

101.115-24/03 – including *Taq* polymerase  
101.115-24u/03u – without *Taq* polymerase, IFU-02

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“Instructions for Use” (IFU)

Lot No.: **2N2**

Lot-specific information

## **Olerup SSP® DRB1\*11**

|                                         |                                                                                        |
|-----------------------------------------|----------------------------------------------------------------------------------------|
| <b>Product number:</b>                  | 101.115-24/03 – including <i>Taq</i> pol.<br>101.115-24u/03u – without <i>Taq</i> pol. |
| <b>Lot number:</b>                      | 2N2                                                                                    |
| <b>Expiry date:</b>                     | 2025-05-01                                                                             |
| <b>Number of tests:</b>                 | 24 tests – Product No. 101.115-24/24u<br>3 tests – Product No. 101.115-03/03u          |
| <b>Number of wells per test:</b>        | 47+1                                                                                   |
| <b>Storage - pre-aliquoted primers:</b> | dark, between -15°C and -25°C                                                          |
| - PCR Master Mix:                       | between -15°C and -25°C                                                                |
| - Adhesive PCR seals                    | RT                                                                                     |

**This Product Description is only valid for Lot No. 2N2.**

Complete product documentation consists of generic Instructions for Use (IFU), lot specific Product Insert, Worksheet and Certificate.

### **CHANGES COMPARED TO THE PREVIOUS OLERUP SSP® DRB1\*11 LOT (1L6)**

- The product documentation has been updated for new alleles of IMGT 3.43.0.
- The kit resolution focuses on common and well documented (CWD) alleles<sup>1</sup>.

<sup>1</sup>As described in section Uniquely Identified Alleles.

The DRB1\*11 primer set, specificity and interpretation tables have been updated for the DRB1 alleles described since the previous *Olerup SSP®* DRB1\*11 lot was made (**Lot No. 1L6**).

The DRB1\*11 primer set is unchanged compared to the previous *Olerup SSP®* DRB1\*11 (**Lot No. 1L6**).

<sup>1</sup>S. J. Mack, P. Cano, J. A. Hollenbach et al.  
Common and well-documented HLA alleles: 2012 update to  
the CWD catalogue. Tissue Antigens, 2013, 81, 194–203

Changes in Revision R01 compared to R00:

1. This lot of the DRB1\*11 kit cannot distinguish the DRB1\*11:02,11:04 from the DRB1\*11:03, 11:18 alleles. A footnote has been added in the section “Uniquely identified alleles”.



**0197**  
For *In Vitro* Diagnostic Use  
MA123 v02 SSP PI Template  
Date: July 2022, Rev. No: 01

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Well **48** contains Negative Control primer pairs, that will amplify the majority of the Olerup SSP<sup>®</sup> HLA Class I, DRB, DQB1, DPB1 and DQA1 amplicons as well as all the amplicons generated by the control primer pairs matching the human growth hormone gene.

HLA-specific PCR product sizes range from 75 to 200 base pairs.  
The PCR product generated by the positive control primer pair is 200 base pairs.

| Length of PCR product        | 105        | 200                     | 105        | 80        | 75        | 80        | 85        |
|------------------------------|------------|-------------------------|------------|-----------|-----------|-----------|-----------|
| <b>5'-primer<sup>1</sup></b> | <b>164</b> | <b>340</b>              | <b>440</b> | <b>45</b> | <b>45</b> | <b>43</b> | <b>36</b> |
|                              | 5'-CAC3'   | 5'-Agg3'                | 5'-TTA3'   | 5'-Tgg3'  | 5'-Tgg3'  | 5'-Tgg3'  | 5'-TAC3'  |
|                              |            |                         |            |           |           |           | <b>36</b> |
|                              |            |                         |            |           |           |           | 5'-TAT3'  |
| <b>3'-primer<sup>2</sup></b> | <b>231</b> | <b>2<sup>nd</sup> I</b> | <b>507</b> | <b>59</b> | <b>58</b> | <b>57</b> | <b>47</b> |
|                              | 5'-TgC3'   | 5'-AAA3'                | 5'-TTg3'   | 5'-CTC3'  | 5'-ggC3'  | 5'-CTC3'  | 5'-ACA3'  |
|                              |            |                         |            |           |           |           | <b>48</b> |
|                              |            |                         |            |           |           |           | 5'-gCA3'  |
|                              |            |                         |            |           |           |           | <b>48</b> |
|                              |            |                         |            |           |           |           | 5'-gCC3'  |
|                              |            |                         |            |           |           |           | <b>52</b> |
|                              |            |                         |            |           |           |           | 5'-TgT3'  |
| <b>A*</b>                    | +          | +                       | +          |           |           |           |           |
| <b>B*</b>                    | +          | +                       | +          |           |           |           |           |
| <b>C*</b>                    | +          | +                       | +          |           |           |           |           |
| <b>DRB1</b>                  |            |                         |            | +         | +         |           |           |
| <b>DRB3</b>                  |            |                         |            | +         | +         |           |           |
| <b>DRB5</b>                  |            |                         |            | +         |           |           |           |
| <b>DQB1</b>                  |            |                         |            |           | +         |           |           |
| <b>DPB1</b>                  |            |                         |            |           |           | +         |           |
| <b>DQA1</b>                  |            |                         |            |           |           |           | +         |

<sup>1</sup>The nucleotide position for HLA class I genes and the codon for HLA class II genes, in the 2<sup>nd</sup> or 3<sup>rd</sup> exon, matching the specificity-determining 3'-end of the primer is given. Nucleotide and codon numbering as on the [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla) web site. The sequence of the 3 terminal nucleotides of the primer is given.

<sup>2</sup>The nucleotide position for HLA class I genes and the codon for HLA class II genes, in the 2<sup>nd</sup> or 3<sup>rd</sup> exon or the 2<sup>nd</sup> intron, matching the specificity-determining 3'-end of the primer is given in the anti-sense direction. Nucleotide and codon numbering as on the [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla) web site. The sequence of the 3 terminal nucleotides of the primer is given.



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## PRODUCT DESCRIPTION

### DRB1\*11 SSP subtyping

#### CONTENT

The primer set contains 5'- and 3'-primers for identifying the DRB1\*11:01 to DRB1\*11:280 alleles.

#### PLATE LAYOUT

Each test consists of 48 PCR reactions in a 48 well cut PCR plate.

|           |           |           |           |           |           |           |           |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| <b>1</b>  | <b>2</b>  | <b>3</b>  | <b>4</b>  | <b>5</b>  | <b>6</b>  | <b>7</b>  | <b>8</b>  |
| <b>9</b>  | <b>10</b> | <b>11</b> | <b>12</b> | <b>13</b> | <b>14</b> | <b>15</b> | <b>16</b> |
| <b>17</b> | <b>18</b> | <b>19</b> | <b>20</b> | <b>21</b> | <b>22</b> | <b>23</b> | <b>24</b> |
| <b>25</b> | <b>26</b> | <b>27</b> | <b>28</b> | <b>29</b> | <b>30</b> | <b>31</b> | <b>32</b> |
| <b>33</b> | <b>34</b> | <b>35</b> | <b>36</b> | <b>37</b> | <b>38</b> | <b>39</b> | <b>40</b> |
| <b>41</b> | <b>42</b> | <b>43</b> | <b>44</b> | <b>45</b> | <b>46</b> | <b>47</b> | <b>NC</b> |

The 48 well cut PCR plate is marked with ‘DRB1\*11’, in silver/gray ink.

Well No. 1 is marked with the Lot No. ‘2N2’.

Wells 1 to 47 – DRB1\*11 high resolution primers.

Well 48 – Negative Control (NC).

A faint row of numbers is seen between wells 1 and 2 or wells 7 and 8 of the PCR trays. These stem from the manufacture of the trays and should be disregarded. The PCR plates are heat-sealed with a PCR-compatible foil.

**Please note:** When removing each 48 well PCR plate, make sure that the remaining plates stay sealed. Use a scalpel or a similar instrument to carefully cut the foil between the plates.

#### INTERPRETATION

Due to the sharing of sequence motifs between DRB1 alleles non-DRB1\*11 alleles will be amplified by some primer mixes. For further details see Specificity Table.

#### UNIQUELY IDENTIFIED ALLELES

All the DRB1\*11 alleles, i.e. **DRB1\*11:01 to DRB1\*11:280**, recognized by the HLA Nomenclature Committee in January 2021<sup>1,2</sup> will be amplified by the primers in the DRB1\*11 subtyping kit<sup>3,4</sup>.

The DRB1\*11 kit enables separation of the confirmed DRB1\*11 alleles as listed in the IMGT/HLA database 3.29. An HLA allele is listed as confirmed by IMGT/HLA if it has been sequenced by more than a single laboratory or from multiple sources. Current allele confirmation status for DRB1\*11 alleles is listed below.



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**Lot-specific information**

The DRB1\*11 kit also enables identification of many null and alternatively expressed alleles.

The following DRB1\*11 alleles can be distinguished by the different sizes of the HLA-specific PCR product:

| Alleles                       | Primer mix |
|-------------------------------|------------|
| DRB1*11:24:01-11:24:02, 11:91 | 16         |
| DRB1*11:61, 11:90             | 12         |
| DRB1*11:97, 11:169N           | 34         |
| DRB1*11:99, 11:128, 11:175    | 36         |

<sup>1</sup>DRB1 alleles listed on the IMGT/HLA web page 2021-January-18, release 3.43.0, [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla).

<sup>2</sup>Alleles that have been deleted from or renamed in the official WHO HLA Nomenclature up to and including the last IMGT/HLA database release can be retrieved from web page <http://hla.alleles.org/alleles/deleted.html>.

<sup>3</sup>The following alleles cannot be separated by this lot of DRB1\*11 primer set. These alleles can be distinguished by the DR low resolution and/or the DRB1\*08 kits.

**Alleles**

|                                      |
|--------------------------------------|
| DRB1*11:67, DRB1*08:75               |
| DRB1*11:193:01-11:193:02, DRB1*08:41 |
| DRB1*11:209, DRB1*08:31              |

<sup>4</sup>This lot of the DRB1\*11 kit cannot distinguish the DRB1\*11:02,11:04 from the DRB1\*11:03, 11:18 alleles.



