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Cost-effective Method to Quickly Produce and Purify Large Quantities of Biologically Active ncRNAs

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OTHER INFORMATION

KEYWORDS

Biomarkers, Chimeric RNA, E. coli, RNA delivery, RNA production, RNA purification, Therapeutics

CATEGORIZED AS

- ▶ **Biotechnology**
 - ▶ Genomics
 - ▶ Health
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- ▶ **Materials & Chemicals**
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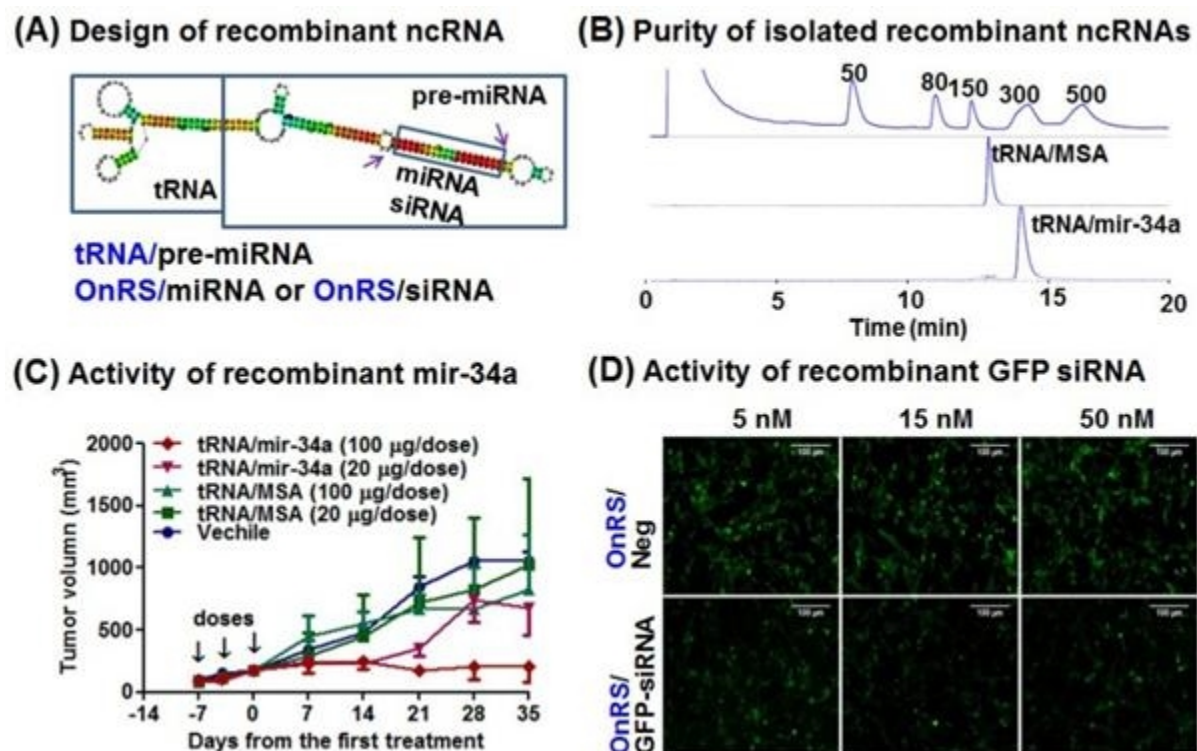
2014-279-0

ABSTRACT

Researchers at the University of California, Davis have developed a method to develop and purify large quantities of ncRNA for basic and translational research, as well as for therapeutics delivery.

FULL DESCRIPTION

The discovery of the role of chimeric, non-coding, RNAs (ncRNA) in the control of various cellular processes has greatly expanded researchers' understanding of cellular genetics. Advances include insights into developing novel therapeutic strategies. As one example, tumor-suppressive ncRNAs that are depleted in carcinoma tissues may be reintroduced into cancer cells to manage tumor progression. Unfortunately, existing methods of ncRNA production - such as chemical synthesis - are very expensive and run the risk of altering the RNA's structure and its associated biological activity. The lack of an efficient method for producing large quantities of inexpensive, naturally-occurring and biologically-functional ncRNA agents hinders basic research on ncRNA structures. It also limits potentially critical, translational research on ncRNA-based therapies.



Researchers at the University of California, Davis have developed a method to cost-effectively design, produce, and purify large amounts of chimeric, non-coding, RNA agents using recombinant RNA technology. This method involves using E.coli and tRNA scaffolding. This production approach allows for high levels of ncRNA expression and stability in a recombinant host cell. The resulting ncRNA can be purified with high homogeneity, and used to help control biological processes. The ncRNA can also become a "stealth" carrier for the delivery of therapeutic RNA agents or RNA biomarkers.

APPLICATIONS

- Increases availability of ncRNA for basic and translational research
- Potential carrier of biomarkers or therapeutics

FEATURES/BENEFITS

- Provides a source of inexpensive, high-purity, ncRNA
- Increases opportunities for the delivery of therapeutic or biomarkers using stealth RNA carriers

PATENT STATUS

| Country | Type | Number | Dated | Case |
|--------------------------|---------------|------------|------------|----------|
| United States Of America | Issued Patent | 10,619,156 | 04/14/2020 | 2014-279 |

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- ▶ [New label-free method for direct RNase activity detection in biological samples](#)
- ▶ [Bioengineered RNA Molecules for Cancer Therapy](#)

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