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**Structural Studies on a NADP<sup>+</sup>/H Dependent Oxidorreductase Contributes to Investigate Coenzyme Specificity.** M. Medina, M. Martínez-Júlvez, J.R. Peregrina and J. Hermoso. Departamento de Bioquímica y Biología Molecular y Celular, Facultad de Ciencias y BIFI, Univ. de Zaragoza, España, Grupo de Cristalografía Macromolecular y Biología Estructural, Inst. Química-Física Rocasolano. C.S.I.C. Madrid, España.

In this work we propose the model for the structure of a mutated specie of ferredoxin-NADP<sup>+</sup>/H reductase (FNR). This enzyme catalyses the reduction of NADP<sup>+</sup> to NADPH during photosynthesis, being this reaction highly specific for NADP<sup>+</sup>/H versus NAD<sup>+</sup>/H. The mechanism of recognition of either NADP<sup>+</sup>/H or NAD<sup>+</sup>/H coenzyme by NAD(P)<sup>+</sup>/H-dependent reductases is not yet completely understood. The aim of the current project is to study this coenzyme specificity in FNR based on the structure of T155G/A160T/L263P/R264P/G265P FNR. Those residues have been substituted by other residues conserved in NAD<sup>+</sup>/H dependent reductases in similar positions. The presented structural analysis of the FNR mutant shows a local similar conformation to that present in NAD<sup>+</sup>/H-dependent reductase, which may explain the observed increase of mutant affinity for NAD<sup>+</sup>/H by biochemical characterisation experiments. Also, we are working on the resolution of complexes formed by mutated species of FNR and NAD<sup>+</sup> with the aim to elucidate the possible role of some residues in coenzyme specificity.