

## 3'-Uaq Cap CPG

Catalog Number: 6232

Unit Size: 100 mg

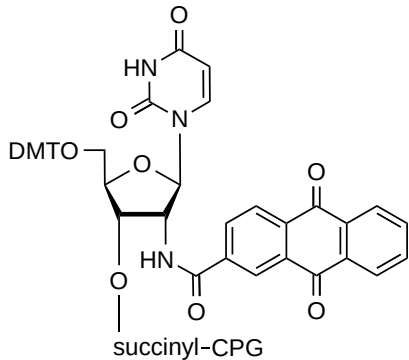
### Product Details

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Storage Conditions	Freeze (< -15 °C), Minimize light exposure
Expiration Date	12 months upon receiving

### Chemical Properties

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Appearance	Solid
Molecular Weight	N/A
Soluble In	MeCN
Chemical Structure	

### Spectral Properties

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Excitation Wavelength	N/A
Emission Wavelength	N/A

### Applications

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3'-Uaq-Cap CPG is a solid support designed for the synthesis of capped oligonucleotides with improved hybridization performance and thermal stability. It consists of a uridine nucleoside modified at the 2'-position with an anthraquinone (Uaq) group, covalently attached to a controlled pore glass (CPG) matrix for use in automated solid-phase oligonucleotide synthesis. The anthraquinone cap enhances base stacking at the 3'-terminus of oligonucleotides, stabilizing Watson-Crick duplexes and reducing terminal fraying that often occurs in unmodified sequences. Incorporation of a 3'-Uaq cap can raise the melting temperature ( $T_m$ ) of short DNA:RNA, DNA:DNA, or RNA:RNA duplexes by approximately 10–18 °C per modification, providing greater duplex stability without disrupting standard base pairing. The modification also improves sequence selectivity by stabilizing correctly paired termini while destabilizing mismatched base pairs, resulting in higher hybridization specificity. In addition, the anthraquinone group imparts moderate lipophilicity, which aids in purification by reversed-phase chromatography and may help protect oligonucleotides from exonuclease degradation. 3'-Uaq-Cap CPG is compatible with standard phosphoramidite synthesis and deprotection protocols, allowing easy incorporation into existing oligonucleotide synthesis workflows. It is well-suited for applications requiring highly stable and specific hybridization probes, diagnostic oligonucleotides, and research tools for nucleic acid studies.