The Binding Sites of miR-619-5p, miR-5095, miR-5096 and miR-5585-3p in the Human mRNAs

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Abstract. miRNAs are important regulators of the translation of protein-coding genes. Their binding sites are located in all parts of mRNAs, but the features of localization remain unclear. The binding of 2,036 human miRNAs with the mRNAs of 12,175 human genes was studied using the miRTarget program, which was developed in our laboratory. It was predicted that miR-619-5p, miR-5095, miR-5096 and miR-5585-3p bind with high affinity to the mRNAs of the 1215, 832, 725 and 655 genes, respectively. miRNAs binding sites are located in the 3'-UTRs, CDSs and 5'-UTRs. The mRNAs of some genes had multiple miR-619-5p, miR-5095, miR-5096 and miR-5585-3p binding sites. The many predicted target genes are participants of cell cycle and apoptosis. The possible functional properties of miR-619-5p, miR-5095, miR-5096 and miR-5585-3p are discussed.

Keywords: miR-619-5p. miR-5095. miR-5096. miR-5585-3p.

1 Introduction

MicroRNAs (miRNAs) participate in the regulation of the expression of protein-coding genes at the post-transcriptional stage [1]. miRNAs, as a part of the RNA-induced silencing complex, bind to mRNAs and interfere with translation or promote mRNA destruction [2]. The study of the properties of miRNAs and their influences on the expression of the genes that participate in all key processes of cells was established in the last 20 years. The actions of miRNAs on the cell cycle [3], apoptosis [4],

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