APPLICATION OF CAS PROTEIN, METHOD FOR DETECTING TARGET NUCLEIC ACID MOLECULE AND KIT

TECHNICAL FIELD

The present invention belongs to the field of biotechnology, and in particular to a method for detecting a target nucleic acid molecule.

BACKGROUND

A specific nucleic acid detection method has an important application value, such as pathogen detection, genetic disease detection, etc. In an aspect of pathogen detection, since each pathogen microorganism has its unique characteristic nucleic acid molecular sequence, it is possible to develop nucleic acid molecular detection for specific species, also known as nucleic acid diagnostic (NAD), which is of great significance in the fields of food safety, environmental microorganism pollution detection, human pathogen infection, etc. Another aspect is the detection of single nucleotide polymorphism (SNP) in human or other species. Understanding the relationship between a genetic variation and a biological function at the genomic level provides a new perspective for modern molecular biology. SNP is closely related to biological functions, evolution and diseases, so the development of SNP detection and analysis technologies is particularly important.

At present, many NAD methods have been established, mainly for the detection of a specific DNA molecule, and there are also some methods for RNA molecules. Generally speaking, a DNA molecule is very stable, so a test sample can come from a series of complex biological samples; while RNA is very easy to degrade, so it needs to be handled with great care. In the 1970s, a detection method using restriction endonuclease digestion was established. Later, methods such as Southern, Northern and dot blot hybridization were developed for specific detection of a nucleic acid molecule. In 1985, when PCR became a conventional experimental method, it led to an exponential improvement in molecular biology. Currently established specific nucleic acid molecule detection usually needs to be performed in two steps, the first step being the amplification