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Neutron Diffraction from Cubic Insulin at pD6 and 7. T. Ishikawa¹, Y. Oonishi², I. Tanaka¹, T. Chatake³, K. Kurihara⁴, T. Tamada⁴, R. Kuroki⁴, N. Niimura¹, ¹Ibaraki Univ., ²Kaken, ³Chiba Scie. Univ., ⁴JAEA, Hitachi City IBARAKI 316-8511, Japan.

X-ray diffraction experiment of porcine cubic insulin has shown the conformational change of the 10th histidine and the absence of the change of the 5th histidine and these conformational changes is pH-dependent. Maeda et al have carried out the neutron diffraction experiment of porcine cubic insulin at pD=9, and the experiment has revealed that the protonation and deprotonation of histidine residues are the cause of the pH-dependent structural changes.

We have carried out the neutron diffraction experiment of porcine cubic insulin at pD=6 and 7. Cubic insulin was grown to a size of 1mm³ in volume by a dialysis method on the basis of the crystallization phase diagram. The crystal was soaked at pD6 and 7. Neutron diffraction experiment was carried out with BIX-4 installed at the JRR-3 of the Japan Atomic Energy Agency (JAEA).