EUROPEAN SYNCHROTRON RADIATION FACILITY

INSTALLATION EUROPEENNE DE RAYONNEMENT SYNCHROTRON

ESRF

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.

ESRF	**Experiment title:** Structural characterisation of oxidoreductases dependent on flavin cofactors	**Experiment number**: 16-01 - 762
Beamline: BM16	**Date of experiment**: from: 2nd to: 3rd September	**Date of report**: 3-11-2010
Shifts: 3	**Local contact(s)**: Mickael Cherrier	*Received at ESRF:*

Names and affiliations of applicants (* indicates experimentalists):

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BIFI - Edificio I + D

Report:

- Ferredoxin-NADP(H) reductase (Fpr/FNR) from *Xanthomonas axonopodis:* we managed to get the structure at home by molecular replacement. At the end phasing was not necessary and we only need to grow better crystals. We took some of the crystals to the ESRF and we managed to get better resolution, 1.5 A. At the moment we are carrying out kinetic data to complement the structure and hopefully publish the data.
- Ferredoxin-NADP(H) reductase (FNR) from pea: We managed to get a good diffraction for one of the mutants, L268V (involved in binding to the flavin cofactor). The rest of the mutants diffracted very bad (4 A or higher). We also took other type of mutants of FNR from *Anabaena*, S59A (mutant involved in the transfer of electrons in this type of proteins). We had very good diffraction from this crystal, 1.5 A. Both of these two proteins have been solved by molecular replacement.
- Flavodoxin with complex C4: We also get the structure of this protein but unfortunately we did not have the inhibitor (C4). We are trying at the moment soaking experiments with this compound. The rest of the compounds cocrystallised with this protein showed twinning and we could not index them.
- New protein that we managed to get crystals while they initially cancelled our first trip (first trip was at the end of July) due to problems with the beamline. This is a glycosyltransferase from which I am trying to apply for ID23-1 at the moment. This enzyme is involved in glycosylation of proteins such as trombospondin and would be a new crystal structure. For this reason I did some work in BM16 with these initial crystals soaked with different heavy atoms. I did not see any anomalous signal with any of these trials, and this is why I need to apply again to the ESRF for a tuneable beamline. Because I have tried so far around 35 different heavy atom soaks, I would like to carry out UV-RIP experiments in ID23-1.

The trip to BM16 was good because we managed to get better resolution for a new protein and also the structures of two different mutants. At the moment I need to use tuneable beamline to be able to solve the glycosyltransferase I mentioned above.