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 via the User Portal:

https://wwws.esrf.fr/misapps/SMISWebClient/protected/welcome.do

Reports supporting requests for additional beam time

Reports can 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 studies on RNA polymerase elongation ccomplexes bound to transcription factors**	**Experiment number**: MX-2026
Beamline: CM01	**Date of experiment**: from: 23/11/2018 to: 25/11/2018	**Date of report**: 26/11/2018
Shifts: 9	**Local contact(s)**: Michael Hons	*Received at ESRF:*

Names and affiliations of applicants (* indicates experimentalists):

Albert WEIXLBAUMER, PhD

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Report:

We have applied for 9 shifts on the Titan KRIOS to collect data on a functional RNA polymerase elongation complex in August 2018. We were scheduled in November 2018 (23/11 – 25/11). Our local contact was Michael Hons. Two users from our team travelled to the ESRF.
We brought several grids from two different batches with different sample concentrations. We pre-screened grids on our Polara microscope, which were frozen under identical conditions. Thanks to the outstanding support by our local contact we were able to screen the grids on the first day, identify a good one, and select enough squares and holes to collect data that gave us almost 5000 images over the course of three days of data collection.

We had collected on a related RNA polymerase elongation complex before but needed additional data on a mutant to be able and compare it to the wild-type complex. We brought twelve grids frozen under different conditions and Michael Hons, our local contact, helped us screen 8 grids on the first day. After identifying a good one he selected all the holes for data acquisition and everything went very smooth. On the second day of data collection (a Saturday), he suggested to change the strategy because he noticed the quality was not as good as could be. After confirming the microscope alignment Michael and the users from my team decided to collect on thinnner ice to improve signal to noise. Michael helped us to do this and continued to select holes after the users had to leave to catch their train. We are very grateful for the excellent support that we received.
We would not have been able to get the quality and size of the dataset without his support. We have now initiated data transfer and will proceed to process as soon as we receive the complete dataset. We have collected data from closely related complexes at Titan KRIOS microscopes equipped with K2 cameras at IGBMC, Strasbourg, Biozentrum Basel, Switzerland, EMBL - Heidelberg, Germany, and NeCEN, the Netherlands and at the ESRF – one of our past ESRF datasets gave us the highest resolution we have obtained so far and so we are excited about this one.
If possible, I will update this report as soon as we know more about the final reconstruction.