



## Product Specifications

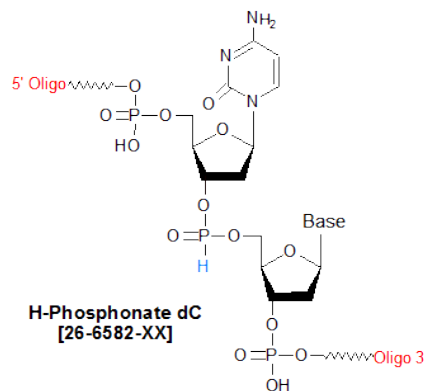
Custom Oligo Synthesis, antisense oligos, RNA oligos, chimeric oligos, Fluorescent dyes, Affinity Ligands, Spacers & Linkers, Duplex Stabilizers, Minor bases, labeled oligos, Molecular Beacons, siRNA, phosphonates Locked Nucleic Acids (LNA); 2'-5' linked Oligos

## Oligo Modifications

For research use only. Not for use in diagnostic procedures for clinical purposes.

### H-Phosphonate dC. dC(H-p)

Category	Others
Modification Code	H-p dC
Reference Catalog Number	26-6582
5 Prime	Y
3 Prime	Y
Internal	Y
Molecular Weight(mw)	274.19



H-Phosphonate modification has a setup charge of \$250.00 per order for special synthesis reagents .

H-phosphonoamidites are deoxynucleoside amidites modified such that, when incorporated into an oligonucleotide, that base position will have an H-phosphonate backbone linkage instead of the standard phosphodiester linkage. In the H-phosphonate linkage, one of the oxygen bound to the phosphorus atom in a phosphodiester linkage has been replaced by hydrogen. H-phosphonate-modified oligos are typically synthesized when a researcher wants to prepare a S-35 radiolabeled phosphorothioate linkage (1). For the radiolabeled phosphorothioate, an H-phosphonate linkage is incorporated at the desired position using phosphoramidite chemistry, and then S-35 is used to replace the hydrogen atom via a sulfurization reaction (2). For the phosphoroamidate, N,N-dimethylaminoethylamine is reacted with the H-phosphonate to form the substituted linkage. Phosphoroamidates, being a cationic linkage, may provide nuclease resistance and improved cell permeability (3).

#### References

1. Maier, M.A., Guzaev, A.P., Manoharan, M. Synthesis of Chimeric Oligonucleotides Containing Phosphodiester, Phosphorothioate, and Phosphoramidate Linkages. *Org. Lett.* (2000), **2**: 1819-1822.
2. Wallin, R., Kalek, M., Bartoszewicz, A., Thelin, M., Stawinski, J. On the Sulfurization of H-Phosphonate Diesters and Phosphite Triesters Using Elemental Sulfur. *Phosphorus, Sulfur, and Silicon* (2009), **184**: 908-916.
3. Letsinger, R.L., Singman, C.N., Hestand, G., Salunkhe, M. Cationic Oligonucleotides. *J. Am. Chem. Soc.* (1988), **110**: 4470-4471.