Gel Documentation Form and Worksheet

DRB1\*13 (101.116-24/03, -24u/03u) Lot No: 9D4 Expiry Date: 2019-01-01

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

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

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

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

Tested By:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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

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

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

**Gel Picture**

|  |
| --- |
| PHOTO DOCUMENT |







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

Primer mixes 20, 21 and 26 may have tendencies of unspecific amplifications.

Primer mix 47 has a tendency to giving rise to primer oligomer formation.

Primer mix 55 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.



































**1**DRB1\*13 alleles in bold lettering are listed as confirmed alleles on the on the IMGT/HLA web page [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla), release 3.24.0, May 2016.

**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**Primer mix 17: Specific PCR fragment of 215 bp in the DRB1\*13:02:02, 13:26:01, 13:60, 13:77, 13:163, 13:178 and 13:181 and the DRB1\*11:01:03, 11:01:10-11:01:11, 11:04:07, 11:08:03, 11:19:02 and 14:32:03 alleles. Specific PCR fragment of 255 bp in the DRB1\*13:28 and the DRB1\*03:73 alleles.

Primer mix 18: Specific PCR fragment of 110 bp in the DRB1\*13:87 allele. Specific PCR fragment of 230 bp in the DRB1\*13:13, 13:18, 13:33:02-13:33:03, 13:47, 13:55, 13:61:01, 13:94:02, 13:96:02, 13:119, 13:144, 13:146, 13:154, 13:156, 13:158 and 13:164 and the DRB1\*03:01:02, 03:02:02, 03:05:03, 03:13:02, 03:17, 03:24, 03:27, 03:35, 03:81, 08:20, 11:23:01-11:23:02, 11:25, 11:27:01, 11:45, 11:55, 11:64, 11:84:01, 11:119, 11:124, 11:136, 11:138, 14:03:01-14:03:02, 14:12:01-14:12:02, 14:27, 14:38:01, 14:40, 14:47, 14:55, 14:63, 14:67, 14:77-14:78, 14:84-14:85, 14:89, 14:98, 14:102, 14:115-14:116, 14:127:01, 14:135-14:136, 14:144, 14:156, 14:164-14:165 and 14:173-14:174 and in the DRB3\*01:14 alleles.

Primer mix 19: Specific PCR fragment of 110 bp in the DRB1\*13:87 and DRB1\*13:106 and the DRB1\*03:26, 03:33, 03:44, 11:44, 11:49:01-11:50, 11:85, 11:127 and 14:97 alleles. Specific PCR fragment of 205 bp in the DRB1\*13:74 allele. Specific PCR fragment of 260 bp in the DRB1\*13:16 and the DRB1\*11:86 alleles.

Primer mix 21: Specific PCR fragment of 175 bp in the DRB1\*13:27, 13:41, 13:71 and 13:176 and the DRB1\*03:76, 03:125 and 11:59 alleles. Specific PCR fragment of 210 bp in the DRB1\*13:103 and 13:160 and the DRB1\*03:01:17, 14:82, 14:95 and 14:132 alleles.

Primer mix 22: Specific PCR fragment of 110 bp in the DRB1\*13:68 and the DRB1\*11:24 alleles. Specific PCR fragment of 175 bp in the DRB1\*13:31, 13:46, 13:54, 13:77, 13:100, 13:162 and 13:180 and the DRB1\*03:38, 03:79, 03:85, 03:96,14:48 and 14:174 and in the DRB3\*01:14 alleles. Specific PCR fragment of 280 bp in the DRB1\*13:13?, 13:30?, 13:33:01?, 13:45?, 13:52? and 13:105 and the DRB1\*03:12?, 03:16?, 11:26?, 11:40?, 11:100 and 14:19? alleles.

Primer mix 23: Specific PCR fragment of 115 bp in the DRB1\*13:34, 13:64, 13:136, 13:174 and 13:204 and the DRB1\*03:43, 03:71:01, 11:76, 11:114, 11:183, 14:41 and 14:77 and in the DRB3\*01:14 alleles. Specific PCR fragment of 245 bp in the DRB1\*13:01:03, 13:28 13:76, 13:163 and 13:193 and the DRB1\*03:01:17, 03:73, 03:97, 11:01:05, 11:01:10, 11:04:03, 11:06:02, 11:13:01-11:13:02, 11:17, 11:52, 11:54:01, 11:159, 14:01:01, 14:01:03-14:01:04, 14:05:01-14:05:02, 14:05:04, 14:07:01-14:08, 14:14, 14:18, 14:23:01-14:23:04, 14:26, 14:32:02-14:32:03, 14:34-14:36, 14:39, 14:42-14:44:01, 14:44:03-14:45, 14:54:01-14:56, 14:58-14:60, 14:62, 14:64-14:65, 14:70, 14:72, 14:82, 14:86-14:88, 14:90-14:92N, 14:95-14:97, 14:99-14:101, 14:104-14:105, 14:111-14:114, 14:117-14:118, 14:122-14:125, 14:127:02, 14:129-14:134, 14:137N, 14:139-14:140, 14:142, 14:146-14:147, 14:149-14:151, 14:153-14:155, 14:157-14:158, 14:160-14:163, 14:166N-14:169 and 14:172-14:173 alleles. Specific PCR fragment of 115 and 245 bp in the DRB1\*14:110 allele.

