

# 結晶の中でタンパク質の“生きた状態”の観察に成功

(大阪医科大学)村川武志、林秀行、矢野貴人、(公益財団法人高輝度光科学研究センター)馬場清喜、熊坂崇  
(理化学研究所)河野能顕、山本雅貴  
(阪大産研)岡島俊英、谷澤克行

## *In crystallo* thermodynamic analysis of conformational change of the topaquinone cofactor in bacterial copper amine oxidase

Takeshi Murakawa, Seiki Baba, Yoshiaki Kawano, Hideyuki Hayashi, Takato Yano, Takashi Kumasaka, Masaki Yamamoto, Katsuyuki Tanizawa, and Toshihide Okajima



Figure 1. Unfrozen protein crystal mounted by Humid-air and glue-coating method

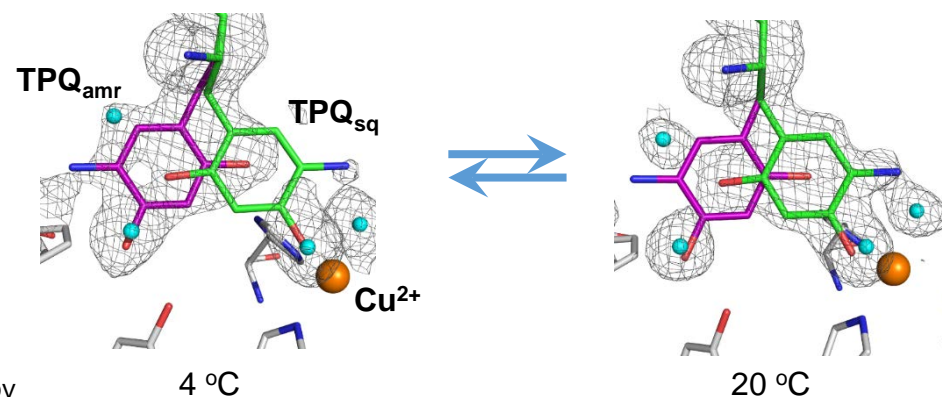


Figure 2. Detected temperature equilibrium of enzyme active site

非凍結結晶の温度を精密にコントロールすることにより、天然に近い結晶状態において、酵素が働くときに起きる構造変化とその熱力学解析に世界で初めて成功した。

This study elucidated conformational changes in a bacterial copper amine oxidase during the catalytic reaction. By precisely controlling the temperature of unfrozen enzyme crystals, we determined the structures containing an equilibrium mixture of different states in the active site and attained thermodynamic analyses of the conformational changes occurring in protein crystals for the first time.