| ESRF | Experiment title: DNA TOPOISOMERASE IV | Experiment number: LS-334 |
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| **Beamline:** D14-BL19 | **Date of Experiment:** from: 15/9/95 to: 16/9/95 | **Date of Report:** 27/2/96 |
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**Report:**

DNA topoisomerases are essential for the replication of DNA. There are four topoisomerases in *E.coli*. We have crystallised the E subunit of topoisomerase IV. This protein has a subunit molecular weight of 70kDa. The crystals are orthorhombic, P212121 with unit cell dimensions a = 92.6Å, b = 119.1Å, c = 135.3Å, and contain one dimer in the asymmetric unit. Native data have been collected to 2.8Å resolution at Daresbury. Part of the structure has similarity to the N-terminal region of the DNA gyrase B protein and a molecular replacement solution was found to position that part of the structure. However, we required heavy atom data to improve the maps and get phase information for the remainder of the structure.

The beamtime allocated during 1995 was used to collect data from selenomethionine substituted crystals. Data were obtained from very small crystals to a resolution of 3Å. These data were not used for MAD phasing, but were useful as a conventional derivative but with good anomalous measurements. The selenium sites also positioned all of the methionine residues in the structure and facilitated the model building. The refinement is progressing well, and the structure should be completed in the very near future.