# COMPOSITIONS AND METHODS FOR GENOME EDITING

Tech ID: 33086 / UC Case 2023-104-0

## PATENT STATUS

| Country | Type | Number | Dated | Case |
|---|---|---|---|---|
| Patent Cooperation Treaty | Reference for National Filings | WO 2024/196963 | 09/26/2024 | 2023-104 |

Patent Pending

## BRIEF DESCRIPTION

RNA-mediated adaptive immune systems in bacteria and archaea rely on Clustered Regularly Interspaced Short Palindromic Repeat (CRISPR) genomic loci and CRISPR associated (Cas) proteins that function together to provide protection from invading viruses and plasmids. Genome editing can be carried out using a CRISPR-Cas system comprising a CRISPR-Cas effector polypeptide and a guide nucleic acid, such as a guide RNA. However, unintended chromosomal abnormalities following on-target genome editing, such as chromosome loss, are potential concerns for genome editing.

UC Berkeley researchers and others have developed a method to modulate the expression levels of the DNA damage response factor p53 in order to mitigate chromosomal abnormalities that occur after genome editing by nucleases like Cas9. The invention provides treatment methods by generating a modified cell and then administering the modified cell to an individual in need thereof and compositions having a CRISPR-Cas effector polypeptide, a guide nucleic acid, and an agent that increases the level of a p53 polypeptide in a mammalian cell.

## SUGGESTED USES

» Genome editing

## ADVANTAGES

» Mitigates chromosomal abnormalties after genome editing

## CONTACT

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## INVENTORS

» Doudna, Jennifer A.

## OTHER INFORMATION

**CATEGORIZED AS**

» **Biotechnology**
» Health
» **Medical**
» Gene Therapy
» Research Tools
» Therapeutics
» **Research Tools**
» Nucleic Acids/DNA/RNA

**RELATED CASES**

2023-104-0

## ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- COMPOSITIONS AND METHODS FOR IDENTIFYING HOST CELL TARGET PROTEINS FOR TREATING RNA VIRUS INFECTIONS
- Genome Editing via LNP-Based Delivery of Efficient and Stable CRISPR-Cas Editors
- Tissue-Specific Genome Engineering Using CRISPR-Cas9
- Type III CRISPR-Cas System for Robust RNA Knockdown and Imaging in Eukaryotes
- Cas9 Variants With Altered DNA Cleaving Activity
- 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
- RNA-directed Cleavage and Modification of DNA using CasY (CRISPR-CasY)
- CasX Nickase Designs, Tans Cleavage Designs & Structure

- In Vivo Gene Editing Of Tau Locus Via Liponanoparticle Delivery
- Methods and Compositions for Modifying a single stranded Target Nucleic Acid
- A Dual-RNA Guided CasZ Gene Editing Technology
- A Protein Inhibitor Of Cas9
- RNA-directed Cleavage and Modification of DNA using CasX (CRISPR-CasX)
- IS110 and IS1111 Family RNA-Guided Transposons
- Methods to Interfere with Prokaryotic and Phage Translation and Noncoding RNA
- Variant Cas12a Protein Compositions and Methods of Use
- In Vitro and In Vivo Genome Editing by LNP Delivery of CRISPR Ribonucleoprotein
- 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
- 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)
- Variant TnpB and wRNA Proteins
- 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
- Immune Cell-Mediated Intercellular Delivery Of Biomolecules
- Methods and Compositions for Controlling Gene Expression by RNA Processing

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