Discrepant A-Locus HLA Typing Results Between Testing Methodologies: A Case Study

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Aim

A 41 year-old male presented with AML/MDS in blast crisis for HLA typing. At the time his original sample was collected, his absolute WBC was 70.1 x 10^9/L with an absolute blast count of 16.1 x 10^9/L. A discrepancy was present between the serologic typing and some of the molecular results—serology, AutoReli SSO, and SSP gave a heterozygous A*02:01, *25:01, whereas Luminex SSO and SBT have a homozygous A*25:01 result. A sample was sent for confirmatory testing, with an absolute WBC count of 3.1 x 10^9/L and no blasts present. This sample demonstrated a heterozygous A*02:01, *25:01 result.

Methods

HLA typing was performed by serology (Bio Rad, GTI Diagnostics), reverse SSO by AutoReli (Life Technologies) and Luminex (One Lambda), allele-specific SSP trays (Olerup, One Lambda), generic typing SSP trays (One Lambda), and SBT (Life Technologies, Abbott Molecular).

Results

Results obtained by serology, generic and allele-specific SSP typing trays, and AutoReli reverse SSO gave an A*02:01,*25:01 typing. However, Luminex SSO and SBT testing methods demonstrated a homozygous A*25:01 result. Upon review, the Luminex SSO had some probes that were close to their respective cut-off values, though none were flagged by the software. SBT results using both methods showed absolutely no evidence of a second allele. All testing methodologies gave an A*02:01, *25:01 result on the confirmatory sample.

Conclusions

The likely cause of the discrepancy between all of the available typing methods is due to an allele drop out of the A*02:01 in the malignant myeloid cell line. Since the patient still had a substantial population of unaffected lymphocytes (absolute lymphocyte count of 10.5 x 10^9/L), a correct heterozygous result was obtained by the more robust molecular typing methods, as well as by serologic testing. Since the malignant cell line was obliterated in the confirmatory sample, all testing methods were able to obtain the correct result.