

HLB Panagene

Peptide Nucleic Acid

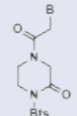




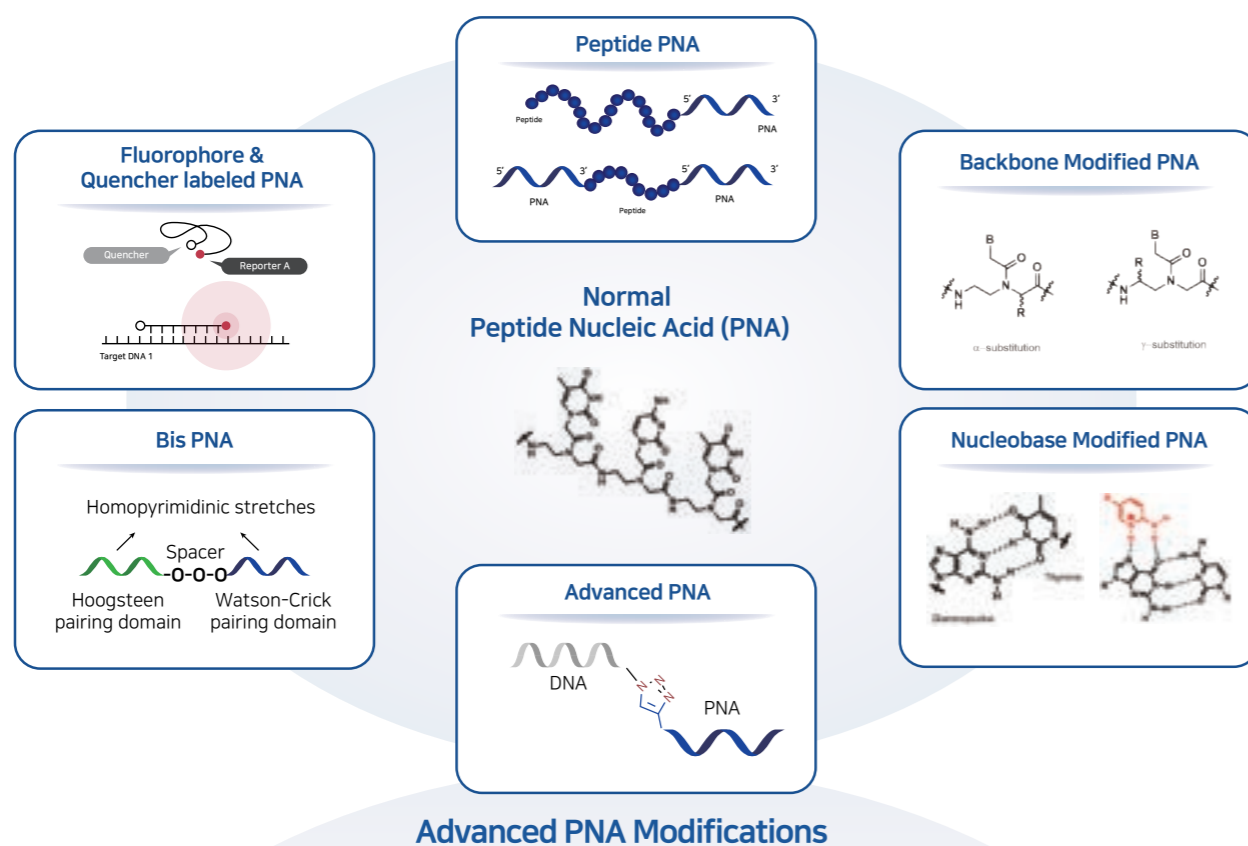
PNA Oligo Synthesis

- Patented proprietary synthesis method using Bts PNA monomers
- Low-cost, mass production of high purity PNA

Bts monomer
B: Nucleobase
Bts: Benzothiazole-2-sulfonyl group

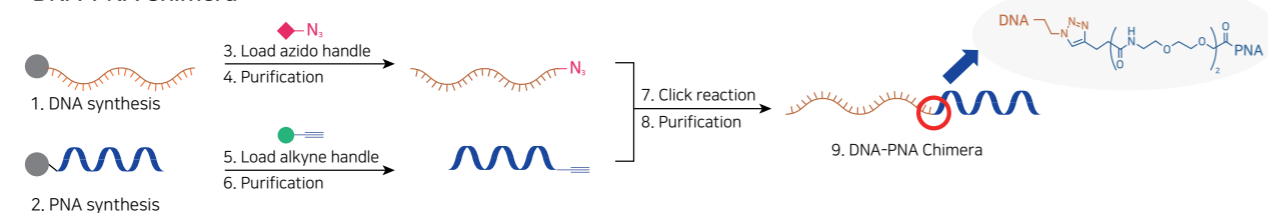


Types of PNA Modifications



- Combination of Multiple PNA Modifications**
[Peptide] - [Nucleobase Modified PNA] - [Peptide]
[Fluorophore] - [Peptide] - [Bis PNA], etc.

