



Experiment title: Cambridge MRC Block Allocation Group
MAD data collection of SRP19/SRP RNA crystals

Experiment number:
LS1669

Beamline:
BM14

Date of experiment:

from: 13 July 2000 to: 14 July 2000

Date of report:
29 Aug 2000

Shifts:
3

Local contact(s):
Raimond Ravelli

Received at ESRF:

Names and affiliations of applicants (* indicates experimentalists):

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Report:

The crystals of SRP19/SRP RNA complex were soaked with either lutetium chloride or osmium hexammine and cryoprotected in the MRC Laboratory of Molecular Biology and frozen there. All the crystals that data collection was attempted on at ESRF BM14 had been screened in the laboratory on a rotating anode source for mosaicity, diffraction limit and lack of splitting. The crystals brought to the beamline were stored at liquid nitrogen temperature in a dry storage dewar ("Dry Shipper"). Unfortunately, the dry shipper developed a breach in its insulation either before or during the journey to ESRF. Crystals that had previously been screened and were unsplit with low mosaic spreads were found to be split and exhibited high mosaic spreads on the BM14 beamline.

In an attempt to make some good use of the time, nearly all the frozen crystals were screened again at the beamline. A small number which had been in the coldest part

of the Dry Shipper (near the bottom) diffracted reasonably well, although rather weakly and splitting did not appear too extensive.

Raimond Ravelli and Sean McSweeney gave assistance in performing single crystal XAFS to determine the Os and Lu fluorescence peak and edge energies and I was then able to proceed with the MAD experiment. The weak diffraction of the damaged crystals significantly increased exposure times over those predicted on the basis of previous data collections but it was possible to collect the following datasets:

Osmium peak, $\lambda = 1.13978\text{\AA}$, energy = 10.878 keV

Data only useful to 4.0\AA , Rmerge = 6.7% (21.2% at 4.0\AA), Mn(I)/sd = 12.6 (4.7 at 4.0\AA).

Osmium edge, $\lambda = 1.14031\text{\AA}$, energy = 10.873 keV

Lutetium edge, $\lambda = 1.34038\text{\AA}$, energy = 9.250 keV