Serum response factor (SRF) is a transcription factor which binds to a highly conserved DNA sequence called the CArG box. According to the nucleotide sequence of CArG box it could form a hairpin structure or a cruciform. In this master thesis, the structure of the CArG box in a human gene *c-fos* was studied by nuclear magnetic resonance. ^{1}H spectra at temperatures 274–356 K, two-dimensional ^{1}H–^{1}H NOESY spectra, and two-dimensional ^{1}H–^{13}C HMBC spectra for DNA sequences with lengths of 12, 14 and 16 nucleotides were acquired. The thermodynamic parameters of formation of the secondary structure in the samples were determined from the measured temperature dependencies. The hairpin formation in the samples was confirmed based on the NOESY spectra and the lack of dependency of the melting temperature on concentration. The observed difference of the secondary structure from B-DNA could serve as a possible explanation of the high afinity of SRF to CArG box.