

Frequency of BCR-ABL Fusion Transcript Types with Chronic Myeloid Leukemia by Multiplex Polymerase Chain Reaction in Srinagarind Hospital, Khon Kaen Thailand

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Abstract : Chronic myeloid leukemia (CML) is characterized by the consistent involvement of the Philadelphia chromosome (Ph), which is derived from a reciprocal translocation between chromosome 9 and 22, the main product of the t(9;22) (q34;q11) translocation, is found in the leukemic clone of at least 95% of CML patients. There are two major forms of the BCR/ABL fusion gene, involving ABL exon 2, but including different exons of BCR gene. The transcripts b2a2 (e13a2) or b3a2 (e14a2) code for a p210 protein. Another fusion gene leads to the expression of an e1a2 transcript, which codes for a p190 protein. Other less common fusion genes are b3a3 or b2a3, which codes for a p203 protein and e19a2 (c3a2) transcript, which codes for a p230 protein. Its frequency varies in different populations. In this study, we aimed to report the frequency of BCR-ABL fusion transcript types with CML by multiplex PCR (polymerase chain reaction) in Srinagarind Hospital, Khon Kaen, Thailand. Multiplex PCR for BCR-ABL was performed on 58 patients, to detect different types of BCR-ABL transcripts of the t (9; 22). All patients examined were positive for some type of BCR/ABL rearrangement. The majority of the patients (93.10%) expressed one of the p210 BCR-ABL transcripts, b3a2 and b2a2 transcripts were detected in 53.45% and 39.65% respectively. The expression of an e1a2 transcript showed 3.75%. Co-expression of p210/p230 was detected in 3.45%. Co-expression of p210/p190 was not detected. Multiplex PCR is useful, saves time and reliable in the detection of BCR-ABL transcript types. The frequency of one or other rearrangement in CML varies in different population.

Keywords : chronic myeloid leukemia, BCR-ABL fusion transcript types, multiplex PCR, frequency of BCR-ABL fusion

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