

Abstract

Disclosed herein is a method for chimeric expression of a recombinant small RNA in *Escherichia coli* using an active tRNA, and use thereof. The method uses the active tRNA chimerized with a functional miRNA precursor as a scaffold to express a target small RNA in *Escherichia coli*. This disclosure further provides use of a recombinant small RNA produced by the method of this disclosure for preparing diagnostic reagents, research reagents, prodrugs, drugs, active pharmaceutical ingredients, or pharmaceutical compositions. This disclosure uses a human tRNA as a scaffold, which may result in lower toxicity and immunogenicity; moreover, using the active tRNA as a scaffold may achieve a therapeutic effect targeting diseases and act synergistically with carried small RNAs. This disclosure not only reduces cytotoxicity and increases the expression level, but also selects an active tRNA scaffold that synergizes with chimeric small RNAs to exert a therapeutic effect.

[Fig. 1]