

RAPID DIAGNOSTIC TEST FOR GENOTYPING

The French Blood Establishment laboratory has developed an innovative diagnostic test based on visual detection of multiplex PCR amplicons, for the identification of Single Nucleotide Polymorphisms (SNP) in biological samples.

INVENTION:

Development of a low-cost and rapid nucleic acid-based assay for specific and visual detection of SNPs in biological samples, using simple process. This invention is the result of the work of the TransDiag Laboratory of EFS located in Montpellier.

KEYWORDS:

Genotyping, single-nucleotide polymorphism (SNP), nucleic acid probes, multiplex test, visual detection, rapid, low-cost

DESCRIPTION:

This invention is based on a rapid test for the multiplex and visual detection of PCR products directly amplified from biological samples. This multiplex test allows simultaneous identification of several SNP alleles in a single reaction. This rapid test doesn't require nucleic acid extraction steps of the biological sample, purification and denaturation of the amplified products.

The proof-of-concept was achieved on human erythrocyte antigens of DUFFY, MNS and KIDD blood group systems by the simultaneous identification of blood group SNPs.

ADVANTAGES:

- Rapid test : Processing time is 45 minutes to 1h30
- Simple protocol : PCR is directly performed on the biological sample
- Direct analysis of the amplified products: no previous purification or denaturation steps is required
- Multiplex : Several SNPs can be genotyped simultaneously

APPLICATIONS:

- Diagnostic and therapeutic management: genotyping of SNPs associated with :
- Pathologies / Predisposition to pathologies / Pathologies severity /Therapeutic response of the patient / Blood group typing
- Forensics: accurate identification of individuals
- Agriculture and water quality

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