



BAG Beam time Progress Report

This represents a summary of the BAG progress in the reporting period, and is **in addition** to the standard ESRF report sheet for each project which will be used for the Review of the BAG.

BAG Title	Towards ultrahigh resolution structures of several metabolically important proteins.
Allocation Period	January 2000-February 2001, LS-1819
List of publications resulting from ESRF beam time	<p>1. F. Frolow and A.J. Kalb(Gilboa) Cytochrome b1 - Bacterioferritin. Handbook of Metalloproteins, Wiley & Son, Vol 2, page 782-790.</p> <p>2. F. Frolow. pH induced changes in the binuclear metal site of cytochrome b1 (bacterioferritin). Abstracts of the 66th meeting of the Israel Chemical Society, February 5-6, 2001, Tel Aviv, page 58.</p>
Global Summary	<p>This was our second (and third) visit to ESRF with the BAG proteins structures project. We have utilized this time very effectively, collecting many data sets that had previously been impossible. These include two 1.8 Ang data sets of bacterioferritin at pH 9.0 and 9.3. Two data sets were collected on Alcohol dehydrogenase from Entamoeba histolitica at 2.0 and 1.8 Ang. resolution (all previous attempts to collect this protein had resulted in only 3.2 Ang data). A 1.7 Ang data set of an important streptavidin mutant was also collected, in addition to a series of high resolution Ferredoxin measurements which reveal initial stages of the radiation damage in this protein.</p> <p>We believe that this session was particularly fruitful for two main reasons. The first, and the most obvious is that we were already familiar with both the station and its working procedures. Secondly there was a break of one day between our shifts due to scheduled maintainance, which aided tremendously our overall work effectiveness. We were able to both back up and process data during this off time, as well as return to data collection the next day fully rested.</p> <p>Our second session in this time was in mid February. Despite severe difficulties with the beam at that time (only 10% intensity on the station ID14-3 and a loss of shifts to other users on ID14-1 and problems with beam focus on ID14-1) important and useful data were collected. A full 4.17 Ang data set of the complete Reaction center and a 1.7 Ang data set from a cellulosomal cohesin domain.</p>

Visits made to the ESRF

Date(s) of visits	Beamline	No. of Shifts	Short Summary of each Visit
1. 4-7 December 2000	ID14-1	6	Very effective data collection, friendly setup of the station, good interaction with the personnel.
2. 12-14 February 2001	ID14-3 ID14-1	3 2	Successful tests of photosystem I crystals. Two complete data sets from photosystem I have been collected. Resolution was observed to 4 Ang, data collected to 4.7 Ang