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NEW ALLELE ALERT

Characterisation of the Novel *HLA-B*51:01:01:132Q* Allele With a Substitution in a Splice Site Region

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ABSTRACT

*HLA-B*51:01:01:132Q* differs from *HLA-B*51:01:01:01* by gDNA 74G>A present in a splice site region.

More than 10,000 HLA-B alleles are currently listed in the 3.62 IPD-IMGT/HLA Database (Version 3.62 2025–10) [1]. We report here a novel HLA-B allele that was identified in a Belgian kidney transplant donor. The high-resolution HLA typing was performed using next-generation sequencing (NGSgo-MX11-3, GenDX, Utrecht, the Netherlands) on the MiSeq system platform (Illumina, USA). Data were analysed by NGSengine software and compared with the IPD/IMGT-HLA Database. The full-length sequence of *HLA-B*51:01:01:132Q* was identical to that of *HLA-B*51:01:01:01*, except for one nucleotide change in the donor splice site adjacent to exon 1. A substitution at gDNA position 74 was exclusively present in the reads assigned to the allele. This substitution resulted in a nucleotide change from Guanine to Adenine at the beginning of the splice site (Figure 1). This mismatch could disrupt the proper splicing. The allele name contains the Q suffix indicating the questionable nature of its expression, due to the polymorphism in the splice site. The complete HLA typing of the donor was: *HLA-A*03:01, 11:01*; *-B*47:01, 51:01:01:132Q*; *-C*01:02, 06:02*; *-DRB1*07:01*, 11:01; *-DRB3*02:02*, *-DRB4*01:01*; *-DQA1*02:01*, 05:05; *-DQB1*02:02*, 03:01; *-DPA1*01:03*, 02:01; *DPB1*13:01*, 15:01.

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gDNA                -281       -271       -261       -251       -241       -231       -221       -211       -201       -191
B*51:01:01:01       GATC AGGACGAAGT CCCAGGCCCC GGGCGGGGCT CTCAGGGTCT CAGGCTCCGA GAGCCTTGTC TGCATTGGGG AGGCGCAGCG TTGGGGATTC
B*51:01:01:132Q     ---- ---------- ---------- ---------- ---------- ---------- ---------- ---------- ---------- ----------

gDNA                -181       -171       -161       -151       -141       -131       -121       -111       -101        -91
B*51:01:01:01       CCCACTCCCA CGAGTTTCAC TTCTTCTCCC AACCTATGTC GGGTCCTTCT TCCAGGATAC TCGTGACGCG TCCCCATTTC CCACTCCCAT TGGGTGTCGG
B*51:01:01:132Q     ---------- ---------- ---------- ---------- ---------- ---------- ---------- ---------- ---------- ----------

gDNA                 -81        -71        -61        -51        -41        -31        -21        -11         -1          10
B*51:01:01:01       ATATCTAGAG AAGCCAATCA GTGTCGCCGG GGTCCCAGTT CTAAAGTCCC CACGCACCCA CCCGGACTCA GAATCTCCTC AGACGCCGAG |ATGCGGGTCA
B*51:01:01:132Q     ---------- ---------- ---------- ---------- ---------- ---------- ---------- ---------- ---------- |----------

gDNA                  20         30         40         50         60         70         80         90        100        110
B*51:01:01:01       CGGCGCCCCG AACCGTCCTC CTGCTGCTCT GGGGGGCAGT GGCCCTGACC GAGACCTGGG CCG|GTGAGTG CGGGGTCGGG AGGGAAATGG CCTCTGTGGG
B*51:01:01:132Q     ---------- ---------- ---------- ---------- ---------- ---------- ---|A------ ---------- ---------- ----------
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FIGURE 1 | Comparison of the sequences for the *HLA-B*51:01:01:132Q* and *HLA-B*51:01:01:01* alleles, which differ at gDNA 74G>A. Dashes indicate nucleotide sequence identity to *HLA-B*51:01:01:01* allele. The numbers above the sequence indicate the genomic DNA position. The partial 5′UTR, exon 1 and partial intron 1 sequences are shown. The exon boundaries are indicated with pipes (|).

The nucleotide sequence of the novel *B*51:01:01:132Q* allele has been submitted to the GenBank database (accession number PX093733) and IPD-IMGT/HLA Database (submission ID HWS 10101317). The name *HLA-B*51:01:01:132Q* has been officially assigned by the WHO Nomenclature Committee for Factors of the HLA System in October 2025. This follows the agreed policy that, subject to the conditions stated in the most recent Nomenclature Report [2], names will be assigned to new sequences as they are identified. Lists of such new names will be published in the following WHO Nomenclature Report.

Author Contributions

Justine Schmitt contributed to the design of the study and data analysis. André Gothot participated in the critical revision of the manuscript.

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Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are openly available in the IPD-IMGT/HLA Database at https://www.ebi.ac.uk/ipd/hla/, reference number HWS10101317.

References

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