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**Lot-specific information**

**ALLELE CONFIRMATION STATUS**

| Allele           | Status <sup>1</sup> | Allele        | Status <sup>1</sup> | Allele        | Status <sup>1</sup> | Allele         | Status <sup>1</sup> |
|------------------|---------------------|---------------|---------------------|---------------|---------------------|----------------|---------------------|
| DRB1*11:01:01:01 | Confirmed           | DRB1*11:04:12 | Unconfirmed         | DRB1*11:33    | Confirmed           | DRB1*11:74:02  | Unconfirmed         |
| DRB1*11:01:01:02 | Unconfirmed         | DRB1*11:04:13 | Unconfirmed         | DRB1*11:34    | Confirmed           | DRB1*11:75     | Confirmed           |
| DRB1*11:01:01:03 | Unconfirmed         | DRB1*11:04:14 | Unconfirmed         | DRB1*11:35    | Confirmed           | DRB1*11:76     | Confirmed           |
| DRB1*11:01:01:04 | Unconfirmed         | DRB1*11:04:15 | Unconfirmed         | DRB1*11:36    | Confirmed           | DRB1*11:77     | Unconfirmed         |
| DRB1*11:01:02    | Confirmed           | DRB1*11:05    | Confirmed           | DRB1*11:37:01 | Confirmed           | DRB1*11:78     | Confirmed           |
| DRB1*11:01:03    | Confirmed           | DRB1*11:06:01 | Confirmed           | DRB1*11:37:02 | Confirmed           | DRB1*11:79     | Unconfirmed         |
| DRB1*11:01:04    | Unconfirmed         | DRB1*11:06:02 | Confirmed           | DRB1*11:38    | Unconfirmed         | DRB1*11:80     | Unconfirmed         |
| DRB1*11:01:05    | Confirmed           | DRB1*11:06:03 | Confirmed           | DRB1*11:39    | Confirmed           | DRB1*11:81     | Confirmed           |
| DRB1*11:01:06    | Unconfirmed         | DRB1*11:07:01 | Confirmed           | DRB1*11:40    | Unconfirmed         | DRB1*11:82     | Unconfirmed         |
| DRB1*11:01:07    | Confirmed           | DRB1*11:07:02 | Unconfirmed         | DRB1*11:41    | Confirmed           | DRB1*11:83     | Confirmed           |
| DRB1*11:01:08    | Unconfirmed         | DRB1*11:08:01 | Confirmed           | DRB1*11:42:01 | Confirmed           | DRB1*11:84:01  | Confirmed           |
| DRB1*11:01:09    | Confirmed           | DRB1*11:08:02 | Confirmed           | DRB1*11:42:02 | Confirmed           | DRB1*11:84:02  | Confirmed           |
| DRB1*11:01:10    | Confirmed           | DRB1*11:08:03 | Confirmed           | DRB1*11:43    | Confirmed           | DRB1*11:84:03  | Unconfirmed         |
| DRB1*11:01:11    | Confirmed           | DRB1*11:09    | Confirmed           | DRB1*11:44    | Unconfirmed         | DRB1*11:85     | Unconfirmed         |
| DRB1*11:01:12    | Confirmed           | DRB1*11:10:01 | Confirmed           | DRB1*11:45    | Confirmed           | DRB1*11:86     | Unconfirmed         |
| DRB1*11:01:13    | Confirmed           | DRB1*11:10:02 | Confirmed           | DRB1*11:46:01 | Confirmed           | DRB1*11:87     | Confirmed           |
| DRB1*11:01:14    | Unconfirmed         | DRB1*11:11:01 | Confirmed           | DRB1*11:46:02 | Unconfirmed         | DRB1*11:88     | Confirmed           |
| DRB1*11:01:15    | Confirmed           | DRB1*11:11:03 | Unconfirmed         | DRB1*11:47    | Confirmed           | DRB1*11:89     | Unconfirmed         |
| DRB1*11:01:16    | Confirmed           | DRB1*11:12:01 | Confirmed           | DRB1*11:48    | Confirmed           | DRB1*11:90     | Unconfirmed         |
| DRB1*11:01:17    | Unconfirmed         | DRB1*11:12:02 | Unconfirmed         | DRB1*11:49:01 | Confirmed           | DRB1*11:91     | Unconfirmed         |
| DRB1*11:01:18    | Confirmed           | DRB1*11:12:03 | Unconfirmed         | DRB1*11:49:02 | Unconfirmed         | DRB1*11:92     | Unconfirmed         |
| DRB1*11:01:19    | Unconfirmed         | DRB1*11:13:01 | Confirmed           | DRB1*11:50    | Unconfirmed         | DRB1*11:93     | Confirmed           |
| DRB1*11:01:20    | Unconfirmed         | DRB1*11:13:02 | Confirmed           | DRB1*11:51    | Confirmed           | DRB1*11:94     | Confirmed           |
| DRB1*11:01:21    | Unconfirmed         | DRB1*11:14:01 | Confirmed           | DRB1*11:52    | Confirmed           | DRB1*11:95     | Unconfirmed         |
| DRB1*11:01:22    | Unconfirmed         | DRB1*11:14:02 | Confirmed           | DRB1*11:53    | Unconfirmed         | DRB1*11:96     | Confirmed           |
| DRB1*11:01:23    | Unconfirmed         | DRB1*11:15    | Confirmed           | DRB1*11:54:01 | Unconfirmed         | DRB1*11:97     | Unconfirmed         |
| DRB1*11:01:24    | Unconfirmed         | DRB1*11:16    | Confirmed           | DRB1*11:54:02 | Unconfirmed         | DRB1*11:98     | Confirmed           |
| DRB1*11:01:25    | Unconfirmed         | DRB1*11:17    | Confirmed           | DRB1*11:55    | Unconfirmed         | DRB1*11:99     | Confirmed           |
| DRB1*11:01:26    | Unconfirmed         | DRB1*11:18    | Confirmed           | DRB1*11:56    | Unconfirmed         | DRB1*11:100    | Unconfirmed         |
| DRB1*11:01:27    | Confirmed           | DRB1*11:19:01 | Confirmed           | DRB1*11:57    | Confirmed           | DRB1*11:101:01 | Confirmed           |
| DRB1*11:01:28    | Unconfirmed         | DRB1*11:19:02 | Unconfirmed         | DRB1*11:58:01 | Confirmed           | DRB1*11:101:02 | Unconfirmed         |
| DRB1*11:01:29    | Unconfirmed         | DRB1*11:19:03 | Unconfirmed         | DRB1*11:58:02 | Confirmed           | DRB1*11:102:01 | Confirmed           |
| DRB1*11:02:01    | Confirmed           | DRB1*11:20    | Confirmed           | DRB1*11:59    | Unconfirmed         | DRB1*11:102:02 | Confirmed           |
| DRB1*11:02:02    | Confirmed           | DRB1*11:21    | Confirmed           | DRB1*11:60    | Unconfirmed         | DRB1*11:103:01 | Confirmed           |
| DRB1*11:02:03    | Unconfirmed         | DRB1*11:22    | Unconfirmed         | DRB1*11:61    | Unconfirmed         | DRB1*11:103:02 | Unconfirmed         |
| DRB1*11:02:04    | Unconfirmed         | DRB1*11:23:01 | Confirmed           | DRB1*11:62:01 | Unconfirmed         | DRB1*11:104    | Confirmed           |
| DRB1*11:02:05    | Unconfirmed         | DRB1*11:23:02 | Confirmed           | DRB1*11:62:02 | Unconfirmed         | DRB1*11:105    | Confirmed           |
| DRB1*11:03:01    | Confirmed           | DRB1*11:24    | Confirmed           | DRB1*11:63:01 | Unconfirmed         | DRB1*11:106    | Confirmed           |
| DRB1*11:03:02    | Unconfirmed         | DRB1*11:25    | Confirmed           | DRB1*11:63:02 | Unconfirmed         | DRB1*11:107    | Unconfirmed         |
| DRB1*11:04:01    | Confirmed           | DRB1*11:26    | Unconfirmed         | DRB1*11:64    | Unconfirmed         | DRB1*11:108    | Confirmed           |
| DRB1*11:04:02    | Confirmed           | DRB1*11:27:01 | Confirmed           | DRB1*11:65:01 | Confirmed           | DRB1*11:109    | Unconfirmed         |
| DRB1*11:04:03    | Unconfirmed         | DRB1*11:27:02 | Confirmed           | DRB1*11:65:02 | Unconfirmed         | DRB1*11:110    | Unconfirmed         |
| DRB1*11:04:04    | Unconfirmed         | DRB1*11:27:03 | Confirmed           | DRB1*11:66    | Confirmed           | DRB1*11:111    | Confirmed           |
| DRB1*11:04:05    | Confirmed           | DRB1*11:28:01 | Confirmed           | DRB1*11:67    | Unconfirmed         | DRB1*11:112    | Unconfirmed         |
| DRB1*11:04:06    | Unconfirmed         | DRB1*11:28:02 | Confirmed           | DRB1*11:68    | Unconfirmed         | DRB1*11:113    | Confirmed           |
| DRB1*11:04:07    | Unconfirmed         | DRB1*11:29:01 | Confirmed           | DRB1*11:69    | Confirmed           | DRB1*11:114    | Unconfirmed         |
| DRB1*11:04:08    | Unconfirmed         | DRB1*11:29:02 | Confirmed           | DRB1*11:70    | Unconfirmed         | DRB1*11:115    | Unconfirmed         |
| DRB1*11:04:09    | Unconfirmed         | DRB1*11:30    | Unconfirmed         | DRB1*11:72    | Confirmed           | DRB1*11:116    | Confirmed           |
| DRB1*11:04:10    | Unconfirmed         | DRB1*11:31    | Unconfirmed         | DRB1*11:73    | Unconfirmed         | DRB1*11:117    | Unconfirmed         |
| DRB1*11:04:11    | Confirmed           | DRB1*11:32    | Confirmed           | DRB1*11:74:01 | Confirmed           | DRB1*11:118    | Unconfirmed         |



