Gel Documentation Form and Worksheet

HLA-A-B-DR-DQ Combi Tray Lot No: 6F9 Expiry Date: 2020-05-01

(101.708-24/24u)

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Sample ID:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

DNA Conc.(ng/ul):\_\_\_\_\_\_\_\_\_\_

Test Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Tested By:

Review Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Reviewed By:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

***Interpretation:\_\_\_\_\_\_\_\_\_\_\_ Failed lanes: \_\_\_\_\_\_\_\_\_\_\_ Comments:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

**Gel Picture**

|  |
| --- |
| PHOTO DOCUMENT |

**HLA-A low**  **resolution**



**HLA-B low**  **resolution**





**HLA-DR low**  **resolution**



**HLA-DQ low**  **resolution**



‘ICB’ Internal Control Band,

‘AmpS’ Amplicon Size

**Notes:**

Product sizes are approximate. For detailed information, see the lot-specific Specificity Table and Interpretation Table.

This table is intended as a guide. For interpretation always use the Interpretation Table and/or Specificity Table.

**HLA-A low resolution primer set**

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

Primer mix 8 may weakly amplify the A\*34 alleles.

Primer mix 13 may give rise to a lower yield of HLA-specific PCR product than the other HLA-A low primer mixes.

Primer mix 3 may faintly amplify the A\*30:04:01-30:04:02, 30:06, 30:09, 30:17, 30:29, 30:46, 30:77 and 30:90 alleles.

Primer mixes 9, 13, 14, 19 and 21 may have a tendency of giving rise to primer oligomer formation.

Primer mix 19 may have tendency of unspecific amplification.

Primer mix 20 may generate a false positive band of about 560 base pairs. This band should be disregarded when interpreting HLA-A low resolution typings.

**HLA-B low resolution primer set**

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

Primer mix 25 may give rise to a lower yield of HLA-specific PCR product than the other HLA-B low resolution primer mixes in B\*40, B\*41, B\*45, B\*49 and B\*50 alleles.

Primer mixes 25, 26, 30, 41, 55, 57 and 62 may give rise to a lower yield of HLA-specific PCR product than the other HLA-B low resolution primer mixes.

Primer mixes 27, 30, 38, 40 and 57 may have tendencies of unspecific amplifications, most pronounced in primer mix 30.

Primer mixes 22, 24, 35, 39, 40, 60 and 62 have a tendency giving rise to primer oligomer formation.

The B\*15, B\*46, B\*57, B\*58 and C\*03 alleles may be faintly amplified by primer mix 30.

Primer mix 57 may give rise to a lower yield of B\*54 alleles than the other B low primer mixes.

The C\*17 alleles might be faintly amplified by primer mix 45.

Primer mix 50 might generate a false band of about 800 base pairs. This band should be disregarded when interpreting HLA-B low resolution typings.

The Bw4-associated HLA-A specificities A23, A24, A2403, A25 and A32 are not amplified by the primer pair in primer mix 63.

**DR low resolution primer set**

HLA-specific PCR fragments shorter than 125 base pairs have a lower intensity and are less sharp than longer PCR bands.

Primer mixes 65, 72, 76, 79, 80, 82, 83 and 86 have a tendency giving rise to primer oligomer formation.

Primer mixes 79 and 80 may give rise to a lower yield of HLA-specific PCR product than the other DR low resolution primer mixes.

Primer mix 73 may have tendency of unspecific amplification.

Primer mix 83 has a tendency of primer oligomer formation and also has an intense primer cloud due to the high number of primers present in the primer mix.

Due to sharing of sequence motifs in codon 38 and 47, DRB3\*01:14 will also be amplified in primer mixes 69, 70 and 81, and DRB3\*01:23 in primer mix 69, in addition to primer mix 85.

The DRB4\*01:03:01:02N allele is amplified by primer mix 86, whereas the DRB4\*02:01N and DRB4\*03:01N null alleles are not amplified by this primer mix.

**DQ low resolution primer set**

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

Primer mix 89 has a tendency giving rise to primer oligomer formation.

Primer mixes 91 to 95 may give rise to a lower yield of HLA-specific PCR product than the other DQ low resolution primer mixes.

Primer mixes 93 and 94 may have tendencies of unspecific amplifications.

Primer mix 96 contains a negative control, which will amplify more than 95% 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 430 base pairs.