DNA-PNA Chimera



Other Modified PNA

PNA Modification with Stearic acid, Acridine, Coumarin, D- α -Tocopherol, Cholesteryl hemisuccinate, Ferrocene, etc.

✳ Please email to pna@hlbpanagene.com for modifications with other compounds.

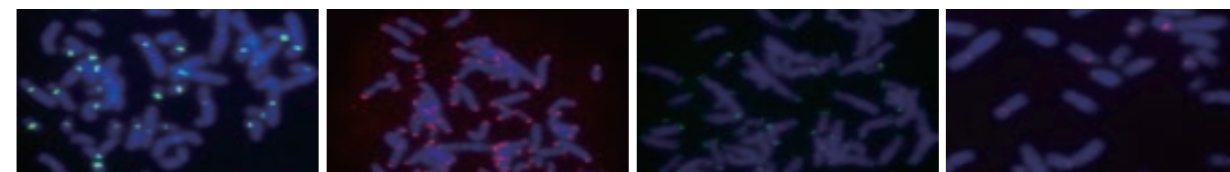


PNA Synthesis Specifications

Length	Up to 40 bases
Minimum Order Scale (Final Yield)	Labeled : 10 nmole, 25 nmole, ... Unlabeled : 20 nmole, 50 nmole, ...
Purification	HPLC > 90%, > 95%
Quality Control	HPLC, MALDI-TOF MS
Packaging	Dried, 2 mL tube
Shipping	Room temperature

FISH probe

- Q-FISH, co-FISH and flow-FISH
- Rapid hybridization to target DNA
- High specificity, higher signal-to-noise ratio
- Washing under mild conditions



Telomere FISH probe

Catalog No.	Description
F1001	TelC-FAM
F1002	TelC-Cy3
F1003	TelC-Cy5
F1004	TelC-Alexa488
F1005	TelG-FAM
F1006	TelG-Cy3
F1007	TelG-Cy5
F1008	TelG-Alexa488
F1009	TelC-FITC
F1010	TelG-FITC
F2001	TelC-TAMRA
F2002	TelG-TAMRA
F2003	TelC-Alexa647
F2004	TelG-Alexa647
F2005	TelC-Biotin
F2006	TelG-Biotin

Cetromere FISH probe

Catalog No.	Description
F3001	CENPB-FAM
F3002	CENPB-Cy3
F3004	CENPB-Cy5
F3005	CENPB-Alexa488
F3007	CENPB-FITC
F3008	CENPB-TAMRA
F3009	CENPB-Alexa647
F3010	CENPB-Biotin
F3003	Cent-Cy3
F3006	Cent-FAM
F3011	Cent-Cy5
F3012	Cent-Alexa488
F3013	Cent-FITC
F3014	Cent-TAMRA
F3015	Cent-Alexa647
F3016	Cent-Biotin