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Lot No.: **2N2**

Lot-specific information

| Allele                | Status <sup>1</sup> | Allele             | Status <sup>1</sup> | Allele                | Status <sup>1</sup> | Allele             | Status <sup>1</sup> |
|-----------------------|---------------------|--------------------|---------------------|-----------------------|---------------------|--------------------|---------------------|
| DRB1*11:119           | Unconfirmed         | DRB1*11:148        | Unconfirmed         | DRB1*11:178           | Unconfirmed         | DRB1*11:207        | Unconfirmed         |
| <b>DRB1*11:120</b>    | <b>Confirmed</b>    | DRB1*11:149        | Unconfirmed         | DRB1*11:179           | Unconfirmed         | DRB1*11:208        | Unconfirmed         |
| DRB1*11:121           | Unconfirmed         | DRB1*11:150        | Unconfirmed         | DRB1*11:180           | Unconfirmed         | DRB1*11:209        | Unconfirmed         |
| DRB1*11:122           | Unconfirmed         | DRB1*11:151        | Unconfirmed         | DRB1*11:181           | Unconfirmed         | DRB1*11:210        | Unconfirmed         |
| DRB1*11:123           | Unconfirmed         | DRB1*11:152        | Unconfirmed         | DRB1*11:182           | Unconfirmed         | DRB1*11:211        | Unconfirmed         |
| DRB1*11:124           | Unconfirmed         | DRB1*11:153        | Unconfirmed         | DRB1*11:183           | Unconfirmed         | DRB1*11:212        | Unconfirmed         |
| <b>DRB1*11:125</b>    | <b>Confirmed</b>    | <b>DRB1*11:154</b> | <b>Confirmed</b>    | DRB1*11:184           | Unconfirmed         | <b>DRB1*11:213</b> | <b>Confirmed</b>    |
| DRB1*11:126           | Unconfirmed         | DRB1*11:155        | Unconfirmed         | DRB1*11:185           | Unconfirmed         | <b>DRB1*11:214</b> | <b>Confirmed</b>    |
| DRB1*11:127           | Unconfirmed         | DRB1*11:156        | Unconfirmed         | DRB1*11:186           | Unconfirmed         | DRB1*11:215        | Unconfirmed         |
| <b>DRB1*11:128</b>    | <b>Confirmed</b>    | DRB1*11:157        | Unconfirmed         | <b>DRB1*11:187</b>    | <b>Confirmed</b>    | DRB1*11:216        | Unconfirmed         |
| DRB1*11:129           | Unconfirmed         | DRB1*11:158        | Unconfirmed         | DRB1*11:188           | Unconfirmed         | DRB1*11:217N       | Unconfirmed         |
| DRB1*11:130           | Unconfirmed         | DRB1*11:159        | Unconfirmed         | <b>DRB1*11:189</b>    | <b>Confirmed</b>    |                    |                     |
| DRB1*11:131           | Unconfirmed         | <b>DRB1*11:160</b> | <b>Confirmed</b>    | DRB1*11:190           | Unconfirmed         |                    |                     |
| DRB1*11:132           | Unconfirmed         | DRB1*11:161        | Unconfirmed         | DRB1*11:191           | Unconfirmed         |                    |                     |
| DRB1*11:133           | Unconfirmed         | DRB1*11:162        | Unconfirmed         | DRB1*11:192           | Unconfirmed         |                    |                     |
| DRB1*11:134           | Unconfirmed         | DRB1*11:163        | Unconfirmed         | <b>DRB1*11:193:01</b> | <b>Confirmed</b>    |                    |                     |
| DRB1*11:135           | Unconfirmed         | DRB1*11:164        | Unconfirmed         | DRB1*11:193:02        | Unconfirmed         |                    |                     |
| DRB1*11:136           | Unconfirmed         | <b>DRB1*11:165</b> | <b>Confirmed</b>    | DRB1*11:194           | Unconfirmed         |                    |                     |
| <b>DRB1*11:137</b>    | <b>Confirmed</b>    | DRB1*11:166        | Unconfirmed         | DRB1*11:195           | Unconfirmed         |                    |                     |
| DRB1*11:138           | Unconfirmed         | DRB1*11:167        | Unconfirmed         | <b>DRB1*11:196</b>    | <b>Confirmed</b>    |                    |                     |
| DRB1*11:139           | Unconfirmed         | DRB1*11:168        | Unconfirmed         | <b>DRB1*11:197</b>    | <b>Confirmed</b>    |                    |                     |
| DRB1*11:140           | Unconfirmed         | DRB1*11:169N       | Unconfirmed         | <b>DRB1*11:198</b>    | <b>Confirmed</b>    |                    |                     |
| DRB1*11:141           | Unconfirmed         | DRB1*11:170        | Unconfirmed         | DRB1*11:199           | Unconfirmed         |                    |                     |
| <b>DRB1*11:142</b>    | <b>Confirmed</b>    | DRB1*11:171        | Unconfirmed         | DRB1*11:200           | Unconfirmed         |                    |                     |
| DRB1*11:143           | Unconfirmed         | DRB1*11:172        | Unconfirmed         | DRB1*11:201           | Unconfirmed         |                    |                     |
| DRB1*11:144           | Unconfirmed         | DRB1*11:173        | Unconfirmed         | DRB1*11:202           | Unconfirmed         |                    |                     |
| DRB1*11:145           | Unconfirmed         | DRB1*11:174        | Unconfirmed         | DRB1*11:203           | Unconfirmed         |                    |                     |
| DRB1*11:146           | Unconfirmed         | DRB1*11:175        | Unconfirmed         | DRB1*11:204           | Unconfirmed         |                    |                     |
| DRB1*11:147:01        | Unconfirmed         | DRB1*11:176        | Unconfirmed         | DRB1*11:205           | Unconfirmed         |                    |                     |
| <b>DRB1*11:147:02</b> | <b>Confirmed</b>    | DRB1*11:177        | Unconfirmed         | DRB1*11:206           | Unconfirmed         |                    |                     |

<sup>1</sup>Allele status “confirmed” or “unconfirmed” as listed on the IMGT/HLA web page 2017-August-10, release 3.29.0, [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla).

## RESOLUTION IN HOMO- AND HETEROZYGOTES

Results file with resolution in DRB1\*11 homo- and heterozygotes is available upon request.



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Lot-specific information

## SPECIFICITY TABLE

### DRB1\*11 SSP subtyping

Specificities and sizes of the PCR products of the 47+1 primer mixes used for  
DRB1\*11 SSP subtyping

| Primer Mix       | Size of spec. PCR product <sup>1</sup> | Size of control band <sup>2</sup> | Amplified DRB1*11 alleles <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Other amplified DRB alleles                                                                                                                |
|------------------|----------------------------------------|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| 1                | 175 bp                                 | 515 bp                            | *11:01:01:01-11:04:22,<br>11:06:01-11:11:01, 11:11:03-<br>11:21, 11:23:01-11:29:02,<br>11:31-11:66:02, 11:68-11:70,<br>11:72-11:103:02, 11:105-<br>11:192, 11:194:01-11:208,<br>11:210-11:228, 11:230-11:260,<br>11:262-11:263, 11:265-11:269,<br>11:271-11:280                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | *03:08, 03:65, 03:140                                                                                                                      |
| 2                | 175 bp                                 | 430 bp                            | *11:05, 11:67, 11:193:01-<br>11:193:02, 11:209, 11:229,<br>11:270                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | *08:31, 08:41, 08:63, 08:75, 12:04,<br>12:49, 14:11:01:01-14:11:01:02,<br>14:148                                                           |
| 3 <sup>4</sup>   | 70 bp                                  | 430 bp                            | *11:01:01:01-11:01:42,<br>11:03:01-11:04:20, 11:04:22-<br>11:06:03, 11:09:01:01-<br>11:11:01, 11:11:03-11:12:03,<br>11:15:01:01-11:15:02, 11:22-<br>11:25, 11:27:01-11:30, 11:32-<br>11:33, 11:35, 11:37:01-11:41,<br>11:43:01:01-11:44, 11:46:01-<br>11:47, 11:49:01-11:51,<br>11:54:01-11:56, 11:58:01-<br>11:63:02, 11:66:01-11:67,<br>11:72, 11:74:01-11:78, 11:80-<br>11:81, 11:83-11:85, 11:87-<br>11:88, 11:90-11:97, 11:99-<br>11:102:02, 11:104, 11:106,<br>11:108-11:109, 11:111-<br>11:117:02, 11:120-11:123,<br>11:126, 11:128-11:129, 11:133-<br>11:135, 11:137-11:142, 11:144-<br>11:152, 11:154-11:155, 11:157-<br>11:158, 11:160-11:166, 11:168-<br>11:170, 11:172, 11:174-11:183,<br>11:186-11:190, 11:193:01-<br>11:201, 11:203-11:241, 11:243-<br>11:247, 11:249-11:250N,<br>11:252-11:255, 11:257-11:263,<br>11:265, 11:269, 11:271-11:275,<br>11:277-11:279 | *04:15, 04:265, 08:31, 08:41,<br>08:75, 12:49, 16:27, <b>DRB5*01:13,</b><br><b>DRB5*01:41</b>                                              |
| 4 <sup>5,7</sup> | 200 bp                                 | 430 bp                            | *11:02:01:01-11:02:07,<br>11:14:01:01-11:14:02,<br>11:16:01:01-11:16:01:02,<br>11:18-11:21, 11:31, 11:45,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | *03:125, 13:01:01:01-13:01:06,<br>13:01:08-13:02:09, 13:02:11-13:04,<br>13:06, 13:08, 13:10, 13:12:01-<br>13:13, 13:15-13:16:01:02, 13:19, |



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**Lot-specific information**

|                |       |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------|-------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                |       |        | 11:48, 11:65:01-11:65:02,<br>11:70, 11:73, 11:86, 11:98,<br>11:118-11:119, 11:124:01-<br>11:124:02, 11:127, 11:132,<br>11:171, 11:184, 11:191, 11:242,<br>11:251, 11:256, 11:276, 11:280                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 13:22:01:01-13:23:02, 13:27:01-<br>13:28:02, 13:30-13:41, 13:45,<br>13:48, 13:51-13:53, 13:57-13:59,<br>13:61:01-13:61:02, 13:64-13:66:02,<br>13:68-13:70, 13:72-13:73, 13:76-<br>13:77, 13:79-13:85, 13:87,<br>13:89:01-13:99, 13:101-13:102,<br>13:104-13:107, 13:109-13:110,<br>13:112-13:113N, 13:115,<br>13:117:01:01-13:118, 13:120-<br>13:128, 13:130-13:131, 13:135,<br>13:137N-13:139, 13:141-13:143,<br>13:145-13:148, 13:151-13:157,<br>13:159, 13:161-13:163, 13:165-<br>13:168, 13:170-13:174, 13:176-<br>13:177, 13:179, 13:181-13:182,<br>13:185N-13:188, 13:190-13:191,<br>13:194, 13:198, 13:200N-13:202,<br>13:204-13:205, 13:207-13:213,<br>13:215-13:222, 13:225-13:228,<br>13:233-13:234, 13:236-13:245,<br>13:249N-13:275, 13:278Q, 13:280-<br>13:283, 13:285, 13:287-13:295N,<br>13:297-13:298N, 13:300-13:301,<br>13:303-13:306, 13:308, 14:16,<br>14:63, 14:67, 14:78 |
| 5 <sup>4</sup> | 85 bp | 515 bp | *11:01:01:01-11:01:42,<br>11:04:01:01-11:06:03,<br>11:08:01-11:10:02, 11:12:01-<br>11:13:02, 11:15:01:01-<br>11:15:02, 11:17-11:19:03,<br>11:22-11:35, 11:37:01-11:39,<br>11:42:01-11:47, 11:49:01-<br>11:50, 11:52, 11:54:01-<br>11:58:02, 11:60-11:62:02,<br>11:64, 11:66:01-11:67, 11:72-<br>11:75, 11:77-11:81, 11:83-<br>11:84:03, 11:87-11:97, 11:99-<br>11:102:02, 11:104, 11:106,<br>11:108-11:109, 11:111-<br>11:117:02, 11:119-11:121,<br>11:123, 11:126, 11:128-11:135,<br>11:137, 11:140-11:150, 11:152-<br>11:155, 11:157-11:160, 11:162-<br>11:163, 11:165:01-11:166,<br>11:169N-11:170, 11:172,<br>11:174-11:175, 11:177-11:183,<br>11:186-11:191, 11:193:01-<br>11:212, 11:214-11:228, 11:230,<br>11:232, 11:234-11:236, 11:238-<br>11:240, 11:243-11:250N,<br>11:252-11:255, 11:257-11:259,<br>11:261-11:263, 11:265-11:269,<br>11:271-11:275, 11:277-11:280 | *01:75, 04:15, 04:61, 04:145,<br>04:154, 04:170, 04:265, 04:291,<br>08:31, 08:41, 08:63, 08:75, 10:23,<br>12:04, 12:49, 14:11:01:01-<br>14:11:01:02, 16:16, 16:27,<br><b>DRB5*01:13, DRB5*01:41</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |



