ESRF	Experiment title: **Cellobiose dehydrogenases.** *BAG: Uppsala (II)*	**Experiment number**: LS-1804 divne
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Report:

Cellobiose dehydrogenases (CDH) is the only known class of extracellular flavocytochromes. It is capable to degrade lignocellulose both alone and but much more efficently together with lignin peroxidases and cellulases. Cellobiose dehydrogenases may form a vital redox link in lignocellulose degradation. The CDH clan can basically be divided into two groups: The acidophiles (represented by *Phaenerochaete chrysosporium*, *Trametes versicolor*, *Pycnoporus cinnabarinus*) and the thermophiles (represented by *Humicola insolens, Thielavia heterothallica*). The two groups have sequence identity in the 25-30% range.

We have determined and published the structure of the haem domain of CDH from *Phaenerochaete chrysosporium (P.c.)* (Hallberg *et al.*, Structure 8, 79-88). We have also determined the structure of the flavin domain of CDH from *Phaenerochaete chrysosporium* (in the press) by MAD and MIRAS methods. We have recently obatained crystals of the haem domain of CDH from *Humicola insolens.* Native data were collected to 1.9 Å resolution at ID14-EH4 in November 2000. Attempts to solve the structure by molecular replacement using the haem domain from *P.c.* were unsuccesful. Therefore, data from a crystal soaked in mercury cloride was collected on this occation. Heavy atom sites were determined using difference Patterson methods and good phases to 2.0 Å resolution were obtained by the SIRAS method using MLPHARE and DM for solvent flattening. Although topologically very similar to the haem domain of CDH from *Phaenerochaete chrysosporium* the structure of the

haem domain of CDH from *Humicola insolens* give new insight into important aspects of domain interaction of the intact flavocytochromes.