



**Hongene Biotech**

NUCLEOSIDES & NUCLEOTIDES

**V 2.0**



# **PRODUCT CATALOG**

**Nucleotides**  
**Nucleosides**  
**Phosphoramidites**  
**Succinates**  
**Cyclic Dinucleotides**  
**Cap Analogs**  
**Customized GalNAc**

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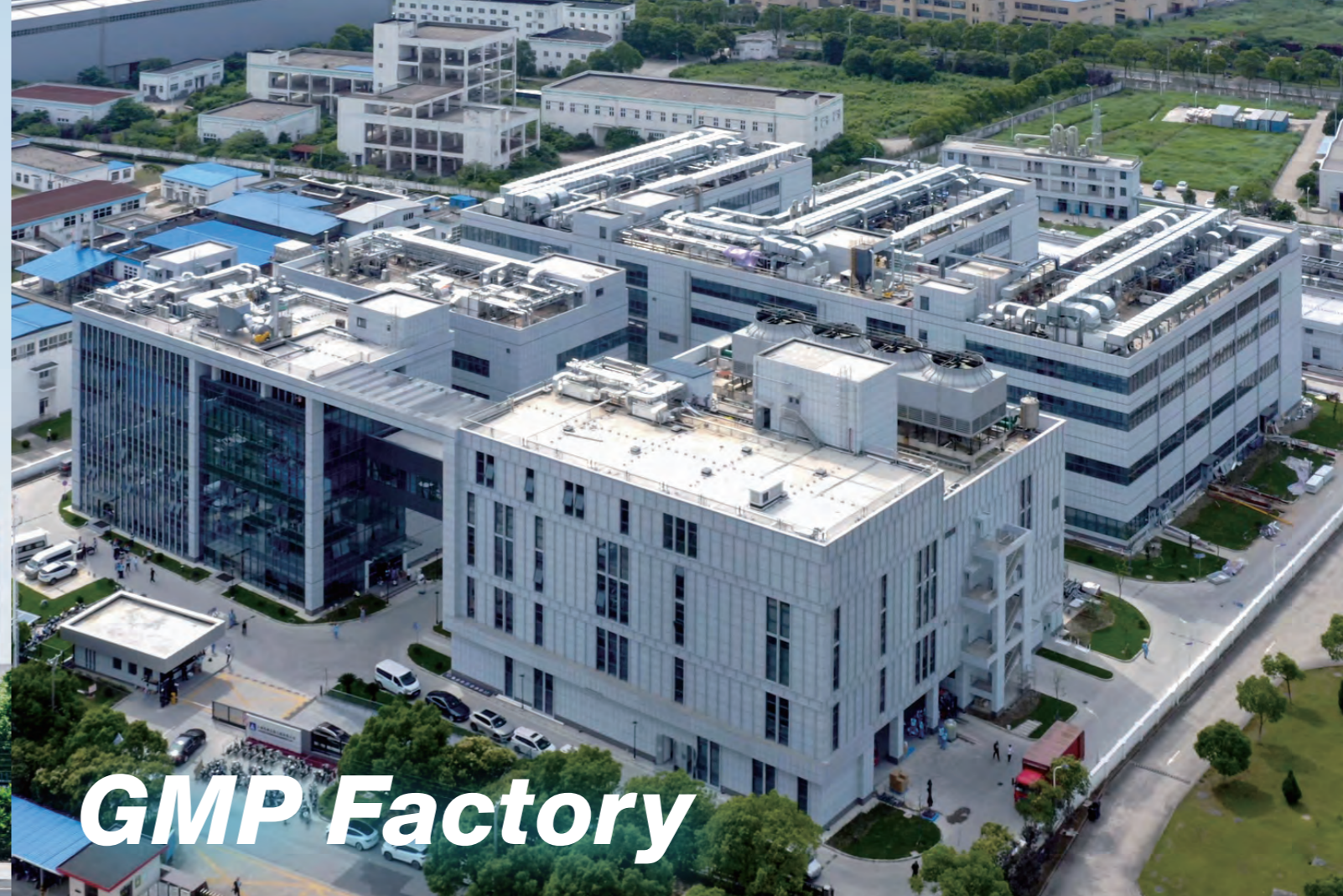
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## Introduction

**Hongene Biotech Corporation** was established in 1998 as a R&D organization and has since become a manufacturer with state-of-art facilities in the fields of nucleosides, nucleotides and phosphoramidites.

Having main operations in **Shanghai**, China at the start, today the company also has offices and laboratories in **USA** and **Japan**. Hongene supplies only **the best quality products at competitive price** to customers worldwide.

Through collaborations with pharmaceutical diagnostic and biotechnology companies, Hongene is **continuously developing new products** in this area of science.

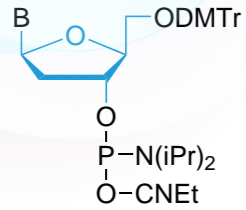
At Hongene our experts are also happy to offer **custom synthesis products** essential for your R&D, helping to bring your products to market more efficiently.

Through continuous innovation, improvement of manufacturing technologies, the tightest quality control and devoted technical team and services, we aim to help our customers to **achieve their goals efficiently and economically**.



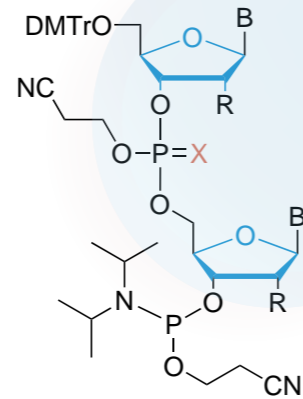
# New Product Series

## L-DNA Phosphoramidite



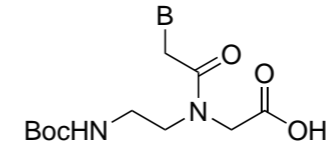
B = protected A, G, C, T Base

## Dimer Phosphoramidite



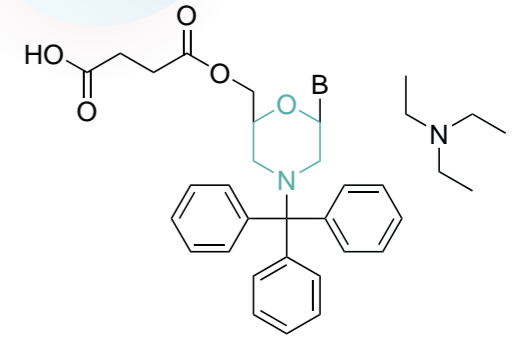
B = protected A, G, C and U, T Base  
R = H, F, OMe, OMOE, OTBDMS ...  
X = O, S

## PNA Series



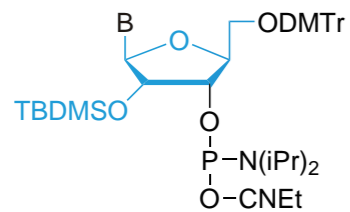
B = protected A, G, C, T Base

## PMO Succinate



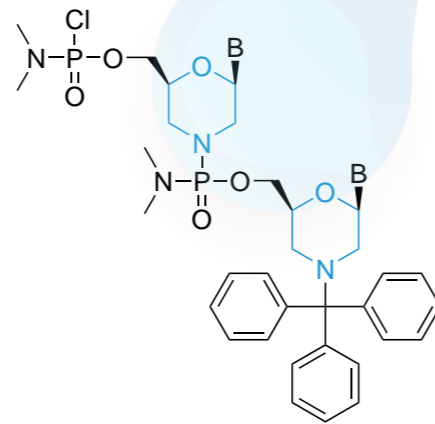
B = protected A, G, C and T Base

## L-RNA Phosphoramidite



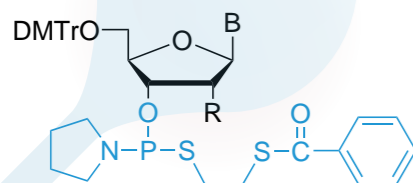
B = protected A, G, C, U Base

## PMO Dimer Phosphoramidate



B = protected A, C, G, 5-Me-U Base

## Thio Phosphoramidite

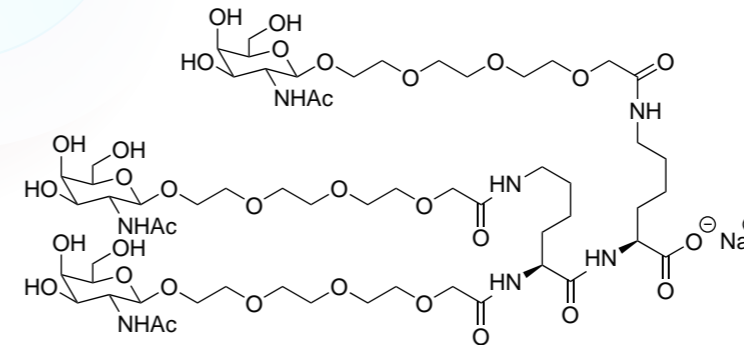


B = protected A, G, C, 5-Me-C, U, T Base  
R = H, F, OMe, OMOE

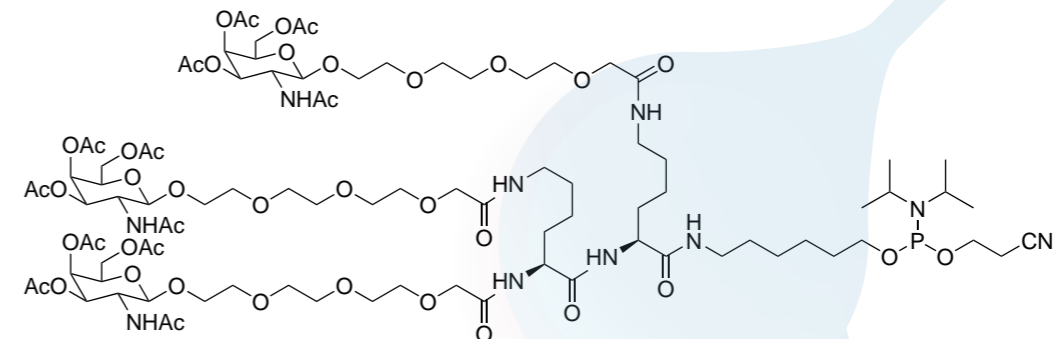
## GalNAc

Licensed from Roche.

