Qdot modification is a post synthesis conjugation to a primary amino group. The amino group can be placed at the 5' and 3' and for internal positions an amino modified base is used, e.g. Amino dT C6.

As there are a large number of active carboxy groups on the Qdot surface there may be 10 - 80 oligos conjugated to a single Qdot.

- Yield for 50 and 200 nmol scale synthesis is ~20 nmol oligo conjugated to 1 nmol Qdot. Supplied reconstituted as 10 μM oligo solution in sterile TE pH 7.5. DO NOT FREEZE. STORE at 4 degrees C.
- Yield for 1 umol scale synthesis is ~50 nmol oligo conjugated to 2 nmol of Qdot. Supplied reconstituted as 10 μM oligo solution in sterile TE pH 7.5. DO NOT FREEZE. STORE at 4 degrees C.

Qdot ITK Carboxyls are coated with a polymer shell derivitized with a large number of carboxylic acid groups, within a range of 50-100 per Qdot. In order to attach oligonucleotides to such Qdots, the former first must be synthesized with an Amino Linker modification (either at the ends or internally). The appropriate Qdot ITK Carboxyl is then manually attached to the oligo through the amino group in a separate reaction post-synthesis. However, given the large number of active carboxy groups on the Qdot surface there may be 10 - 80 oligos conjugated to a single Qdot.
Thus, Qdots are unsuitable for any application requiring a 1:1 mole ratio of Qdot:oligo. Qdots are best suited to applications requiring probes in which many oligos are attached to the Qdot surface.

The list of currently available Qdots include Qdot-525, -565, -585, -605, -625, -655, -705, -800, with the number indicating the appropriate maximum emission wavelength for the particular Qdot. Qdots are suitable for a variety of in vitro and in vivo applications (3-5). However, for in vivo experiments, users should note that Qdots are excited in the higher-energy, blue-violet part of the visible spectrum. Researchers who wish to use Qdot-labeled probes should confirm that the higher energy required for excitation does not damage the relevant cells or tissues being used in the in vivo experiments.

For more information visit ThermoFisher website Qdot Technology Overview.

References