

# Supporting Information

## IscA, an Alternate Scaffold for Fe-S Cluster Biosynthesis<sup>†</sup>

Carsten Krebs,<sup>‡</sup> Jeffrey N. Agar,<sup>§,||</sup> Archer D. Smith,<sup>§</sup> Jeverson Frazzon,<sup>¶</sup> Dennis R. Dean,<sup>¶,\*</sup>

Boi Hanh Huynh,<sup>‡,\*</sup> and Michael K. Johnson<sup>§,\*</sup>

*Department of Physics, Emory University, Atlanta, Georgia 30322, Department of Chemistry and Center for Metalloenzyme Studies, University of Georgia, Athens, Georgia 30602, and Department of Biochemistry, Virginia Tech, Blacksburg, Virginia 24061*

<sup>‡</sup>Emory University.

<sup>§</sup>University of Georgia.

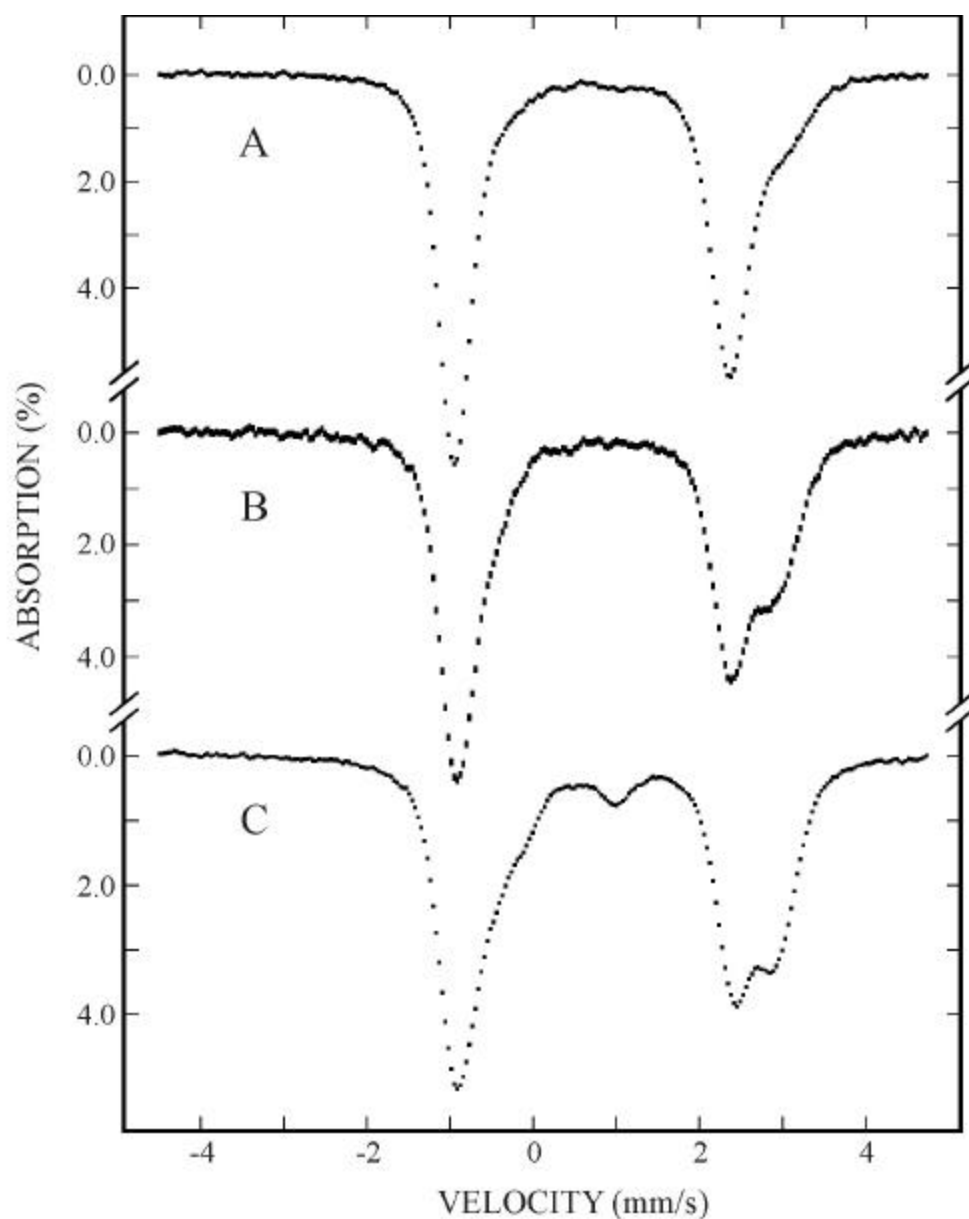
<sup>¶</sup>Virginia Tech.

