

**Experiment title:**

Mouse stromelysin-3

Experiment**number:**

LS 1364

Beamline:

ID14-EH2

Date of experiment: 06.02.1999

from: 7.00 am

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Shifts:**Local contact(s):****Ed Mitchell***Received at ESRF:***03 MAR. 1999****Names and affiliations of applicants (* indicates experimentalists):**

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Report:

Stromelysin-3 (ST3) belongs to the family of matrix metalloproteinases (MMPs) which are zinc-dependant extracellular enzymes. The ST3 is implicated in both physiological and pathological processes such as amphibian metamorphosis, mammalian embryonic development, mammary gland apoptosis, wound healing and invasive carcinomas.

We crystallised a fragment of 20kDa that contains the catalytic domain of the mouse ST3 plus some additional amino-acids on the C-terminal part. The crystals ($20\mu\text{m} \times 20\mu\text{m} \times 50\mu\text{m}$) were obtained by the hanging-drop vapour-diffusion method at 4°C in the presence of an inhibitor. They were cryoprotected in liquid ethane in the presence of ethylene-glycol. We are trying to improve the crystal size.

A partial data set has been measured on ID14-EH2 with a resolution of 3\AA (resolution limit of 2\AA). The crystals belong to the orthorhombic space group and have following cell constants: $a=139.63\text{\AA}$, $b=140.00\text{\AA}$, $c=91.44\text{\AA}$, $\alpha=90^\circ$, $\beta=90^\circ$, $\gamma=90^\circ$.

In order to determine the structure of the crystallised fragment, we will need derivatives because there are between 6 molecules ($V_m=3.9\text{\AA}^2/\text{Da}$ with 68% solvent) and 12 molecules ($V_m=1.98\text{\AA}^2/\text{Da}$ with 38% solvent) per unit cell.

For this project, we will need 3 shifts to collect a full native data set up to 2\AA and heavy atoms (Pt) derivatives. If we improve the crystal size, we could use MAD for phasing (ST3 contains 2 zinc atoms).