

(SD2024-149) Strategy for pooled nuclear expressed antisense RNAs to identify consequential RNA processing events

Tech ID: 33910 / UC Case 2021-Z08-1

ABSTRACT

Researchers from UC San Diego developed a new technology that facilitates pooling of nuclear expressed antisense RNAs (NEARs) to identify consequential RNA processing events such as alternative or constitutive RNA splicing or polyadenylation.

This technology will identify a phenotype of interest and/or a group of RNA processing events (for example RNA splicing sites of interest or alternatively spliced exons), and transduce cells with a library of NEARs targeting these events. Applications include:

- [Research tool](#). As screens to identify exons of phenotypic relevance in a high throughput manner.
- [Therapeutic target identification](#). To identify therapeutic targets of cancer cell suppression, such as poison exons in cancer specific transcripts.
- [Therapeutic discovery](#). As a therapeutic agent to identify therapeutic NEARs for splicing related disorders.

TECHNOLOGY DESCRIPTION

APPLICATIONS

- 1) Research tool. The invention could be used in screens to identify exons of phenotypic relevance. For example, splicing programs are regulated by alternative exons in proteins of splicing complexes. By including or excluding these exons using snRNAs and running a perturb-seq style assay, we can identify the regulatory network of these exons in a high throughput manner.
- 2) Therapeutic target identification. The invention could be used to identify therapeutic targets of cancer cell suppression, such as poison exons in cancer specific transcripts.
- 3) Therapeutic discovery. NEARs can themselves be used as a therapeutic agent, and these screens can

CONTACT

Skip Cynar
scynar@ucsd.edu
tel: 858-822-2672.



OTHER INFORMATION

KEYWORDS

EXONIC SPLICING, Therapeutic target identification, Therapeutic discovery, Research tool, nuclear expressed antisense RNAs, RNA splicing sites of interest, spliced exons, protein-free RNA-programmable base conversion

CATEGORIZED AS

- **Biotechnology**
 - Genomics
- **Research Tools**
 - Nucleic Acids/DNA/RNA

RELATED CASES

2021-Z08-1

identify therapeutic NEARs for splicing related disorders.

INTELLECTUAL PROPERTY INFO

UC San Diego is seeking partners to commercialize this patent-pending technology.

RELATED MATERIALS

► [Smargon AA, Pant D, Glynne S, Gomberg TA, Yeo GW. Small nuclear RNAs enhance protein-free RNA-programmable base conversion on mammalian coding transcripts. bioRxiv \[Preprint\]. 2024 Jun 13:2024.06.12.598766. - 06/13/2024](#)

University of California, San Diego
Office of Innovation and Commercialization
9500 Gilman Drive, MC 0910, ,
La Jolla,CA 92093-0910

Tel: 858.534.5815
innovation@ucsd.edu
<https://innovation.ucsd.edu>
Fax: 858.534.7345

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