



	<b>Experiment title:</b> Frankfurt BAG	<b>Experiment number:</b> MX-135
<b>Beamline:</b> ID14 1	<b>Date of experiment:</b> from: 05-12-2003 to: 06-12-2003	<b>Date of report:</b> 28-Feb-2004
<b>Shifts:</b> 2/9	<b>Local contact(s):</b> Ms. Sofia MACEDO	<i>Received at ESRF:</i>
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## Report:

### **Quinol:Fumarate-Reductase from *Campylobacter jejuni* (Mauro Mileni\*, C. Roy D. Lancaster)**

Quinol:fumarate reductase (QFR), couples the reduction of fumarate to succinate to the oxidation of quinol to quinone, in a reaction opposite to that catalysed by mitochondrial complex II (succinate dehydrogenase). QFR from the *Campylobacter jejuni* consists of three protein subunits, FrdA, FrdB, and FrdC. Crystals of this bioenergetically important membrane protein complex have recently been obtained and are either of the triclinic space group P1 with unit cell dimensions of  $a = 130.1 \text{ \AA}$ ,  $b = 130.9 \text{ \AA}$ ,  $c = 164.2 \text{ \AA}$ ,  $\alpha = 108.6^\circ$ ,  $\beta = 90.6^\circ$ , and  $\gamma = 118.5^\circ$  or of orthorhombic space group  $P2_12_12_1$  with unit cell dimensions of  $a = 130 \text{ \AA}$ ,  $b = 175 \text{ \AA}$ ,  $c = 203.5 \text{ \AA}$ . During the shift available for this subproject, we tried (unsuccessfully) to obtain a native data set with improved resolution compared to the  $3.6 \text{ \AA}$  high resolution limit of the data recorded at EH1 on 1<sup>st</sup> Aug.

**Cytochrome oxidase from *Acidianus ambivalens* (Chitra Rajendran\* Mauro Mileni\*, Gregor Madej\* and Hartmut Michel)**

The cytochrome oxidase aa3 from *Acidianus ambivalens* was purified from the natural source and the protein was crystallised. The thermoacidophilic archaeon *Acidianus ambivalens* lacks alternative oxidase and has only a type heme in the respiratory chain under aerobic condition and like other quinol oxidase, it lacks Cu<sub>A</sub> center which is thought to be the entry site for the electrons from cyt c. These unique characters makes it a promising candidate for the structure – function study. During the shift available to this project, initial measurements were performed on ESRF ID14 1 to check the quality of the crystals. The crystal was about 0.5 mm x 0.5 mm x 0.4 mm and diffracted to about 5 Å. Experiments to improve the quality of the crystal are in progress.