

## Identification of the tandem repeat sequence of the thymidylate synthase gene (TYMS)

**Ampli set TYMS**

**Cat.n. 2.022**

The 5-fluorouracil (5-FU) is a cancer drug used alone or in combination with other drugs in the treatment of many cancers including breast cancer, colorectal and head and neck area. The gene coding for the TYMS thymidylate synthase (TS).

The 5-FU is converted to 5-fluoro deoxyuridine monophosphate that inhibits thymidylate synthase (TS), a key enzyme of the de novo synthesis of pyrimidines and, therefore, of DNA replication at the base of the cell duplication. Previous studies in vitro and in vivo studies have shown that a low level of gene transcription TS at the level of the tumor in subjects with colorectal cancer is a predictor of response to treatment with 5-FU, while high levels of transcription of TS in tumor correlate with a poor response to treatment. It is known that the expression of TS is regulated by a polymorphism. Among the various polymorphisms, the more involved in toxicity to 5-FU is the 28bp tandem repeat (rs 34743033). The allele with the triple tandem repeat (3R) presents an increased expression compared to the double tandem repeat (2R). The genotype 3R / 3R increases the risk of toxicity of 1.6 times (43% of patients treated with 5-FU) compared to genotype 3R / 2R. Low levels of TYMS are considered markers of therapeutic response in positive CRC.

These data show that the polymorphism at the level of the promoter for the gene TS can influence both tumor response to chemotherapy based on 5-FU, both survival.

The kit Amp September TYMS can detect the increase dell'espressione genotype 3R / 3R compared to the double tandem repeat (2R) with the PCR and detection on agarose gel-Nusive 4% pre-cast.

### KIT CONTENTS AND ITS CONSERVATION

#### AMPLIFICAZIONE

PCR mix	-20°C
H <sub>2</sub> O DNA/RNA free	-20°C
Taq Polymerase (5U/μl)	-20°C
Control positive	-20°C

**Principle:** A) extraction of genomic DNA B) amplification C) enzymatic digestion D) detection on agarose gel.

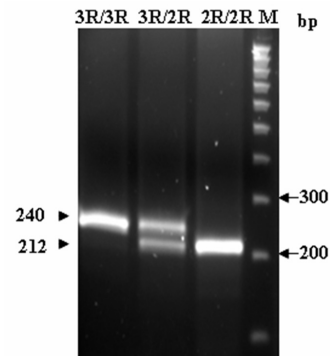
**Stability:** over 12 months if properly stored (I agarose gels when stored away from light, is stable for one year at room temperature).

**Applicability:** on extracted and purified genomic DNA from whole blood samples.

**Number of Tests:** 25.

### INTERPRETATION OF RESULTS

The amplification product and 'a fragment of 247 bp.  
 The product is the 240-bp fragment allele 3R  
 and the product of 212 bp is the fragment for allele 2R



### Bibliografia:

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