

# Contract Syntheses of PIPA (Py-Im-Polyamide)

## A peptides/polyamide containing pyrrole and imidazole (PIPA)

### Gene Therapy or DNA-visualization (diagnostics)

### From small to large scale Production

Professional expertise in peptide science, using own know-how and technologies in solid-phase syntheses, characterization and purification technologies allow production of high quality of polyamides (peptides) containing pyrrole and imidazole (PIPA).

### HiPep Laboratories has been founded for industrial applications of bio-molecular recognition

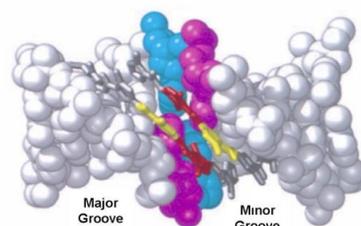
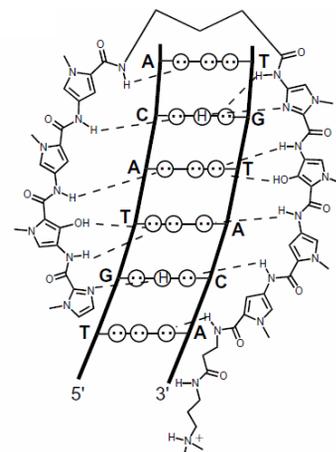
1. PIPA = Peptides (Polyamide) containing N-methylpyrrole (Py) and N-methylimidazole (Im) as building blocks.
2. PIPA is consisting of all non-proteinogenic amino acids, such as Py, Im,  $\beta$ Ala and  $\gamma$ Abu.
3. PIPA can bind to specific nucleotide sequences in the minor groove of double-helical DNA with high affinity and specificity, suggesting that PIPA blocks binding of transcription factors inhibiting gene expression, thus PIPA can be used for gene-control.
4. Binding site specificity is dependent on the side-by-side pairing of Py and Im and gives a hairpin motif.
5. PIPA are generally difficult to prepare, since they may possess structures during assembly, which involves complicated reaction procedures with many steps and the characteristics of Py and Im as building blocks are not simple with respect to stability and solubility.

#### [References]

P. B. Dervan et. al., Nature (1998) 391-468; P. B. Dervan and R. W. Burli, Current Opinion in Chemical Biology 3 (1999) 688-693; P. B. Dervan, Bioorganic & Medicinal Chemistry 9 (2001) 215-2235.

### Advantages of PIPA focusing on drugs with a novel mechanisms

- Alternative gene silencer other than siRNA or PNA.
- Stable in cells or bodies because of nuclease resistance.
- Specifically binds to the target double strand DNA.
- Enter into cell nucleus without any DDS.
- Flexible Design against any gene.
- No-toxicities have been found in animal experiments.



## Information

<b>Price</b>	Dependent on amounts, structures, purity of targets.
<b>Quality assurance data</b>	RP-HPLC analysis, MS data
<b>Delivery time</b>	3~4 weeks (standard synthesis)
<b>Forms of Supply</b>	Freeze-dried product / Frozen courier [aliquots upon request]

### [Other information]

We quote also long-chain polyamides, site specific modifications, conjugates, tandem hairpin type, etc. Several PIPA exposed in literatures are in stock (available as generic PIPAs for mg-basis supply)[inquire]. Design of molecules and applications are also available as a **"CONTRACT RESEARCH"**.