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Lot No.: **2N2**

Lot-specific information

|                  |        |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                  |
|------------------|--------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6 <sup>4,8</sup> | 80 bp  | 430 bp | *11:02:01:01-11:03:04,<br>11:11:01, 11:11:03,<br>11:14:01:01-11:14:02,<br>11:16:01:01-11:16:01:02,<br>11:20-11:21, 11:36, 11:40-<br>11:41, 11:48, 11:55, 11:59,<br>11:63:01-11:63:02, 11:65:01-<br>11:65:02, 11:68, 11:70, 11:76,<br>11:85-11:86, 11:118, 11:122,<br>11:124:01-11:124:02, 11:127,<br>11:138-11:139, 11:151, 11:161,<br>11:168, 11:171, 11:176, 11:213,<br>11:229, 11:231, 11:233, 11:237,<br>11:241-11:242, 11:251, 11:256,<br>11:260, 11:270, 11:276                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | *04:138                                                                                                                                                          |
| 7 <sup>4</sup>   | 125 bp | 430 bp | *11:01:01:01-11:01:42, 11:05,<br>11:08:01-11:11:01, 11:11:03-<br>11:12:03, 11:14:01:01-<br>11:15:02, 11:19:01-11:20,<br>11:22-11:24:02, 11:26-11:33,<br>11:37:01-11:37:02, 11:39,<br>11:45, 11:49:01-11:49:02,<br>11:51, 11:53, 11:61-11:62:02,<br>11:64, 11:66:01-11:66:02,<br>11:68-11:69, 11:72-11:75,<br>11:79-11:82, 11:87, 11:90-<br>11:91, 11:93-11:97, 11:99-<br>11:101:02, 11:103:01-<br>11:103:02, 11:105-11:109,<br>11:111-11:112, 11:114,<br>11:117:01-11:117:02, 11:120-<br>11:122, 11:125-11:126, 11:128,<br>11:133-11:134, 11:136, 11:140-<br>11:145, 11:147:01-11:147:02,<br>11:149-11:150, 11:152, 11:154-<br>11:155, 11:157-11:158, 11:162,<br>11:164, 11:166, 11:168-11:170,<br>11:172, 11:175, 11:177-11:178,<br>11:183-11:184, 11:186, 11:188,<br>11:191, 11:193:01-11:193:02,<br>11:195, 11:197, 11:199,<br>11:204-11:205, 11:208, 11:212,<br>11:215, 11:219, 11:222,<br>11:225-11:226, 11:228, 11:232,<br>11:234-11:240, 11:243, 11:245,<br>11:247-11:248Q, 11:250N,<br>11:252, 11:254, 11:257, 11:259,<br>11:262-11:263, 11:265-11:266,<br>11:268-11:269, 11:271-11:275,<br>11:277-11:279 | *01:75, 04:61, 04:145, 04:170,<br>04:265, 08:41, 08:63, 10:23, 15:99,<br>16:16, 16:27, <b>DRB3*01:42,</b><br><b>DRB3*02:18, DRB5*01:13,</b><br><b>DRB5*01:41</b> |
| 8 <sup>4</sup>   | 125 bp | 430 bp | *11:02:01:01-11:04:22,<br>11:06:01-11:07:02, 11:13:01-<br>11:13:02, 11:16:01:01-11:18,<br>11:21, 11:25, 11:34-11:36,<br>11:38, 11:40-11:44,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | *03:08, 03:65, 03:140, 04:15,<br>04:138, 04:154, 04:291, 08:31,<br>08:75, 12:04, 12:49, 14:11:01:01-<br>14:11:01:02, 15:109                                      |



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Lot No.: **2N2**

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|                            |        |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------------------|--------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                            |        |               | 11:46:01-11:48, 11:50, 11:52,<br>11:54:01-11:60, 11:63:01-<br>11:63:02, 11:65:01-11:65:02,<br>11:67, 11:70, 11:76-11:78,<br>11:83-11:85, 11:88-11:89,<br>11:92, 11:98, 11:102:01-<br>11:102:02, 11:104, 11:113,<br>11:115-11:116, 11:118-11:119,<br>11:123-11:124:02, 11:127,<br>11:129-11:132, 11:135, 11:137-<br>11:139, 11:146, 11:148, 11:151,<br>11:153, 11:159-11:161, 11:163,<br>11:165:01-11:165:02, 11:171,<br>11:173-11:174, 11:176, 11:179-<br>11:182, 11:187, 11:189-11:190,<br>11:194:01-11:194:02, 11:196,<br>11:198, 11:200-11:203, 11:206-<br>11:207, 11:209-11:211, 11:213-<br>11:214, 11:216-11:218, 11:220-<br>11:221, 11:223-11:224, 11:227,<br>11:229-11:231, 11:233, 11:241-<br>11:242, 11:244, 11:246N,<br>11:249, 11:251, 11:253,<br>11:255-11:256, 11:258, 11:260-<br>11:261, 11:267, 11:270, 11:276,<br>11:280 |                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>9<sup>4</sup></b>       | 85 bp  | 430 bp        | *11:07:01-11:07:02, 11:103:01-<br>11:103:02, 11:105, 11:107,<br>11:125, 11:173                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | *03:08, 03:65, 03:140, <b>DRB3*01:42</b>                                                                                                                                                                                                                                                                                                                                        |
|                            | 115 bp |               | *11:77                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>10<sup>4,6</sup></b>    | 85 bp  | 430 bp        | *11:07:01-11:07:02, 11:23:01-<br>11:28:02, 11:25, 11:45, 11:55,<br>11:64, 11:67, 11:103:01-<br>11:103:02, 11:105, 11:107,<br>11:119, 11:125, 11:173                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | *03:08, 03:65, 03:140, 08:63,<br>08:75, <b>DRB3*01:42</b>                                                                                                                                                                                                                                                                                                                       |
|                            | 120 bp |               | *11:74:01-11:74:02                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>11<sup>8</sup></b>      | 155 bp | <b>515 bp</b> | *11:75                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                 |
|                            | 200 bp |               | *11:08:01-11:08:03, 11:36,<br>11:42:01-11:42:02, 11:57,<br>11:64, 11:68, 11:130                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | *13:20:01:01-13:20:01:03, 13:25,<br>13:29:01:01-13:29:01:02, 13:43,<br>13:56, 13:60, 13:71, 13:78, 13:88,<br>13:119, 13:134, 13:149, 13:180,<br>13:224, 13:231, 13:235, 14:03:01-<br>14:03:02, 14:12:01-14:12:02, 14:40,<br>14:69, 14:74, 14:77, 14:84-14:85,<br>14:98, 14:102, 14:115-14:116,<br>14:135, 14:144, 14:156, 14:173-<br>14:174, 14:181, 14:218, 14:222N-<br>14:223 |
|                            | 255 bp |               | *11:06:01-11:06:03, 11:21,<br>11:47, 11:57, 11:129, 11:174                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | *03:20, 03:145, 13:58, 13:81,<br>13:163, 13:242:01-13:242:02,<br>13:284, 14:29, 14:99                                                                                                                                                                                                                                                                                           |
| <b>12<sup>4,7,10</sup></b> | 95 bp  | 430 bp        | *11:61, 11:214                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                 |
|                            | 145 bp |               | *11:90                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                 |
|                            | 185 bp |               | *11:30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>DRB3*01:42, DRB3*02:18</b>                                                                                                                                                                                                                                                                                                                                                   |



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Lot No.: **2N2**

Lot-specific information

|                         |                 |               |                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------|-----------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>13<sup>4,8</sup></b> | 105 bp          | <b>515 bp</b> | *11:09:01:01-11:09:01:02,<br>11:16:01:01-11:16:01:02,<br>11:20, 11:28:01:01-11:28:03,<br>11:40, 11:58:01-11:59, 11:83,<br>11:87, 11:113, 11:115, 11:122,<br>11:182, 11:280                 | *03:01:06, 03:08, 03:65, 03:140,<br>13:171:01                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>14</b>               | 145 bp          | 430 bp        | *11:17, 11:37:01-11:37:02,<br>11:41, 11:48, 11:50, 11:52,<br>11:56, 11:83, 11:107, 11:145,<br>11:149, 11:170-11:171, 11:183-<br>11:184, 11:189, 11:200, 11:249,<br>11:264, 11:273          | *03:02:01:01-03:03, 03:06, 03:17,<br>03:26-03:27, 03:31, 03:35, 03:38,<br>03:41:01-03:41:02, 03:60, 03:74-<br>03:75, 03:80, 03:85, 03:88, 03:90,<br>03:102-03:103, 03:115, 03:122,<br>03:131, 03:154-03:155, 03:158,<br>03:167, 03:176, 03:179, 08:20,<br>13:03:01:01-13:03:09, 13:07:01-<br>13:08, 13:12:01-13:13, 13:19,<br>13:26:01-13:26:02, 13:32-13:33:03,<br>13:36-13:38, 13:40, 13:47-13:49,<br>13:53, 13:55, 13:58, 13:60, 13:65,<br>13:70, 13:72, 13:76, 13:81, 13:84-<br>13:85, 13:88-13:90, 13:94:01-<br>13:95, 13:101, 13:108, 13:115,<br>13:118, 13:120, 13:122, 13:133-<br>13:135, 13:149, 13:151-13:152,<br>13:159, 13:164, 13:167, 13:174,<br>13:180, 13:182, 13:188-13:189,<br>13:191, 13:194, 13:198, 13:216,<br>13:219, 13:227-13:228, 13:230-<br>13:232, 13:235, 13:246, 13:253,<br>13:262, 13:295N, 13:307, 14:01:01-<br>14:03:01, 14:05:01:01-14:09,<br>14:12:01-14:14, 14:16, 14:18-<br>14:20, 14:22-14:27:02, 14:29,<br>14:32:01-14:32:03, 14:34, 14:36-<br>14:41, 14:43-14:45, 14:47-14:49,<br>14:51, 14:54:01:01-14:56, 14:58-<br>14:60, 14:62-14:63, 14:67, 14:69-<br>14:70, 14:74-14:75, 14:77-14:78,<br>14:80-14:92N, 14:94, 14:96-14:106,<br>14:108-14:119, 14:121-14:125,<br>14:127:01-14:127:02, 14:129-<br>14:131, 14:133, 14:135-14:137N,<br>14:139-14:140, 14:142, 14:144,<br>14:146-14:147, 14:149, 14:151,<br>14:153-14:174, 14:176-14:178,<br>14:181, 14:183-14:185, 14:188N-<br>14:195N, 14:197N-14:198, 14:200,<br>14:202-14:204, 14:207, 14:209,<br>14:211-14:219, 14:222N-14:223,<br>14:225-14:228, <b>DRB3*01:14</b> |
| <b>15<sup>4</sup></b>   | 60 bp<br>105 bp | 430 bp        | *11:66:01-11:66:02<br>*11:10:01-11:10:02, 11:12:01-<br>11:13:02, 11:17, 11:52, 11:114,<br>11:149, 11:170, 11:179,<br>11:189-11:191, 11:196, 11:200,<br>11:202, 11:218, 11:275 <sup>w</sup> | *14:11:01:01-14:11:01:02, 14:148,<br><b>DRB3*01:42</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |



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| <b>16<sup>4</sup></b>   | 110 bp | 430 bp        | *11:15:01:01-11:15:02,<br>11:24:01-11:24:02, 11:44,<br>11:49:01-11:50, 11:76, 11:85,<br>11:114, 11:127, 11:183, 11:196,<br>11:249, 11:273, 11:278 | *03:26, 03:33, 03:43-03:44,<br>03:71:01-03:71:02, 13:34, 13:62,<br>13:64, 13:68, 13:106, 13:136,<br>13:151, 13:174, 13:204, 13:216,<br>13:221, 13:250, 13:266, 14:41,<br>14:77, 14:97, 14:110, 14:218,<br>14:221, <b>DRB3*01:14</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                         | 255 bp |               | *11:91                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>17<sup>4,9</sup></b> | 90 bp  | 430 bp        | *11:17, 11:23:01-11:23:02,<br>11:25, 11:45, 11:52-11:55,<br>11:64, 11:67, 11:89, 11:119,<br>11:150, 11:159, 11:202, 11:267                        | *04:154, 04:170, 04:291, 08:63,<br>08:75, 14:11:01:01-14:11:01:02                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>18<sup>4</sup></b>   | 95 bp  | 430 bp        | *11:07:01-11:07:02, 11:27:01-<br>11:27:03, 11:84:01-11:84:03,<br>11:103:01-11:103:02, 11:107,<br>11:124:01-11:125, 11:136,<br>11:138, 11:173      | *03:08, 03:65, 03:140,<br><b>DRB3*01:42, DRB3*02:18</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>19<sup>8</sup></b>   | 180 bp | 430 bp        | *11:31, 11:52, 11:96, 11:148                                                                                                                      | *03:10, 13:43, 13:45, 13:159,<br>13:179, 13:191, 13:217, 14:01:01-<br>14:01:05, 14:07:01-14:08, 14:16,<br>14:22, 14:25:01-14:26, 14:32:01-<br>14:32:03, 14:34-14:35, 14:38:01-<br>14:39, 14:49, 14:53-14:55, 14:58,<br>14:60, 14:62, 14:69-14:70, 14:72,<br>14:74-14:75, 14:82, 14:86-14:88,<br>14:90, 14:92N, 14:97, 14:99,<br>14:104-14:105, 14:110-14:114,<br>14:117-14:119, 14:122, 14:124-<br>14:125, 14:128-14:133, 14:137N,<br>14:139-14:140, 14:142, 14:146-<br>14:147, 14:149-14:151, 14:153,<br>14:157-14:158, 14:162-14:164,<br>14:166N, 14:168, 14:171-14:173,<br>14:184-14:186, 14:189-14:193,<br>14:197N, 14:200, 14:202-14:204,<br>14:207-14:208, 14:211, 14:213-<br>14:217, 14:219, 14:225, 14:227-<br>14:228 |
|                         | 225 bp |               | *11:23:01-11:23:02, 11:25,<br>11:32, 11:45, 11:55, 11:64,<br>11:70, 11:119                                                                        | *03:157, 08:20, 13:13, 13:18,<br>13:47, 13:55, 13:119, 13:144,<br>13:146, 13:154, 13:156, 13:158,<br>13:164, 13:232, 13:286, 14:03:01-<br>14:03:02, 14:12:01-14:12:02,<br>14:27:01-14:27:02, 14:40, 14:55,<br>14:63, 14:67, 14:77-14:78, 14:84-<br>14:85, 14:89, 14:102, 14:115-<br>14:116, 14:135-14:136, 14:144,<br>14:156, 14:164, 14:173-14:174,<br>14:181, 14:218, 14:222N-14:223                                                                                                                                                                                                                                                                                                                                        |
|                         | 260 bp |               | *11:86                                                                                                                                            | *13:16:01:01-13:16:01:02                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>20<sup>4</sup></b>   | 115 bp | <b>515 bp</b> | *11:10:01-11:10:02, 11:12:01-<br>11:13:02, 11:17, 11:29:01-<br>11:29:02, 11:44, 11:47,<br>11:49:01-11:50, 11:52,                                  | *03:04:01-03:04:02, 03:21, 03:26,<br>03:30, 03:33, 03:35, 03:44, 13:08,<br>13:19, 13:57, 13:60, 13:72, 13:76,<br>13:83-13:84, 13:87, 13:106-13:107,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |



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| 21              | 135 bp<br>175 bp                     | 430 bp | *11:59, 11:80, 11:83, 11:87,<br>11:135, 11:142, 11:182<br>*11:22                                                                                                                                                                                                                                                                                               | *03:08, 03:65, 03:140, <b>DRB3*01:42</b><br>*04:15, 04:61, 04:138, 04:145,<br>04:154, 04:170, 04:265, 04:291                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 22 <sup>4</sup> | 115 bp<br>180 bp<br>215 bp<br>245 bp | 430 bp | *11:15:01:01-11:15:02<br>*11:33, 11:35, 11:65:01-<br>11:65:02, 11:130<br>*11:69, 11:82<br>*11:81                                                                                                                                                                                                                                                               | *03:71:02, 13:62, 13:151<br>*13:09, 13:129, 13:192, 14:24,<br>14:37, 14:226<br>*03:136 <sup>w</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 23 <sup>4</sup> | 120 bp<br>190 bp                     | 430 bp | *11:38<br>*11:217N                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 24              | 155 bp<br>250 bp                     | 430 bp | *11:39, 11:43:01:01-<br>11:43:01:02, 11:50, 11:115,<br>11:145, 11:151, 11:168, 11:171,<br>11:174<br>*11:06:01-11:06:03, 11:21,<br>11:47, 11:57, 11:81, 11:129,<br>11:174                                                                                                                                                                                       | *03:17, 03:37, 03:80, 03:140,<br>13:118, 13:131, 13:135, 13:150,<br>13:262, 14:59, 14:86, 14:96,<br>14:153-14:154<br>*03:20, 03:136 <sup>w</sup> , 03:145, 13:58,<br>13:81, 13:163, 13:242:01-<br>13:242:02, 13:284, 14:29, 14:99                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 25 <sup>4</sup> | 110 bp                               | 430 bp | *11:01:12, 11:02:05, 11:04:04,<br>11:09:01:01-11:10:02,<br>11:12:02, 11:13:01-11:13:02,<br>11:16:01:01-11:17, 11:20,<br>11:22, 11:28:01:01-11:28:03,<br>11:29:02, 11:40, 11:46:01,<br>11:52, 11:58:01-11:59,<br>11:62:02, 11:63:02, 11:83,<br>11:87, 11:113, 11:115, 11:118,<br>11:122, 11:149, 11:165:02,<br>11:182, 11:189-11:190, 11:202,<br>11:218, 11:280 | *03:08, 03:65, 03:140, 12:04,<br>12:49, 14:11:01:01-14:11:01:02,<br>14:148, 15:99, 15:109, 16:16,<br>16:27, <b>DRB3*01:42, DRB3*02:18</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |



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| 26 <sup>4</sup> | 120 bp | 430 bp | *11:09:01:01-11:10:02,<br>11:13:01-11:13:02,<br>11:16:01:01-11:17, 11:20,<br>11:40, 11:46:01-11:46:02,<br>11:52, 11:59, 11:62:01-<br>11:62:02, 11:80, 11:83, 11:87,<br>11:113, 11:118, 11:122, 11:149,<br>11:182, 11:189-11:190, 11:202,<br>11:213, 11:218, 11:280                                                                                                             | *03:08, 03:65, 03:140, 14:11:01:01-<br>14:11:01:02, 14:148, <b>DRB3*01:42</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                 | 160 bp |        | *11:78, 11:152                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 27 <sup>4</sup> | 85 bp  | 430 bp | *11:11:01, 11:11:03,<br>11:14:01:01-11:14:02, 11:20,<br>11:68, 11:73, 11:93, 11:122,<br>11:168, 11:184, 11:237                                                                                                                                                                                                                                                                 | *01:03:01-01:03:05, 01:39N, 01:89,<br>01:99, 01:102, 04:14, 04:106,<br>04:132, 08:40, 08:92, 13:02:01:01-<br>13:02:03, 13:02:05-13:02:09,<br>13:02:11-13:03:01:01, 13:03:02-<br>13:03:06, 13:23:01-13:23:02,<br>13:29:01:01-13:29:01:02, 13:31,<br>13:33:01-13:34, 13:36-13:39,<br>13:41, 13:45, 13:63, 13:65-13:67,<br>13:73-13:74, 13:85, 13:88, 13:90,<br>13:95-13:97:02, 13:99, 13:101,<br>13:103-13:104, 13:107, 13:115,<br>13:120, 13:122-13:124, 13:126,<br>13:128, 13:135, 13:139, 13:143,<br>13:145, 13:147, 13:151-13:152,<br>13:155, 13:159, 13:165, 13:167-<br>13:168, 13:170-13:172, 13:174,<br>13:179-13:180, 13:182, 13:188,<br>13:194-13:195, 13:198, 13:202,<br>13:207-13:212, 13:216, 13:219-<br>13:220, 13:225, 13:227, 13:230,<br>13:236-13:237, 13:239-13:241,<br>13:243-13:244, 13:247, 13:250,<br>13:255N, 13:257, 13:264-13:265,<br>13:268N-13:269, 13:275, 13:280,<br>13:282, 13:285, 13:288-13:289N,<br>13:292-13:293, 13:297-13:298N,<br>13:301, 13:306 |
|                 | 85 bp  | 430 bp | *11:02:01:01-11:03:04,<br>11:16:01:01-11:16:01:02,<br>11:21, 11:36, 11:40-11:41,<br>11:48, 11:55, 11:59, 11:63:01-<br>11:63:02, 11:65:01-11:65:02,<br>11:70, 11:76, 11:85, 11:118,<br>11:124:01-11:124:02, 11:127,<br>11:132, 11:138-11:139, 11:151,<br>11:161, 11:171, 11:176, 11:213,<br>11:229, 11:231, 11:233,<br>11:241-11:242, 11:251, 11:256,<br>11:260, 11:270, 11:276 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 28 <sup>4</sup> | 85 bp  | 430 bp |                                                                                                                                                                                                                                                                                                                                                                                | *01:42, 01:61, 03:125, 04:02:01-<br>04:02:07, 04:37, 04:124, 04:133-<br>04:134, 04:138, 04:143, 04:161,<br>04:204, 04:210, 04:237-04:238,<br>04:259, 04:287, 04:299N, 12:73,<br>13:01:01:01-13:01:06, 13:01:08-<br>13:01:32, 13:04, 13:08, 13:10,<br>13:15, 13:17, 13:19-13:20:01:03,<br>13:22:01:01-13:22:02, 13:24:01:01-<br>13:24:01:03, 13:27:01-13:28:02,<br>13:32, 13:35, 13:40, 13:43, 13:48,<br>13:51-13:54, 13:57, 13:59,<br>13:61:01-13:61:02, 13:64, 13:68-<br>13:72, 13:75-13:76, 13:78-13:81,<br>13:83-13:84, 13:87, 13:89:01,<br>13:91-13:94:01, 13:98, 13:102,<br>13:105-13:106, 13:110-13:114,                                                                                                                                                                                                                                                                                                                                                                     |



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| 29 <sup>4</sup> | 100 bp | 515 bp | *11:14:01:01-11:14:02, 11:19:01-11:20, 11:31, 11:45, 11:73, 11:82, 11:184, 11:191 | *01:03:01-01:03:05, 01:15, 01:24:01-01:24:02, 01:39N, 01:89, 01:102, 04:14, 04:38, 04:82, 04:86, 04:105:01-04:107, 04:125, 04:185, 04:205, 07:01:01:01-07:01:25, 07:03-07:04, 07:06-07:19, 07:21-07:23, 07:25-07:30, 07:32-07:42, 07:44-07:54, 07:56-07:64, 07:66-07:67, 07:69-07:120, 08:03:02:01-08:03:12, 08:14-08:15, 08:18-08:19, 08:23, 08:25, 08:27, 08:29-08:30:03, 08:32-08:38, 08:40, 08:45:01-08:47, 08:49, 08:51, 08:53, 08:56, 08:58, 08:60N-08:63, 08:66, 08:68:01-08:69, 08:71, 08:74, 08:91-08:92, 08:95, 08:97, 08:104, 10:10, 12:22, 12:39, 13:02:01:01-13:02:03, 13:02:05-13:03:09, 13:12:01-13:13, 13:23:01-13:23:02, 13:30-13:31, 13:33:01-13:34, 13:36-13:39, 13:41, 13:45, 13:65-13:67, 13:73-13:74, 13:82, 13:85, 13:90, 13:95-13:97:02, 13:99, 13:101, 13:103-13:104, 13:107, 13:115, 13:118, 13:120, 13:122-13:124, 13:126, 13:128, 13:133, 13:135, 13:139-13:140, 13:143, 13:145, 13:147, 13:151-13:152, 13:154-13:155, 13:157, 13:159, 13:161, 13:165, 13:167-13:168, 13:170-13:172, 13:174, 13:179, 13:182, 13:188, 13:194-13:196, 13:198, 13:202, 13:207-13:212, 13:216, 13:219-13:220, 13:225, 13:227-13:228, 13:236-13:237, 13:239-13:241, 13:243-13:244, 13:250, 13:253, |



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|                 |        |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------|--------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
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|                 | 215 bp |        | *11:154                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 30              | 200 bp | 515 bp | *11:01:01:01-11:01:27,<br>11:01:28 <sup>w</sup> , 11:01:29-11:01:42,<br>11:03:01-11:04:20, 11:04:22,<br>11:06:01-11:06:03,<br>11:09:01:01-11:11:01,<br>11:11:03-11:12:03,<br>11:15:01:01-11:15:02,<br>11:23:01-11:25, 11:27:01-<br>11:29:02, 11:32-11:33, 11:35,<br>11:37:01-11:41, 11:43:01:01-<br>11:44, 11:46:01-11:47,<br>11:49:01-11:51, 11:54:01-<br>11:56, 11:58:01-11:63:02,<br>11:66:01-11:66:02, 11:72,<br>11:74:01-11:78, 11:80-11:81,<br>11:83-11:85, 11:87-11:88,<br>11:90-11:97, 11:99-11:102:02,<br>11:106, 11:108-11:117:02,<br>11:120-11:123, 11:126, 11:128-<br>11:129, 11:133-11:135, 11:137-<br>11:142, 11:144-11:152, 11:154-<br>11:158, 11:160-11:170, 11:172,<br>11:174-11:183, 11:185-11:190,<br>11:192, 11:194:01-11:201,<br>11:203-11:208, 11:210-11:228,<br>11:230-11:241, 11:243-11:247,<br>11:249-11:250N, 11:252-<br>11:255, 11:257-11:260, 11:262-<br>11:265, 11:269, 11:271-11:275,<br>11:277-11:279 | *08:20, 13:05:01:01-13:05:03,<br>13:07:01-13:07:02, 13:11:01-<br>13:11:02, 13:14:01-13:14:03, 13:18,<br>13:21:01:01-13:21:02, 13:24:01:01-<br>13:24:01:03, 13:26:01-13:26:02,<br>13:42:01-13:42:02, 13:46-13:47,<br>13:49-13:50:03, 13:54-13:55,<br>13:62-13:63, 13:75, 13:100, 13:108,<br>13:111, 13:132, 13:136, 13:144,<br>13:150, 13:158, 13:164, 13:169,<br>13:189, 13:197, 13:199, 13:203,<br>13:229-13:230, 13:232, 13:246-<br>13:247, 13:277, 13:284, 13:286,<br>13:302, 13:307, 14:22, 14:25:01-<br>14:25:02, 14:27:01-14:27:02, 14:53,<br>14:105, 14:128                                                                                                                                                |
| 31 <sup>4</sup> | 85 bp  | 515 bp | *11:04:01:01-11:04:20,<br>11:04:22, 11:06:01-11:06:03,<br>11:18, 11:25, 11:35, 11:38,<br>11:42:01-11:44,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | *01:23, 01:111, 04:12, 04:15,<br>04:18, 04:25, 04:36, 04:53:01-<br>04:53:02, 04:58, 04:99, 04:136,<br>08:04:01, 08:04:04-08:04:07, 08:06,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |



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|                         |                  |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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| <b>32<sup>4,8</sup></b> | 75 bp            | 430 bp        | *11:13:01-11:13:02, 11:17,<br>11:51-11:52, 11:89, 11:159,<br>11:202, 11:266                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | *14:11:01:01-14:11:01:02                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>33</b>               | 155 bp           | 430 bp        | *11:88, 11:94                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | *03:181, 13:177                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>34<sup>4</sup></b>   | 80 bp            | <b>515 bp</b> | *11:31, 11:96, 11:148                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | *03:10, 13:43, 13:45, 13:179,<br>13:217, 14:35, 14:53, 14:72,<br>14:128, 14:132, 14:138, 14:186,<br>14:208, 15:187                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                         | 135 bp<br>290 bp |               | *11:169N<br>*11:97                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>35<sup>4</sup></b>   | 85 bp<br>190 bp  | 430 bp        | *11:98<br>*11:217N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>36<sup>4</sup></b>   | 90 bp            | 430 bp        | *11:102:01-11:102:02, 11:175,<br>11:275, 11:278<br>*11:99<br>*11:110<br>*11:128                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | *03:49, 14:161                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>37</b>               | 150 bp           | 430 bp        | *11:101:01-11:101:02                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | *13:306                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>38</b>               | 150 bp           | 430 bp        | *11:78, 11:106, 11:152                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>39<sup>4</sup></b>   | 110 bp           | 430 bp        | *11:108, 11:160-11:161, 11:197                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>40</b>               | 180 bp           | 430 bp        | *11:116, 11:120                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | *03:13:01-03:13:02, 03:38, 03:79,<br>03:88, 03:167, 13:39, 13:54, 13:77-<br>13:79, 13:100, 13:162-13:163,<br>13:181, 14:48, 14:64, 14:109,<br>14:115, 14:177, <b>DRB3*01:14</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>41<sup>4</sup></b>   | 65 bp            | <b>515 bp</b> | *11:07:01-11:07:02, 11:13:01-<br>11:13:02, 11:17, 11:26, 11:34,<br>11:52, 11:79, 11:103:01-<br>11:103:02, 11:105, 11:107,<br>11:131, 11:136, 11:159, 11:202,<br>11:267                                                                                                                                                                                                                                                                                                                                                                                                                                                               | *01:75, 03:08, 03:140, 04:61,<br>04:145, 04:154, 04:170, 04:291,<br>10:23, 14:11:01:01-14:11:01:02,<br><b>DRB3*02:18</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>42</b>               | 135 bp           | 430 bp        | *11:72, 11:92, 11:180, 11:276                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | *01:75, 10:23                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |



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|                         | 180 bp |        | *11:104                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>43<sup>4</sup></b>   | 105 bp | 430 bp | *11:147:01-11:147:02                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                         | 235 bp |        | *11:112, 11:137                                                                           | *03:78                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>44<sup>4,8</sup></b> | 105 bp | 430 bp | *11:147:01-11:147:02                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                         | 200 bp |        | *11:111                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                         | 270 bp |        | *11:187                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>45<sup>4</sup></b>   | 100 bp | 430 bp | *11:23:01-11:23:02, 11:25,<br>11:32, 11:45, 11:55, 11:64,<br>11:67, 11:70, 11:119, 11:197 | *08:63, 08:75                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>46<sup>4,7</sup></b> | 70 bp  | 430 bp | *11:60, 11:109                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                         | 110 bp |        | *11:198, 11:245                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>47<sup>4</sup></b>   | 110 bp | 430 bp | *11:198, 11:245                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                         | 210 bp |        | *11:193:01-11:193:02, 11:209,<br>11:229, 11:270                                           | *08:05, 08:18, 08:24:01-08:24:02,<br>08:29, 08:31, 08:40-08:41, 08:92,<br>08:102, 12:01:02, 12:02:04,<br>12:16:01, 12:49, 12:66, 12:73,<br>13:17, 13:116, 13:175, 13:214,<br>14:04:01:01-14:04:08, 14:11:01:01-<br>14:11:01:02, 14:28, 14:31, 14:52,<br>14:68:01-14:68:02, 14:71, 14:73,<br>14:120, 14:126:01-14:126:02,<br>14:138, 14:145, 14:148, 14:152N,<br>14:175, 14:180, 14:196, 14:201,<br>14:205-14:206, 14:210Q, 14:220,<br>14:224, 14:229 |
| <b>48<sup>11</sup></b>  | -      | -      | <b>Negative Control</b>                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

<sup>1</sup>Alleles are assigned by the presence of specific PCR product(s). However, the sizes of the specific PCR products may be helpful in the interpretation of DRB1\*11 SSP typings.

