COMPOSITIONS AND METHODS FOR IDENTIFYING HOST CELL TARGET PROTEINS FOR TREATING RNA VIRUS INFECTIONS

Tech ID: 31927 / UC Case 2020-116-0

PATENT STATUS

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<tr>
<td>Patent Cooperation Treaty</td>
<td>Published Application</td>
<td>WO2021202382</td>
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Additional Patent Pending

BRIEF DESCRIPTION

Viral infection is a multistep process involving complex interplay between viral life cycle and host immunity. One defense mechanism that hosts use to protect cells against the virus are nucleic-acid-mediated surveillance systems, such as RNA interference-driven gene silencing and CRISPR-Cas mediated gene editing. Another important stage for host cells to combat virus replication is translational regulation, which is particular important for the life cycle of RNA viruses, such as Hepatitis C virus and Coronavirus. While efforts to characterize structural features of viral RNA have led to a better understanding of translational regulation, no systematical approaches to identify important host genes for controlling viral translation have been developed and little is known about how to regulate host-virus translational interaction to prevent and treat infections caused by RNA viruses.

UC Berkeley researchers have developed a high-throughput platform using CRISPR-based target interrogation to identify new therapeutics targets or repurposed drug targets for blocking viral RNA translation. The new kits can also be used to identify important domains within target proteins that are required for regulating (viral RNA translation) and can inform drug design and development for treating RNA viruses.

SUGGESTED USES

- Drug discovery, particularly for RNA viral diseases
- Research tools to identify important domains within target proteins

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Methods and Compositions for Using Argonaute to Modify a Single-Stranded Target Nucleic Acid
- Lentivirus-like Particle Delivery of CRISPR-Cas9 & Guide RNA for Gene Editing
- Cas12-mediated DNA Detection Reporter Molecules
- Improved guide RNA and Protein Design for CasX-based Gene Editing Platform
- Cas13a/C2c2 - A Dual Function Programmable RNA Endoribonuclease
- Miniature Type VI CRISPR-Cas Systems and Methods of Use
- CasX Nickase Designs, Tans Cleavage Designs & Structure
- A Dual-RNA Guided CasZ Gene Editing Technology
- CRISPR-CAS EFFECTOR POLYPEPTIDES AND METHODS OF USE THEREOF ("Cas-VarPhy")
- Modifications To Cas9 For Passive-Delivery Into Cells
- A Protein Inhibitor Of Cas9
- Split-Cas9 For Regulatable Genome Engineering
- NANOPORE MEMBRANE DEVICE AND METHODS OF USE THEREOF
- Optimized Virus-like Particles for Cas9 RNPs & Transgene/HDR Template Delivery
- Protein Inhibitor of Type VI-B CRISPR-Cas System
- COMPOSITIONS AND METHODS FOR INCREASING HOMOLOGY-DIRECTED REPAIR
- CRISPR CAS9 COMPOSITIONS AND METHODS OF USE