### GalNAc-Cluster COONa



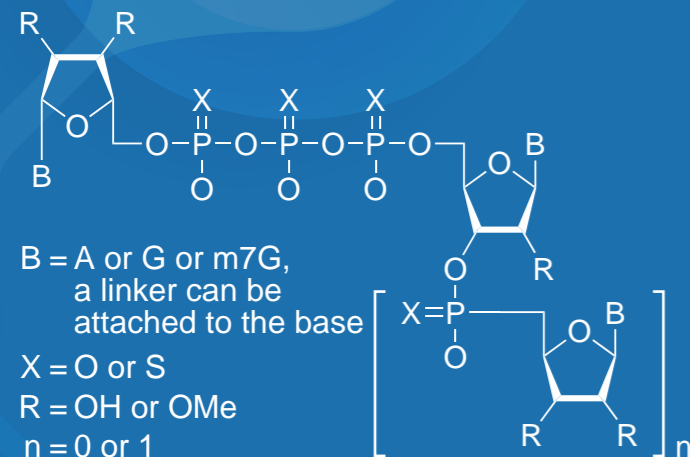
### GalNAc-Cluster HHA-CE Phosphoramidite



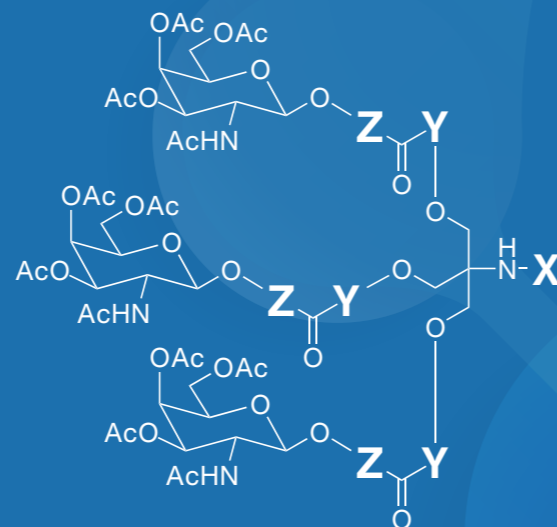
# Custom Synthesis

For custom synthesis, Hongene can offer our expertise in the following areas to help with your special needs:

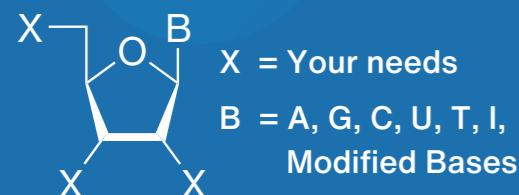
## Customized Cap Analogs



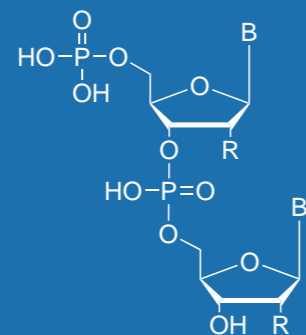
## Customized GalNAc



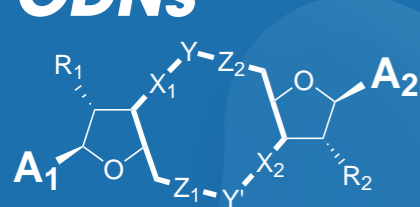
## Modified nucleosides/nucleotides Phosphoramidites Intermediates



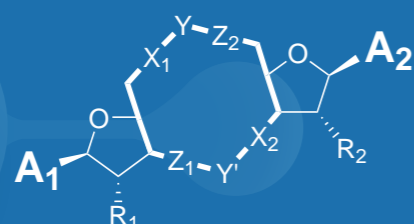
## Dinucleosides Phosphate



## Customized CDNs



Customized CDNs 3'-5'



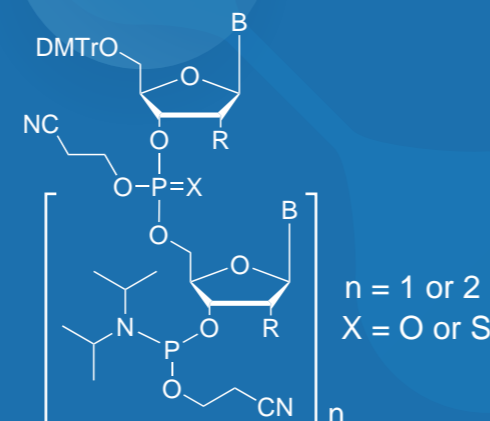
Customized CDNs 5'-5'

A<sub>1</sub>, A<sub>2</sub> = Nucleic base/Nucleic base analogue

X<sub>1</sub>Y<sub>2</sub>, X<sub>2</sub>Y'<sub>1</sub> = OP(O)<sub>2</sub>O<sup>-</sup> or else

R<sub>1</sub>, R<sub>2</sub> = H, OH, O-side chain or F

## Dimer/Trimer Phosphoramidites



# QC Capability

Hongene QC Labs have the capability to carry out the majority of the release testing.

## QC activities:

- Raw Material Testing
- In-Process Testing
- Final Product Testing
- Environmental Monitoring
- Support for R&D
- Support for Process Development
- Stability Testing
- QC method development
- QC method validation

## Typical final product release test include:

### Identity:

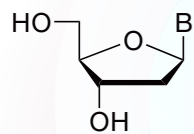
Molecular weight (LC-MS),  
NMR (<sup>1</sup>H, <sup>31</sup>P, <sup>13</sup>C), HPLC

### Purity:

HPLC, NMR (<sup>1</sup>H, <sup>31</sup>P, <sup>13</sup>C)  
Residual Solvents by GC, KF

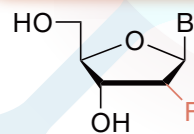


**2'-Deoxynucleosides**



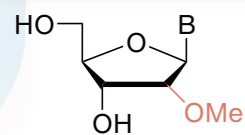
B = protected A, G, C and I, U Base

**2'-Fluoro-Deoxynucleosides**



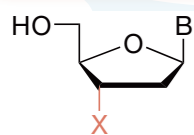
B = protected A, G, C, I, U Base

**2'-O-Methyl-Ribonucleosides**



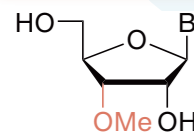
B = protected A, G, C and I, U Base

**2',3'-Dideoxynucleosides**



B = protected A, G, C, I, U Base  
X = N<sub>3</sub>, NH<sub>2</sub>

**3'-O-Methyl-Ribonucleosides**



B = protected A, G, C and I, U Base

**Halogen-Nucleosides**

- 5-Bromo-2'-deoxycytidine(5-Br-dC)
- 5-Bromo-2'-deoxyuridine(5-Br-dU)
- 5-Iodo-2'-deoxycytidine(5-I-dC)
- 5-Iodo-2'-deoxyuridine(5-I-dU)

**Other Modified Deoxynucleosides**

- 7-Deaza-2'-deoxyadenosine(7-Deaza-dA)
- 2'-Amino-2'-deoxyadenosine(2'-NH<sub>2</sub>-dG)
- 2'-Amino-2,6-Diaminopurine-2'-deoxyriboside(2'-NH<sub>2</sub>-2-NH<sub>2</sub>-dA)
- 5-Aminopropenyluridine(5-NH<sub>2</sub>-Propenyl-U)
- 2-Aminopuridine riboside
- 5-Methyl-2'-O-(2-fluoroethyl)-uridine
- Isoguanosine / Isocytidine / Pseudouridine / 4-Thiouridine

- 2'-Deoxyadenosine(2'-dA)
- 2'-Deoxycytidine hydrochloride(2'-dC·HCl)
- 2'-Deoxyinosine(2'-dI)
- 5-Methyl-2'-deoxycytidine(5-Me-dC)
- 2,6-Diaminopurine-2'-deoxyriboside

- 2'-Deoxyxanthosine(2'-dX)
- 2'-Deoxyguanosine(2'-dG)
- 2'-Deoxycytidine(2'-dC)
- 2'-Deoxyuridine(2'-dU)
- Thymidine

- 2'-F-dA
- 2'-F-dG
- 2'-F-dC
- 2'-F-dI
- 2'-F-dU
- 2'-NH<sub>2</sub>-2'-F-dA

- 2'-O-Me-C
- 2'-O-Me-I
- 2'-O-Me-U
- 2'-NH<sub>2</sub>-2'-O-Me-A
- 5-Me-2'-O-Me-U
- 5-Me-2'-O-Me-C

- 3'-NH<sub>2</sub>-ddT(AMT)
- 3'-NH<sub>2</sub>-ddA(AMA)
- 3'-NH<sub>2</sub>-ddU(AMU)
- 3'-NH<sub>2</sub>-ddC(AMC)
- 3'-N<sub>3</sub>-ddT(AZT)
- 3'-N<sub>3</sub>-ddU(AZU)
- 3'-N<sub>3</sub>-ddA(AZA)
- 3'-N<sub>3</sub>-ddC(AZC)

- 3'-O-Methyl-adenosine(3'-O-Me-A)
- 3'-O-Methyl-guanosine(3'-O-Me-G)
- 3'-O-Methyl-inosine(3'-O-Me-I)
- 3'-O-Methyl-2-amino-adenosine(3'-O-Me-NH<sub>2</sub>-A)

- 5-Iodo-2'-Fluoro-deoxyuridine(5-I-2'-F-dU)
- 8-Bromo-2'-deoxyguanosine(8-Br-dG)
- 2,6-Dichloropurine riboside
- 6-Chloropurine-2'-deoxyriboside

- 2',3'-Dideoxyguanosine(2',3'-ddG)
- 2',3'-Dideoxythymidine(2',3'-ddT)
- 2',3'-Dideoxyadenosine(2',3'-ddA)
- 2',3'-Dideoxycytidine(2',3'-ddC)
- 2,2'-Cyclocytidine hydrochloride
- 2-SH-Adenosine
- And More.....

