EUROPEAN **S**YNCHROTRON **R**ADIATION **F**ACILITY

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 Analysis of the Dynamin GTPase	**Experiment number**: LS-1615
Beamline: ID13	**Date of experiment**: from: 26.06.00 to: 27.06.00	**Date of report**: 29.08.00
Shifts: 3	**Local contact(s)**: Manfred Burghammer	*Received at ESRF:*

Names and affiliations of applicants (* indicates experimentalists):

F. Jon Kull*, MPI Heidleberg

Hartmut Niemann*, MPI Heidelberg

Report:

This is the report for the second half of 6 shifts allocated for investigating crystals of dynamin A from *Dictyostelium discoideum*. As no improvement was achieved for the crystals of dynamin A, we crystallized a mammalian dynamin and obtained a 4 Å data set during the first 3 shifts (24.02.00 to 25.02.00; see previous report).

Within the three shifts reported here, we screened about 20 crystals of the mammalian dynamin that were grown with different additives. The biggest crystals were somewhat bigger than the crystals tested in February and measured about 40 x 40 x 40 µm. We were able to identify crystals that showed diffraction spots to better than 3 Å and collected data on them. They initially yielded useful diffraction data to 3.1 Å, however, beam damage was severe (after only 70 sec of total exposure time the limit for useful data went down to 3.3 Å, after another 60 sec. to 3.5 Å). Hence, the complete data set assembled from sweeps collected on several crystals does not reach the crystal's initial resolution of 3.1 Å. The current native data set for the mammalian dynamin was cut at 3.3 Å. We also started screening for heavy atom derivatives, but none has been identified so far.

As mentioned above,the crystals of full length dynamin A from *Dictyostelium discoideum* could not be improved despite of considerable effort. Besides crystallizing the mammalian dynamin we followed a second approach in order to solve a dynamin structure. We expressed and crystallized a functional domain of dynamin A from *Dictyostelium.* These crystals are

thin (less than 10 μm thick) plates. The crystals initially diffracted to better than 3 Å, but again suffered strongly from beamdamage. Due to the low symmetry it was necessary to collect a large number of frames. To compensate for beam damage several crystals were used and the crystal was shifted to a new position after about 20 frames. A complete data set to 3.2 Å was assembled from these sweeps. We determined the unit cell (a=54.8 b=62.8 c=181.5 α=90 β=94.4 γ=90) and the space group ($P2_1$).