

## W0127

**Crystallization Phase Diagram of Several Proteins.** Y. Ohnishi<sup>1,2</sup>, Y. Kobayashi<sup>2</sup>, M. Yamashita<sup>2</sup>, K. Ebata<sup>2</sup>, Y. Sawa<sup>2</sup>, I. Tanaka<sup>2</sup>, N. Niimura<sup>2</sup>, <sup>1</sup>Kaken Co. Ltd., <sup>2</sup>Ibaraki Univ., Hitachi-shi 316-8511, Japan.

Neutron diffraction provides an experimental method of directly locating hydrogen atoms in proteins and hydration structure of proteins. The bottle neck of neutron macromolecular crystallography is that large crystals are needed: currently, the volume of crystals should be larger than 1 mm<sup>3</sup>. We have found that one rational way to find the proper conditions to grow large single crystals using established crystallization phase diagram. A large single crystal can be grown under supersaturated conditions close to the solubility boundary. Indeed, large single crystals from proper condition on the phase diagram of proteins were suitable for use in neutron protein data collection.

We have made crystallization phase diagram of some basic proteins such as insulin (2Zn) and Ribonuclease A, and succeeded in growing large crystals which are applicable to neutron diffraction experiment. The large crystal growth of the other basic proteins is also under way by using the phase diagram strategy.