**Modified Nucleotides**

- 5-Br-dUMP.Na<sub>2</sub>
- 5-Br-Ump.Na<sub>2</sub>
- 5-Me-dCMP.Na<sub>2</sub>
- 5-Me-Ump.Na<sub>2</sub>
- 5-Hydroxyl-Ump.Na<sub>2</sub>
- 5-O-Me-UTP,100mM Solution

**dNTP**

- dATP, 100mM Solution
- dCTP, 100mM Solution
- dGTP, 100mM Solution
- dTTP, 100mM Solution
- dUTP, 100mM Solution
- dITP, 100mM Solution

**NTP**

- ATP, 100mM Sodium Solution
- GTP, 100mM Sodium Solution
- CTP, 100mM Sodium Solution
- UTP, 100mM Sodium Solution
- N<sup>1</sup>-Me-Pseudo UTP, 100mM Sodium Solution

**dNMP & NMP**

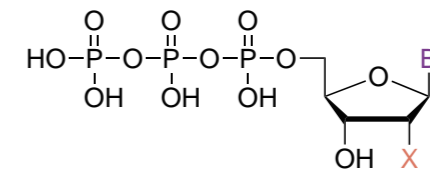
- dAMP.H<sub>2</sub>
- dAMP.Na<sub>2</sub>
- dUMP.Na<sub>2</sub>
- dCMP.H<sub>2</sub>
- dCMP.Na<sub>2</sub>
- dGMP.Na<sub>2</sub>
- dTMP.Na<sub>2</sub>
- dIMP.Na<sub>2</sub>

**Cap Analogs**

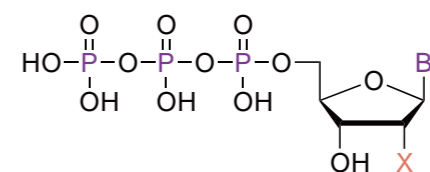
- GpppG
- GpppA
- M7-GpppA
- M7-GpppG
- GAG Trimer\*

\* The use of this product may require the buyer to obtain additional third party intellectual property rights for certain applications.

Note: Customization service available for all bases, salt types, concentration, etc.

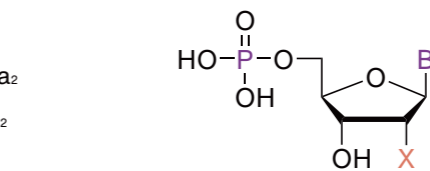


B = modified A, G, C, U, I Base  
X = H, F, OMe ...

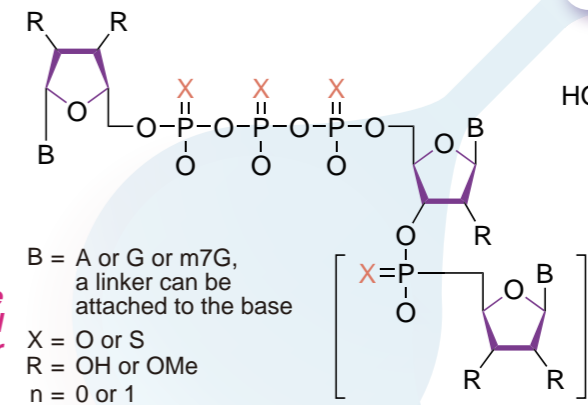


B = protected A, G, C, U, I Base  
X = H, OH

- ATP, 200mM Tris Solution
- GTP, 200mM Tris Solution
- CTP, 200mM Tris Solution
- UTP, 200mM Tris Solution
- N<sup>1</sup>-Me-Pseudo UTP, 200mM Tris Solution



B = protected A, G, C, U, I Base  
X = H, OH



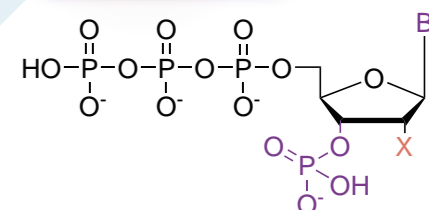
B = A or G or m7G, a linker can be attached to the base  
X = O or S  
R = OH or OMe  
n = 0 or 1

- 5-Me-CTP, 100mM Solution
- iso-dGTP, 100mM Solution
- 1-N-Me-Pseudo UTP, 100mM Solution
- Pseudo-UTP, 100mM Solution
- 2'-F-dNTP, 100mM Solution&Powder
- 2'-O-Me-dNTP, 100mM Solution&Powder
- And More.....
- Custom,Bulk and OEM service

- dNTP 25mM each Mix.Solution
- dNTP 10mM each Mix.Solution
- dNTP 2.5mM each Mix.Solution
- dNTP Mix, Li<sup>+</sup>, 25mM each
- HPLC≥99%
- DNase,RNases free
- Custom,Bulk and OEM service

- 5-Me-CTP, 100mM Sodium Solution
- 5-Me-UTP, 100mM Sodium Solution
- Pseudo UTP, 100mM Sodium Solution
- 5-OMe-UTP, 100mM Sodium Solution
- 5-OMe-UTP, 200mM Tris Solution

**3'-MP 5'-TP**

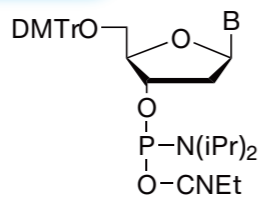


B = A, G, C, U, T Base  
X = H, F, OMe



**Deoxynucleoside Phosphoramidites**

- DMT-dA(Bz)-CE Phosphoramidite
- DMT-dA(dma)-CE Phosphoramidite
- DMT-dG(iBu/dmf)-CE Phosphoramidite
- 5-Me-DMT-dC(Bz/Ac)-CE Phosphoramidite
- N<sup>6</sup>-Me-DMT-dA-CE Phosphoramidite



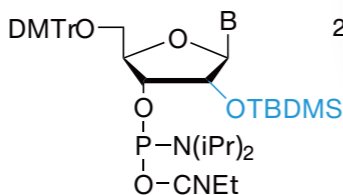
B = protected A, G, C and I, U, T Base

- DMT-dT-CE Phosphoramidite
- DMT-dI-CE Phosphoramidite
- DMT-dU-CE Phosphoramidite
- DMT-dC(Bz/Ac)-CE Phosphoramidite

HPLC ≥ 99%  
<sup>31</sup>P NMR ≥ 98%  
Custom, Bulk and OEM service

**RNA Phosphoramidites**

- 2'-O-TBDMS-A(Bz)-CE Phosphoramidite
- 2'-O-TBDMS-C(Bz/Ac)-CE Phosphoramidite
- 2'-O-TBDMS-5,6-dihydrouridine-CE-Phosphoramidite
- N1-Me-2'-O-TBDMS-G(iPr-pac)-CE-Phosphoramidite
- 2'-OTBDMS-dG(Me)-CE-Phosphoramidite
- N1-Me-2'-O-TBDMS-G(dmf)-CE-Phosphoramidite



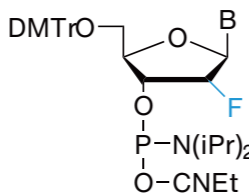
B = protected A, G, C and U Base

- 2'-O-TBDMS-G(iBu/dmf)-CE Phosphoramidite
- 2'-O-TBDMS-U-CE Phosphoramidite
- 2'-O-TBDMS-I-CE Phosphoramidite

HPLC ≥ 98%  
<sup>31</sup>P NMR ≥ 98%  
Custom, Bulk and OEM service

**2'-Fluoro-Deoxynucleoside Phosphoramidites**

- DMT-2'-F-dA(Bz)-CE Phosphoramidite
- DMT-2'-F-dG(iBu/dmf)-CE Phosphoramidite
- DMT-2'-F-dC(Bz/Ac)-CE Phosphoramidite
- DMT-2'-F-dU-CE Phosphoramidite
- DMT-2'-F-dI-CE Phosphoramidite



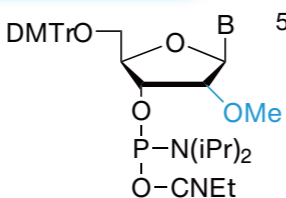
B = protected A, G, C and I, U Base

- DMT-2'-F-G(iBu)-ANA-CE Phosphoramidite
- DMT-2'-F-A(Bz)-ANA-CE Phosphoramidite
- DMT-2'-F-C(Ac)-ANA-CE Phosphoramidite
- DMT-2'-F-U-ANA-CE Phosphoramidite
- And More...

