REAL-TIME QUANTITATIVE PCR CHIMERISM ASSAY AFTER BONE MARROW TRANSPLANTATION (BMT) IN SEX MATCHED SIBLING

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Objective: To determine absolute level of chimerism for monitoring engraftment in sex–matched related pair by real time quantitative PCR.

Methods: Blood samples were from a male patient Acute Myeloid Leukemia at day 16, 28 and 49 who underwent allo-BMT from his donor brother. DNA was extracted using QIAamp Blood MIDI kit. Before quantification, the donor and recipient were genotyped using 19 biallelic genetic markers. Informative alleles were determined and only one marker was used for each genotype profile. Genotyping and all chimerism quantifications were performed by real-time PCR using LC480, Roche.

Results: SO3 genetic marker located on chromosome 6q was informative in patient and was used in recipient-specific allele amplification. Decrease of recipient genotype % from day 0 to day 49 after allo-BMT was observed with 100% at day 0, 9% at day 16, 6% at day 28 and 4% at day 49 and correlates with clinical findings.

Conclusion: Real-time quantitative PCR chimerism assay is feasible and useful for monitoring engraftment even in sex matched sibling with identified genetic marker and a reproducible sensitivity of up to 1:1000 cells.