

Redox-dependent conformational changes of a proximal [4Fe-4S] cluster in Hyb-type [NiFe]-hydrogenase to protect the active site from O₂

ABSTRACT

Citrobacter sp. S-77 [NiFe]-hydrogenase harbors a standard [4Fe-4S] cluster proximal to the Ni-Fe active site. The presence of relocatable water molecules and a flexible aspartate enables the [4Fe-4S] to display redox-dependent conformational changes. These structural features are proposed to be the key aspects that protect the active site from O₂ attack.

Keywords: Redox-dependent; Proximal [4Fe-4S] cluster; Hyb-type [NiFe]-hydrogenase; O₂ attack