Telomere probe

Cent probe



Features

- >97% guaranteed purity
- High solubility
- Order scale : 1g~

Products

Catalog No.	Product Name
Fmoc-PNA	FMA-1001 Fmoc-PNA-A(Bhoc)-OH
	FMC-1001 Fmoc-PNA-C(Bhoc)-OH
	FMG-1001 Fmoc-PNA-G(Bhoc)-OH
	FMT-1001 Fmoc-PNA-T-OH
	FMU-1001 Fmoc-PNA-U-OH
Fmoc-PNA (Modified Nucleobase)	PMM-0001 Fmoc-PNA-D(tetraBoc)-OH
	PMM-0002 Fmoc-PNA-J(Boc)-OH
	PMM-0003 Fmoc-PNA-thioU-OH
	PMM-0004 Fmoc-PNA-bromoU-OH
	PMM-0005 Fmoc-PNA-Hypoxanthine-OH
	PMM-0006 Fmoc-PNA-Nitropyrrole-OH
	PMM-0007 Fmoc-PNA-Nitroindole-OH
	PMM-0008 Fmoc-PNA-M(Boc)-OH
	PMM-0009 Fmoc-PNA-E(Bn)-OH
	PMM-0010 Fmoc-PNA-P-OH
	PMM-0011 Fmoc-PNA-Q(diBoc)-OH
	PMM-0012 Fmoc-PNA-R(diBoc)-OH
	PMM-0013 Fmoc-PNA-thio(PMB)J(Boc)-OH
	PMM-0014 Fmoc-PNA-Guanidino G-Clamp-OH
	PMM-0015 Fmoc-PNA-Amino G-Clamp-OH
	PMM-0016 Fmoc-PNA- ^{ph} P-OH
	PMM-0017 Fmoc-PNA-TO-OH
	PMM-0018 Fmoc-PNA-methylC(Z)-OH
	PMM-0019 Fmoc-PNA-deazaG(Bhoc)-OH
	PMM-0020 Fmoc-PNA-PPG(Boc)-OH
PMM-0021 Fmoc-PNA-allyIT-OH	
PMM-0022 Fmoc-PNA-A(Bn)-OH	
PMM-0023 Fmoc-PNA-thio(Bn)G-OH	
PMM-0024 Fmoc-PNA-2-Aminopurine(Bhoc)-OH	
PMM-0025 Fmoc-PNA-N ⁷ -G(Bhoc)-OH	
PMM-0026 Fmoc-PNA-O ⁶ -methylG(Bhoc)-OH	
PMM-0027 Fmoc-PNA-Abasic(Boc)-OH	
PMM-0028 Fmoc-PNA-Abasic(Ac)-OH	
Boc-PNA	BMA-1001 Boc-PNA-A(Z)-OH
	BMC-1001 Boc-PNA-C(Z)-OH
	BMG-1001 Boc-PNA-G(Z)-OH
	BMT-1001 Boc-PNA-T-OH
	BMU-1001 Boc-PNA-U-OH
Fmoc-γ-PNA	FMA-2001 Fmoc-γ-L-Lys(Boc)-PNA-A(Bhoc)-OH
	FMC-2001 Fmoc-γ-L-Lys(Boc)-PNA-C(Bhoc)-OH

Catalog No.	Product Name
Fmoc-γ-PNA	FMG-2001 Fmoc-γ-L-Lys(Boc)-PNA-G(Bhoc)-OH
	FMT-2001 Fmoc-γ-L-Lys(Boc)-PNA-T-OH
	FMA-2002 Fmoc-γ-L-Ala-PNA-A(Bhoc)-OH
	FMC-2002 Fmoc-γ-L-Ala-PNA-C(Bhoc)-OH
	FMG-2002 Fmoc-γ-L-Ala-PNA-G(Bhoc)-OH
	FMT-2002 Fmoc-γ-L-Ala-PNA-T-OH
	FMA-2003 Fmoc-γ-L-Glu(OtBu)-PNA-A(Bhoc)-OH
	FMC-2003 Fmoc-γ-L-Glu(OtBu)-PNA-C(Bhoc)-OH
	FMG-2003 Fmoc-γ-L-Glu(OtBu)-PNA-G(Bhoc)-OH
	FMT-2003 Fmoc-γ-L-Glu(OtBu)-PNA-T-OH
	FMA-2004 Fmoc-γ-L-GuanidinoLys(diBoc)-PNA-A(Bhoc)-OH
	FMC-2004 Fmoc-γ-L-GuanidinoLys(diBoc)-PNA-C(Bhoc)-OH
	FMG-2004 Fmoc-γ-L-GuanidinoLys(diBoc)-PNA-G(Bhoc)-OH
	FMT-2004 Fmoc-γ-L-GuanidinoLys(diBoc)-PNA-T-OH
	FMA-2005 Fmoc-γ-L-Ser(tBu)-PNA-A(Bhoc)-OH
	FMC-2005 Fmoc-γ-L-Ser(tBu)-PNA-C(Bhoc)-OH
	FMG-2005 Fmoc-γ-L-Ser(tBu)-PNA-G(Bhoc)-OH
	FMT-2005 Fmoc-γ-L-Ser(tBu)-PNA-T-OH
	FMA-2006 Fmoc-γ-L-Aminomethylene(Boc)-PNA-A(Bhoc)-OH
	FMC-2006 Fmoc-γ-L-Aminomethylene(Boc)-PNA-C(Bhoc)-OH
FMG-2006 Fmoc-γ-L-Aminomethylene(Boc)-PNA-G(Bhoc)-OH	
FMT-2006 Fmoc-γ-L-Aminomethylene(Boc)-PNA-T-OH	
FMA-2007 Fmoc-γ-L-Cys(Trt)-PNA-A(Bhoc)-OH	
FMC-2007 Fmoc-γ-L-Cys(Trt)-PNA-C(Bhoc)-OH	
FMG-2007 Fmoc-γ-L-Cys(Trt)-PNA-G(Bhoc)-OH	
FMT-2007 Fmoc-γ-L-Cys(Trt)-PNA-T-OH	
Fmoc-α-PNA	FMA-3001 Fmoc-α-D-Lys(Boc)-PNA-A(Bhoc)-OH
	FMC-3001 Fmoc-α-D-Lys(Boc)-PNA-C(Bhoc)-OH
	FMG-3001 Fmoc-α-D-Lys(Boc)-PNA-G(Bhoc)-OH
	FMT-3001 Fmoc-α-D-Lys(Boc)-PNA-T-OH
	FMA-3002 Fmoc-α-D-Arg(Tos)-PNA-A(Bhoc)-OH
FMC-3002 Fmoc-α-D-Arg(Tos)-PNA-C(Bhoc)-OH	
FMG-3002 Fmoc-α-D-Arg(Tos)-PNA-G(Bhoc)-OH	
FMT-3002 Fmoc-α-D-Arg(Tos)-PNA-T-OH	