When the primers in a primer mix can give rise to HLA-specific PCR products of more than one length this is indicated if the size difference is more than 20 base pairs. Size differences of 20 base pairs or less are not given. For high resolution SSP kits, the alleles listed are specified according to amplicon length.

Nonspecific amplifications, i.e. a ladder or a smear of bands, may sometimes be seen. GC-rich primers have a higher tendency of giving rise to nonspecific amplifications than other primers.

PCR fragments longer than the control bands may sometimes be observed. Such bands should be disregarded and do not influence the interpretation of the SSP typings.

PCR fragments migrating faster than the control bands, but slower than a 400 bp fragment may be seen in some gel read-outs. Such bands can be disregarded and do not influence the interpretation of the SSP typings.

Some primers may give rise to primer oligomer artifacts. Sometimes this phenomenon is an inherent feature of the primer pair(s) of a primer mix. More often it is due to other factors such as too low amount of DNA in the PCR reactions, taking too long time in setting up the PCR reactions, working at elevated room temperature or using thermal cyclers that are not pre-heated.

<sup>2</sup>The internal positive control primer pairs amplify segments of the human growth hormone gene. The internal positive control bands are 430 or 515 base pairs respectively, well distribution as outlined in the table. Well number 1 contains the longer, 515 bp, internal positive control band. The well distribution of the internal controls can help in orientation of the kit on gel photo, as well as allow for kit identification. In the presence of a specific amplification the intensity of the control band often decreases.

<sup>3</sup>For several DRB1 alleles 1<sup>st</sup> and/or 3<sup>rd</sup> exon(s) and beyond, as well as intron nucleotide sequences, are not available. In these instances, it is not known whether some of the primers of the SSP sets are completely matched with the target sequences or not. Assumption is made that unknown sequences in these regions are conserved within allelic groups.

<sup>4</sup>HLA-specific PCR products shorter than 125 base pairs have a lower intensity and are less sharp than longer PCR products.

In order to have as little co-amplification as possible of non-DRB1\*11 alleles by the primer pairs of the DRB1\*11 subtyping kit, the DRB1\*11 characteristic sequence motif in codon 58, 'Ag', has been used in either the 5'-



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primer or the 3'-primer in many of the DRB1\*11 primer mixes and consequently many of the specific PCR products are shorter than 100 base pairs.

<sup>5</sup>Primer mix 4 may faintly amplify the DRB1\*13:29 allele.

<sup>6</sup>Primer mix 10 may faintly amplify the DRB1\*11:53 allele.

<sup>7</sup>Primer mixes 4, 12 and 46 have tendencies of giving rise to primer oligomer formation.

<sup>8</sup>Primer mixes 6, 11, 13, 19, 32 and 44 may have tendencies of unspecific amplifications.

<sup>9</sup>Primer mix 17 may give rise to a lower yield of HLA-specific PCR product than the other DRB1\*11 primer mixes.

<sup>10</sup>Primer mix 12 may amplify the DRB1\*11:60 and 11:109 and the DRB1\*15:68 alleles.

<sup>11</sup>Primer mix 48 contains a negative control, which will amplify the majority of HLA amplicons as well as the amplicons generated by the control primer pairs matching the human growth hormone gene. HLA-specific PCR product sizes range from 75 to 200 base pairs and the PCR product generated by the HGH positive control primer pair is 200 base pairs.

#### Abbreviations

w: may be weakly amplified.

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## PRIMER SPECIFICATION

| Well No.                  | 1                    | 2                    | 3                    | 4                    | 5                    | 6                    | 7                    | 8                    | 9                    | 10                   | 11                   | 12                   |
|---------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Length of spec.           | 175                  | 175                  | 70                   | 200                  | 85                   | 80                   | 125                  | 125                  | 85                   | 85                   | 155                  | 95                   |
| PCR product               |                      |                      |                      |                      |                      |                      |                      |                      | 115                  | 120                  | 200                  | 145                  |
|                           |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      | 255                  | 185                  |
| Length of int.            | 515                  | 430                  | 430                  | 430                  | 515                  | 430                  | 430                  | 430                  | 430                  | 430                  | 515                  | 430                  |
| pos. control <sup>1</sup> |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |
| 5'-primer(s) <sup>2</sup> | 12(123)<br>5'-ACA 3' | 13(125)<br>5'-ggg 3' | 58(261)<br>5'-gAg 3' | 13(125)<br>5'-gTC 3' | 58(260)<br>5'-TgA 3' | 58(261)<br>5'-gAg 3' | 58(261)<br>5'-gAg 3' | 58(261)<br>5'-gAg 3' | 58(261)<br>5'-gAg 3' | 58(261)<br>5'-gAg 3' | 13(125)<br>5'-gTC 3' | 10(116)<br>5'-gCT 3' |
|                           | 13(125)<br>5'-gTC 3' |                      | 58(261)<br>5'-gAA 3' |                      |                      |                      |                      | 58(261)<br>5'-gAA 3' |                      |                      |                      | 24(157)<br>5'-ggA 3' |
|                           |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      | 41(208)<br>5'-TCA 3' |
| 3'-primer(s) <sup>3</sup> | 58(260)<br>5'-CCT 3' | 58(260)<br>5'-CCT 3' | 67(286)<br>5'-gAA 3' | 67(286)<br>5'-gAT 3' | 71(298)<br>5'-CCT 3' | 71(298)<br>5'-CTC 3' | 86(344)<br>5'-CAC 3' | 86(344)<br>5'-CCA 3' | 73(305)<br>5'-ggC 3' | 73(305)<br>5'-ggC 3' | 51(238)<br>5'-CgC 3' | 58(260)<br>5'-CCT 3' |
|                           | 58(260)<br>5'-CCT 3' |                      | 67(286)<br>5'-gAA 3' | 67(286)<br>5'-gAT 3' | 72(303)<br>5'-gCg 3' | 71(298)<br>5'-CTC 3' |                      |                      | 73(305)<br>5'-ggC 3' | 73(305)<br>5'-ggC 3' | 67(286)<br>5'-gAg 3' |                      |
|                           | 58(260)<br>5'-CCT 3' |                      | 67(286)<br>5'-gAA 3' |                      | 72(303)<br>5'-gCA 3' |                      |                      |                      | 83(334)<br>5'-gTg 3' | 74(307)<br>5'-CAg 3' | 85(341)<br>5'-CAg 3' |                      |
|                           | 58(261)<br>5'-TCT 3' |                      | 67(288)<br>5'-AgA 3' |                      | 74(307)<br>5'-CAg 3' |                      |                      |                      |                      | 84(338)<br>5'-CCT 3' |                      |                      |
| Well No.                  | 1                    | 2                    | 3                    | 4                    | 5                    | 6                    | 7                    | 8                    | 9                    | 10                   | 11                   | 12                   |

| Well No.                  | 13                   | 14                   | 15                   | 16                   | 17                   | 18                   | 19                   | 20                   | 21                   | 22                   | 23                   | 24                   |
|---------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Length of spec.           | 105                  | 145                  | 60                   | 110                  | 90                   | 95                   | 180                  | 115                  | 135                  | 115                  | 120                  | 155                  |
| PCR product               |                      |                      | 105                  | 255                  |                      |                      | 225                  |                      | 175                  | 180                  | 190                  | 250                  |
|                           |                      |                      |                      |                      |                      |                      | 260                  |                      |                      | 215                  |                      |                      |
|                           |                      |                      |                      |                      |                      |                      |                      |                      |                      | 245                  |                      |                      |
| Length of int.            | 515                  | 430                  | 430                  | 430                  | 430                  | 430                  | 430                  | 515                  | 430                  | 430                  | 430                  | 430                  |
| pos. control <sup>1</sup> |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |
| 5'-primer(s) <sup>2</sup> | 37(196)<br>5'-AgA 3' | 13(125)<br>5'-gTC 3' | 37(197)<br>5'-gTT 3' | 13(125)<br>5'-gTC 3' | 58(260)<br>5'-TgA 3' | 58(261)<br>5'-gAg 3' | 13(125)<br>5'-gTC 3' | 13(125)<br>5'-gTC 3' | 13(125)<br>5'-ACA 3' | 13(125)<br>5'-gTC 3' | 36(193)<br>5'-AgT 3' | 13(125)<br>5'-gTC 3' |
|                           | 37(196)<br>5'-AgA 3' |                      | 37(197)<br>5'-gTT 3' |                      |                      |                      |                      |                      | 26(164)<br>5'-gTA 3' |                      | 59(263)<br>5'-ggg 3' |                      |
|                           |                      |                      | 51(239)<br>5'-gAT 3' |                      |                      |                      |                      |                      |                      |                      |                      |                      |
| 3'-primer(s) <sup>3</sup> | 58(261)<br>5'-TCC 3' | 47(227)<br>5'-ggT 3' | 58(260)<br>5'-CCT 3' | 37(196)<br>5'-gTC 3' | 74(307)<br>5'-CAg 3' | 77(317)<br>5'-AAT 3' | 60(265)<br>5'-gTg 3' | 37(197)<br>5'-Cgg 3' | 58(260)<br>5'-CCT 3' | 38(199)<br>5'-CAA 3' | 86(344)<br>5'-CCA 3' | 51(239)<br>5'-CCC 3' |
|                           |                      |                      |                      | 38(199)<br>5'-CAg 3' | 74(308)<br>5'-CCT 3' | 77(317)<br>5'-AgT 3' | 74(308)<br>5'-CCA 3' | 37(197)<br>5'-CgA 3' |                      | 59(264)<br>5'-TAg 3' |                      | 81(330)<br>5'-TTT 3' |
|                           |                      |                      |                      | 38(199)<br>5'-CAA 3' |                      |                      | 86(344)<br>5'-CAT 3' | 38(200)<br>5'-gCg 3' |                      | 71(299)<br>5'-gCg 3' |                      | 85(341)<br>5'-CAg 3' |
|                           |                      |                      |                      | 38(200)<br>5'-gCg 3' |                      |                      |                      |                      |                      | 81(330)<br>5'-TTT 3' |                      |                      |
|                           |                      |                      |                      | 85(340)<br>5'-AAT 3' |                      |                      |                      |                      |                      |                      |                      |                      |
| Well No.                  | 13                   | 14                   | 15                   | 16                   | 17                   | 18                   | 19                   | 20                   | 21                   | 22                   | 23                   | 24                   |



