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## 放線菌由来のアシルトランスフェラーゼの構造と機能解析

○テキエイ<sup>1</sup>, Zhijuan HU<sup>2</sup>, 森 貴裕<sup>1</sup>, 淡川 孝義<sup>1</sup>, 阿部 郁郎<sup>1</sup> (<sup>1</sup>東大院薬, <sup>2</sup>浙大海洋学院)

**【Introduction】** The GCN5-related *N*-acetyltransferase (GNAT) family is one of the largest enzyme superfamilies recognized to date. *N*-acyltransferase SbzI from *Streptomyces* sp. NCIMB40513 belongs to GNAT superfamily and catalyzes the unusual aminoacyl transfer reaction of sulfonamidyl acetyl group to generate altemicidin in the biosynthesis of SB-203208.

**【Experiments】** Recombinant SbzI was expressed in *Escherichia coli* Rossetta2 strain, and purified by Ni-affinity chromatography and gel filtration chromatography. The X-ray diffraction data sets were collected at Photon Factory in Tsukuba. The initial phase of SbzI was determined through the analysis of SeMet-labeled enzyme.

**【Result】** The *in vitro* assay shows that SbzI catalyzes the transfer of sulfonamidyl acetyl group onto the amino group of **1** to give altemicidin, an acaricidal and antitumor compound. The apo structure of SbzI was solved at 2.6Å by Se-Met substituted heavy-atom derivatization, which shows a tetrameric structure where each subunit adopts the typical topology of the core GNAT folds. The structural comparison using the Dali program revealed that the SbzI structure shares high similarities with those of the known acetyltrasferases, including *Enterococcus faecalis* acetyltransferase and *Bacillus subtilis* PaiA, with RMSD values of 2.1 and 2.4 Å, respectively.

