



Experiment title:Crystal Structure of 20s
Proteasome from Bovine liver

**Experiment
number:**
Is-977

Beamline:
ID02B

Date of experiment:
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Shifts:6

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Report:

We tried to collect the intensity data of native 20s proteasome . Out of about 30 crystals inspected by X-ray diffraction experiment , three crystals were subjected to oscillation experiment under 100K and 0.996 Å wavelength .

These data sets were :

No. 1. Total of 90 oscillation shots were obtained . The camera length was 450 mm , the exposure time was 30 sec , the oscillation angle was 1.0 degree and the number of oscillations was 1 way . We tried to process these data by program DENZO in our laboratory , but the resolution was lower than 6 Å and these spots are so poor that we can't index .

No.2 . Ninety-two frames were taken . The camera length was 400 mm , the exposure time was 30 sec exposure , the oscillation angle was 0.5 degree at first , and from 46th frame , we changed the exposure time to 60 sec and both of these data were collected by 1 way oscillation . The crystal was small and quickly deteriorated by X-ray . However first 20 frames (10 degree) contains reflections up to 2.5Å resolution . We processed was 49 frames . After scaling data , we got 3.5 Å resolution data at 44.8% completeness . However , it is far from our goal.

No.3 . We took approximately 60 oscillation shots The camera length was 450 mm , the exposure time was 20 sec , oscillation angle was 0.75 degree and the number of oscillations was 1 way . 38 frames were useful as data due to noise because of detector trouble. The resolution of the initial frames in this data set was to about 2.7 Å . And then the resolution was getting worse . However the crystal was better than that of No.2 in respect of X-ray damage .

The No.2 and No.3 data sets were processed by program DENZO and were merged by SCALEPACK.

In the No.2 data set , total of 43,022 independent reflections with 44.8% completeness and 9.4% R_{merge} at 3.5 Å resolution were obtained from 309,861 observed reflections . No.3 data set produced 32,976 independent reflections with 34.4% completeness and 8.0% R_{merge} at 3.5 Å resolution .

Total 550,055 of observed reflections of No.2 and No.3 data sets were merged together into 58,488 independent reflections with 61.0 % completeness and 10.1 % R_{merge} .

Although our crystals are quickly deteriorated by X-ray , the crystals diffract X-ray up to 2.5 Å resolution at initial 20 shots of 0.5 degree oscillation photograph . Thus nine crystals are needed to collect full data set at high resolution . we would like to use the beam line again to obtain complete data set at 2.5 Å resolution .