

Crystallographic studies of the outer membrane heme receptor ShuA of the human pathogen *Shigella dysenteriae*.

Shigella dysenteriae is a human pathogen Gram- bacterium which uses iron from heme or from heme of heamoglobin to grow. The heme outer membrane receptor ShuA is involved in the heme transport across the outer membrane in *S. dysenteriae*. ShuA can transport heme or heme from hemoglobin after hemoglobin binding. The transport needs energy and involves interactions with TonB, a protein of the inner membrane.

To better understand the transport across the membrane and the heme recognition and transport, we cloned and experssed ShuA in *E. coli*. We purified and crystallized ShuA in several crystallization conditions using detergents.

More than 70 crystals have been tested. 1 data set has been collected using a crystal soaked with heme. The crystal diffrated the x-ray at very low resolution. The space group is P212121 with cell parameters $a = 77.369$ $b = 115.104$ $c = 117.428$. Cell parameters and space group are confirmed by indexing of a second dataset collected at 3.5 Å resolution using one crystal of the apo-protein.

Data at high resolution are necessary and a SeMet-substituted protein must be overexpressed to solve the problem using the MAD or SAD method.