



ESRF

**Experiment title:**  
Structure determination of GLT-6, the first  
alpha-glucuronidase crystallized to date.

**Experiment  
number:**  
LS-1200

**Beamline:**  
BM14

**Date of experiment:**  
**from:** Apr. 5, 1998      **to:** Apr. 6, 1998

**Date of report:**  
Aug. 31, 1998

**Shifts:**  
4

**Local contact(s):** Dr. Andrew Thompson (BM14)  
Dr. Vivian Stojanoff (BM14)

*Received at ESRF:*

**Names and affiliations of applicants (\* indicates experimentalists):**

Prof. Gil Shoham and Ms. Anna Teplitski  
Institute of Chemistry  
The Hebrew University of Jerusalem  
Jerusalem 91904  
ISRAEL

**Report:**

During April 1998 we used a beamtime "window" on ESRF/BM14 beamline, together with our local collaborators at ESRF (V. Stojanoff and A. Thompson) in order to test the feasibility of synchrotron and MAD data collection on native and Sel-Met-derivative crystals of GLT-6. During this beamtime we managed to perform the following experiments:

1. Freezing experiments enabled the determination of optimal conditions for a flash-cooling (95°K) diffraction experiments on GLT-6 crystals.
2. A complete native data set (2.6 Å res.) was collected for GLT-6 at 95°K.
3. A partial selenium MAR data set was collected on the Sel-Met derivative of GLT-6 at medium resolution (about 2.8 Å).

Experiment (1) enabled us to use the strong beam of BM14 for a full and extended data collection sessions on the currently available GLT-6 crystals - a required condition for a MAD synchrotron experiment.

The full data set collected for native GLT-6 at 2.6 Å resolution (2) demonstrated the high quality of the crystals and their potential to be used for a full structural analysis. This data will be used also as the reference data for the following phasing experiments.

The partial selenium MAD data (3) showed that the 3c signal of the Sel-Met derivative of GLT-6 is defined and significant. This experiment indicated that such data could potentially be used for phasing of the crystallographic data, provided that a more complete MAD data of significantly higher resolution are measured.

These 3 experiments set the ground and demonstrate the need for the next round of synchrotron experiments on GLT-6 as detailed in the current application for beamtime at ESRF.