**HLA-A low resolution Interpretation Table**







**1**HLA-A, HLA-B, HLA-DRB and HLA-DQB1 alleles listed on the IMGT/HLA web page 2017-April-13, release 3.28.0, [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla).

**2**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>.

**3**The serological reactivity of all HLA-A alleles is not known. The grouping of not serologically defined alleles is taken from Tissue Antigens 73, 95-170, 2009.

**4**The A\*36 alleles will give rise to identical amplification patterns as a number of A\*01 alleles. These alleles can be separated by the A\*01 and A\*36 high resolution SSP primer sets.

**5**The HLA-A alleles will be grouped into their corresponding serological specificities, except that following alleles give rise to identical amplification patterns:

|  |  |
| --- | --- |
| **Alleles** | **Alleles** |
| A\*01:26, 01:136, 01:192, A\*11:94, 11:112, 11:211, 11:226 | A\*23:14:01-23:14:02, A\*24:24, 24:71, 24:315 |
| A\*03:01:23, 03:08, 03:36N, 03:57, 03:59, 03:72, 03:89:01-03:89:02, 03:107-03:108, 03:111, 03:142, 03:172-03:173, 03:176, 03:178N, 03:198-03:200Q, 03:203, 03:205, 03:211, 03:252, 03:267, 03:273, A\*24:92 | A\*26:137, A\*66:12, 66:15 |
| A\*11:116, 11:140, 11:199:01, 11:222, A\*66:23 | A\*30:01:01-30:02:11, 30:02:13-30:04:02, 30:06-30:07, 30:09-30:20, 30:22-30:54, 30:56-30:88, 30:90-30:117, B\*07:260 |
| A\*23:01:01:01-23:01:12, 23:01:14-23:13, 23:15-23:56, 23:58-23:63, 23:65, 23:67-23:68, 23:70-23:83, B\*18:27 | A\*31:08, 31:109, A\*33:53, 33:125 |

‘w’, might be weakly amplified.

 **HLA-B low resolution Interpretation Table**







































**1**HLA-A, HLA-B, HLA-DRB and HLA-DQB1 alleles listed on the IMGT/HLA web page 2017-April-13, release 3.28.0, [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla).

**2**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>.

**3**The serological reactivity of all HLA-B alleles is not known. The grouping of not serologically defined alleles is taken from Tissue Antigens 73, 95-170, 2009.

**4**The HLA-B alleles will be grouped into their corresponding serological specificities, except that following alleles give rise to identical amplification patterns:

|  |  |
| --- | --- |
| **Alleles** | **Alleles** |
| B\*07:174, 07:202, 07:222, 07:229, B\*81:02 | B\*51:45, 51:81, B\*53:44, 53:47 |
| B\*08:26:01-08:26:02, 08:50, 08:62, 08:85, 08:94, 08:146, B\*42:07, 42:24 | B\*51:104, 51:118N, 51:147, B\*58:08:01-58:08:02  |
| B\*13:04, 13:10, 13:21, 13:35, 13:59, 13:71-13:72, B\*44:135, 44:158, 44:184 | B\*53:30, B\*57:45, 57:51, 57:69 |
| B\*13:46, B\*44:213 | B\*55:01:07, 55:02:01:01-55:02:10, 55:07, 55:10, 55:12, 55:16, 55:19, 55:26, 55:30, 55:35, 55:37, 55:39, 55:41-55:43, 55:47-55:48, 55:50, 55:57, 55:61-55:63, 55:65, 55:67, 55:69-55:72, 55:77, 55:80, 55:82-55:83N, B\*56:10 |
| B\*14:08:01-14:08:02, 14:55, B\*39:01:19, 39:25N, 39:30, 39:32-39:34, 39:43, 39:47, 39:50, 39:74, 39:82, 39:102, 39:107, 39:112, 39:128 | B\*55:04, 55:08, 55:13, 55:23, 55:27, 55:32, 55:46, 55:49, 55:81, B\*56:01:05, 56:15, 56:18-56:19N, 56:22, 56:31-56:32, 56:50 |
| B\*18:29, 18:72:01-18:72:03, 18:92, 18:102, B\*35:09:01-35:09:03, 35:18, 35:31-35:32:02, 35:37, 35:53N, 35:64:01-35:64:02, 35:68:01-35:68:02, 35:75, 35:88, 35:99, 35:118-35:119, 35:127, 35:151, 35:174, 35:205, 35:234-35:235, 35:273, 35:292, 35:321 | B\*57:01:01-57:01:04, 57:01:06-57:01:22, 57:02:01-57:03:03, 57:05-57:06, 57:08, 57:10, 57:15-57:20, 57:22-57:23, 57:25-57:30, 57:32-57:44, 57:46, 57:48-57:50, 57:52-57:58, 57:60-57:68, 57:70, 57:72-57:81, 57:84-57:87, 57:90, B\*58:36 |
| B\*35:191, B\*58:64 | B\*57:01:23, 57:89, B\*58:01:01:01-58:01:02, 58:01:04-58:01:15, 58:01:17-58:01:22, 58:04-58:05, 58:10N-58:15, 58:19, 58:21-58:24, 58:28:01-58:29, 58:31N-58:35, 58:37, 58:39N-58:42, 58:45:01-58:45:02, 58:47-58:59:02, 58:62-58:63, 58:65-58:72N, 58:74-58:75, 58:77, 58:79-58:83, 58:85-58:90 |

