyl)-2-hydroxymuconate isomerase (CHMI), cis-3-chloroacrylic acid dehalogenase (cis-CaaD), malonate semialdehyde decarboxylase (MSAD), and macrophage migration inhibitory factor (MIF). 4-OT and many of its homologues are homo- or heterohexamers composed of small (60-75 a.a. residue) subunits while CHMI, MSAD, cis-CaaD and MIF are nearly twice that size and form trimers. The subunits of this family share two distinguishing features – one or two beta-alpha-beta structural motifs and a catalytically important N-terminal Pro residue. Several different catalytic activities are known to utilize this same structural motif - tautomerase, isomerase, decarboxylase, dehalogenase, etc. Cg10062 is a homologue of cis-CaaD, however, it differs from cis-CaaD in several respects. In addition to being able to process cis-3-chloroacrylic acid, it also displays multiple other functions such as the capability to process trans-3-chloroacrylic acid (like CaaD), to process phenylpyruvate (like PPT/MIF) and 2-oxo-3-pentynoate (like CaaD, cis-CaaD and MSAD). Furthermore, Cg10062 is inactivated by both (R) and (S)-oxirane-2-carboxylate. However, cis-CaaD is only inactivated by the (R)- isomer. The X-ray structures of native Cg10062, and its inactivated complexes have been determined and the results of comparing these structures and activities with CaaD, cis-CaaD, PPT/MIF and MSAD will be reported. This work was supported in part by The Welch Foundation ( F1334).

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