

KIT FOR THE DETECTION OF TRANSLOCATION

T(4;11) MLL-AF4

AMPLI-SET-MLL-AF4

Cat. n. 1.405

Molecular studies have shown that the chromosomal breakpoints of t(4;11)(q21;q23) translocation of acute lymphoblastic leukemia (ALL) involves the MLL (ALL-1, Hrx) gene on chromosome 11 and the AF4 (FEL) gene on chromosome 4. The MLL gene breakage lead to fusion gene involving most frequently exons 9 and 10 in paediatric and adult ALL, and exon 11 in infant ALL. The most frequent fusion point in AF4 gene is exon 4; in rare cases exons 5, 6 and 7 are fused to the MLL gene.

MLL-AF4- positive leukemias are observed in 50-70% of infant ALL cases and in 5% of adult and pediatric ALL cases. MLL-AF4 has been identified as an adverse prognostic factor in infant leukemia. Also, it has been associated with a bad prognosis in adults. In pediatric cases, there is some suggestion that different age groups have different prognoses. This Kit enables the detection of all known MLL-AF4 fusion transcripts by reverse transcription-polymerase chain reaction (RT-PCR) using primer sets designed at opposite sides of the breakpoint fusion regions (MLL exon 8 and AF4 exon 7). It can be use as a rapid method for detecting this chromosomal abnormality and following the patient's response to therapy.

Principle of method: A) extraction of genomic DNA
B) reverse transcription C) amplification C) detection on agarose gel.

Applicability: On extracted and purified RNA.

Tests: 45

Blood **82**: 2943-2947 (1993)

Br J Haematol **92**: 659-664 (1996)

REAGENTS AND STORAGE

REVERSE TRANSCRIPTION AMPLIFICATION

RT Mix	-20°C
Rnase inhibitor (40U/μl)	-20°C
Reverse transcriptase (10U/ μl)	-20°C
Random Primers	-20°C
I PCR Mix	-20°C
nested PCR mix	-20°C
sterile H ₂ O	-20°C
Taq Polymerase (5U/μl)	-20°C
c DNA control	-20°C

Stability: over 12 months if correctly stored.

ANALYSIS OF RESULTS

The sizes of PCR products are variable due to the different types of breakpoints.

Size of PCR products in bp	<u>I PCR</u>	<u>Nested PCR</u>
	MLLe8-AF4e7	184
MLLe8-AF4e4	353	296
MLLe9-AF4e5	382	325
MLLe9-AF4e4	427	370
MLLe10-AF4e6	427	370
MLLe10-AF4e5	514	457
MLLe10-AF4e4	559	502
MLLe11-AF4e6	541	484
MLLe11-AF4e5	628	571
MLLe11-AF4e4	673	616

References:

Cell **71**:701-708 (1992)

Br J Haematol **93**: 966-972 (1996)

Br J Haematol **98**: 157-169 (1997)

J Pediatr Hematol Oncol **20**: 299-308 (1998)

New Engl J Med **339**: 605-615 (1998)

Leukemia **9**: 762-769 (1995)