ESRF	Experiment title: Thermoacidophilic Maltose-binding protein from *Alicyclobacillus acidocaldarius*. *BAG: Uppsala (II)*	**Experiment number**: LS-1804
Beamline: ID14-EH1	**Date of experiment**: from: 02 Dec 2000 to: 04 Dec 2000	**Date of report**: 28 Aug 2001
Shifts: 1 of 6	**Local contact(s)**: Dr. St phanie MONACO	*Received at ESRF:*

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Report:

Binding of a small molecule ligand to a specific periplasmic receptor (binding protein) allows it to interact with membrane proteins that convey either the ligand, or the information about its presence, into the cell. We have begun work with an MBP obtained from the Gram-positive thermoacidophilic organism *Alicyclobacillus acidocaldarius.* Since the cytoplasm of acidophilic organisms is maintained at neutral pH, MBP's location on the outside of the cell makes it one of few actual examples of an acid-stable protein, and so will add to our knowledge of such proteins.

We had previously collected data for the closed ligand-bound form of this MBP at 1.5 resolution, but had failed in the solution of the structure by molecular replacement, using the related *E. coli* MBP. A reasonable idea on why this had failed was the fairly large number of reflections missing in the low resolution shells of that data set (only 75% complete). The goal during this session was to collect a full, high-quality data set at a lower resolution; a complete 2.4 data set was collected, with statistics.