

Crystallographic studies of the outer membrane receptor FpvA from *Pseudomonas aeruginosa*

Pseudomonas aeruginosa is an opportunistic human pathogen which infects injured, immunodeficient, or otherwise compromised patients. Under iron-limited conditions, the bacterium secretes a major siderophore: pyoverdine (PaA). PaA seems to play an important role in infection by competing with transferrin for iron in order to overcome the iron-withholding mechanism present in mammals. It is transported through the outer membrane of *P. aeruginosa* by FpvA.

We over-expressed and purified FpvA (MM: 86245) from *P. aeruginosa* and crystallized the receptor in presence of detergents in several crystallization conditions. Two datasets were collected on beamline BM30. Crystals diffracted beyond 4 Å resolution. The crystals used during the experiment showed a high mosaicity associated to a twinning. However, one dataset was processed at 4.3 Å resolution using MOSFLM and merged using SCALA. Statistics are given in Table 1.

Table 1: summary of the crystallographic data

Cell parameters (Å)	a= 175.1 b= 231.6 c= 232.3
Space group	C222 ₁
Solvent content (%)	73.2 or 46.3
Molecule per ua	3 or 6
Wavelength	0.9798
Resolution (Å)	4.3
Completeness (%)	99.5
Multiplicity	5.5
R _{sym} (%)	26.1

To date, the crystal structure of 4 siderophore receptors were solved using MAD method. We are trying to solve the phase problem using the molecular replacement and the atomic coordinates of these receptors. At this time, no solution was found and attempts to crystallize the selenomethionine substituted protein are underway.