Streptogramin B lyase VgbB

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Streptogramin antibiotics are an old class of antistaphylococcal agents that target the ribosome. After decades of use in cattle feed, the development of new and more soluble streptogramin variants has made it possible to use these antibiotics in humans (1,2). At present, there is little resistance against these antibiotics in current nosocomial settings, but the widespread use of the antibiotics in livestock has already given rise to resistance mechanisms (3) that are bound to show up in clinical settings eventually. Several of the streptogramin resistance-conferring enzymes have been studied by others. We have focused on streptogramin lyase, which inactivates streptogramins by opening their circular structure (4).

Streptogramin lyase can be overproduced in E. coli, and orthorhombic crystals could be grown at 4 °C that diffract to 1.8 Å at BW6, DESY. Although the diffraction pattern of most crystals appears clean on single frames in all orientations, the data from many specimens scale poorly and merge with R-factors from 10% upwards in the lower shells. The scaling problems are not due to an erroneous choice of crystal symmetry or a twinning problem, because the difficulties persist if data are scaled in space group P1. Fortunately, occasionally crystals can be found that give rise to clean data, and using such crystals we have now managed to obtain low resolution phases by standard MIR with conventional derivatives.

References