

From Madison to Grenoble and Back: Riding Ferredoxins through Iron-Sulfur Territory

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Ferredoxins (Fd) stand out among iron-sulfur (Fe-S) proteins as those that were first isolated [1,2]. These small soluble electron carriers soon proved to be ideal targets for chemical, spectroscopic, and structural analysis. Many Fd have thus been characterized in considerable detail and implemented to gain insights into Fe-S proteins and active sites. While research in the field of Fe-S biochemistry has moved on to proteins of increasing complexity, investigations on Fd have nevertheless been actively pursued. This may be illustrated by ongoing studies on a group of [2Fe-2S] Fd that were first isolated some 40 years ago [3], but only recently shown to display a thioredoxin-like fold [4]. Several features of these thioredoxin-like Fd will be discussed: (i) the protein fold, its distribution and evolutionary implications; (ii) the structure of the [2Fe-2S] cluster [5]; (iii) interactions between the polypeptide chain and the [2Fe-2S] active site [6]; (iiii) function.

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