HPLC ≥ 98%  
<sup>31</sup>P NMR ≥ 98%  
Custom, Bulk and OEM service

**2'-O-Methyl-Nucleoside Phosphoramidites**

- DMT-2'-O-Me-A(Bz)-CE Phosphoramidite
- DMT-2'-O-Me-G(iBu/dmf)-CE Phosphoramidite
- DMT-2'-O-Me-C(Bz/Ac)-CE Phosphoramidite
- DMT-2'-O-Me-dU-CE Phosphoramidite
- DMT-2'-O-Me-dI-CE Phosphoramidite



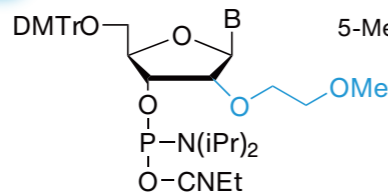
B = protected A, G, C and I, U Base

- 5-Me-DMT-2'-O-Me-C(Bz/Ac)-CE Phosphoramidite
- 5-Me-DMT-2'-O-Me-U-CE Phosphoramidite

HPLC ≥ 98%  
<sup>31</sup>P NMR ≥ 98%  
Custom, Bulk and OEM service

**2'-O-MOE Phosphoramidites**

- DMT-2'-O-MOE-A(Bz)-CE Phosphoramidite
- DMT-2'-O-MOE-G(iBu)-CE Phosphoramidite



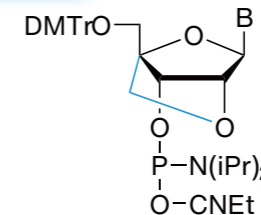
B = protected A, G, 5-Me-C and 5-Me-U Base

- 5-Me-DMT-2'-O-MOE-C(Bz/Ac)-CE Phosphoramidite
- 5-Me-DMT-2'-O-MOE-U-CE Phosphoramidite

HPLC ≥ 98%  
<sup>31</sup>P NMR ≥ 98%  
Custom, Bulk and OEM service

**2'-O-4'-C-Locked Phosphoramidites**

- 2'-O-4'-C-Locked-A(Bz)-CE Phosphoramidite
- 2'-O-4'-C-Locked-5-Me-C(Bz)-CE Phosphoramidite
- 2'-O-4'-C-Locked-G(dmf)-CE Phosphoramidite
- 2'-O-4'-C-Locked-T-CE Phosphoramidite

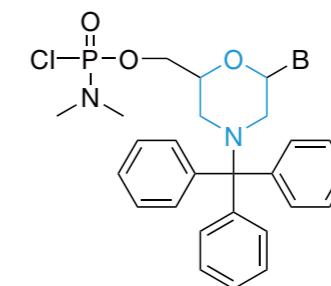


B = protected A, G, 5-Me-C and T Base

Custom, Bulk and OEM service

**Morpholino Products**

- Morpholino-A(Bz) Subunit (PMO-A(Bz))
- Morpholino-G(PhAc) Subunit (PMO-G(PhAc))
- Morpholino-C(Bz) Subunit (PMO-C(Bz))
- Morpholino-T Subunit (PMO-T)
- O<sup>6</sup>-NPE-N<sup>2</sup>-iBu protected G PMO Monomer



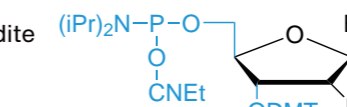
B = protected A, G, C and T Base

Custom, Bulk and OEM service

- PMO-A(Bz) Precursor
- PMO-G(iBu) Precursor
- PMO-C(Bz) Precursor
- PMO-T Precursor

**Reverse Phosphoramidites**

- DMT-dA(Bz)-5'-CE Reverse Phosphoramidite
- DMT-dG(dmf/iBu)-5'-CE Reverse Phosphoramidite
- DMT-dC(Bz/Ac)-5'-CE Reverse Phosphoramidite
- DMT-dT-5'-CE Reverse Phosphoramidite
- Reverse Abasic Phosphoramidite



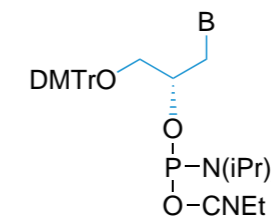
B = protected A, G, C and I, U, T Base  
R = H, F, OMe, OMOE, OTBDMS

- DMT-2'-F-dA(Bz)-CE Reverse Phosphoramidite
- DMT-2'-OMe-G(iBu)-CE Reverse Phosphoramidite
- DMT-2'-O-MOE-T-CE Reverse Phosphoramidite
- DMT-2'-O-TBDMS-U-CE Reverse Phosphoramidite
- And More...

Custom, Bulk and OEM service

**GNA Phosphoramidites**

- A(Bz)-(S)-GNA phosphoramidite
- C(Ac)-(S)-GNA phosphoramidite
- T-(S)-GNA phosphoramidite

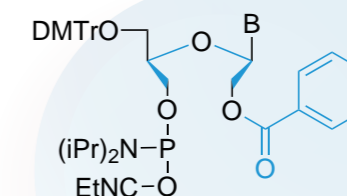


B = protected A, C and T Base

Custom, Bulk and OEM service

**UNA Phosphoramidites**

- UNA-A(Bz)-CE Phosphoramidite
- UNA-C(Ac)-CE Phosphoramidite
- UNA-G(iBu)-CE Phosphoramidite
- UNA-U-CE Phosphoramidite



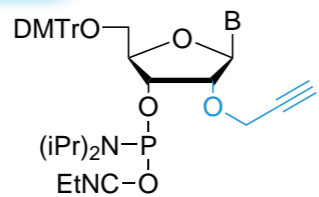
B = protected A, G, C and U Base

Custom, Bulk and OEM service



**2'-O-Propargyl Phosphoramidites**

- DMT-2'-O-propargyl-A(Bz)-CE Phosphoramidite
- DMT-2'-O-propargyl-C(Ac)-CE Phosphoramidite
- DMT-2'-O-propargyl-G(Ac)-CE Phosphoramidite
- DMT-2'-O-propargyl-G(iBu)-CE Phosphoramidite
- DMT-2'-O-propargyl-U-CE Phosphoramidite

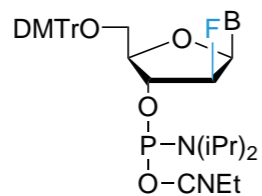


B = protected A, G, C, U Base

Custom, Bulk and OEM service

**2'-FANA Phosphoramidites**

- DMT-2'-F-A(Bz)-ANA-CE-Phosphoramidite
- DMT-2'-F-G(iBu)-ANA-CE-Phosphoramidite
- DMT-2'-F-C(Ac)-ANA-CE-Phosphoramidite
- DMT-2'-F-U-ANA-CE-Phosphoramidite



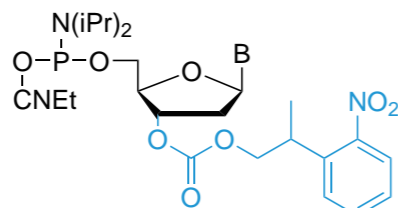
B = protected A, G, C, U Base

Custom, Bulk and OEM service

**NNPOC Phosphoramidites**

**3'-NNPOC Phosphoramidites**

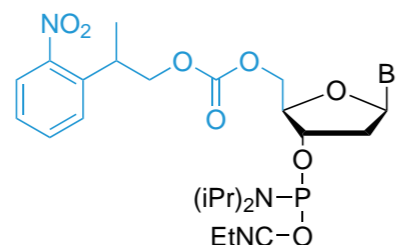
- 3'-NPPOC-dA(Bz)-5'-CE-Phosphoramidite
- 3'-NPPOC-dC(Ac)-5'-CE-Phosphoramidite
- 3'-NPPOC-dG(iBu)-5'-CE-Phosphoramidite
- 3'-NPPOC-dT-5'-CE-Phosphoramidite



B = protected A, G, C and T Base

**5'-NNPOC Phosphoramidites**

- 5'-NPPOC-dA(Bz)-3'-CE-Phosphoramidite
- 5'-NPPOC-dC(Ac)-3'-CE-Phosphoramidite
- 5'-NPPOC-dG(iBu)-3'-CE-Phosphoramidite
- 5'-NPPOC-dT-3'-CE-Phosphoramidite

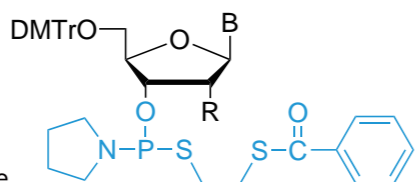


B = protected A, G, C and T Base

Custom, Bulk and OEM service

**Thiophosphoramidites**

- DMT-2'-dA(Bz)-3'-PS-Phosphoramidite
- DMT-2'-F-dC(Ac)-3'-PS-Phosphoramidite
- DMT-2'-OMe-G(iBu)-3'-PS-Phosphoramidite
- DMT-2'-dT-3'-PS-Phosphoramidite



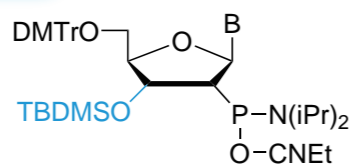
B = protected A, G, C, 5-Me-C, and U, T Base  
R = H, F, OMe, OMOE

- 5-Me-DMT-2'-F-dC(Bz)-3'-PS-Phosphoramidite
- 5-Me-DMT-2'-O-MOE-U-3'-PS-Phosphoramidite
- And More...

