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Measurement of the Residual BCR-ABL mRNA during Long Term Bone Marrow Culture Using Competitive Polymerase-Chain Reaction

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Aim. To assess the decline in the number of BCR-ABL positive cells during a long term bone marrow culture of a patient with chronic myelogenous leukemia (CML) using a competitive polymerase chain reaction (PCR).

Method. Bone marrow from a patient with CML was cultured under long term culture conditions for four weeks. Weekly aliquots were analyzed for the presence of BCR-ABL fusion mRNA by a reverse-transcription PCR. PCR amplification of the patient's cDNA was performed with serial dilutions of the competitive target, constructed by removing a Sty I fragment from a BCR-ABL product.

Results. The amount of BCR-ABL mRNA declined about 100-fold during the long term bone marrow culture: 30 ng of a competitive target produced a roughly equivalent band at the time of a culture initiation, whereas 0.3 ng of the same target produced a complete inhibition of the patient's PCR product at week 4 of the culture.

Conclusion. Rt-PCR combined with competitive PCR can be successfully used to monitor BCR-ABL mRNA *in vitro*. The significance of the observed BCR-ABL mRNA decline in a long term bone marrow culture of a CML patient has yet to be investigated.

Key words: *bone marrow, culture; leukemia; oncogenes*

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