Primer mix 24: Specific PCR fragment of 145 bp in the DRB1\*13:35, 13:161 and 13:185N alleles. Specific PCR fragment of 180 bp in the DRB1\*13:39, 13:54, 13:77-13:79, 13:100, 13:162-13:163 and 13:181 and the DRB1\*03:13:01-03:13:02, 03:38, 03:79, 03:88, 11:116, 11:120, 14:48, 14:64, 14:109 and 14:115 and in the DRB3\*01:14 alleles. Specific PCR fragment of 280 bp in the DRB1\*13:13?, 13:30?, 13:33:01?, 13:45?, 13:52? and 13:166 and in the DRB1\*03:12?, 03:16?, 03:83, 11:26?, 11:40? and 14:19? alleles.

Primer mix 25: Specific PCR fragment of 110 bp in the DRB1\*13:03:01-13:04, 13:07:01-13:08, 13:11:01-13:14:03, 13:19, 13:21:01-13:25, 13:30, 13:33:01-13:33:03, 13:37-13:38, 13:44-13:49, 13:52, 13:54-13:55, 13:57-13:58, 13:60, 13:66:01-13:66:02, 13:70, 13:72, 13:75-13:76, 13:81-13:84, 13:86, 13:88-13:90, 13:94:01-13:95, 13:97:01-13:97:02, 13:100-13:101, 13:107-13:108, 13:118, 13:122, 13:132-13:135, 13:149-13:150, 13:152, 13:154, 13:161-13:162, 13:164, 13:167, 13:169, 13:180, 13:182,13:188, 13:194, 13:197 and 13:206 and the DRB1\*03:04:01-03:04:02, 03:17, 03:21, 03:25, 03:30-03:31, 03:35, 03:40-03:41:02, 03:49, 03:75, 03:105, 03:118, 08:20, 11:01:01:01-11:04:13, 11:06:01-11:08:03, 11:10:01-11:11:01, 11:11:03-11:14:02, 11:17-11:19:03, 11:21, 11:23:01-11:23:02, 11:25-11:27:03, 11:29:01-11:29:02, 11:31-11:39, 11:41-11:43, 11:45-11:48, 11:51-11:57, 11:60-11:66, 11:68-11:70, 11:72-11:75, 11:77-11:82, 11:84:01-11:84:03, 11:86, 11:88-11:103:02, 11:105-11:112, 11:116-11:121, 11:123-11:126, 11:128-11:181, 11:184-11:192, 11:194-11:195, 11:197-11:198, 14:01:01-14:01:04, 14:05:01-14:05:04, 14:07:01-14:08, 14:14, 14:16, 14:20, 14:22-14:23:04, 14:25-14:26, 14:32:01-14:32:03, 14:34-14:40, 14:42-14:45, 14:49, 14:53-14:56, 14:58, 14:60, 14:62, 14:65, 14:69-14:70, 14:72, 14:74-14:75, 14:82, 14:84, 14:86-14:88, 14:90-14:92N, 14:94, 14:96, 14:99-14:105, 14:111-14:114, 14:116-14:119, 14:122-14:125, 14:127:01-14:131, 14:136-14:137N, 14:139-14:140, 14:142, 14:146-14:147, 14:149-14:151, 14:153, 14:155-14:164, 14:166N, 14:168-14:169 and 14:171-14:173 alleles. Specific PCR fragment of 140 bp in the DRB1\*13:185N allele.

Primer mix 26: Specific PCR fragment of 90 bp in the DRB1\*13:150 and the DRB1\*11:39, 11:43, 11:50, 11:145, 11:151, 11:168 and 11:174 alleles. Specific PCR fragment of 140 bp in the DRB1\*13:05:01-13:05:03, 13:18, 13:26:01-13:26:02, 13:42, 13:50:02-13:50:03, 13:63, 13:111, 13:132, 13:136, 13:144, 13:158, 13:189, 13:199 and 13:203 and the DRB1\*08:09, 08:21, 08:70, 11:01:12, 11:04:04, 11:09-11:10:02, 11:12:02, 11:22, 11:28:02, 11:29:02, 11:40, 11:46:01, 11:58:01, 11:59, 11:62:02, 11:63:02, 11:83, 11:87, 11:113, 11:122, 11:149, 11:182, 11:189-11:190, 14:15, 14:22, 14:27, 14:73, 14:105 and 16:01:11 alleles. PCR fragment of 90 and 140 bp in the DRB1\*11:115 allele.

