

P016 2Fe-2S ferredoxins from *Haloferax mediterranei*.
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Ferredoxins are highly amino acidic proteins containing iron-sulphur clusters. They are involved in oxygen and iron sensing, generation and stabilization of radical intermediates, regulation of gene expression and in peptide metabolism. However, the most important function of ferredoxin is electron transfer. Ferredoxins may contain [4Fe-4S], [3Fe-4S] or [2Fe-2S], where the iron ions are typically tetrahedrally coordinated by thiolate ligands of cysteine side chains, with additional coordination to each iron provided by inorganic sulphides. The vast majority of [2Fe-2S] ferredoxins belong to a monophyletic group known as plant-mammalian-type ferredoxins, which consist of two main subgroups: i) ferredoxins transferring electrons from photosystem I to several ferredoxin-dependent enzymes; ii) electron transfer ferredoxins linked to hydroxylation reactions.

A few halophilic archaeal [2Fe-2S] ferredoxins have been purified and characterized. One of them, isolated from the haloarchaeon *Haloferax mediterranei* has been described as the physiological electron donor in the assimilatory nitrate pathway. Molecular biology approaches have revealed that *Haloferax mediterranei* expresses at least two 2Fe-2S proteins able to transfer electrons.