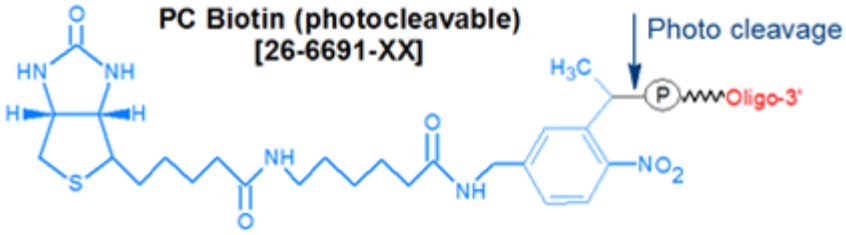
PC Biotin (photocleavable)

Category	Photo Cleavable
Modification Code	PCBio
Reference Catalog Number	26-6691
5 Prime	Y
3 Prime	N
Internal	N
Molecular Weight(mw)	597.62



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PC Biotin (photocleavable) is a non-nucleosidic molety that can be used to incorporate a UV photo-cleavable biotin molecule onto the 5'- end of an oligonucleotide. The biotin is separated from the 5'- end nucleotide base by the photo-cleavable group and a long-chain alkyl spacer arm to minimize steric interaction between the biotin and the oligo (1). The photo-cleavable group, located on the 5'- phosphate, can be selectively cleaved by illumination with UV light quantitatively in less than 4 minutes, thereby releasing the biotin to produce a 5'- phosphorylated oligo (1). PC Biotin thus allows researchers a facile method for streptavidin-mediated affinty capture and release of biotinylated oligos or PCR products in purification or diagnostic applications. In the case of a PCR product, retainment of the 5'- phosphate also makes it suitable for cloning.

Besides the above applications, PC Biotin-modified oligos could be used to isolate different kinds of DNA or RNA macromolecular complexes, such as nucleosomes (2) and chromatin (3).

PC Biotin could also be used to create 'caged' oligonucleotides, that is, oligonucleotides whose activity is suppressed until released by an external factor (such as UV light). Caging oligonucleotides (for example, tethering anti-sense or siRNA, via PC Biotin, to a molecule that suppressed its activity) would provide new possibilities for controlling biological mechanisms (such as gene expression) in space and time (4).

Cleavage Protocol
Cleavage occurs by irradiation with near-UV light (300-350 nm, complete cleavage occurs within 5 minutes. Try using a Black Ray XX-15 UV lamp (Ultraviolet Products Inc., San Gabriel, CA) at a distance of 15 cm (emission peak 365 nm, 300 nm cut-off, 1.1 mW intensity at~31 cm).

References
1. Olejnik, J., Krzymanska-Olejnik, E., Rothschild, K.J. Photocleavable aminotag phosphoramidites for 5’-termini DNA/RNA labeling. *Nucleic Acids Res.* (1998), **26**: 3572-3576.
2. Olejnik, J., Ludemann, H-C., Olejnik, E.K, Berkenkamp, S., Hillenkamp, F., Rothschild, K.J. Photocleavable peptide-DNA conjugates: synthesis and applications to DNA analysis using MALDI-MS. *Nucleic Acids Res.* (1999), **27**: 4626-4631.

3. Tang, X., Su, M., Yu, LiLi, Lv, C., Wang, J., Li, Z. Photomodulating RNA cleavage using photolabile circular antisense oligodeoxynucleotides.*Nucleic Acids Res.* (2002), **38**: 3848-3855.