Custom, Bulk and OEM service

**3'-O-TBDMS Phosphoramidites**

- DMT-3'-O-TBDMS-A-CE Phosphoramidite
- DMT-3'-O-TBDMS-C-CE Phosphoramidite
- DMT-3'-O-TBDMS-G-CE Phosphoramidite
- DMT-3'-O-TBDMS-U-CE Phosphoramidite

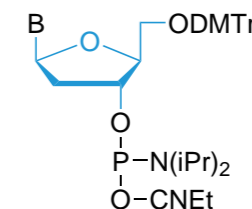


B = protected A, G, C and U Base

Custom, Bulk and OEM service

**L-DNA Phosphoramidites**

- DMT-β-L-dA(Bz)-CE Phosphoramidite
- DMT-β-L-dC(Ac)-CE Phosphoramidite
- DMT-β-L-dG(Ac)-CE Phosphoramidite
- DMT-β-L-dT-CE Phosphoramidite

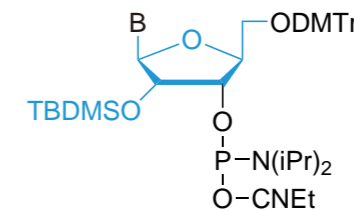


B = protected A, G, C, T Base

Custom, Bulk and OEM service

**L-RNA Phosphoramidites**

- DMT-2'-O-TBDMS-L-A(Bz)-CE-Phosphoramidite
- DMT-2'-O-TBDMS-L-G(iBu)-CE-Phosphoramidite
- DMT-2'-O-TBDMS-L-C(Ac)-CE-Phosphoramidite
- DMT-2'-O-TBDMS-L-U-CE-Phosphoramidite



B = protected A, G, C, U Base

Custom, Bulk and OEM service

**Dimer Phosphoramidites**

**DNA Dimer Phosphoramidites**

- [5'-O-DMTr-2'-dG(iBu)](pCyEt)[2'-dG(iBu)-3'-CE-Phosphoramidite]
- [5'-O-DMTr-5-Me-2'-dU](pCyEt)[2'-dC(Bz)-3'-CE-Phosphoramidite]
- [5'-O-DMTr-2'-dT](P-thio-pCyEt)[2'-dA(Bz)-3'-CE-Phosphoramidite]
- And More...

**Modified Dimer Phosphoramidites**

- [5'-O-DMTr-2'-F-dA(Bz)](pCyEt)[2'-OMe-U-3'-CE-Phosphoramidite]
- [5'-O-DMTr-2'-OMe-A(Bz)](pCyEt)[2'-O-Me-G(iBu)-3'-CE-Phosphoramidite]
- [5'-O-DMTr-2'-dA(Bz)](P-thio-pCyEt)[2'-dT-3'-CE-Phosphoramidite]
- And More...

**PMO Dimer Phosphoramidites**

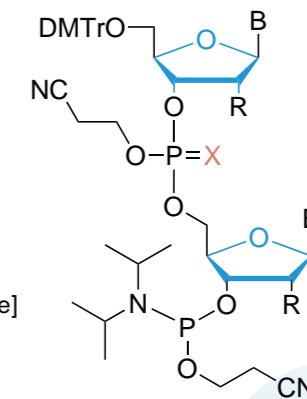
- PMO-CA-Dimer Phosphoramidate
- PMO-AC-Dimer Phosphoramidate
- PMO-AA-Dimer Phosphoramidate
- PMO-CC-Dimer Phosphoramidate
- And More...

Custom, Bulk and OEM service

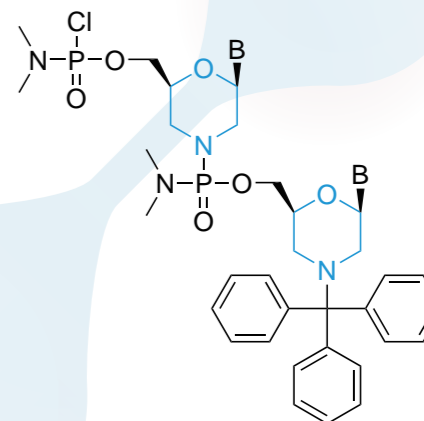
**Other Phosphoramidites**

- Chemical Phosphoramidate Reagent
- Unicap Phosphoramidate\*
- And More.....

\* For sale to licensed end-user only.



B = protected A, G, C and U, T Base  
R = H, F, OMe, OMOE, OTBDMS, etc.  
X = O, S

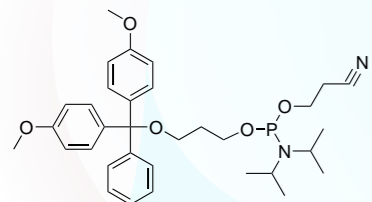


B = protected A, C, G, 5-Me-U Base

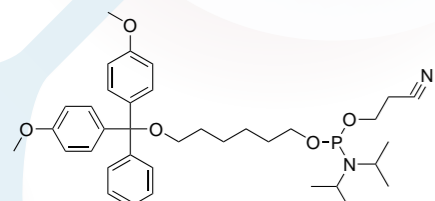


**Linker Phosphoramidites**

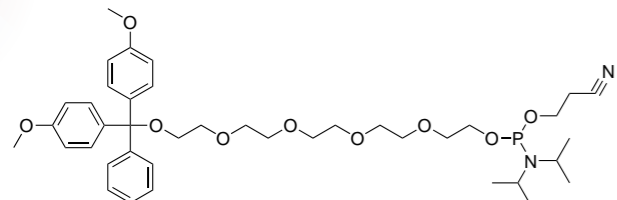
**Spacer Phosphoramidite C3**



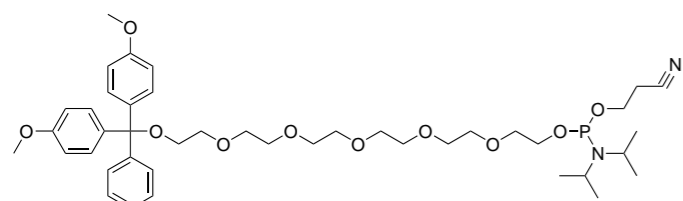
**Spacer Phosphoramidite C6**



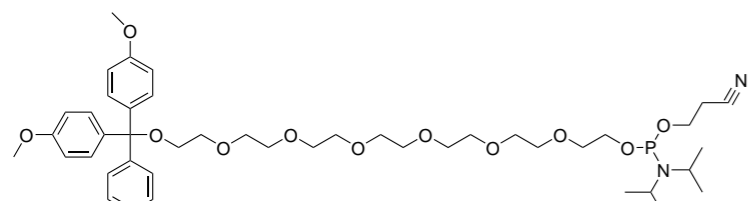
**DMT-PEG Phosphoramidite**



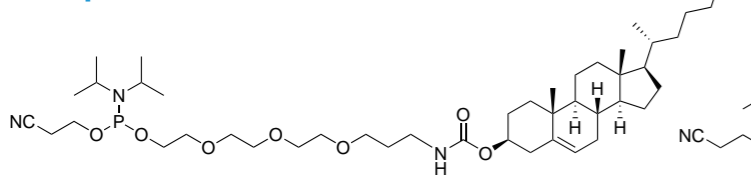
**Spacer Phosphoramidite 18**



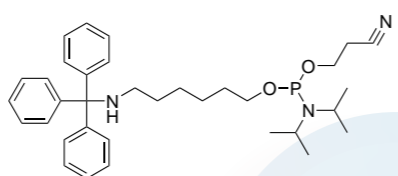
**Spacer Phosphoramidite 20**



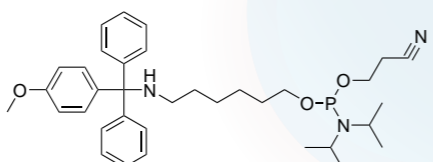
**5'-Cholesteryl-Triethylene Glycol-CE Phosphoramidite**



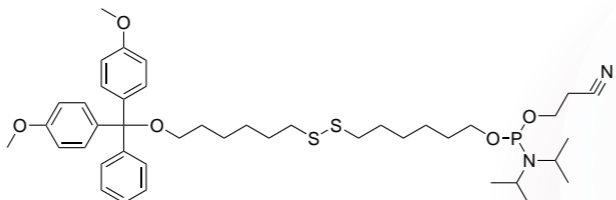
**Tr-C6-amine-linker amidite**



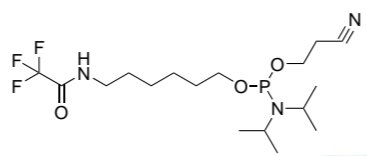
**MMT amine-linker Phosphoramidite**



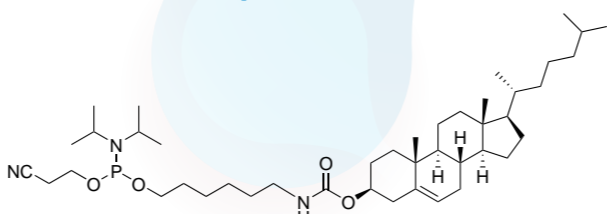
**Thio-modifier C6 S-S linker**



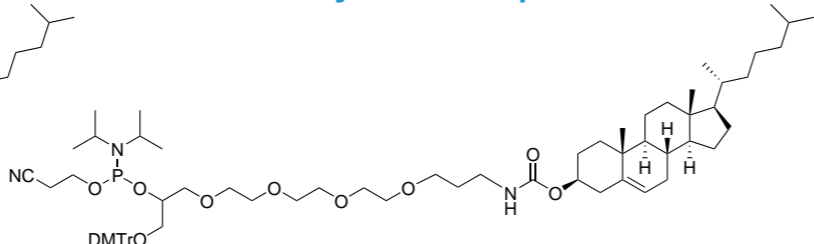
**TFA-C6-amine-linker amidite**



**5'-Cholesterol-CE Phosphoramidite**



**DMTr-Cholesteryl-TEG Phosphoramidite**



Custom, Bulk and OEM service

**2'-O-NMA Phosphoramidites**

**2'-O-NMA Phosphoramidites**

- DMT-2'-O-NMA-A(Bz)-CE-Phosphoramidite
- 5-Me-DMT-2'-O-NMA-C(iBu)-CE-Phosphoramidite
- DMT-2'-O-NMA-G(iBu)-CE-Phosphoramidite
- 5-Me-DMT-2'-O-NMA-U-CE-Phosphoramidite

