

Modified oligonucleotides

Besides unmodified oligonucleotides, we synthesize oligonucleotides containing modifications. The most common modifications are those at the ends of the chain – at 3' or 5' or combined.

There are many other possibilities of modifications: A modifying molecule can be inserted into the chain; nucleotides in the chain can be replaced by their analogues; spacers of various kinds and lengths as well as functional groups or molecules

can be inserted into the sequence of the oligonucleotide. Phosphodiester bonds can be modified as well, at all sites of the chain or selectively.

We recommend that you consult us regarding less common modifications or their combinations prior to their ordering as many limitations of synthesis or purification of final product may occur.

Fluorophores



| Fluorophore | 5' | internal | 3' |
|-----------------|------|----------|------|
| 6'FAM | 1108 | x | 1138 |
| Fluorescein | 1109 | ✓ | 1133 |
| Fluorescein- dT | ✓ | ✓ | ✓ |
| TET | 1114 | x | x |
| JOE | ✓ | x | x |
| HEX | 1111 | x | x |
| Yakima Yellow® | ✓ | x | ✓ |
| Cy3 | 1103 | ✓ | x |
| Dy547 | ✓ | x | x |
| CFR 610 | 1119 | x | x |
| ROX | ✓ | x | ✓ |
| Cy 3,5 | ✓ | ✓ | x |
| CFR 635 | 1120 | x | x |
| Cy5 | 1104 | x | x |
| Dy 647 | ✓ | x | x |

ATTO Fluorophores

| ATTO Fluorophore | 5' | internal | 3' |
|------------------|--------|----------|----|
| ATTO 465 | 1217-5 | ✓ | ✓ |
| ATTO 550 | 1218-5 | ✓ | ✓ |
| ATTO 647 | 1219-5 | ✓ | ✓ |

The whole list of ATTO fluorophores can be found on: <https://www.generi-biotech.com/products/atto-dyes>

The table show catalogue numbers of modifications

✓ the modification has a limitation and can be provided only after consultation; we can give a price quotation after you select your specific sequence to be modified and its scale
x unavailable combination

Quenchers

| Quencher | 5' | internal | 3' |
|----------|----|----------|----|
| BHQ1 | ✓ | ✓ | ✓ |
| BHQ2 | ✓ | ✓ | ✓ |
| BHQ3 | x | x | ✓ |
| BBQ 650 | ✓ | x | ✓ |
| Dabcyl | ✓ | x | ✓ |
| Eclipse | ✓ | x | ✓ |

Other modifications

| Amino | 5' | internal | 3' |
|------------------|------|----------|------|
| Amino C3sp | ✓ | x | x |
| Amino C6sp | 1101 | x | x |
| Amino C7sp | x | x | 1135 |
| Amino C6sp-dA | ✓ | ✓ | x |
| Amino C6sp-dC | ✓ | ✓ | x |
| Amino N2 C6sp-dG | ✓ | ✓ | x |
| Amino C6sp-dT | ✓ | ✓ | x |
| 8-Amino-dA | ✓ | ✓ | x |
| 8-Amino-dG | ✓ | ✓ | x |

| Biotin | 5' | internal | 3' |
|------------|------|----------|------|
| Biotin | 1102 | x | x |
| Biotin-dT | ✓ | ✓ | x |
| Biotin-TEG | x | x | 1130 |

| Spacer | 5' | internal | 3' |
|------------|----|----------|------|
| Spacer C3 | ✓ | ✓ | 1131 |
| Spacer 9 | ✓ | ✓ | x |
| Spacer 18 | ✓ | ✓ | x |
| Spacer C12 | ✓ | ✓ | x |
| D-spacer | ✓ | ✓ | x |
| PC-spacer | ✓ | ✓ | x |

| Universal bases | 5' | internal | 3' |
|--------------------|------|----------|------|
| 2'-DeoxyNebularine | ✓ | ✓ | x |
| Inosin | 1100 | 1100 | 1100 |

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Other modifications

| Cross-link bases | 5' | internal | 3' |
|------------------|----|----------|----|
| 5-Br-dC | ✓ | ✓ | x |
| 5-Br-dU | ✓ | ✓ | ✓ |
| 5-F-dU | ✓ | ✓ | x |
| 5-I-dC | ✓ | ✓ | x |
| 5-I-dU | ✓ | ✓ | x |
| DNP | ✓ | x | x |

| Modified bases | 5' | internal | 3' |
|-------------------------|------|----------|------|
| 3-Deaza-dA | ✓ | ✓ | x |
| 5-(1-Propynyl)-dC (pdC) | ✓ | ✓ | x |
| 5-(1-Propynyl)-dU (pdU) | ✓ | ✓ | x |
| 5-Me-dC | 1168 | 1168 | 1168 |
| 5'-OMe-dT | ✓ | x | x |
| 7-Deaza-dA | ✓ | ✓ | x |
| 7-Deaza-8-aza-dA | ✓ | ✓ | x |
| 7-Deaza-8-aza-dG | ✓ | ✓ | x |
| 8-Br-dA | ✓ | ✓ | x |
| 8-Br-dG | ✓ | ✓ | x |
| 8-Oxo-dA | ✓ | ✓ | x |
| 8-Oxo-dG | ✓ | ✓ | x |
| C8-Alkyne-dC | ✓ | ✓ | x |
| C8-Alkyne-dT | ✓ | ✓ | x |
| N4-Et-dC | ✓ | ✓ | x |
| N6-Me-dA | ✓ | ✓ | x |

| Modified backbone | 5' | internal | 3' |
|-------------------|----|----------|----|
| 2'OMe-RNA | ✓ | ✓ | ✓ |
| 2'F-RNA | ✓ | ✓ | x |
| Phosphorothioate | x | 1160 | x |

| Phosphorylation | 5' | internal | 3' |
|-----------------|------|----------|------|
| Phosphate | 1110 | x | 1139 |

| Thiol modifications | 5' | internal | 3' |
|---------------------|------|----------|------|
| Thiol SH | 1115 | x | 1137 |
| Thiol S-S | 1106 | x | x |

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Other modifications

| Symmetrical branching | 5' | internal | 3' |
|-----------------------|----|----------|----|
| 5-Me-dC-Brancher | ✓ | ✓ | x |
| Symetric Doubler | ✓ | ✓ | x |

| Other | 5' | internal | 3' |
|-------------------|------|----------|------|
| 2'3'-ddC | x | x | ✓ |
| dU | 1169 | 1169 | 1169 |
| Hexynyl | ✓ | x | x |
| Cholesterol | ✓ | x | 1134 |
| Spermine | ✓ | ✓ | x |
| Trimethoxystilben | ✓ | x | x |
| Uaq | x | x | ✓ |
| Pyren | ✓ | x | x |

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