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

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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:** Crystal structure of the Lactococcus lactis formamidopyrimidine-DNA glycosylase bound to a substrat analogue-containing DNA	**Experiment number:** **30-01-656**
Beamline: BM30A	**Date of experiment:** from: 11/07/2004 to: 12/07/2004	**Date of report:** 20/09/2004
Shifts: 3	**Local contact(s):** Laurence SERRE	*Received at ESRF:*

Names and affiliations of applicants (* indicates experimentalists):

Franck COSTE* (CNRS, CBM Orléans, IR2)
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Report:

Formamidopyrimidine-DNA glycosylase (Fpg) is a DNA repair enzyme which excises oxidized purines such as 7,8-dihydro-8-oxoguanine (8-oxoG) and 2,6-diamino-4-hydroxy-5-formamidopyrimidine (FapyG) from damaged DNA.

After having solved the structure of a complex between a mutant Lactococcus lactis Fpg protein and a cFapydG-containing DNA, we focused our attention on the wild-type enzyme. Diffracting crystal were obtained but the hightest resolution obtained in-house was about 2.8Å. The 3 allocated shifts allowed us to test about 25 crystals and to collect 4 datasets. The best dataset was used to solve the structure of our Protein/DNA complex at 1.95Å resolution. The high resolution and the good data quality gave us a clear view of all the residues involved in the damaged base recognition. The missing loop αF-β9 is clearly seen in this structure (Figure 1).

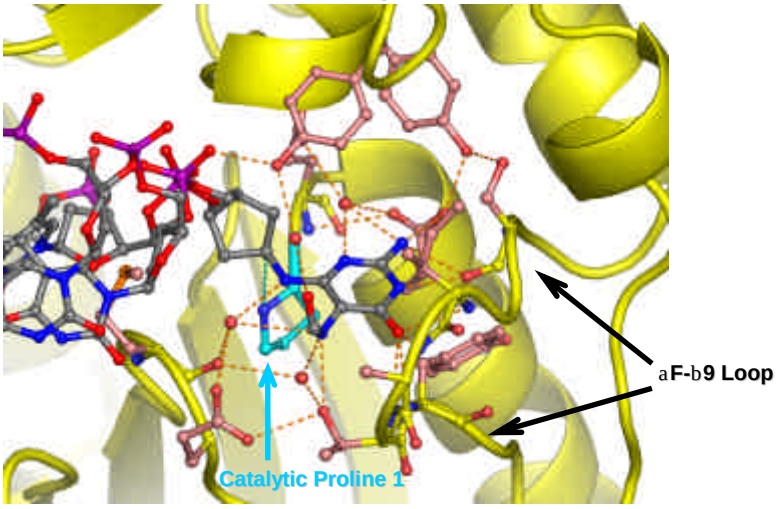

Figure 1: cFapydG recognition complex active site.

The Fpg backbone is in yellow, main chains and side chains of indicated Fpg residues are in yellow and pink, respectively. Covalent links are indicated by ball-and-sticks representation. Carbons of DNA are in grey, oxygen atoms in red, nitrogen atoms in blue, phosphate atoms in dark magenta and sulfur atoms in orange. The water molecules (wat) mediating interactions between Fpg residues and the *c*FapydG functional groups are indicated by red small spheres. Inferred hydrogen bonds are shown as orange dashed lines.