**2'-O-(methoxycarbonyl)methyl Phosphoramidites**

- DMT-2'-O-(methoxycarbonyl)methyl-5-Me-U-CE-Phosphoramidite
- DMT-2'-O-(methoxycarbonyl)methyl-5-Me-C(iBu)-CE-Phosphoramidite
- DMT-2'-O-(methoxycarbonyl)methyl-A(Bz)-CE-Phosphoramidite
- DMT-2'-O-(methoxycarbonyl)methyl-G(iBu)-CE-Phosphoramidite

**2'-O-(ethoxycarbonyl)methyl Phosphoramidites**

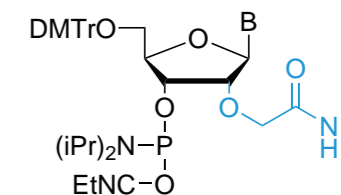
- DMT-2'-O-(ethoxycarbonyl)methyl-5-Me-U-CE-Phosphoramidite

**2'-O-TOM Phosphoramidites**

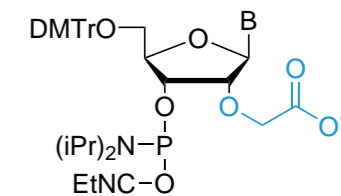
- DMT-2'-O-TOM-A(Ac)-CE Phosphoramidite
- DMT-2'-O-TOM-C(Ac)-CE Phosphoramidite
- DMT-2'-O-TOM-G(Ac)-CE Phosphoramidite
- DMT-2'-O-TOM-U-CE Phosphoramidite

**hDNA Phosphoramidites**

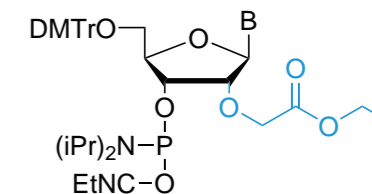
- Beta-D-homoDNA-A(Bz) Phosphoramidite
- Beta-D-homoDNA-C(Bz) Phosphoramidite
- Beta-D-homoDNA-G(dmf) Phosphoramidite
- Beta-D-homoDNA-T Phosphoramidite
- Beta-D-homoDNA-I Phosphoramidite
- Beta-D-homo-DNA-isoUridine Phosphoramidite
- 8-Oxo-Adenosine Phosphoramidite



B = protected A, G, 5-Me-C and 5-Me-U Base

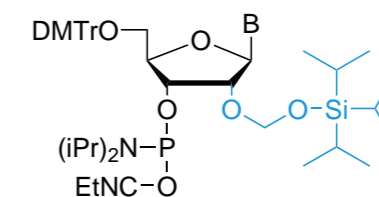


B = protected A, G, 5-Me-C and 5-Me-U Base



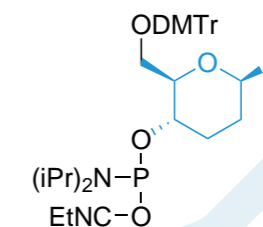
B = protected 5-Me-U Base

Custom, Bulk and OEM service



B = protected A, G, C and U Base

Custom, Bulk and OEM service



B = protected A, G, C and T,I,iso-U Base

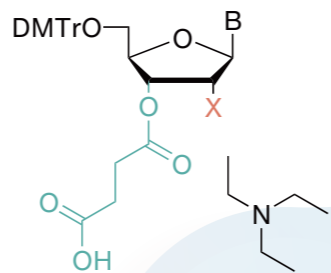
Custom, Bulk and OEM service





**Succinate**

DMT-dA(Bz)/dC(Ac/Bz)/dG(iBu)/dT-3'-O-succinate, TEA salt  
DMT-2'-F-dA(Bz)/dC(Ac)/dG(iBu)/dU-3'-O-succinate, TEA salt  
DMT-2'-O-Me-A(Bz)/C(Ac/Bz)/G(iBu)/U-3'-O-succinate, TEA salt  
DMT-2'-O-MOE-A(Bz)/C(Ac)/G(iBu)/U-3'-O-succinate, TEA salt  
DMT-2'-O-TBDMS-A(Bz)/C(Ac)/G(iBu)/U-3'-O-succinate, TEA salt  
And More...

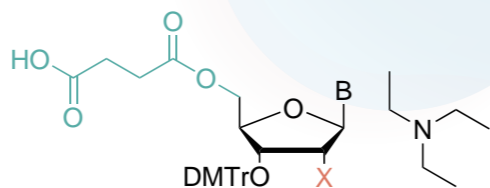


B = protected A, G, C and I, U, T Base  
X = H, F, OMe, MOE, OTBDMS

Custom, Bulk and OEM service

**Reverse Succinate**

3'-DMT-dA(Bz)/dC(Ac/Bz)/dG(iBu)/dT-5'-O-succinate, TEA salt  
3'-DMT-2'-F-dA(Bz)/dC(Ac)/dG(iBu)/dU-5'-O-succinate, TEA salt  
3'-DMT-2'-O-Me-A(Bz)/C(Ac)/G(iBu)/U-5'-O-succinate, TEA salt  
3'-DMT-2'-O-MOE-A(Bz)/C(Ac)/G(iBu)/U-5'-O-succinate, TEA salt  
3'-DMT-2'-O-TBDMS-A(Bz)/C(Ac)/G(iBu)/U-5'-O-succinate, TEA salt  
And More...

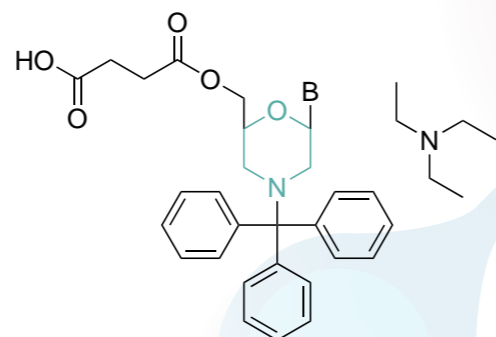


B = protected A, G, C and I, U, T Base  
X = H, F, OMe, MOE, OTBDMS

Custom, Bulk and OEM service

**PMO Succinate**

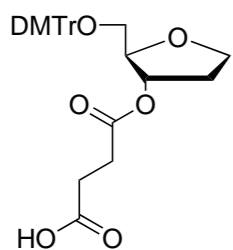
Morpholino A(Bz) succinate, TEA salt  
Morpholino C(Bz) succinate, TEA salt  
O<sup>6</sup>-NPE-Morpholino G(iBu) succinate, TEA salt  
Morpholino T succinate, TEA salt  
And More...



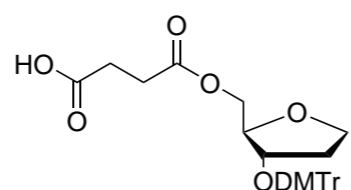
B = protected A, G, C and T Base

**Abasic Succinate**

**Abasic Succinate**



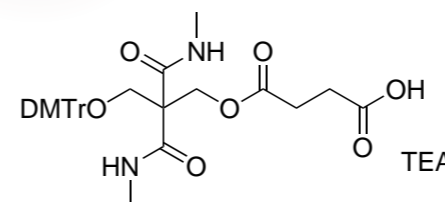
**Reverse Abasic Succinate**



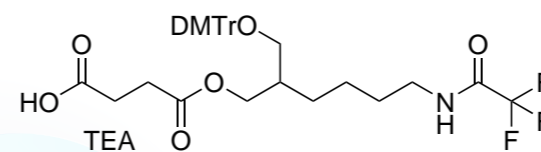
Custom, Bulk and OEM service

**Succinate**

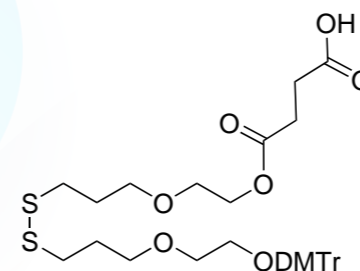
**3-O-DMT-2, 2-(dicarboxymethylamido)propyl-1-O-succinate, TEA salt**



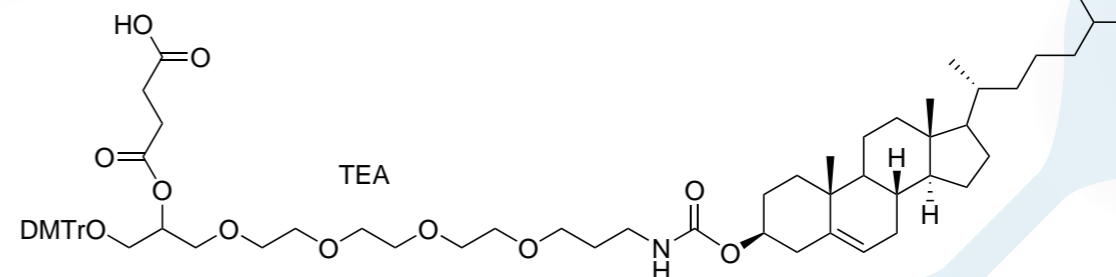
**Trifluoroacetyl-Aminobutyl-1-3-Propanediol-DMT Succinate, TEA salt**



