

Synthesis and Reactivity of Metalloporphyrins

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Examination of the structural, spectroscopic, and reactivity properties of new porphyrinoid species are of interest for comparison with heme centers in metalloproteins. Corrolazines are ring-contracted porphyrinoid compounds with nitrogen atoms at the *meso* positions between pyrrole units. Corrolazines, like corroles, have been shown to exhibit strikingly different redox properties in comparison to porphyrins, and in particular, they have been shown to stabilize high oxidation states. This poster will focus on the synthesis, redox properties, and reactivity of various metalloporphyrins, including a high-valent Mn(V)-oxo corrolazine complex.^[1-3] In heme proteins such as cytochrome P450, high-valent metal-oxo species derived from dioxygen or its reduced products are of particular importance to the mechanism of oxidation reactions. The oxidative reactivity of the Mn(V)-oxo corrolazine will be discussed, including both oxygen-atom-transfer and hydrogen atom abstraction processes. In addition, a reduced cobalt corrolazine will be described that can reversibly bind dioxygen.

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