



## BAG Beam time Progress Report

This represents a summary of the BAG progress in the reporting period, and is **in addition** to the standard ESRF report sheet for each project which will be used for the Review of the BAG.

**BAG Title**

**Allocation Period**

**List of publications resulting from ESRF beam time**

### Global Summary

#### DNA structure of possible Holliday Junctions .-

The four-way DNA Junction, also called Holliday Junction, is the intermediate in the recombination processes. This junction is the substrate of recombination enzymes that promote branch migration. Recently we have determined the crystal structure of a four-way DNA junction by multiwavelength anomalous diffraction, and refined it to 2.16 Å resolution (Ortiz-Lombardia M. et al.1999). The structure has two-fold symmetry, with pair wise stacking of the double-helical arms, which form two continuous helix that run antiparallel, cross in a right-handed way, and contain two G-A mismatches.

This is the first time a DNA Holliday Junction has been solved. Now we want to explore the possibility to get new Holliday Junctions without mismatches. We have two different sequences two of them with the same unit cell than the Holliday Junction already published, and another DNA fragment with a different unit cell but also with possibilities to be a DNA four way Junction.

- Ortiz-Lombardia M., Gonzalez A., Eritja R., Aymami J., Azorin F. & Coll M.(1999) Crystal Structure of a DNA Holliday Junction. *Nature Structural Biology*. Vol.6, n. 10, 913-917.

## Visits made to the ESRF

Date(s) of visits	Beamline	No. of Shifts	Short Summary of each Visit
1. 13-15 November 1999	BM-30	3	Two data sets of different DNA fragments
23-24 February 2000	ID14-2	3	One data set of a DNA fragment.