

Copper monooxygenase models: hydrogen peroxide activation by Cu (II) complexes.

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Description

Copper monooxygenases such as tyrosinase (Tyr, phenol hydroxylation) dopamine [β]-hydroxylase (DBH, benzylic hydroxylation) peptidylglycine [α]-amidating monooxygenase (PAM, glycine hydroxylation) and particulate methane monooxygenase (mMMO, methane hydroxylation) involve the formation of a Cu (II) OOH intermediate which after cleavage leads to the very reactive intermediate Cu (II)-O [d o t] responsible for the hydroxylation. It has been proposed that the cleavage of the Cu (II) OOH species could be assisted by a tyrosine residue (DBH) or by a second Cu (II) atom (Tyr and mMMO). In order to study the activation of hydroperoxo copper (II) species, we have prepared some copper (II) complexes such as 1 where two copper atoms are linked by a 2-pyridylethyl ($n=2$) or 2-pyridylmethyl ($n=1$) amide function. We will describe the synthesis, the structural studies and the reactivity of copper (II) ...