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Technology Transfer Center

Oligonucleotide Production Process

Summary

This technology provides improved processes for production and purification of nucleic acid-containing compositions, such as non-naturally occurring viruses, for example, recombinant polioviruses that can be employed as oncolytic agents. Some of the improved processes relate to improved processes for producing viral DNA template.

NIH Reference Number

E-267-2014

Product Type

- Therapeutics

Collaboration Opportunity

This invention is available for licensing and co-development.

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Description of Technology

This technology provides improved processes for production and purification of nucleic acid-containing compositions, such as non-naturally occurring viruses, for example, recombinant polioviruses that can be employed as oncolytic agents. Some of the improved processes relate to improved processes for producing viral DNA template. Also provided are improved processes for chromatography purification of nucleic acid-containing compositions, in which the nucleic acid is quantified in chromatography fractions using a rapid detection method of the one or more nucleic acid sequences of the nucleic acid-containing composition, such as detection by real time RT-qPCR. In addition, improved processes for production and purification of oncolytic poliovirus, such as PVSRIPO, are described. Compositions generated using these methods are also provided.

Potential Commercial Applications

- Large-scale manufacturing for producing highly purified, live virus.
- Improved viral purification process that:
  - increases the yield and/or purity of the resulting product, while decreasing the

purification time;
    - is generally applicable to purification of any nucleic acid molecule-containing composition, such as virus-based composition, and can be used for the purification of live native or recombinant viruses necessary for clinical applications.
- Improved process for generating viral template plasmid (such as one that includes a DNA template for an RNA virus), which addresses the problem of genetic instability of the plasmids containing the viral genome (e.g., of a recombinant polio virus) in host (e.g., bacterial) cells, in which the plasmids are typically propagated.

Competitive Advantages

- Cost and time effective means of producing highly purified virus-based GMP products, such as oncolytic viruses, for regulatory approval.

Inventor(s)

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Development Stage

- Clinical

Publications

Ouellette T, et al. Large-Scale Chromatographic Purification of an Attenuated Chimeric Poliovirus. [BioProcessing Journal]

Patent Status

- **U.S. Patent Filed:** U.S. Patent Application Number 15/579,137, Filed 01 Dec 2017
- **PCT:** PCT Application Number PCT/US2016/036888, Filed 10 Jun 2016

Therapeutic Area

- Cancer/Neoplasm

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