ESRF	**Experiment title:** **Mitochondrial ADP/ATP carrier** **Studies of motor kinesins.**	**Experime number** LS1924
Beamline: ID14EH1	**Date of experiment**: from: 12 April 2001 to: 13 April 2001	**Date of rep** 21 August 2
Shifts: 3	**Local contact(s)**: S. Kozielski	*Received at E*

Names and affiliations of applicants (* indicates experimentalists):

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Report:

We tested 24 crystals of the **mitochondrial ADP/ATP carrier**. The goal of this experiment was to test various crystallisation conditions and to search for good diffracting crystals in order to collect a native data set (the crystals that were tested previously diffracted maximum to 3.5 Å and showed very high mosaicity). We characterised 3 different crystal forms, 2 orthorhombic obtained in the same crystallisation batch, an 1 monoclinic. The best crystals diffracted to 2.5 Å with a mosaicity less than 1°. We collected 2 complete data sets for the orthorhombic crystals and 1 partial data set for the monoclinic crystal (see statistics below). We also screened some heavy atom derivatives obtained by

soaking. A few derivative diffracted to 3 or 4 Å but with a high mosaicity and could not be integrated.

Unit cell (Å) and space group	Resolution (Å)	Rsym (%)	Completeness (%)	redundancy
85.7 86.4 101.5 $P2_12_12_1$	3.1	9.6	96	3.4
86.8 85.2 48.1 $P2_12_12_1$ or $P2_12_12$	2.5	6.5	94	3.5
66.7 90.0 66.9 β=110.8° $P2_1$	2.8	4.4	50	2.3

Machine problems:

1- the beam was shut down for 2 hours

2- During the experiment the temporary files stored on the local PC connected to the detector were not deleted, therefore at 10pm PRODC stopped and could not collect any data. Thanks to the help of Ed Mitchell we could start the experiment again at 11.30 pm.

In total we lost 3h30.

Studies of motor kinesins.

Kinesin is a microtubule associated motor protein and plays many essential roles within eucaryotic cell. Very few structures of functional dimeric kinesin are presently known. Crystals of one functional dimeric kinesin from Drosophila, dk365, which plays a role in the axonal transport, were tested. They diffracted up to 4.5 Å . The unit cell is a= 411.9 c= 88.9 Å, probable space group $P3_1$.The beam has been interrupted during 2 hours of the shift dedicated to that experiment. Data collection was performed only on 17 ° instead of the 60° required for full completion. (Distance crystal-detector of 300 mm, increment of 0.25 ° per image, time exposure of 30 s).The treatment of the data led to the following results :

Resolution 40-5 Å,119504 measured reflexions, 19728 unique reflexions, completude 27 %, I/_(I) 6.4, Rsym 7.5 %.

We are working on the improvement of crystallization conditions.