XNA Aptamer Particle Display Technology

Tech ID: 34032 / UC Case 2019-668-0

BRIEF DESCRIPTION

An innovative mid-throughput technique for screening and optimizing threose nucleic acid (TNA) aptamers for protein-binding activity.

FULL DESCRIPTION

This technology introduces a novel method for rapidly screening threose nucleic acids (TNA) aptamers for affinity and specificity to a protein target of interest. It leverages bead-based DNA particle display, facilitating the high-throughput selection of aptamers with unique properties such as increased stability and chemical functionality. This advancement extends the application of DNA particle display to XNA-based aptamers, overcoming the previous limitation of DNA polymerase's incompatibility with artificial genetic nucleotides.

SUGGESTED USES

- Drug discovery and development, specifically in the area of therapeutic aptamers
- Diagnostic tools for detecting specific biomarkers with high affinity and specificity.
- Research and development in synthetic biology, particularly in the study and application of synthetic genetic materials.

ADVANTAGES

- Facilitates mid-throughput screening of unnatural aptamers with desired properties.
- Compatible with standard fluorescence-activated flow cytometry instruments.
- Avoids tedious synthesis and purification approaches required for individual aptamer sequences

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Published Application	2020-034738	11/05/2020	2019-668

Additional Patent Pending

RELATED MATERIALS

- Adriana Lozoya-Colinas, Yutong Yu, and John C. Chaput Journal of the American Chemical Society 2023 145 (47), 25789-25796 DOI: 10.1021/jacs.3c0949

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OTHER INFORMATION

KEYWORDS

particle display, aptamers, XNA, TNA, screening assay

CATEGORIZED AS

- **Medical**
  - New Chemical Entities, Drug Leads
  - Research Tools
- **Research Tools**
  - Screening Assays

RELATED CASES

2019-668-0

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