**The *Escherichia coli* CsdA-CsdE complex, a new Fe-S biogenesis system.**

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Biogenesis of iron-sulfur (Fe-S) proteins relies on assistance of complex machineries. To date three systems, NIF, ISC and SUF, were reported to allow maturation of prokaryotic Fe-S proteins. Here we report that the *csdA-ygdK* genes of *Escherichia coli* constitute a remarkably new simple Fe-S biogenesis system, referred to as CSD. This conclusion was reached by applying a thorough combination of both *in vivo* and *in vitro* strategies and techniques. Yeast two-hybrid analysis and chromatography based techniques allowed us to show that CsdA and YgdK form a complex. Enzymological analysis showed that CsdA activity is increased 2-fold in the presence of YgdK. Mass spectrometry analysis and site directed mutagenesis showed that residue Cys51 from YgdK acted as an acceptor site for sulfur provided by cysteine desulfurase activity of CsdA. Genetic investigations revealed that the *csdA csdE* genes could act as multicopy suppressors of *iscS* mutation. Moreover, a specific connection between the CSD system and quinolinate synthase NadA was suggested by the followings : (i) CsdA- YgdK was much more efficient in assisting apo-NadA to acquire its Fe-S cluster, (ii) *csdA ygdK* genes suppressed NAD auxotrophy of *iscS* mutant whereas *sufS sufE* did not, and (iii) in *Arabidopsis thaliana*, YgdK and NadA are fused into a single polypeptide.