ESRF	**Experiment title:** Test on truncated hemoglobins complexed with heme ligands	**Experiment number:** **LS1803**
Beamline: ID14-1	**Date of experiment:** from 24-11-2000 to 25-11-2000	**Date of report:** 14-06-01
Shifts to BAG: 9	**Local contact(s):** Hassan BELRHALI	*Received at ESRF:*

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Truncated hemoglobins (trHbs), found mostly in pathogenic and non-pathogenic unicellular organisms, display 110-130 residues per heme, *i.e.* they are about 20% smaller than most vertebrate Hbs, with very low (<15%) sequence identities to conventional Hbs. We previously determined the 3D-structures of three truncated hemoglobins from *Paramecium caudatum*, the unicellular green alga *Chlamydomonas eugametos* and from *Mycobacterium tuberculosis* (1,2), showing for the first time that TrHbs are based on a striking modification of the globin fold, since A, D and F helices are missing, together with part of the H helix. This observation is unprecedented in the field of globin structures, the F-helix having been considered so far as integral part of the heme proximal side.

We are now interested in better understanding the heme-Fe atom binding properties of these trHbs, to relate them to the proposed pathogen defense mechanisms.

In a first series of soaking experiments, run under the present experiment, the damage to both ferric and ferrous heme trHbs was substantial, such that no useful data set could be collected on the complexed proteins.

References:

(1) Pesce, *et al.*, (2000) *EMBO J.*, **19**, 2424-2434.

(2) Milani, *et al.*, (2001) *EMBO J.*, in press.

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