# Formate dehydrogenase from *Desulfovibrio gigas*

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Formate dehydrogenase (FDH) is the enzyme responsible to catalyze the reversible two-electron oxidation of formate to carbon dioxide allowing the assimilation of carbon dioxide or the production of energy through the oxidative phosphorylation coupled to the reduction of oxygen, nitrate, sulphate or fumarate depending on the organism [1, 2].

Formate dehydrogenase is part of the group of DMSO reductase family [1, 3, 4]. In the anaerobic organisms FDH, a molybdenum or tungsten ion is bounded to two molybdopterin cofactors [1, 3].

*Desulfovibrio gigas* FDH contains W-2MGD at the active center. This enzyme has a MM of circa 120 kDa and 2 subunits [3]. UV-Visible spectroscopy show a typical band from iron-sulfur proteins around 400nm. Kinetic data was obtained in the presence of substrate and inhibitors. Different redox states were probed by EPR measurements. Electro-activity of the enzyme was measured by cyclic voltammetry in solution using a graphite electrode.

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