

Abstract Submitted
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Bio-Inspired Catalyst for CO₂ Reduction ADONIS BOVELL, KURT WARNCKE, Emory University — A catalytic device for high specificity recognition and light-driven reduction of CO₂ to energy rich biofuels is being developed by using the robust TIM barrel fold of the EutB subunit of the enzyme, ethanolamine-ammonia lyase (from *Salmonella typhimurium*), as a scaffold. The cobalt(I) form of the native cobalamin serves as the catalytic center. Results show that cobalamins bind with optimal micromolar affinity to purified EutB, and undergo reductive activation. Molecular biology techniques have been used to generate histidine-tagged EutB subunit for high throughput mutagenesis studies. Rational active site modifications of EutB have been made to satisfy the criteria of specific CO₂ binding, reduction, and proton delivery.

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