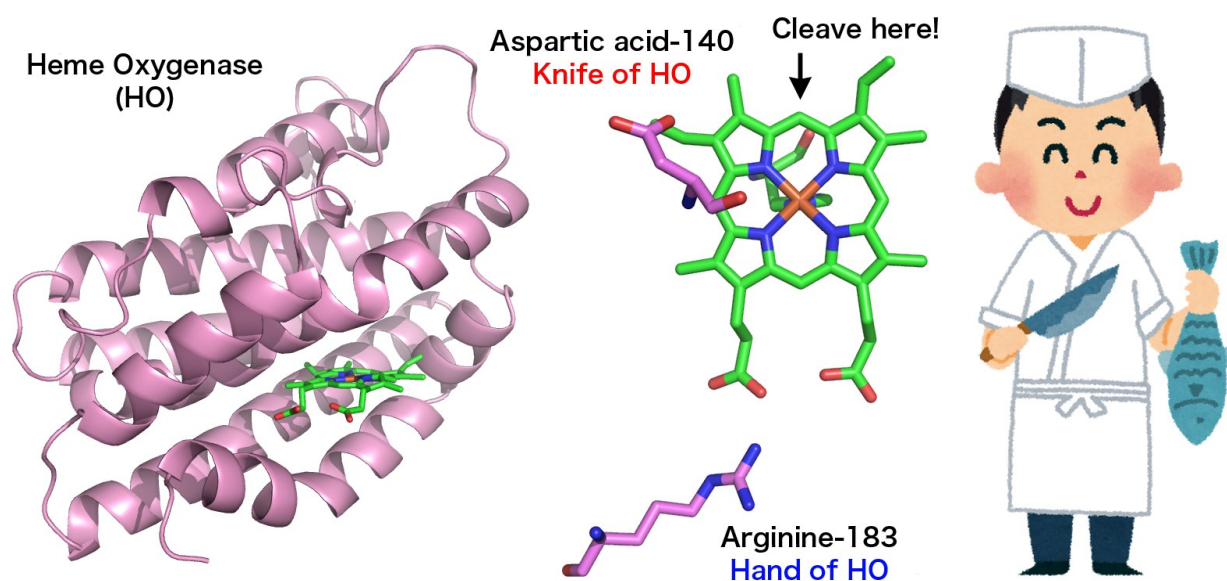


# Elucidation of Structure-Function Relationship of Metalloenzymes

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Molecular Mechanism of Heme Oxygenase. It works like an excellent chef with his hands and knife.

There are many proteins called enzymes in our bodies, and they perform many chemical reactions required for our biological activities. In these enzymes, enzymes that contain metal ions in their active site are called metalloenzymes and can achieve very important biological reactions under mild conditions. Such excellent molecules have never been produced by chemists. For example, they are working in oxygen transport, electron transfer, oxidation, and oxygenation systems. The excellent functions of metalloproteins have been thought to be controlled by amino acids binding to the metal ions, coordination structures, and protein structures in immediate vicinity of metal ions. However, we have not revealed how these metalloenzymes control their functions. In my laboratory, we are studying the relationship between the electronic structures of the metal active sites and reactivity of metalloproteins to reveal the functional molecular mechanism.

Keywords : Metal ion, enzyme, heme, reaction mechanism, oxygen activation