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Title: Smart Microbial Cell Technology: A high-throughput platform to optimize biocatalysts

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Smart Microbial Cell Technology: A high-throughput platform to optimize biocatalysts

Caption (100 words or less – explaining technology’s scientific relevance and potential impact)

Los Alamos National Laboratory developed an ultra-high-throughput screening platform to engineer custom biocatalysts that enhance the rate of chemical reactions critical in pharmaceuticals, renewable energy, and environmental cleanup. Current methods to find biocatalysts are slow. This platform scans genetic variations to optimize a single enzyme or microbial cell to generate a product efficiently. It selects rare mutations needed for biocatalyst optimization orders of magnitude faster than current screening methods. A custom sensor reporter gene circuit causes cells to fluoresce when they are making the target product. When coupled to flow cytometry, a million biocatalyst variants can be screened in hours.

(Bio, word count 65/70)

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