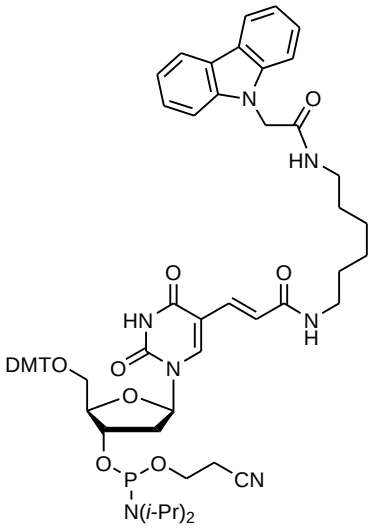
Carbazole dT CEP
Product No. BA 0345
Product Information



$C_{62}H_{72}N_7O_{10}P$
Mol. Wt.: 1106.26

For use as a light-controlled, reversible DNA photoligation tool.

Template-directed DNA ligation has multiple potential biotechnological applications including photo-regulated diagnostic and therapeutic agents,[1] construction of nanoarchitecture,[2] DNA computing,[3] and DNA based memory.[4] The research of Fujimoto, Saito and coworkers have illustrated the utility of 5-vinyldeoxyuridine[5a] and a carbazole-tethered 5-carboxyvinyldeoxyuridine[5b] for photo induced non-enzymatic chemical DNA ligation. Their carbazole-tethered analog gives a photo ligation system where ligation and splitting (at 366 nm) can be repeated without damage to the normal DNA. Irradiation at 366 nm as opposed to the 302 nm required for the vinyl analog minimizes pyrimidine dimer formation. The data suggests that the carbazole group intercalates in the duplex formed when photo ligation takes place in the presence of template DNA. This intercalation prevents photo induced splitting when in the duplex form, allowing control of the ligation/splitting based on the presence or absence of the template DNA strand.

Our Carbazole dT CEP (BA 0345) provides an efficient way to form carbazole-tethered vinyl dU containing oligonucleotides.

Use: Employ acetonitrile diluent at the concentration recommended by the synthesizer manufacturer. Use standard coupling protocols; in our hands, extended coupling times were not

required. Cleavage from the solid support may be carried out by standard procedures. Standard nucleobase deprotection conditions may be employed.

References

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5. (a) Fujimoto, K.; Yoshino, H.; Ami, T. Yoshimura, Y.; Saito, I. *Org. Lett.,* **2008***, 10*(3), 397-400. (b) Fujimoto, K.; Matsuda, S.; Takahashi, N.; Saito, I. *J. Am. Chem. Soc.* **2000**, *122*, 5646-5647.