Primer mix 31: Specific PCR fragment of 145 bp in the DRB1\*13:152 and 13:204 alleles. Specific PCR fragment of 175 bp in the DRB1\*13:59 allele. Specific PCR fragment of 205 bp in the DRB1\*13:72 allele.

Primer mix 34: Specific PCR fragment of 145 bp in the DRB1\*13:80 and the DRB1\*03:16 alleles. Specific PCR fragment of 210 bp in the DRB1\*13:178 allele. Specific PCR fragment of 255 bp in the DRB1\*13:58, 13:81 and 13:163 and the DRB1\*03:20, 11:06:01-11:06:03, 11:21, 11:47, 11:57, 11:129, 11:174, 14:29 and 14:99 alleles.

Primer mix 35: Specific PCR fragment of 150 bp in the DRB1\*13:51 allele. Specific PCR fragment of 280 bp in the DRB1\*13:13?, 13:30?, 13:33:01?, 13:45?, 13:52? and 13:105 and the DRB1\*03:12?, 03:16?, 11:26?, 11:40?, 11:100 and 14:19? alleles.

Primer mix 36: Specific PCR fragment of 75 bp in the DRB1\*13:92 and the DRB1\*11:77 and 14:26 alleles. Specific PCR fragment of 170 bp in the DRB1\*13:90 and 13:113N alleles. Specific PCR fragment of 260 bp in the DRB1\*13:98 allele.

Primer mix 39: Specific PCR Specific PCR fragment of of 80 bp in the DRB1\*13:102 allele. Specific PCR Specific PCR fragment of 130 bp in the DRB1\*13:95 and 14:158 alleles. Specific PCR fragment of 280 bp in the DRB1\*13:13?, 13:30?, 13:33:01?, 13:45?, 13:52? and 13:166 and the DRB1\*03:12?, 03:16?, 03:83, 11:26?, 11:40? and 14:19? alleles.

Primer mix 40: Specific PCR fragment of 90 bp in the DRB1\*13:101 allele. Specific PCR fragment of 120 bp in the DRB1\*13:91 allele. Specific PCR fragment of 160 bp in the DRB1\*13:99 and 13:113N and the DRB1\*14:118 alleles.

Primer mix 45: Specific PCR fragment of 135 bp in the DRB1\*13:148 allele. Specific PCR fragment of 255 bp in the DRB1\*13:141 and 13:147 and the DRB1\*03:56 and 11:160-11:161 alleles.

Primer mix 46: Specific PCR fragment of 135 bp in the DRB1\*13:148 allele. Specific PCR fragment of 205 bp in the DRB1\*13:137N and \*13:142N alleles. Specific PCR fragment of 260 bp in the DRB1\*13:147 allele.

**4**The DRB1\*13 primer set cannot separate the DRB1\*13:165 and 13:171:01 from DRB1\*11:20 alleles. These alleles can be distinguished by the DR low resolution kit and/or DRB1\*11 high resolution kit.

**5**The following DRB1\*13 alleles can be distinguished by the different sizes of the HLA-specific PCR product:

|  |  |
| --- | --- |
| **Alleles** | **Primer mix** |
| DRB1\*13:92, 13:98 | 36 |

The DRB1\*13 subtyping kit cannot distinguish the following silent mutations: the DRB1\*13:01:01:01-13:01:02, 13:01:04-13:01:06, 13:01:08 and 13:01:10-13:01:16, the DRB1\*13:02:01, 13:02:03-13:02:08 and 13:02:11-13:02:12, the DRB1\*13:03:01-13:03:06, the DRB1\*13:05:01-13:05:03, the DRB1\*13:07:01-13:07:02, the DRB1\*13:11:01-13:11:02, the DRB1\*13:12:01-13:12:04, DRB1\*13:14:01-13:14:03, the DRB1\*13:21:01-13:21:02, the DRB1\*13:23:01-13:23:02, the DRB1\*13:33:02-13:33:03, the DRB1\*13:50:02-13:50:03 and the DRB1\*13:66:01-13:66:02 alleles.

‘w’, may be weakly amplified.

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

Changes in revision R01 compared to R00:

1. The DRB1\*13:86 and DRB1\*14:102 alleles are weakly amplified by primer mix 15. This has been corrected in the Specificity and Interpretation Tables.

Changes in revision R02 compared to R01:

1. The DRB1\*13:26:01 allele is not amplified by primer mix 26. This has been corrected in the Specificity and Interpretation Tables.

Change in revision R03 compared to R02:

1. Primer mix 12 does not amplify the DRB1\*14:137N allele, and primer mix 20 does not amplify the DRB1\*14:152N allele. This has been corrected in the Specificity and Interpretation Tables.