Report on the use of ID 14:3, 4.-5. december 2000, 3 shifts

Anthracyclines are important chemotherapeutic agents of the polyketide class of antibiotics produced by actinomycetes. In Streptomyces species, these antibiotics are synthesized by a number of enzymes, encoded by open reading frames denoted *rdmA* to *rdmF*. *RdmE* encodes a FAD-dependent monooxygenase which functions as an aromatic polyketide hydroxylase. As one step towards the elucidation of the pathway for the synthesis of this class of antibiotics, we have crystallised Rdme with bound substrate and intend to determine the structure of this hydroxylase. Due to lack of sequence homology to other hydroxylases of known structure, we have to resort to MAD/MIR techniques for phase determination. Production of Se-methionine substituted protein in Streptomyces has not yet been successful and we have to screen for heavy metal derivatives. While the crystals diffract to better than 2.5 Å resolution at synchrotrons, no useful data can be obtained using home sources. Therefore, screening for derivatives has to be done at the synchrotron.

During this visit four data sets of putative derivatives were collected. Analysis of the data did however not reveal any bound metal and the search for derivatives is therefore still on-going.

Compound	resolution	R-sym (%)	completeness (%)	redundancy
Derivative 1	3.2	11.7	83	7
Derivative 2	3.7	16.0	92	4
Derivative 3	3.2	10.3	79	8
Derivative 4	3.2	12.0	88	5