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For *In Vitro* Diagnostic Use  
MA123 v02 SSP PI Template  
Date: July 2022, Rev. No: 01

101.115-24/03 – including *Taq* polymerase  
101.115-24u/03u – without *Taq* polymerase, IFU-02

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Lot No.: **2N2**

Lot-specific information

| Well No.                                 | 25                   | 26                   | 27                   | 28                   | 29                   | 30                   | 31                   | 32                   | 33                   | 34                    | 35                   | 36                   |
|------------------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|-----------------------|----------------------|----------------------|
| Length of spec. PCR product              | 110                  | 120                  | 85                   | 85                   | 100                  | 200                  | 85                   | 75                   | 155                  | 80                    | 85                   | 90                   |
|                                          |                      | 160                  |                      |                      | 215                  |                      |                      |                      |                      | 135                   | 190                  | 115                  |
|                                          |                      |                      |                      |                      |                      |                      |                      |                      |                      | 290                   |                      | 165                  |
|                                          |                      |                      |                      |                      |                      |                      |                      |                      |                      |                       |                      | 245                  |
| Length of int. pos. control <sup>1</sup> | 430                  | 430                  | 430                  | 430                  | 515                  | 515                  | 515                  | 430                  | 430                  | 515                   | 430                  | 430                  |
| 5'-primer(s) <sup>2</sup>                | 34(189)<br>5'-CAG 3' | 19(143)<br>5'-CAG 3' | 71(299)<br>5'-CgA 3' | 71(299)<br>5'-CgA 3' | 29(172)<br>5'-ACg 3' | 13(125)<br>5'-gTC 3' | 71(299)<br>5'-CAG 3' | 58(261)<br>5'-gAg 3' | 13(125)<br>5'-gTC 3' | 47(227)<br>5'-gTT 3'  | 36(193)<br>5'-AgT 3' | 16(133)<br>5'-gTC 3' |
|                                          | 37(196)<br>5'-AgA 3' | 32(181)<br>5'-TCC 3' |                      |                      | 67(286)<br>5'-ACA 3' |                      |                      |                      |                      | 98(381)<br>5'-AAT 3'  | 71(299)<br>5'-Cgg 3' |                      |
| 3'-primer(s) <sup>3</sup>                | 58(260)<br>5'-CCT 3' | 58(260)<br>5'-CCT 3' | 86(344)<br>5'-CAC 3' | 86(344)<br>5'-CCA 3' | 86(344)<br>5'-CAC 3' | 67(286)<br>5'-gAA 3' | 86(344)<br>5'-CCA 3' | 70(296)<br>5'-TCC 3' | 48(230)<br>5'-CCT 3' | 60(265)<br>5'-gTg 3'  | 86(344)<br>5'-CCA 3' | 33(184)<br>5'-gTg 3' |
|                                          |                      |                      |                      |                      |                      | 67(286)<br>5'-gAA 3' |                      | 72(302)<br>5'-CCT 3' | 55(251)<br>5'-gCT 3' | 79(323)<br>5'-TgC 3'  |                      | 40(206)<br>5'-Cgg 3' |
|                                          |                      |                      |                      |                      |                      | 67(286)<br>5'-gAA 3' |                      |                      |                      | 181(630)<br>5'-CTT 3' |                      | 57(256)<br>5'-ATT 3' |
|                                          |                      |                      |                      |                      |                      | 67(288)<br>5'-AgA 3' |                      |                      |                      |                       |                      | 84(339)<br>5'-AgC 3' |
| Well No.                                 | 25                   | 26                   | 27                   | 28                   | 29                   | 30                   | 31                   | 32                   | 33                   | 34                    | 35                   | 36                   |

| Well No.                                 | 37                   | 38                   | 39                   | 40                   | 41                   | 42                   | 43                   | 44                   | 45                   | 46                    | 47                    |
|------------------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|-----------------------|-----------------------|
| Length of spec. PCR product              | 150                  | 150                  | 110                  | 180                  | 65                   | 135                  | 105                  | 105                  | 100                  | 70                    | 110                   |
|                                          |                      |                      |                      |                      |                      | 180                  | 235                  | 200                  |                      | 110                   | 210                   |
|                                          |                      |                      |                      |                      |                      |                      |                      | 270                  |                      |                       |                       |
| Length of int. pos. control <sup>1</sup> | 430                  | 430                  | 430                  | 430                  | 515                  | 430                  | 430                  | 430                  | 430                  | 430                   | 430                   |
| 5'-primer(s) <sup>2</sup>                | 47(227)<br>5'-gTT 3' | 19(143)<br>5'-CAG 3' | 58(261)<br>5'-gAg 3' | 13(125)<br>5'-gTC 3' | 58(261)<br>5'-gAg 3' | 11(119)<br>5'-CTT 3' | 13(125)<br>5'-gTC 3' | 13(125)<br>5'-gTC 3' | 58(261)<br>5'-gAg 3' | 49(233)<br>5'-ggA 3'  | 16(133)<br>5'-gTT 3'  |
|                                          |                      | 23(155)<br>5'-gCA 3' |                      |                      |                      | 26(165)<br>5'-TTg 3' |                      |                      |                      | 117(438)<br>5'-TgT 3' | 117(438)<br>5'-TgT 3' |
| 3'-primer(s) <sup>3</sup>                | 84(337)<br>5'-CCg 3' | 58(260)<br>5'-CCT 3' | 81(328)<br>5'-gTA 3' | 60(266)<br>5'-Agg 3' | 67(286)<br>5'-gAg 3' | 58(260)<br>5'-CCT 3' | 35(191)<br>5'-CCC 3' | 35(191)<br>5'-CCC 3' | 74(308)<br>5'-CCA 3' | 58(260)<br>5'-CCT 3'  | 72(303)<br>5'-gCC 3'  |
|                                          | 84(337)<br>5'-CCT 3' |                      | 81(329)<br>5'-TgC 3' |                      |                      |                      | 77(317)<br>5'-AgC 3' | 66(283)<br>5'-gTT 3' | 81(329)<br>5'-TgC 3' | 140(505)<br>5'-AgC 3' | 140(505)<br>5'-AgC 3' |
|                                          |                      |                      | 82(332)<br>5'-AgC 3' |                      |                      |                      |                      | 90(356)<br>5'-CTC 3' |                      |                       |                       |
| Well No.                                 | 37                   | 38                   | 39                   | 40                   | 41                   | 42                   | 43                   | 44                   | 45                   | 46                    | 47                    |



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For *In Vitro* Diagnostic Use  
MA123 v02 SSP PI Template  
Date: July 2022, Rev. No: 01

**101.115-24/03 – including *Taq* polymerase**  
**101.115-24u/03u – without *Taq* polymerase, IFU-02**

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**Lot No.: 2N2**

**Lot-specific information**

<sup>1</sup>The internal positive control primer pairs amplify segments of the human growth hormone gene. The internal positive control bands are 430 or 515 base pairs respectively, well distribution as outlined in the table. Well number 1 contains the longer, 515 bp, internal positive control band. The well distribution of the internal controls can help in orientation of the kit on gel photo, as well as allow for kit identification. In the presence of a specific amplification the intensity of the control band often decreases.

<sup>2</sup>The nucleotide position matching the specificity-determining 3'-end of the primer is given. Nucleotide numbering as on the [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla) web site. The sequence of the 3 terminal nucleotides of the primer is given.

<sup>3</sup>The nucleotide position matching the specificity-determining 3'-end of the primer is given in the anti-sense direction. Nucleotide numbering as on the [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla) web site. The sequence of the 3 terminal nucleotides of the primer is given.



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For *In Vitro* Diagnostic Use  
 MA123 v02 SSP PI Template  
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101.115-24/03 – including *Taq* polymerase  
101.115-24u/03u – without *Taq* polymerase, IFU-02

Visit [www.caredx.com](http://www.caredx.com) for  
“Instructions for Use” (IFU)

**Lot No.: 2N2**

**Lot-specific information**

<sup>1</sup>The provided cell line HLA specificities are retrieved from the <http://www.ihwg.org/hla> web site. The specificity of an individual cell line may thus be subject to change.

<sup>2</sup>The specificity of each primer solution in the kit has been tested against 48 well characterized cell line DNAs and where applicable, additional cell line DNAs.

No DNAs carrying the alleles to be amplified by primer solutions 12, 16, 21 to 23, 33 to 40 and 42 to 46 were available. The specificities of the primers in primer solutions 12, 16, 21, 22, 33, 34, 40, 42, 45 and 46 were tested by separately adding one or more additional 5'-primers, and one or more additional 3'-primers respectively.

In primer solutions 23, 35 and 38 it was only possible to test the 3'-primers, the 5'-primers were not possible to be tested.

In primer solutions 37, 39, 43 and 44 it was only possible to test the 5'-primers, the 3'-primers were not possible to be tested.

In primer solutions 1, 3, 6, 9 to 11, 16, 19, 22, 24, 30, 32 to 34, 36 and 45 one, two or three of the 3'-primers were not possible to be tested, and in primer solutions 1, 3, 8, 12, 15, 26, 29, 34, 42 and 46 one, two or three of the 5'-primers were not possible to be tested.

In addition, one or more primers in primer solutions 5, 10, 17 to 20, 24 and 47 were tested by separately adding one or more 5'-primers and/or one 3'-primer.



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For *In Vitro* Diagnostic Use  
MA123 v02 SSP PI Template  
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101.115-24/03 – including *Taq* polymerase  
101.115-24u/03u – without *Taq* polymerase, IFU-02

Visit [www.caredx.com](http://www.caredx.com) for  
“Instructions for Use” (IFU)

Lot No.: **2N2**

Lot-specific information

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