<sup>||</sup>Current address: Montreal Neurological Institute, 3801 University St., Montreal, Qc H3A 2B4

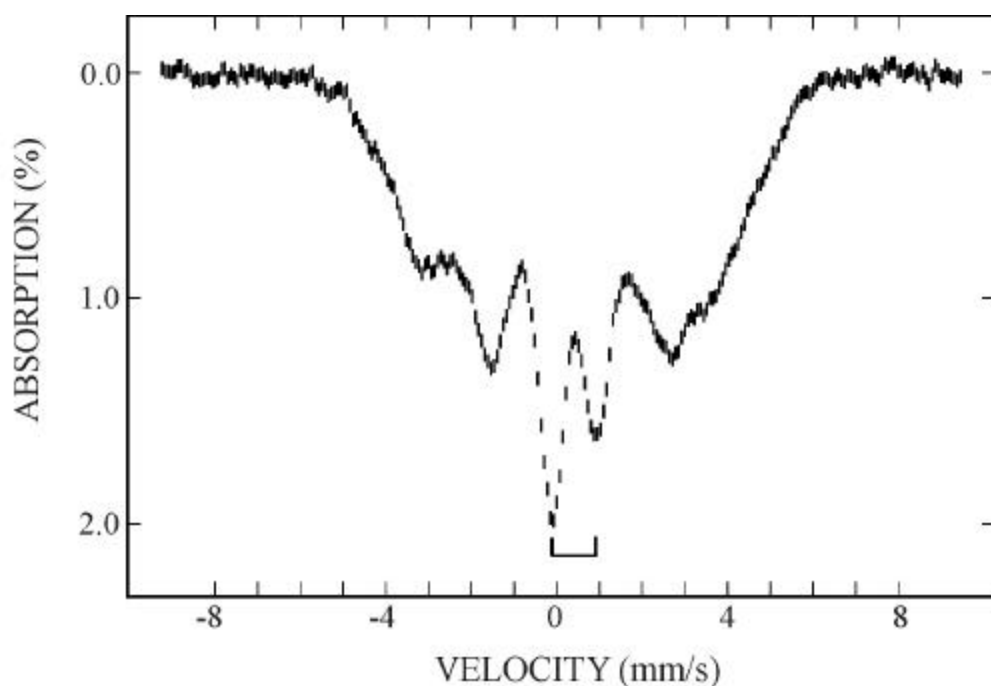
### Contents

**Figure S1.** Mössbauer spectra of control samples.

**Figure S2.** Mössbauer spectrum of a sample frozen at a reaction time of 4 hrs during the reaction of NifS-catalyzed assembly of Fe-S cluster on <sup>Nif</sup>IscA.



**Figure S1.** Mössbauer spectra of control samples containing (A) ferrous sulfate and cysteine, (B) ferrous sulfate, cysteine and  $\text{Nif}^{\text{H}}$ IsaA, and (C) ferrous sulfate, cysteine, and NifS. These spectra were recorded at 4.2 K in a parallel field of 50 mT. They are dominated by the quadrupole doublets of the three Fe(II) species mentioned in the text. The small peak at  $\sim 1$  mm/s in C coincides with the high-energy line of the quadrupole doublet of the  $[\text{4Fe-4S}]^{2+}$ .



**Figure S2.** Mössbauer spectrum of a sample frozen at a reaction time of 4 hrs during the reaction of NifS-catalyzed assembly of Fe-S cluster on  $^{57}\text{Nif}$ IsaA. The spectrum was recorded at 4.2 K in a parallel applied field of 50 mT. The bracket marks the peak positions of the quadrupole doublet associated with the  $[\text{4Fe-4S}]^{2+}$  cluster. The majority of the absorption, however, is broad and featureless and can be attributed to polymeric iron sulfides in solution.