Crystallographic Studies of Several Essential Proteins concerning the Nucleotide Metabolism in *Bacillus subtilis*

Juan Wang, Xiang-Yu Liu, Yu-He Liang, Xiao-Feng Zheng, Xiao-Dong Su, *Department of Biochemistry and Molecular Biology, College of Life Sciences, Peking University, Beijing, China*. E-mail: hyhy104@263.net

By using bioinformatics methods, 33 genes that related to *Bacillus subtilis* nucleotide metabolism were chosen in this study. By using *B. subtilis* genomic DNA, the genes were amplified by PCR and cloned with TOPO/GATEWAY systems. 22 proteins were expressed successfully and 16 soluble proteins were purified by Ni chelating and size-exclusion chromatography. So far, 8 diffractable crystals were obtained and 6 structures were determined. Among them, Bs139 protein functions as phosphoribosylglycinamide formyltransferase (GART), an important enzyme in the de novo pathway of purine biosynthesis. Bs139 crystal diffracted to 2.5 Å resolution at home X-ray source and the structure was determined by molecular replacement (MR). Bs154 protein is a putative deoxyuridine 5'-triphosphate nucleotidehydrolase (dUTPase), which plays important role in DNA replication. Se-YosS crystal diffraction datasets were collected at Beijing Synchrotron Radiation Facility (BSRF) and the structure was determined by multi-wavelength anomalous diffraction (MAD) method.

Keywords: structural genomics, *bacillus subtilis*, nucleotide metabolism