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

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

PATENT STATUS

<table>
<thead>
<tr>
<th>Country</th>
<th>Type</th>
<th>Number</th>
<th>Dated</th>
<th>Case</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patent Cooperation Treaty</td>
<td>Published Application</td>
<td>WO2021202382</td>
<td>10/07/2021</td>
<td>2020-116</td>
</tr>
</tbody>
</table>

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

INVENTORS

- Doudna, Jennifer A.

OTHER INFORMATION

KEYWORDS

RNA virus, drug discovery, Coronaviruses

CATEGORIZED AS

- Biotechnology
- Genomics
- Proteomics
- Medical
- Disease: Infectious Diseases
- Research Tools
- Therapeutics
- Research Tools
- Nucleic Acids/DNA/RNA

RELATED CASES

2020-116-0

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Lentivirus-like Particle Delivery of CRISPR-Cas9 & Guide RNA for Gene Editing
- Type III CRISPR-Cas System for Robust RNA Knockdown and Imaging in Eukaryotes
- 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
- 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-VarPhi")
- 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 CASY COMPOSITIONS AND METHODS OF USE
- Single Conjugative Vector for Genome Editing by RNA-guided Transposition
- Improved Cas12a Proteins for Accurate and Efficient Genome Editing
- CRISPR-CAS EFFECTOR POLYPEPTIDES AND METHODS OF USE THEREOF
- Engineered Variant Hyperactive CRISPR CasPhi Enzymes And Methods Of Use Thereof
- Engineering Cas12a Genome Editors with Minimized Trans-Activity
- Methods Of Use Of Cas12L/CasLambda In Plants
- Type V CRISPR/CAS Effector Proteins for Cleaving ssDNA and Detecting Target DNA
- THERMOSTABLE RNA-GUIDED ENDONUCLEASES AND METHODS OF USE THEREOF (GeoCas9)
- Structure-Guided Methods Of Cas9-Mediated Genome Engineering
- Endoribonucleases For Rna Detection And Analysis
- Efficient Site-Specific Integration Of New Genetic Information Into Human Cells
- Class 2 CRISPR/Cas COMPOSITIONS AND METHODS OF USE
- Compositions and Methods of Use for Variant Csy4 Endoribonucleases
- Identification Of Sites For Internal Insertions Into Cas9
- Chimeric Cas9 Variants With Novel Engineered Enzymatic Activities
- Small Molecule Assisted Cell Penetrating Cas9 RNP Delivery
- Methods and Compositions for Controlling Gene Expression by RNA Processing