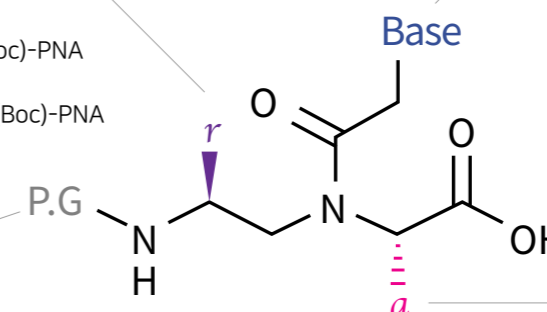


Fmoc-γ-PNA

- Fmoc-γ-L-Lys(Boc)-PNA
- Fmoc-γ-L-Ala-PNA
- Fmoc-γ-L-Glu(OtBu)-PNA
- Fmoc-γ-L-GuanidinoLys(diBoc)-PNA
- Fmoc-γ-L-Ser(tBu)-PNA
- Fmoc-γ-L-Aminomethylene(Boc)-PNA
- Fmoc-γ-L-Cys(Trt)-PNA

Protecting Group

- Fmoc
- Boc



PNA

- A, G, C, T, U

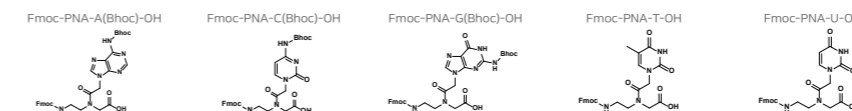
Nucleobase Modified PNA

- D, J, M, E, P, Q, R, Thio J, Etc

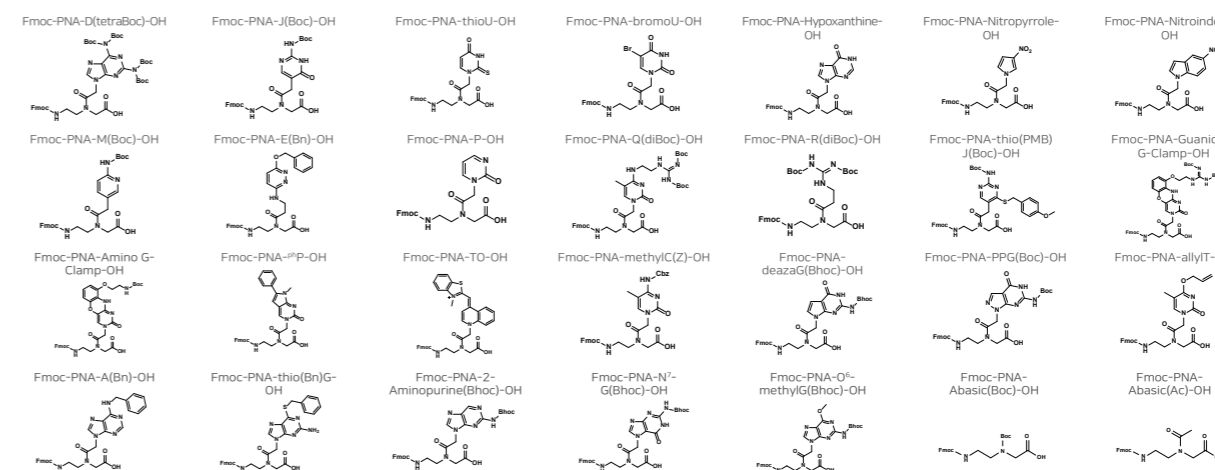
Fmoc-α-PNA

- Fmoc-α-D-Lys(Boc)-PNA
- Fmoc-α-D-Arg(Tos)-PNA

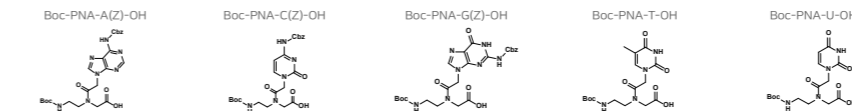
Fmoc-PNA



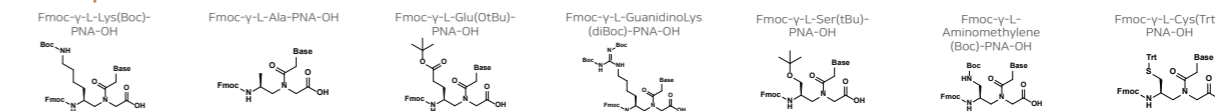
Nucleobase Modified Fmoc-PNA



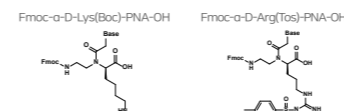
Boc-PNA



