Uncharged Nucleotide Mimics for Antiviral and Antitumor Applications

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Executive Statement:

This technology introduces novel uncharged nucleotide mimics designed to enhance antiviral and antitumor therapies.

Technology Overview:

The invention by Brigham Young University involves the development of 5'-O-mono-, di-, and tri-carbamoyl nucleosides and their derivatives as uncharged nucleotide mimics. These compounds are synthesized through a process involving trichloroacetylisocyanate and methanolysis, aiming to offer improved hydrolytic stability, membrane permeability, and bioavailability over natural nucleotides. The technology holds promise for therapeutic use in treating viral infections and cancer, based on its unique chemical structure and synthesis method.

Key Advantages:

- Enhanced hydrolytic stability compared to natural nucleotides
- Improved membrane permeability and bioavailability
- Potential for broad-spectrum antiviral and antitumor applications
- Innovative synthesis process yielding various carbamoyl derivatives

Problems Addressed:

- Limited effectiveness of current antiviral and antitumor nucleotide analogs due to poor stability and bioavailability
- Challenges in delivering therapeutic nucleotides across cellular membranes

Market Applications:

- Pharmaceuticals targeting viral infections
- Antitumor drug development
- Research and development of novel therapeutic compounds