



Poly(UG) Polymerase: A Useful New RNA Tool

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The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing a recently discovered enzyme that adds a repeating UG nucleotide 'tail' to RNA.

Overview

Enzymes called ribonucleotidyl transferases (NTases) add nucleotides to the ends of RNAs. At present only a few such enzymes are known, such as poly(A) polymerases and poly(U) polymerases. The selection is quite small given the vast number of possible nucleotide combinations.

These enzymes are useful research tools in molecular biology and the search continues for new ones.

The Invention

UW–Madison researchers have identified a poly(UG) polymerase in a roundworm called *Caenorhabditis elegans*. The newly discovered enzyme adds repeating UG sequences to the ends of RNA. This activity could be useful as a research tool *in vitro*, e.g., providing a new way to synthesize cDNA of RNAs of unknown sequence.

The gene in *C. elegans* that encodes the enzyme is called RDE-3. Although its sequence was already known, its polymerase activity was not.

Applications

- *In vitro* research tool
- Kit for adding a poly(UG) tail to an RNA substrate
- Priming cDNA synthesis of RNAs of unknown sequence, using a DNA primer by 'self-priming'

Key Benefits

- Opens up exciting new uses for this enzyme
- UG tails could provide greater specificity than currently possible.

Stage of Development

The researchers have definitively shown using two *in vivo* assays in yeast and in frog eggs that the new enzyme has UG-adding activity.

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For More Information About the Inventors

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Tech Fields

- [Research Tools : DNA & RNA tools](#)

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