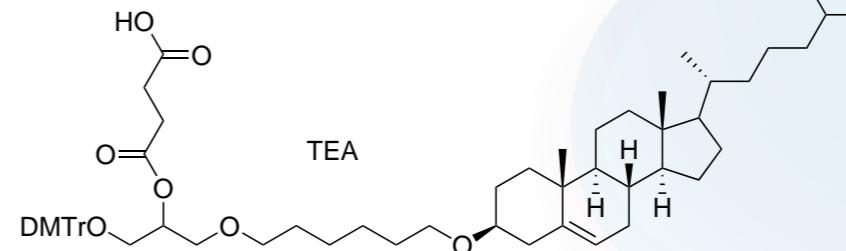
**3'-thio modifier 6 S-S-DMTr-linker-succinate, TEA salt**



**Cholesteryl-TEG-succinate (plant source)**



**Cholesteryl succinate, TEA salt (plant source)**



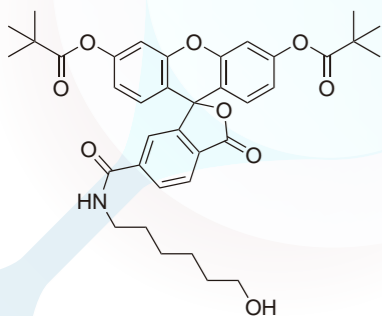
Custom, Bulk and OEM service



**Dye**

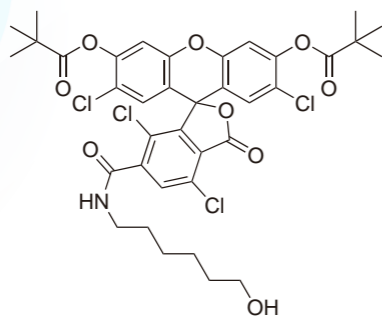
**6-Fluorescein HHA**

Note: Same Structure to **ON-115 6-FAM HHA**



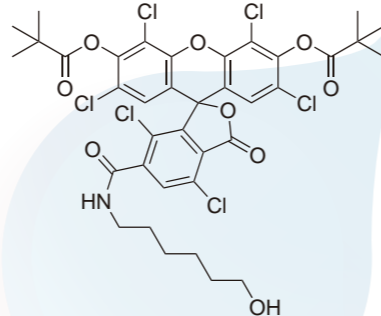
**6-Tetrachloro-Fluorescein HHA**

Note: Same Structure to **ON-140 TET HHA**



**6-Hexachloro-Fluorescein HHA**

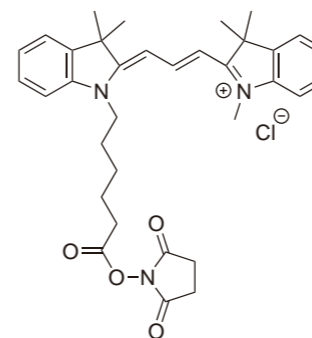
Note: Same Structure to **ON-142 HEX HHA**



**Dye**

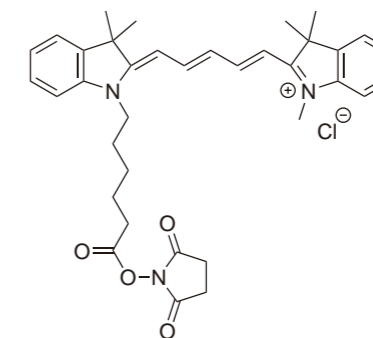
**Cyanine 3 NHS Ester**

**ON-116**



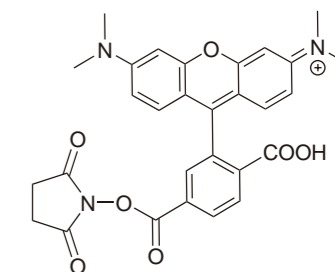
**Cyanine 5 NHS Ester**

**ON-117**



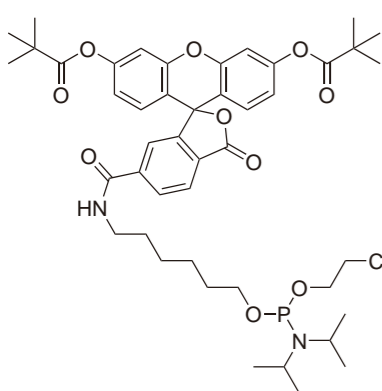
**TAMRA NHS Ester**

**OP-011**



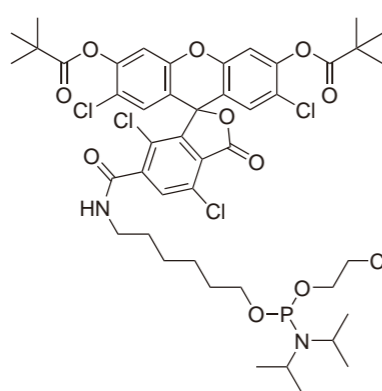
**6-Fluorescein Phosphoramidite**

Note: Same Structure to **ON-022 6-FAM Amidite**



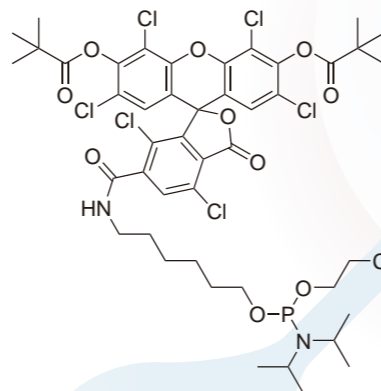
**6-Tetrachloro-Fluorescein Phosphoramidite**

Note: Same Structure to **OP-010 TET Amidite**



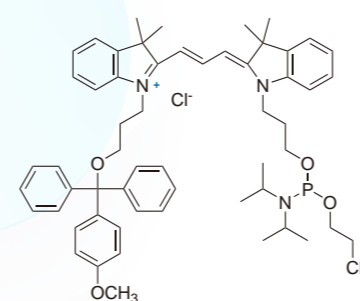
**6-Hexachloro-Fluorescein Phosphoramidite**

