Abstract

This thesis reports synthesis of peptides with high affinity to DNA and DNA cleavage agent with potential sequence specificity.

1.Synthesis of Ser-Pro-X-X series , which is based on the sequence of histones and has β-turn conformation to wind around DNA with ionic interactions. For example：

Ser-Pro-Lys-His-Ser-Pro-Lys-His-Ser-Pro-Lys-His-Ser-Pro-Lys-His-$CONH_2$

16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 (16-KH4)

2.Synthesis of Asn-Arg-Arg series of peptides is based on the amino acid sequence corresponding to fragment 30-35 of TNF-α. For example：

Asn-Arg-Arg-Ala-Asn-Trp-$CONH_2$ (6W-NRR)

6 5 4 3 2 1

3.Synthesis of chlorambucil-peptide conjugates, which may produce DNA cleavage with sequence specificity. For example：

CRB-Lys-Arg-Asn-Pro-Arg-Lys-$CONH_2$ (6-α-C-KR)

6 5 4 3 2 1

By means of agarose electrophoresis, all of the peptides were examined for DNA binding , cleavage as well as gel retardation effects . DNA footprinting studies will be carried out in collaboration with other laboratories.