

Contract synthesis of Peptide nucleic acid (PNA)

Peptide science professionals prepare PNA, PNA-conjugates with or without labeling by the use of our know-how/experience.

Technical overview

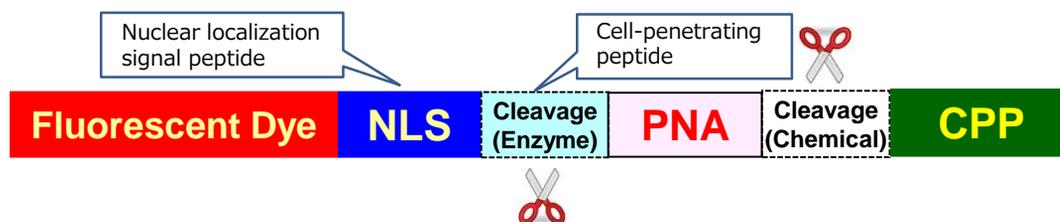
PNA is a molecule with a structure similar to DNA or RNA, which has peptide-bonds in the main chain. It can suppress specific gene expression like antisense method or RNA interference method. PNA has been thought to be useful for drugs because of the stability against nuclease or protease comparing to DNA/RNA. In fact no repulsion of negative charge by phosphate group and stronger than DNA/DNA bond. Additionally PNA does not form a stable PNA-DNA double helix structure if DNA sequence is not completely complementarity. Therefore, PNA is effective for probes to detect single nucleotide polymorphisms (Gaylord BS, et al., *PNAS* 2005 4; 102: 34-9.).

① Problems of PNA synthesis

1. Building blocks are expensive
2. The steric hindrance influences amide bond formation and often poor yield
3. The quality of monomers for assembly influenced biological recognition

② PNA bio-conjugate: various cell penetrating peptides and spacer introducing compounds are useful in delivery

Design for Peptide Vehicle; Bio-shuttle modular type molecule*



PNA forms complementary to A - T and C - G with DNA and specifically recognizes the sequence of DNA. PNA-bioconjugate (Modular Type) are generally useful for introducing cell-penetrating peptides (CPP) with the appropriate spacer. In fact PNA shows poor membrane permeability, although the conjugate with CPP, PNA can deliver to nuclei in cells. It is also possible to release a drug in the cells by conjugation with enzymatic cleavable modules and used for imaging. (*Pipkorn R, Nokihara *et al.*, *Int. J. Med. Sci.* 2011; **8**:725-734. Braun K, Nokihara *et al.*, *Int. J. Med. Sci.* 2012; **9**:339-352)

Guidelines in ordering

Number of Residues	The range for standard synthesis is 10 to 15 base
	Longer than 16 residues often resulting poor yield due to the coupling efficiency. Please contact us.
Quality assurance	Reverse phase HPLC analysis data and mass spectrometry data
Purity	Purity 80 - 90% guaranteed
Amount	Standard 150 microgram
	>150 microgram: Please contact us
Delivery lead time	20 to 30 business days
Delivery form	freeze drying

Option

Please contact us for peptide conjugation.

Delivery lead time	30 business days
Delivery form	freeze dried powder

