



## Experiment Report Form

**The double page inside this form is to be filled in by all users or groups of users who have had access to beam time for measurements at the ESRF.**

Once completed, the report should be submitted electronically to the User Office using the **Electronic Report Submission Application:**

<http://193.49.43.2:8080/smis/servlet/UserUtils?start>

### ***Reports supporting requests for additional beam time***

Reports can now be submitted independently of new proposals – it is necessary simply to indicate the number of the report(s) supporting a new proposal on the proposal form.

The Review Committees reserve the right to reject new proposals from groups who have not reported on the use of beam time allocated previously.

### ***Reports on experiments relating to long term projects***

Proposers awarded beam time for a long term project are required to submit an interim report at the end of each year, irrespective of the number of shifts of beam time they have used.

### ***Published papers***

All users must give proper credit to ESRF staff members and proper mention to ESRF facilities which were essential for the results described in any ensuing publication. Further, they are obliged to send to the Joint ESRF/ ILL library the complete reference and the abstract of all papers appearing in print, and resulting from the use of the ESRF.

Should you wish to make more general comments on the experiment, please note them on the User Evaluation Form, and send both the Report and the Evaluation Form to the User Office.

### **Deadlines for submission of Experimental Reports**

- 1st March for experiments carried out up until June of the previous year;
- 1st September for experiments carried out up until January of the same year.

### **Instructions for preparing your Report**

- fill in a separate form for each project or series of measurements.
- type your report, in English.
- include the reference number of the proposal to which the report refers.
- make sure that the text, tables and figures fit into the space available.
- if your work is published or is in press, you may prefer to paste in the abstract, and add full reference details. If the abstract is in a language other than English, please include an English translation.



	<b>Experiment title:</b> Structural studies on outer membrane protein	<b>Experiment number:</b> LS-1941
<b>Beamline:</b> ID14_2	<b>Date of experiment:</b> from: 21.04.01 to: 23.04.01	<b>Date of report:</b> 20.08.01
<b>Shifts:</b> 48 hours	<b>Local contact(s):</b> Dr. Hassan Belrhali	<i>Received at ESRF:</i>
<b>Names and affiliations of applicants (* indicates experimentalists):</b> <b>*Susan Buchanan, *Wyatt Yue</b> Birkbeck College Department of Crystallography Malet Street London WC1E 7HX UK		

## Report:

We have continued diffraction studies on an *E. coli* iron transporter (an integral outer membrane protein). A native data set to 2.3 Å resolution has previously been collected on ID29 in Feb. 2001. This time 2 more native data sets are collected from frozen crystals of the same conditions. They diffracted to 2.1 Å and 3.0 Å resolution. Images were indexed with Mosflm, and scaled with SCALA, and found to have the symmetry of space group P2<sub>1</sub>2<sub>1</sub>2 as before, with similar unit cell constants  $a=117.4$ ,  $b=89.6$ ,  $c=96.0$  Å. Estimation of  $V_M$  indicates that the asymmetric unit contains one transporter, corresponding to a solvent content of 58.9%.

Solution of the structure by molecular replacement so far using the crystal structures of two distantly-related iron transporters in *E. coli* (~ 18% sequence identity) has not been successful. The selenomethione derivative of the protein has been produced to pursue MAD experiments. Crystals have been obtained, which were subject to preliminary diffraction analysis in this trip. They diffracted to 3.8 Å resolution, but the anisotropic nature of the diffraction and the very high mosaicity have made indexing and processing difficult. Improvement on the Semet crystal quality is necessary.

For the second *E.coli* outer membrane transporter, preliminary diffraction of the selenomethionyl derivative was performed on beamline ID29, which diffracted to 8Å resolution. Currently we are working on improving the diffraction properties of the crystals.