COMPRESSION OF GENETIC INFORMATION IN MULTIPLE READING FRAMES

Tech ID: 31729 / UC Case 2020-069-0

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Published Application	20240029828	01/25/2024	2020-069

BRIEF DESCRIPTION

Techniques such as genome editing, gene therapy, and CRISPR-based gene expression require robust methods of delivering genetic information. The effectiveness of delivery depends on the amount of DNA or RNA that can be delivered. In some cases there is a strict upper-limit on the amount of DNA or RNA that can be delivered. For example, AAV vectors for mammalian gene delivery are limited to genetic cargos of < 5 kb. In general, and irrespective of the delivery vector, larger DNA constructs are delivered less efficiently and so it is advantageous to use smaller constructs where possible. It is therefore advantageous to compress constructs. Methods of compression that do not require removal of genetic elements (“lossless compression”) are very desirable since size requirements can be met without compromising functionality.

In order to reduce the number of bases (DNA or RNA) required to encode larger constructs, UC Berkeley researchers have developed a method for compressing genetic information. The method can be applied to two elements which be encoded in the same or different reading and can also be applied to a single genetic elements.

SUGGESTED USES

This technology can be used to deliver large genetic cargos more efficiently or in space-limited delivery vehicles. For example:

- delivery of large genome editing constructs, e.g. cas9 with guides and/or templates, base editors, other modified versions of cas proteins or ZFNs or TALENS
- delivering large genes for gene therapy purposes

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Improving Photosynthetic Performance of Plants
- 2'-fluoro RNA Activators for Enhanced Activation of Csm6 in RNA Detection Assays
- Compositions and Methods for TIGR-Tas Mediated Targeting
- Composition and Methods of a Nuclease Chain Reaction for Nucleic Acid Detection

CONTACT

Samantha Chin
samanthachin@berkeley.edu
tel: .

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INVENTORS

- Savage, David Frank

OTHER INFORMATION

CATEGORIZED AS

- **Medical**
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  - Research Tools
  - Therapeutics
- **Research Tools**
  - Bioinformatics
  - Other
  - Screening Assays
- **Veterinary**
  - Other
  - Therapeutics

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