New Antiviral Drugs from Bacterial Natural Products

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Overview

There is a growing need for effective antiviral therapies, particularly for viruses that currently lack approved treatments. This technology offers a new class of chemically synthesized nucleotide analogs inspired by a natural bacterial defense mechanism, in which enzymes modify standard nucleotides. These analogs, developed as prodrugs, have demonstrated antiviral activity in multiple in vitro models, exhibit high plasma stability, and show no toxicity in animal studies.

Applications

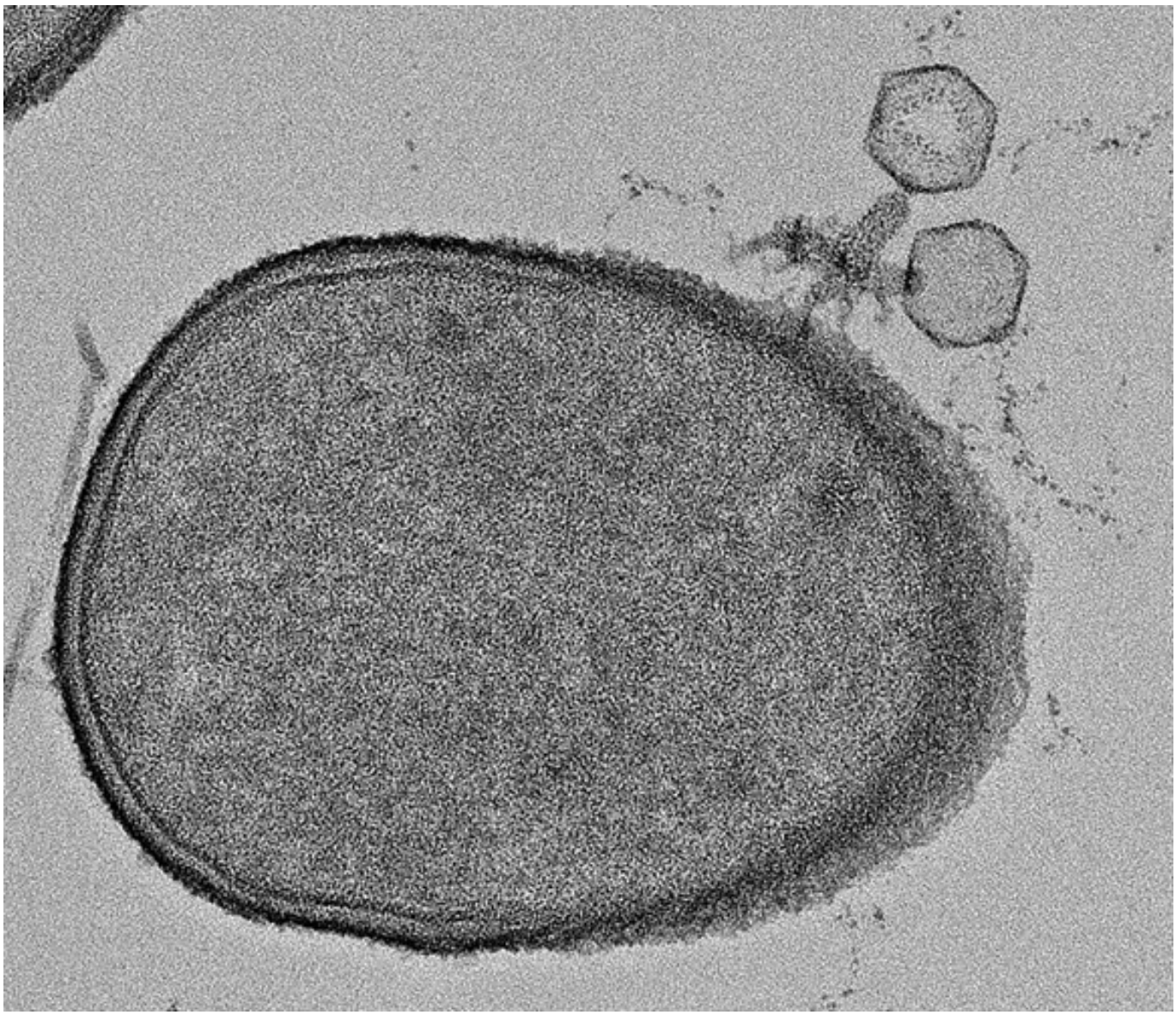
- Treatment of viral infections with no currently approved antiviral therapies
- Development of broad-spectrum antiviral drugs

Differentiation

- Nucleotide chain terminator: a validated mechanism for approved antiviral drugs
- Organic synthesis of novel non-natural nucleotide analogs and their prodrug versions (IP-protected)
- Potential for improved pharmacokinetics and low toxicity

Development Stage

Lead compounds synthesized and tested. Antiviral activity validated in vitro against multiple viruses. Plasma stability confirmed in human and rat models. In vivo safety demonstrated in rats (IV and oral routes).



Electron micrograph of phages infecting bacteria

References

Â ***Bernheim A et al. s. Nature. 2021*** [1]

Patent Status

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