# Initial characterization of a microbial prolyl-4-hydroxylase

Lee M. Hoffart,[1] Robert B. Guyer,[1] J. Martin Bollinger, Jr.,[1,2] and Carsten Krebs,[1,2]

*[1] Department of Biochemistry and Molecular Biology and [2] Department of Chemistry, The Pennsylvania State University*

The Fe(II)/α-ketoglutarate-dependent dioxygenases utilize the activation of $O_2$ at a mononuclear non-heme Fe center to perform hydroxylation of their substrates coupled to the decarboxylation of α-ketoglutarate. It is presumed, though not established, that all of these enzymes employ a common mechanism and many intermediates have been proposed for the reaction. Recently, the first of these intermediates was observed in taurine:α-ketoglutarate dioxygenase.

We have begun studying a reputed microbial prolyl-4-hydroxylase in an attempt to demonstrate that distinct members of the Fe(II)/α-ketoglutarate-dependent dioxygenase family employ a common mechanism. Evidence suggests that this reputed prolyl-4-hydroxylase is indeed a mononuclear Fe containing enzyme, which binds α-ketoglutarate to form a chromophore reminiscent of the ligand-to-metal charge transfer band observed in other members of the family. The protein promotes decarboxylation of α-ketoglutarate. Initial characterization of this enzyme will be presented.