

ABSTRACT

Disclosed herein are an mRNA targeting molecule comprising an N-acetylgalactosamine binding polypeptide and a preparation method therefor. A plasmid vector containing a DNA fragment formed by sequentially connecting a promoter, a target gene, a specific protease cleavage sequence, and a polynucleotide sequence encoding a GBD capable of binding to N-acetylgalactosamine, is transcribed to obtain an mRNA, which is connected to a DNA-puromycin linker under the action of a T4 ligase. The resulting connection product is subjected to protein translation, followed by cleavage using a specific protease to obtain an mRNA-puromycin-GBD complex, which then binds to a GBD protein sequence under the action of an N-acetylgalactosamine transferase to form an mRNA-puromycin-GBD-GalNAc complex, thereby modifying the mRNA with GalNAc, thus achieving the purpose of precise administration in a process of mRNA drug delivery and increasing the efficacy of the mRNA drug molecule.

Fig. 1