Docket #: S21-281

In situ cell-free synthesis of metabolic cofactors

Stanford researchers in the Swartz lab have proposed a method to synthesize metabolic cofactors from inexpensive substrates for protein synthesis and commodity production applications. Cell extracts can be activated to conduct metabolic processes, but the cell extract production lowers concentrations of metabolic cofactors, which decreases the rates of product formation. Purchasing cofactors adds significant expenses to the protein synthesis process which may block profitability. The inventors have addressed this concern via their synthesis method, which also enables control over synthesis extent to ensure that cofactors are provided to the metabolic reaction at optimal concentrations. Thus, this technology has the potential to increase rates of product formation at scalable costs.

Stage of Development
Conception without demonstration

Related Technologies
Swartz lab inventions S21-276 and S21-271 can be combined with this technology in a carbon-negative process for synthesizing biochemical commodities.

Applications

- Biofuel
- Agriculture
- Commodities production
- Polymer precursor production

Advantages

- Invention mitigates cofactor related expenses in commodity biochemical production, as it uses substrates present in cell extracts as inexpensive precursors

Innovators

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