High Density RNA Arrays

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The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing RNA arrays using single-stranded DNA as a template and T7 RNA polymerase.

OVERVIEW

While high density DNA microarrays, or chips, have been commercially available for more than a decade, the technology does not yet exist for RNA. This is because RNA is harder to chemically synthesize. Therefore, the methods used to produce DNA chips are unsuitable for RNA.

The development of new RNA arrays – especially high density arrays – would enable exciting new applications. Such applications include: fabricating RNA aptamer arrays, identifying RNA sequences that produce fluorescence from non-fluorescent molecules, and identifying/characterizing novel ribozymes and RNA-binding proteins.

THE INVENTION

UW–Madison researchers have developed a method to generate high density RNA arrays using DNA arrays as a template.

Specifically, the method uses a template array of single-stranded DNAs (a consensus sequence) linked at their 3’ end to a solid support. Complementary single-stranded RNA primers are covalently linked at their 5’ end to the support as well. The RNA primers are hybridized to the DNA template, and then extended using T7 RNA polymerase and ribonucleoside triphosphates. This results in double-stranded DNA-RNA hybrids. The DNA can be removed, leaving an intact RNA array.

APPLICATIONS

• RNA arrays and bead pools
KEY BENEFITS

- RNA arrays can be made with higher nuclease resistance, conformational stability and binding affinity.

ADDITIONAL INFORMATION

Related Technologies
WARF reference number P120014US02 describes RNA-mediated gene assembly using oligonucleotides on a DNA array.

Publications

Tech Fields
Research Tools - DNA & RNA tools

CONTACT INFORMATION

For current licensing status, please contact Joshua Carson at jcarson@warf.org or (608) 890-1622.