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**Structure of *B. subtilis* NrdI - An Auxiliary Protein of Class Ib Ribonucleotide Reductase has Flavodoxin Fold and Binds FMN.** R-y. Wu, R-g. Zhang, M. Shu, A. Joachimiak, The Midwest Center for Structural Genomics and Structural Biology Center, Biosciences, Argonne National Laboratory, 9700 South Cass Ave., Bldg 202, Argonne, IL 60439, USA.

Ribonucleotide reductases (RNRs) catalyze the reduction of ribonucleotide di- or tri-phosphates to the corresponding deoxyribonucleotides for DNA replication and repair. This reaction requires a source of electrons. In *B. subtilis*, only one locus is dedicated to deoxyribonucleotide biosynthesis and is composed of *nrdI*, *nrdE* and *nrdF* genes. The *nrdI* is strictly conserved in the locus of Ib RNRs. To reveal NrdI's function we have determined the first crystal structure of the NrdI protein at 1.9 Å. The protein has flavodoxin fold with five parallel  $\beta$ -strands flanked on both sides by four  $\alpha$ -helices. A FMN co-factor is bound at the carboxy-terminal end of the  $\beta$ -sheet. The structure suggests that the NrdI/FMN complex serves as an electron donor in the ribonucleotide reduction reaction.

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