Fmoc-γ-PNA



Fmoc-α-PNA

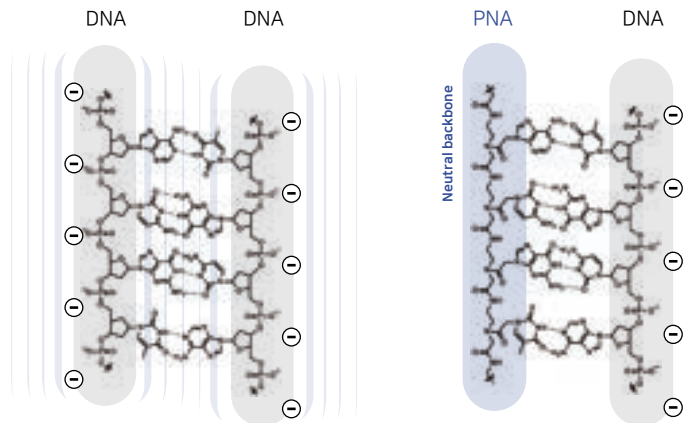


PNA (Peptide Nucleic Acid)



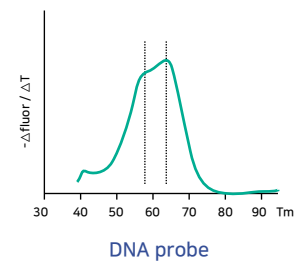
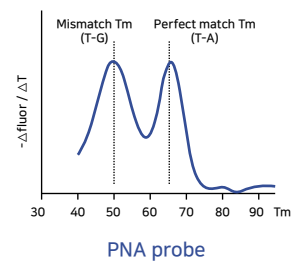
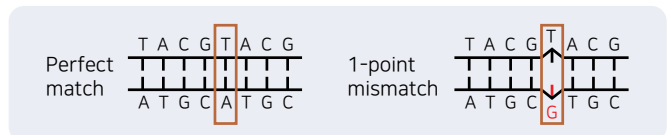
Strong binding affinity

Neutral amide backbone of PNA prevents repulsion when the double helix is formed. The binding between PNA and DNA is stronger than that between DNA and DNA.



High specificity and sensitivity

The ability to distinguish mismatch in the nucleotide sequences is significantly higher than DNA.



Chemical and biological stability

Stable under high temperature and high pH conditions, PNA is resistant to enzymatic degradation.

