Structure of the 2[4Fe-4S] Ferredoxin from *Pseudomonas* aeruginosa at 1.32 Å Resolution

Irene M. Mavridis<sup>1</sup>, P. Giastas<sup>1</sup>, N. Pinotsis<sup>2</sup>, G. Efthymiou<sup>3</sup>, M. Wilmanns<sup>2</sup>, P. Kyritsis<sup>3</sup>, J.-M. Moulis<sup>4</sup>, <sup>1</sup>NCSR "Demokritos", Athens, Greece. <sup>2</sup>EMBL-Hamburg, Germany. <sup>3</sup>Dept. of Chemistry, University of Athens, Greece. <sup>4</sup>DRDC/BMC, CEA-Grenoble, France. E-mail: mavridi@chem.demokritos.gr

The 2[4Fe-4S] ferredoxin from Allochromatium vinosum (AlvinFd) has been proved recently to be the prototype of a subfamily of 2[4Fe-4S] Fds, characterized by very negative and widely different reduction potentials of the two  $[4Fe-4S]^{2+/4}$  clusters (-430 to -485 mV and -585 to -675 mV, versus NHE), in contrast to the clostridial Fds, whose clusters have more positive and essentially the same potential (~ -400 mV). Structural information for AlvinFd is available at 2.1 Å resolution [1]. A recently established member of the AlvinFd sub-family is Pseudomonas aeruginosa Fd (PaFd), which also shows the above unusual redox properties. The PaFd structure has been determined to 1.32Å resolution, the highest up to now for the AlvinFd sub-family. The detailed structural information that this structure affords, i.e. the precise geometry of the [4Fe-4S] clusters combined with the conformation of the surrounding residues and the electrostatic properties of the protein around and between the two clusters, the EPR spectroscopy studies, as well as a thorough comparison with existing high resolution structures of [4Fe-4S]containing proteins, provide structural reasons for the unusual redox properties of the Alvin-like 2[4Fe-4S] Fds.

[1] Moulis J.-M., Sieker L.C., Wilson K.S., Dauter Z., Prot. Sci., 1996, 5, 1765.

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