EUROPEAN SYNCHROTRON RADIATION FACILITY

INSTALLATION EUROPEENNE DE RAYONNEMENT SYNCHROTRON

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:** Type IVSSb Secretion Systemb	**Experiment number**: Mx1782
Beamline: ID30B	**Date of experiment**: from: 11/06/16 to: 12/06/16	**Date of report**:
Shifts:	**Local contact(s)**:	*Received at ESRF:*

Names and affiliations of applicants (* indicates experimentalists):

Dr Nikos Pinostis: Waksman Group.

Report:

A major strategy for the pathogenic bacterium *L. pneumophila* to survive involves the utilization of a type IV secretion system to secrete effector proteins to the infected organism. These proteins interfere with the cellular functions of the host organism to promote the bacterium survival and replication. In a continuation of our previous work on effector proteins we focused on the structural determination of the effector *WipB* a two domain protein comprising an N-teminal catalytic domain and an unknown C-terminal domain that possibly mediates protein-protein interactions in the host organism. In parallel we continued the screening for the target *lpg3000* which is a predicted membrane protein.

A native data set for the phosphatase domain from *WipB* was collected elsewhere to a maximum resolution of 2.4 Å, processed to the $P2_1$ space group. The aim of our work was to determine the structure by SAD/MAD phasing. Several data-sets were collected all belonged in the orthorhombic space-group and resolution of about 3.0 Å. Unfortunately, due to the bad quality of the crystals no solution was found as also it was not possible to grow crystals in the same space group as the native data.

For the *lpg3000* we screened crystals grown under different crystallization conditions and methods, focusing on different detergent and additive combinations. Overall crystals show high anisotropy in their diffraction properties suggesting a 2D lattice. Under specific detergent combinations the resolution is improved from 8 Å to 6 Å with a unit cell a=b=343.34, c=77.60 Å and space group P6222. Further optimization is ongoing focusing on different constructs and combination of detergents.