Note: Same Structure to **OP-011 HEX Amidite**



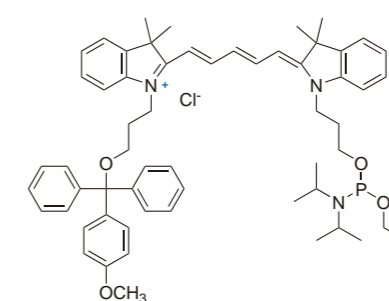
**Cyanine 3 Phosphoramidite**

Note: Same Structure to **OP-038 Cy3 Amidite**



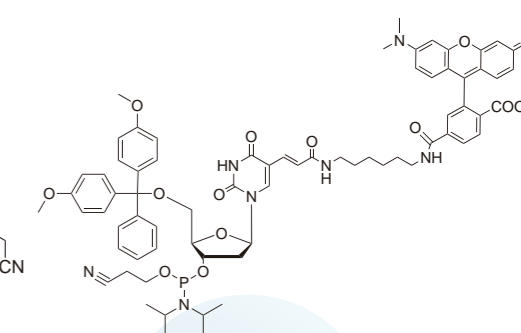
**Cyanine 5 Phosphoramidite**

Note: Same Structure to **OP-057 Cy5 Amidite**



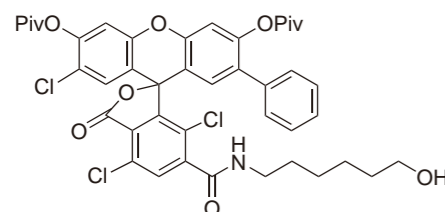
**TAMRA-dT Phosphoramidite**

**PD4-007**



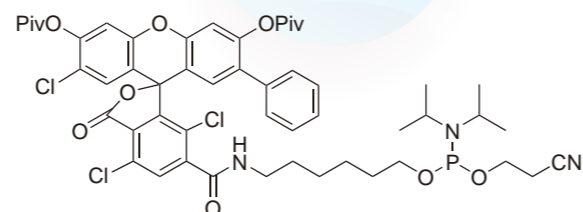
**HQ-F554 HHA**

Note: Same Structure to **ON-507 VIC HHA**



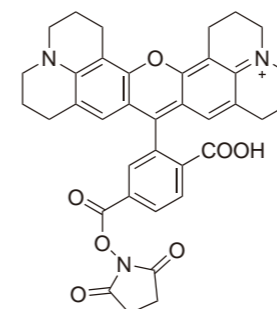
**HQ-F554 phsohporamidite**

Note: Same Structure to **OP-028 VIC Amidite**



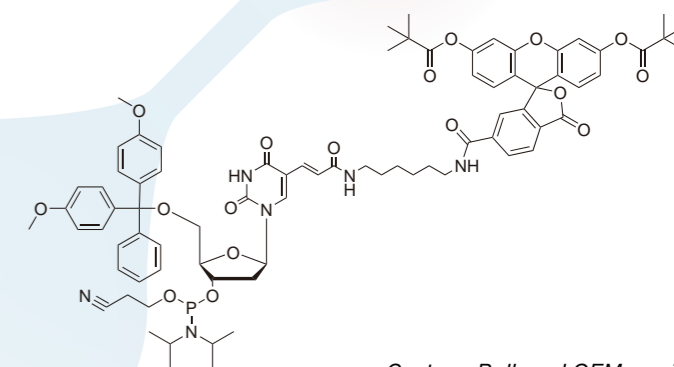
**6-Carboxy-X-rhodamine NHS Ester**

Note: Same Structure to **ON-101 VIC HHA**



**Fluorescein-dT Phosphoramidite**

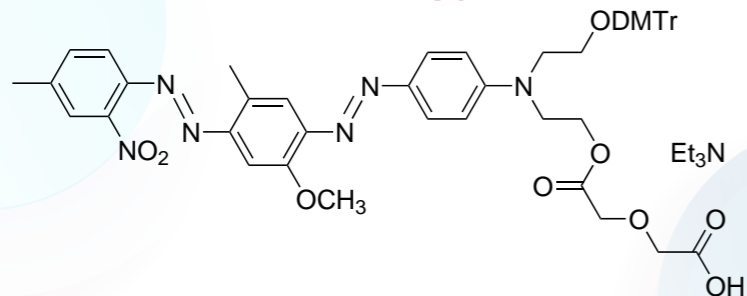
**PD4-006**



**Quencher**

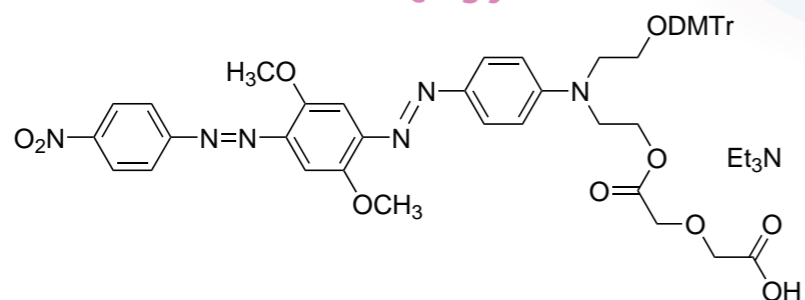
**HDQ-1-glycolate**

Note: Same Structure to  
**ON-484 BHQ-1-glycolate**



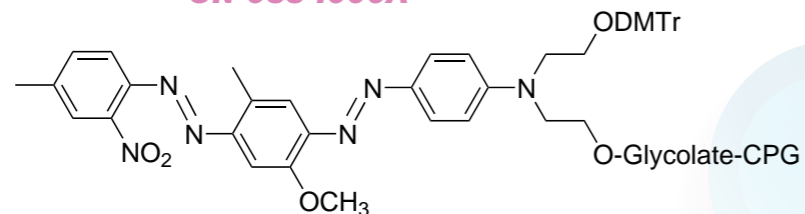
**HDQ-2-glycolate**

Note: Same Structure to  
**ON-485 BHQ-2-glycolate**



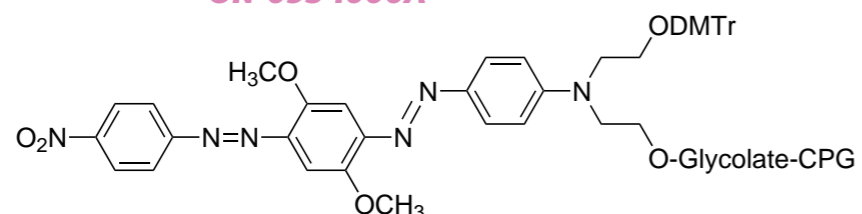
**HDQ-1 CPG (500/1000Å)**

Note: Same Structure to  
**ON-087 500Å BHQ-1-CPG**  
**ON-088 1000Å**



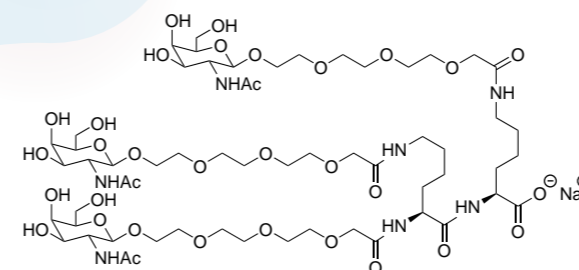
**HDQ-2 CPG (500/1000Å)**

Note: Same Structure to  
**ON-508 500Å BHQ-2-CPG**  
**ON-095 1000Å**



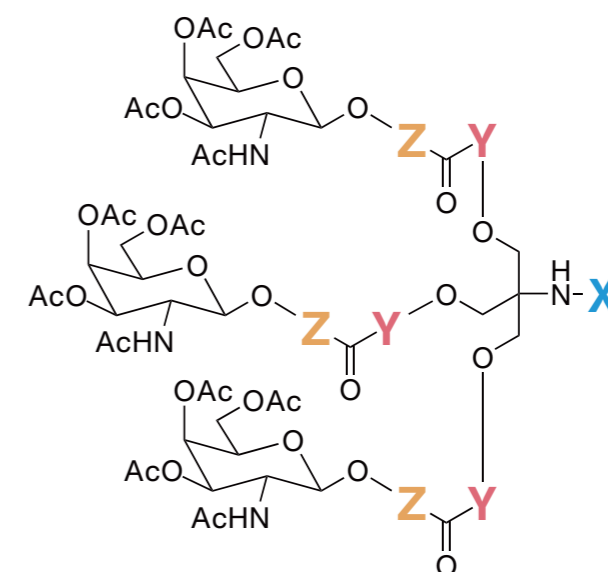
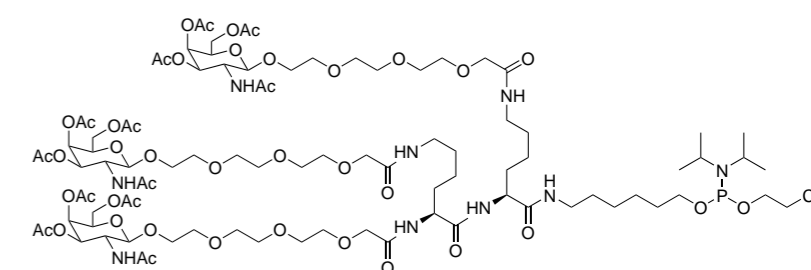
**GalNAc**

**GalNAc-Cluster COONa\***



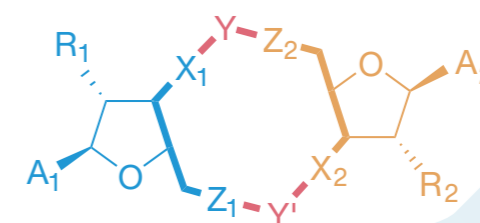
*\*Licensed from Roche.*

**GalNAc-Cluster HHA-CE Phosphoramidite\***



*Custom synthesis available.*

**Cyclic Dinucleotides**



$A_1, A_2$  = Nucleic base / Nucleic base analogue

$X_1Y Z_2, X_2Y' Z_1$  =  $OP(O)_2O^-$  or else

$R_1, R_2$  = H, OH, O-side chain or F

*Custom synthesis available.*



# Diagnostocs

● Polymerase	ON-007	Taq DNA polymerase
	ON-051	pfu DNA polymerase
● Reverse Transcriptase	ON-076	M-MLV Reverse Transcriptase, RNase H Plus
	ON-047	M-MLV Reverse Transcriptase, RNase H Minus
● Modification Enzyme	ON-056	Uracil-DNA Glycosylase (UNG), E.coli
	ON-054	Uracil-DNA Glycosylase (UNG), heat-labile
● Ligase	ON-157	T4 DNA Ligase
	ON-308	Taq DNA Ligase
● RNase Inhibitor	ON-039	RNase Inhibitor (Recombinant)
● dNTP ※	/	dNTP Series
● Others	ON-218	Proteinase K (Recombinant, Molecular Biology Grade)

# mRNA Vaccines & Drugs

● Kit	ON-040	High Yield T7 RNA Synthesis kit
	ON-257	Capped RNA Synthesis Kit
	ON-269	Capped RNA Synthesis Kit (with tailing)
● Enzyme	ON-124	BspQI
	ON-211	T7 Enzyme mix
	ON-004	T7 RNA Polymerase, low concentration
	ON-005	T7 RNA Polymerase, High concentration
	ON-039	RNase Inhibitor (Recombinant)
	ON-025	Pyrophosphatase Inorganic (yeast)
	ON-109	DNase I (RNase-free)
	ON-028	Vaccinia Capping Enzyme
	ON-014	2'-O-Methyltransferase
	ON-074	S-adenosylmethionine (SAM), 32mM
	ON-126	Poly(A) Polymerase

# mRNA Vaccines & Drugs

● Enzyme	ON-024	RNase III, E.coli	
	ON-078	10X RNase III Reaction Buffer	
	ON-079	10X MnCl <sub>2</sub>	
	ON-080	10X EDTA	
	ON-081	T4 RNA Ligase 1	
	ON-179	Alkaline Phosphatase, TAB5	
	ON-180	10X Phosphatase Reaction Buffer	
	ON-333	NLS-Cas9, 10 M	
	● Cap Analog	ON-089	GpppG
		ON-137	GpppA
ON-138		M7-GpppA	
ON-136		M7-GpppG	
ON-134		GAG Trimer ▲	

▲ The use of this product may require the buyer to obtain additional third party intellectual property rights for certain applications.

● Nucleotide ※	R1331	ATP, 100mM Sodium Solution
	R2331	GTP, 100mM Sodium Solution
	R3331	CTP, 100mM Sodium Solution
	R5331	UTP, 100mM Sodium Solution
	R5-027	N <sup>1</sup> -Me-Pseudo UTP, 100mM Sodium Solution
	R1-051	ATP, 200mM Tris Solution
	R2-057	GTP, 200mM Tris Solution
	R3-052	CTP, 200mM Tris Solution
	R5-065	UTP, 200mM Tris Solution
	R5-064	N <sup>1</sup> -Me-Pseudo UTP, 200mM Tris Solution
	R3-029	5-Me-CTP, 100mM Sodium Solution
	R5-104	5-Me-UTP, 100mM Sodium Solution
	R5-022	Pseudo UTP, 100mM Sodium Solution
	R5-046	5-OMe-UTP, 100mM Sodium Solution
	R5-066	5-OMe-UTP, 200mM Tris Solution

Note: ※ Customization service available for all bases, salt types, concentration, etc.

