

Technical Note



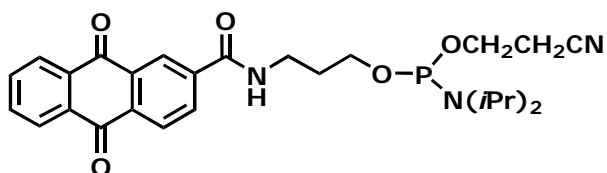
AQ-Link™ Phosphoramidite

AQ07/06.2005

By Henrik M. Pfundheller, Ph.D

AQ-Link™ Phosphoramidite

The AQ-Link™ Phosphoramidite¹ is used for the introduction of the photosensitive anthraquinone (AQ) in the 5'-end of an oligonucleotide for regiospecific immobilization of oligonucleotides to e.g. microplates².



The amidite is stable even though it contains an oxidation sensitive phosphoramidite moiety and a reduction sensitive AQ moiety. We believe the stability is caused by the presence of a short (CH₂)₃ linker separating the two redox sensitive parts of the molecule.

The amidite is delivered as a yellow solid. As the AQ moiety is UV-light sensitive it is important to keep the bottle away from light. The amidite is stable at room temperature, but for storage it is recommended that the amidite is kept dark at -18°C. Dissolved amidite should be used within 24 hours.

Trademarks and patents

The anthraquinone technology is covered by U.S. Patent no. 6,033,784, EP 0820483 (Nationally filed in Albania, Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Monaco, Netherlands, Portugal, Slovenia, Spain, Sweden, Switzerland and United Kingdom), JP 3124037 and AU 699321 owned by Exiqon A/S.

Latest revision June 6, 2005



Coupling of the amidite to the growing oligonucleotide chain follows standard phosphoramidite chemistry with a recommended coupling time of 5 minutes. AQ-conjugated oligonucleotides can be deprotected using ammonia under standard conditions. The support might turn red when ammonia is added.

Purification of AQ labeled oligonucleotides can be done by RP-HPLC using a standard HPLC gradient. AQ containing oligonucleotides can be detected at 335nm eluting with a retention time in between DMT-OFF and DMT-ON oligonucleotides. AQ adds 372 Da. to the mass of the oligonucleotide. The e260 has been determined³ to be 26.4 M⁻¹ cm⁻¹.

- 1) Koch et. al., *Bioconjugate Chem.*, 2000, 11, 474-483.
- 2) Ørum et. al., *Clin. Chem.*, 1999, 45, 1898-1905.
- 3) Whittemore et. al., *Bioconjugate Chem.*, 1999, 10, 261-270.