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| | Experiment title: Structural studies of protein-protein interactions in model oligomeric proteins. | Experiment number: LS-1685 |
| Beamline ID-14.3 | Date of experiment: April 7 th and June 21 st , 2000 | Date of report: August 28 th <i>Received at ESRF:</i> |
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Report:

This project aims at studying the structural determinants of protein-protein association in different oligomeric proteins (model systems) using a combination of X-ray crystallography, molecular modeling, site-directed mutagenesis and protein binding studies.

During the last six months, we have collected various diffraction data sets from wild-type or mutant forms of three proteins: dihydrofolate reductase (DHFR), glyceraldehyde-3-phosphate dehydrogenase (GPDH) from insect cells, and the constant domains (FC) of distinct immunoglobulin isotypes.

Data collection is summarized in table 1. All the crystal structures have been solved using molecular replacement techniques, and the crystallographic refinements are currently in progress (except for the DHFR crystal form collected at 0.9Å resolution, for which the data processing is preliminary and should be improved before starting the crystallographic refinement at atomic resolution).

| Crystal form | Beam-line | λ (Å) | No. of images | Space group | a (Å) | b (Å) | c (Å) | Data resolution (Å) | Data complet. (%) | R _{merge} (%) | Multiplicity |
|---|-----------|---------------|---------------|---|-------|-------|-------|---------------------|-------------------|------------------------|--------------|
| DHFR (single mutant form- dimer) | ID-14.3 | 0.931 | 190 | P2 ₁ 2 ₁ 2 ₁ | 39.53 | 44.99 | 85.44 | 2.5 | 98.1 | 8.3 | 6.6 |
| DHFR (two single mutant forms – heterotetramer) | ID-14.3 | 0.931 | 100 | I422 | 67.55 | 67.55 | 52.02 | 1.4 | 99.3 | 2.9 | 7.2 |
| DHFR (two single mutant forms – heterotetramer) | ID-14.3 | 0.931 | 190 | I422 | 67.55 | 67.55 | 52.02 | 0.9 (*) | - | - | - |
| FC (wild-type) | ID-14.3 | 0.931 | 100 | P2 ₁ 2 ₁ 2 ₁ | 49.38 | 79.10 | 137.7 | 2.1 | 98.3 | 7.3 | 3.8 |
| GPDH (wild-type) | ID-14.3 | 0.931 | 180 | F222 | 97.34 | 101.7 | 165.0 | 2.8 | 99.9 | 6.2 | 7.3 |

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