

||||| 特集：微小重力研究における放射光実験 |||||
(解説)

微小重力下でのタンパク質結晶化と放射光による構造解析

北野 健¹・沼本 修孝²・三木 邦夫^{2,3}

Protein Crystallization under Microgravity and Structure Analysis Using Synchrotron Radiation

Ken KITANO¹, Nobutaka NUMOTO² and Kunio MIKI^{2,3}

Abstract

Protein crystallography is one of the most powerful methods in structural biology to determine the three-dimensional structures of protein molecules at an atomic resolution. However, it is often difficult and laborious to obtain a well-diffracting crystal suitable for structure determination. Since the gravity is one of factors affecting protein crystallization, the microgravity environment has been used to improve the quality of protein crystals. On the other hand, development of the advanced synchrotron facilities such as SPring-8 enabled us to utilize very strong X-ray beams that have almost ideal character for the use in protein crystallography. Here we describe the recent progress of the synchrotron techniques in protein crystallography and discuss the effective crystallization under microgravity for synchrotron experiments.