

'Epitopology' of HLA-B*14:08 and other HLA-B*14 allele products

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Introduction

HLA-B*14:08 differs from B*14:01:01-06 by a single residue, 97W in B*14:01 and 97R in the B*14:08 product.

We recently identified an example of B*14:08 and showed, using both polyclonal and monoclonal antibodies, that its specificity is a short HLA-B14 that is neither B64 nor B65 (*Int J Immunogenet* 2013, **40**, 418).

To help understand the serological reactivity of the B*14:08 product we identified epitopes - from the Epitope Registry and the work of El-Awar, *et al.* - and motifs that encompass B64 (B*14:01), B65 (B*14:02) and B14CREG antigens.

We considered the possession of these epitopes/motifs by the products of B*14:01, B*14:02, B*14:03, B*14:04, B*14:05, B*14:06 and B*14:08.

Epitopes, motifs and serological specificities

The Epitope Registry's 11AV and 97W epitopes cover B65 and B64, B65, respectively.

El-Awar's epitope '420' includes B8, B64, B65.

We also identified 29 motifs that primarily encompass :

- B64 (n=4 motifs), e.g., 11S 70N 97W
- B65 (n=4), e.g., 11A 70N 97W
- B65, B65 (n=15), e.g., 66I 97W
- B64, B65 with other B14CREG antigens (n=6), e.g. 163T 171H covers mainly A33, B18, B64, B65.

Cn3D studies

17 of the 29 motifs (59%) fully complied with the 1/2-patch functional epitope concept for their amino acid proximity, as determined by Cn3D software. The remainder partially complied.

B*14:01 and B*14:02

Both these products had all their applicable B64/B65 epitope/motifs and all the further B64, B65 and B14CREG epitopes/motifs in accord with their WHO specificities.

B*14:03 and B*14:04

Both lacked the B64 motifs, possessed the B65 epitope/motifs and the majority of the further epitopes/motifs, suggesting that both would react serologically as B65.

B*14:05 and B*14:06

Both lacked the B64 motifs and possessed 2/5 B65 epitope/motifs and 3/16 B64, B65 epitope/motifs and all the B14CREG motifs, suggesting that serologically they could both react as short B14/B65.

B*14:08

The B*14:08 product possessed only 10 of the total of 32 epitopes/motifs. It lacked all B64 and B65 epitope/motifs, possessed 3 of the 16 B65, B65 epitope/motifs but had all the B14CREG motifs.

This clearly supports our assertion that the B*14:08 specificity is a short B14 non-B64/B65.