Protein Translation Machinery One Shot (TraMOS) Tool

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ABSTRACT

Researchers at the University of California, Davis have developed a microbial culture capable of translating mRNA molecules into a polypeptide with a single reaction mixture.

FULL DESCRIPTION

Current methods of mRNA translation require mRNA translation machinery (TraM) that is expressed and purified step by step for each member. The assembly of this functional machinery is done by mixing the members in the reactions with very specific ratios, taking time, money, and effort. Preparation of multi-protein complexes, especially in the case of metabolic pathways, remains difficult due to the large number of protein species and stringent requirement of protein ratios to create functional machinery.

Researchers at the University of California, Davis have created a protein translation machinery tool capable of the single-step translation of mRNA and purification of proteins. The method uses a microbial culture comprised of microbial strains (microbial consortium) that have different recombinant plasmids with encoding genes for all the proteins involved in mRNA translation. The unique consortium is able to form a multi-protein complex that can translate mRNA into a polypeptide in a single reaction mixture. The method has already been tested and successfully used in experiments for coupled transcription/ translation reactions. This approach brings modularity to the system and reduces the cost of *in vitro* translation reactions.

APPLICATIONS

- Single step *in vitro* multi-protein translation

FEATURES/BENEFITS

- Single step translation and purification
- Modular system
- Reduced cost

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Published Application	20190376069	12/12/2019	2015-542

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OTHER INFORMATION

KEYWORDS

translation machinery, microbial consortia, TraM, TraMOS, mRNA translation, multi-protein complexes, single-step, polypeptide, in vitro

CATEGORIZED AS

- **Materials & Chemicals**
  - Biological
- **Research Tools**
  - Protein Synthesis

RELATED CASES

2015-542-0

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- A New Cell-free Protein Expression System with three-fold higher protein yield in batch and continuous mode than existing systems
- Hydrogelated Bacteria as Antibacterial Vaccines
- Hydrogelated Cells for Regenerative Medicine Applications
- Generalizable and Non-genetic Approach to Create Metabolically-active-but-non-replicating Bacteria

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