PS2.4 — MO

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MCD STUDIES ON THE HEME AND TRYPTOPHAN COMPONENTS OF CYTOCHROME *c* PEROXIDASE

We have measured the magnetic circular dichroism of cytochrome *c* peroxidase (CCP) and some of its derivatives from 250-350 nm. Comparison of the changes observed on conversion to the catalytic intermediate (CCP-I) with spectra obtained from horseradish peroxidase and its derivatives and model compounds of protoheme leads us to the conclusion that the observed changes in the MCD spectra reflect conversion of the heme to the ferryl state. No evidence was found for modification of tryptophan in CCP-I.

PS2.5 — TU

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MAGNETIC CIRCULAR DICHROISM STUDIES OF CYTOCHROME *c* PEROXIDASE AND ITS LIGAND COMPLEXES

INTRODUCTION

Yeast cytochrome *c* peroxidase (CCP) is a soluble heme protein, located in the mitochondrial intermembrane space, that catalyzes the two-electron reduction of hydroperoxides by ferrocytochrome *c* in the following reaction:

$$2\ \text{cyt}\ c(Fe^{2+}) + ROOH + 2H^{+} \rightarrow 2\ \text{cyt}\ c(Fe^{3+}) + ROH + H_2O$$

CCP contains a noncovalently bound protoheme IX prosthetic group and has a known amino acid sequence. The crystal structure of CCP has recently been published [1]. Despite the above information, questions still remain about the relationship between the physical structure of CCP and its catalytic properties. We have used magnetic circular dichroism (MCD) spectroscopy to probe the electronic, and therefore indirectly the physical, structure of native ferric and ferrous CCP and its complexes with CN^-, N_3^-, F^-, CO, NO and of CCP-Compound I. In order to provide a basis for comparison, the MCD data on CCP, reported here for the first time, have been compared to analogous data from other imidazole-ligated heme proteins such as myoglobin (Mb) and horseradish peroxidase (HRP).