Tagged RNA Polymerases and Method for Producing Them

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Inventors: Robert Landick, Rachel Mooney

The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing DNA constructs to create strains of *E. coli* that produce several different types of tagged RNA polymerases.

Overview

Much of the research on RNA transcription is focused on the action of RNA polymerases. Thus, improved methods for purifying and characterizing RNA polymerase greatly enhance studies of transcription. *E. coli* RNA polymerase is a multisubunit protein that consists in part of two large subunits, beta prime (155 kd) and beta (150 kd).

The Invention

UW-Madison researchers have developed DNA constructs to create strains of *E. coli* (RL916 and RL1200) that produce several different types of tagged RNA polymerases. This technique yields *E. coli* strains that produce RNA polymerase with tags on the C-terminus of the beta prime subunit, a position that can be derivatized without adverse effects on enzyme activity. Biochemical tags that have been added include *S. aureus* protein A, *E. coli* biotin carrier protein, green fluorescent protein and beta galactosidase.

Applications

- The tagged RNA polymerases can be used in affinity purification, immobilized transcription, visualization of RNA polymerases *in vivo* and single molecule transcription.
- The modified RNA polymerases also can be immobilized and used in drug screening, such as screens for transcription inhibitors.

Key Benefits

- The strains produce only the desired, modified RNA polymerase, greatly increasing yield and simplifying purification.

Tech Fields

- Research Tools : Synthesis & purification

For current licensing status, please contact Jennifer Gottwald at jennifer@warf.org or 608-960-9854