

## **Study of the formation of the O-O bond in chlorite dismutase**

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The heme b enzyme Chlorite dismutase (Cld) catalyzes the disproportionation of chlorite into chloride and oxygen. In order to develop a viable bioremediator, the chemical mechanism of Cld needs to be understood. The main objective of this project is to understand how the structure controls the functionality. The first goal is to understand the mechanism of action and the second goal is to investigate the role each amino acid in the active site plays. However, we were unsuccessful in characterizing intermediates using chlorite as a substrate; hence an alternate approach will be to characterize any intermediates formed using alternate oxidants like peracetic acid. Our recent studies suggest that the charged Arg-183 seems to control the catalytic activity and possesses a pKa of 6.5. Site-directed mutagenesis will be used to mutate residues around the active site and determine the structural features of Arg-183 that are important for catalysis.