

	<b>Experiment title:</b> Structural studies of the Block 2 region of MSP1 from <i>Plasmodium falciparum</i> .	<b>Experiment number:</b> LS-1685
<b>Beamline:</b> ID14-3	<b>Date of experiment:</b> 19.6.2000	<b>Date of report:</b> 29.8.2000
<b>Shifts:</b> 1	<b>Local contact(s):</b> S. Monaco	<i>Received at ESRF:</i>
<b>Names and affiliations of applicants</b> (* indicates experimentalists): G.A. Bentley & D. Verger  Institut Pasteur, Paris		

### Report:

Block 2, the most polymorphic region of Merozoite Surface Protein 1 (MSP1) from *Plasmodium*, can be divided into three families, MAD1, K1 and RO33, by their cross-reactivity with anti-sera induced by infection with different lines of the parasite. As part of our study of MSP1 as a potential malaria vaccine candidate, Block 2 from the family RO33 (46 residues) has been crystallised as a fusion protein with Glutathione S-transferase (GST).

Two different crystal morphologies were obtained, needles and prisms, with dimensions  $\sim 0.2 \times 0.05 \times 0.05 \text{ mm}^3$  and  $\sim 0.15 \times 0.15 \times 0.1 \text{ mm}^3$ , respectively. Data measured from these two forms, however, gave essentially identical unit cells:

#### (a) needle form

Space group  $P2_12_12_1$ ,  $a=93.46 \text{ \AA}$ ,  $b=93.40 \text{ \AA}$ ,  $c=57.74 \text{ \AA}$ , 2 molecules of GST-Block 2 in the asymmetric unit.

$R_{\text{merge}} = 0.055$ , completeness = 100%, redundancy in reflections measured = 8.0

#### (b) prismatic form

Space group  $P2_12_12_1$ ,  $a=93.19 \text{ \AA}$ ,  $b=93.37 \text{ \AA}$ ,  $c=57.69 \text{ \AA}$ , 2 molecules of GST-Block 2 in the asymmetric unit.

$R_{\text{merge}} = 0.031$ , completeness = 96.4%, redundancy in reflections measured = 4.2

A preliminary model of the crystal structure was obtained using the known structure of GST from the fluke worm (PDB entry 1dug), and the atomic parameters are in the process of refinement.