

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.

**Experiment title:**

Solution structure of human secretory component

Experiment number:

WT-41, WT-81

Beamline:

ID02

Date of experiment:

4 Dec 2006 (1 day)

Date of report:1st Sep 2007**Shifts:**

3

Local contact(s): Dr Stephanie Finet*Received at ESRF:***Names and affiliations of applicants (* indicates experimentalists):**Alexandra Bonner^{1*}, Clémentine Perrier², Blaise Corthésy² and Stephen J. Perkins^{1*}¹ Department of Biochemistry and Molecular Biology,
University College London, U.K.² Centre Hospitalier Universitaire Vaudois
CH-1011, Lausanne, Switzerland**Report:**

Solution structure of human secretory component: implications for biological function

A. Bonner, C. Perrier, B. Corthésy and S. J. Perkins, *J. Biol. Chem.* **282, 16969 - 16980.**

Abstract: Secretory component (SC) in association with polymeric IgA (pIgA) forms secretory IgA (SIgA), the major antibody active at mucosal surfaces. SC also exists in the free form, with innate-like neutralizing properties against pathogens. Free SC consists of five glycosylated variable (V)-type Ig domains (D1 to D5), whose structure was determined by X-ray and neutron scattering, ultracentrifugation and modelling. With a radius of gyration of 3.53-3.63 nm, a length of 12.5 nm and a sedimentation coefficient of 4.0 S, SC possesses an unexpected compact structure. Constrained scattering modelling based on up to 13,000 trial models shows that SC adopts a J-shaped structure in which D4 and D5 are folded back against D2 and D3. The seven glycosylation sites are located on one side of SC, leaving known IgA-binding motifs free to interact with pIgA. This work represents the first analysis of the three dimensional structure of full-length free SC, and paves the way to a better understanding of the association between SC and its potential ligands, i.e. pIgA and pathogenic-associated motifs.