

転写制御タンパク質構造解析研究チーム

Transcription Regulation Protein Crystallography Team

チームリーダー TAHIROV, Tahir H.

2004 年度、我々は引き続き *Thermus thermophilus* HB8 および *Pyrococcus horikoshii* OT3 由来タンパク質の構造研究を行い、さらにこれらの機能メカニズムを解明するため、リガンドおよび補酵素との複合構造の解析も行った。現在、我々は転写因子および転写後調節に関与するタンパク質に注目している。(12月1日より研究チーム名を、構造解析第3研究チームから転写制御タンパク質構造解析研究チームに変更)

During the 2004–2005 fiscal year our team continued structural studies of proteins from the *Thermus thermophilus* HB8 and *Pyrococcus horikoshii* OT3. In order to understand the functional mechanisms of these proteins, the structures of ligand and/or cofactor bound forms were also determined. Now we are particularly interested in proteins involved in transcription and post transcriptional regulation of gene expression.

Research Subjects

1. Current state and future plans for high-throughput protein crystallography

Yokoyama S., Artsimovitch I., and Vassylyev D. G.: “Regulation through the secondary channel: Structural framework for ppGpp-DksA synergism during transcription”, *Cell* **118**, 297–309 (2004). *

Tahirov T., Inagaki E., Ohshima N., Kitao T., Kuroishi C., Ukita Y., Takio K., Kobayashi M., Kuramitsu S., Yokoyama S., and Miyano M.: “Crystal structure of purine nucleoside phosphorylase from *Thermus thermophilus*”, *J. Mol. Biol.* **337**, 1149–1160 (2004). *

Rehse P., Ohshima N., Nodake Y., and Tahirov T.: “Crystallographic structure and biochemical analysis of the *Thermus Thermophilus* osmotically inducible Protein C”, *J. Mol. Biol.* **338**, 959–968 (2004). *

Ohshima N., Inagaki E., Yasuike K., Takio K., and Tahirov T.: “Structure of *Thermus thermophilus* 2-Keto-3-deoxygluconate kinase: Evidence for recognition of an open chain substrate”, *J. Mol. Biol.* **340**, 477–489 (2004). *

Staff

Head

Dr. Tahir H. TAHIROV

Members

Dr. Peter REHSE
Mr. Eiji INAGAKI
Mr. Hitomi TAKAHASHI

誌上発表 Publications

[雑誌]

(原著論文) *印は査読制度がある論文

Inagaki E., Ukita Y., Kumei M., Kajihara Y., and Tahirov T.: “Crystallization and preliminary crystallographic analysis of 2-keto-3-deoxygluconate kinase from *Thermus thermophilus*”, *Acta Cryst. D* **60**, 761–763 (2004). *

Takahashi H., Inagaki E., Kuroishi C., and Tahir T. H.: “Structure of the *Thermus thermophilus* putative periplasmic glutamate/glutamine-binding protein”, *Acta Cryst. D* **60**, 1846–1854 (2004). *

Rehse P., Kuroishi C., and Tahirov T.: “Structure of the RNA-processing inhibitor RraA from *Thermus thermophilus*”, *Acta Cryst. D* **60**, 1997–2002 (2004). *

Perederina A., Svetlov V., Vassylyeva M. N., Tahirov T.,

口頭発表 Oral Presentations

(国際会議等)

Rehse P., Ohshima N., Nodake Y., and Tahirov T.: “Crystallographic and kinetic analysis of the osmotically inducible protein C from *Thermus Thermophilus* HB8”, 1st Pacific-Rim Int. Conf. on Protein Science (PRICPS 2004), (Protein Science Society of Japan and others), Yokohama, Apr. (2004).

Ohshima N., Inagaki E., Kajihara Y., Yasuike K., Takio K., and Tahir T. H.: “Structure and function of *Thermus thermophilus* 2-keto-3-deoxygluconate kinase”, 1st Pacific-Rim Int. Conf. on Protein Science (PRICPS 2004), (Protein Science Society of Japan and others), Yokohama, Apr. (2004).

Tahirov T.: “Crystal structure of *Pyrococcus horikoshii*

NIKR: nickel sensing and implications for the regulation of promoter DNA recognition”, FASEB Summer Research Conf. on Transcriptional Regulation During Cell Growth, Differentiation and Development, Saxtons River, USA, Aug. (2004).

Nishibori E., Koishi T., Narumi T., Tahirov T., Ago H., Taiji M., Miyano M., Ebisuzaki T., Makino J., and Sakata M.: “An x-ray structure determination by genetic algorythm with a special-purpose computer; MDM”, 8th Int. Conf. on Biology and Synchrotron Radiation (BSR2004), (Himeji City, RIKEN, and others), Himeji, Sept. (2004).

Kuramitsu S., Ebihara A., Kanagawa M., Kuroishi C., Sato S., Agari Y., Iino H., Kashihara A., Kira S., Yanai H., Imagawa T., Nakagawa N., Masui R., Bessho Y., Hori-Takemoto C., Handa N., Kishishita S., Niino-kukimoto M., Kaminishi T., Wang H., Mizohata E., Shibata R., Kato-Murayama M., Kawazoe M., Arai R., Toyama M., Kunishima N., Tahirov T., Sekine S., Shinkai A., Vassylyev D. G., Murayama K., Terada T., Shirouzu M., Miki K., and Yokoyama S.: “A structural and functional whole-cell project for the model organ-

ism, *Thermus thermophilus* HB8”, 3rd Int. Conf. on Structural Genomics (ICSG 2004), (International Structural Genomics Organization and others), Washington DC, USA, Nov. (2004).

Rehse P. and Tahirov T.: “Crystal structure of a purine/pyrimidine phosphoribosyltransferase-related protein from *Thermus thermophilis* HB8”, 3rd Int. Conf. on Structural Genomics (ICSG 2004), (International Structural Genomics Organization and others), Washington DC, USA, Nov. (2004).

Inagaki E., Ohshima N., Kuroishi C., and Tahirov T.: “Crystal Structure of *Thermus thermophilus* Δ^1 -pyrroline-5-carboxylate dehydrogenase”, 3rd Int. Conf. on Structural Genomics (ICSG 2004), (International Structural Genomics Organization and others), Washington DC, USA, Nov. (2004).

(国内会議)

Bagautdinov B., 藤本弥生, Tahirov T.: “Crystal structure of indole-3-glycerol phosphate Synthase from *Thermus thermophilus* HB8”, 高度好熱菌丸ごと一匹プロジェクト第3回連携研究会, (理研), 滝磨, 7-8月 (2004).