

A novel nucleic acid amplification method: Loop-mediated isothermal amplification (LAMP)

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A novel nucleic acid amplification method termed “Loop-mediated isothermal amplification (LAMP)” relies on auto-cycling strand displacement DNA synthesis primed by specially designed primers and amplifies DNA 3-fold per half cycle. Consequently, LAMP is highly selective to target DNA and highly efficient in amplification, enabling detection of a few copies of target DNA in less than an hour.

LAMP method has many features as follows: 1) LAMP amplifies DNA under an isothermal condition. 2) LAMP is highly specific for the target sequence due to its recognition of six independent sequences in the target DNA. 3) LAMP amplifies DNA with such a high efficiency as enabling detection of only a few copies of DNA in a short time. 4) LAMP also amplifies RNA target simply by adding reverse transcriptase. 6) Because LAMP discriminates a single nucleotide change at each cycling step of the DNA replication, it is very useful method for detection of SNPs of human genome.

Thus, this method is a superior alternative to other amplification methods and therefore would be useful in gene diagnostics.