‘w’, might be weakly amplified.

‘?’, nucleotide sequence information not available for the primer matching sequence.

**DR low resolution Interpretation Table**









**1**HLA-A, HLA-B, HLA-DRB and HLA-DQB1 alleles listed on the IMGT/HLA web page 2017-April-13, release 3.28.0, [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla).

The DRB4\*02:01N and DRB4\*03:01N null alleles will not be amplified by the DR low resolution primer set.

**2**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>.

**3**The serological reactivity of all DRB alleles is not known. The grouping of not serologically defined alleles is taken from Tissue Antigens 73, 95-170, 2009.

**4**The HLA-DRB1, -DRB3, -DRB4 and -DRB5 alleles will be grouped into their corresponding serological specificities, except that following alleles give rise to identical amplification patterns:

|  |
| --- |
| Alleles |
| DRB1\*03:15:02, DRB1\*13:02:02 |
| DRB1\*03:126, DRB1\*14:179 |
| DRB1\*08:20, DRB1\*13:18, 13:47, 13:55, 13:158, 13:164, 13:232 |
| DRB1\*08:31, 08:41, 08:75, DRB1\*11:67, 11:193:01-11:193:02, 11:209 |
| DRB1\*12:57, DRB1\*13:67, 13:103, 13:160, 13:195 |
| DRB1\*13:13, 13:119, 13:154, 13:156, DRB1\*14:84, 14:116, 14:144 |
| DRB1\*13:44, 13:86, 13:206, DRB1\*14:183 |
| DRB1\*13:197, DRB1\*14:53 |
| DRB1\*13:235, DRB1\*14:98 |

‘w’, might be weakly amplified.

‘?’, nucleotide sequence information not available for the primer matching sequence.

**DQ low resolution Interpretation Table**



**1**HLA-A, HLA-B, HLA-DRB and HLA-DQB1 alleles listed on the IMGT/HLA web page 2017-April-13, release 3.28.0, [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla).

**2**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>.

**3**The serological split of the DQB1\*05:05-05:109, DQB1\*06:06 to 06:07 alleles, the DQB1\*06:10, 06:13, 06:15-06:24 and 06:27 to 06:197, the DQB1\*02:04-02:64, the DQB1\*03:07-03:09 and 03:11-03:215 alleles and the DQB1\*04:03:01-04:32 alleles is not known. In this table we have used the expert-assigned serological grouping in Tissue Antigens (2009) **73**:95-170, and also inferred the serological grouping from the naming of the sequence-defined allele.

**4**The DQB1 alleles will be grouped into their corresponding serological specificities, except that following alleles give rise to identical amplification patterns:

|  |
| --- |
| Alleles |
| DQB1\*05:01:01:01-05:43:01, 05:44-05:147, DQB1\*06:212 |

Change in revision R01 compared to R00:

1. Primer mix 46 does not amplify the B\*08:31, 41:06, 41:15 and 42:14 alleles. This has been corrected in the Specificity and Interpretation Tables.

Change in revision R02 compared to R01:

1. The reactivities of primer mix 16 have been corrected in the Specificity and Interpretation Tables.

Change in revision R03 compared to R02:

1. Primer mix 4 amplifies the A\*01:15N allele. This has been corrected in the Specificity and Interpretation Tables.

Change in revision R04 compared to R03:

1. Primer mix 93 does not amplify the DQB1\*03:03:06, 03:06, 03:25:01-03:25:02 and DQB1\*04:03:01-04:03:02 alleles. This has been corrected in the specificity and interpretation tables.