

## NEW ALLELE ALERT

# The Full Genomic Sequence of the HLA-DQB1\*06:97 Allele Identified Using PacBio Sequencing

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## ABSTRACT

We report the full genomic sequence of the HLA-DQB1\*06:97 allele.

We identified the HLA-DQB1\*06:97 allele in a Chinese individual and have sequenced the full genomic sequence of this allele, using PacBio Sequencing. This allele carries one nucleotide substitution in exon 2 when compared with the *HLA-DQB1\*06:02:01* allele. The library was sequenced on a PacBio Sequel II high-throughput gene sequencing platform (PacBio, California, CA). Sequences of all HLA loci, the *HLA-A*, *-B*, *-C*, *-DRB1*, *-DRB3/4/5*, *-DQA1*, *-DQB1*, *-DPA1*, and *-DPB1* were analysed using the Yiruiyou TGS HLA High Resolution Genotyping

System (Haorui Gene Co. Ltd., China, xi'an) and the IPD-IMGT/HLA Database (version 3.50.0) [1].

The sequence of the *HLA-DQB1\*06:97* allele differs from that of the *HLA-DQB1\*06:02:01* allele by a single nucleotide change at position c.232G>T (exon 2, GTG>TTG), resulting in an amino acid change from Valine to Leucine (Figure 1). The extended HLA typing result for the patient with the new allele was as follows: *-A\*02:07:01*, *24:02:01*; *-B\*40:01:02*, *15:01:01*;

AA Codon		10	15	20	25
DQB1*06:02:01:01	AG GAT TTC GTG TTC CAG TTT AAG GGC ATG TGC TAC TTC ACC AAC GGG ACG GAG CGC GTG CGT CTT GTG ACC AGA				
DQB1*06:97	--- ---				
AA Codon	30	35	40	45	50
DQB1*06:02:01:01	TAC ATC TAT AAC CGA GAG GAG TAC GCG CGC TTC GAC AGC GAC GTG GGG GTG TAC CGC GCG GTG ACG CCG CAG GGG				
DQB1*06:97	--- ---				
AA Codon	55	60	65	70	75
DQB1*06:02:01:01	CGG CCT GAT GCC GAG TAC TGG AAC AGC CAG AAG GAA GTC CTG GAG GGG ACC CGG GCG GAG TTG GAC ACG GTG TGC				
DQB1*06:97	--- ---				
AA Codon	80	85	90		
DQB1*06:02:01:01	AGA CAC AAC TAC GAG GTG GCG TTC CGC GGG ATC TTG CAG AGG AGA G				
DQB1*06:97	--- ---				

**FIGURE 1** | Alignment of exon 2 of the *DQB1\*06:02:01:01* and *DQB1\*06:97* alleles. Dashes indicate identity with the *DQB1\*06:02:01:01* sequence. The single nucleotide change between *DQB1\*06:02:01:01* and *DQB1\*06:97* at codon 46 is shown. The alignment is produced using the IPD-IMGT/HLA Database alignment tool.

-C\*03:03:01, 03:04:01; -DRB1\*11:01:01, 15:01:01; -DRB3\*02:02:01;  
-DRB5\*01:01:01; -DQA1\*01:02:01, 05:05:01; -DQB1\*03:01:01,  
06:97; -DPA1\*01:03:01, 02:01:01; -DPB1\*04:02:01, 13:01:01.

The nucleotide sequence of the new allele has been submitted to GenBank (OQ703107) and the IPD-IMGT/HLA Database (No. HWS10067451). The name *DQB1\*06:97* has been officially assigned by the WHO Nomenclature Committee for Factors of the HLA System in June 2013; our confirmation and extension of this allele sequence was submitted in November 2023. 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.

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#### **Author Contributions**

Mengyao Li and Chenliang Jiang performed the experiment. Da Mi and Long Yang analysed the data. Yanfei Hou and Long Yang wrote the paper.

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#### **Conflicts of Interest**

The authors declare no conflicts of interest.

#### **Data Availability Statement**

This data is freely available from the IPD-IMGT/HLA Database.

#### **References**

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