

De novo designed electron transfer proteins

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Advances in protein design create a new era in which it is possible to create, de novo, protein architectures that resemble natural proteins. The next step is to endow such scaffolds with function: a "maquette" should be a working model. The deep knowledge of (protein) electron transfer makes this reaction eminently suited for structure function study, with the aim of designing new proteins with quantitatively predictable function. To this end, we have created families of metal assembled three helix bundle proteins. We will discuss how such systems can illuminate the details of electron transfer "pathways", focusing on synthetic deletion of main chain hydrogen bonds.