Abstract

Osteoporosis is a silent disease after meridian age. Osteoporosis may cause the consequence that including the change of shape the body, hard walking、pain、even death. To know the situation of bone loss early, will get the great benefit to further awfully life. In clinical monitoring of osteoporosis, using bone turnover metabolic biomarkers in urine or blood can present the information of bone loss. Among the markers of bone resorption, type I collagen crosslinked N-telopeptides (NTx) are derived specifically from bone collagen degradation and not metabolized. Type I collagen is the major collagen product synthesized by bone cells and represents more than 90% by weight of the non-mineral component of bone. Thus, the rate of cross-linked N-telopeptides (NTx) excretion in urine is regarded as a highly specific index of bone resorption, and it is sensitively suppressed in response to antiresorptive therapies. Our previous study indicated that the designed linear peptides; pepide1, peptide2 and peptide3 had specific binding affinity with anti-NTx antibody. Here we designed a series of cyclic peptides which based on before results to explore the conformation reaction with the antibodies. Using UV-Vis. Spectrophoto-meter to observe the reaction between designed peptides anti-NTx antibodies then calculated the rate constants. The comparisons of linear and cyclic peptides in binding affinity difference show that cyclic peptides react higher affinity than linear peptides. Our further study is to produce anti-cyclic peptide monoclonal antibody to develop more specific and sensitive analysis for monitoring bone loss.

Keywords：Osteoporosis、bone turnover biomarkers、NTx、cyclic peptide