Gel Documentation Form and Worksheet

DRB1\*11 (101.115-24/03, -24u/03u) Lot No: 7D1 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.

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’-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.

Primer mix 4 may faintly amplify the DRB1\*13:29 allele.

Primer mix 10 may faintly amplify the DRB1\*11:53 allele.

Primer mix 4 has a tendency to giving rise to primer oligomer formation.

Primer mixes 6, 13, 19, 32 and 44 may have tendencies of unspecific amplifications.

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

Primer mix 12 may amplify the DRB1\*11:60 and 11:109 and the DRB1\*15:68 alleles

Primer mix 47 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\*11 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 3.23.0, January 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 9: Specific PCR fragment of 85 bp in the DRB1\*11:07, 11:103:01-11:103:02, 11:105, 11:107, 11:125 and 11:173 and the DRB1\*03:08 and 03:65 alleles. Specific PCR fragment of 115 bp in the DRB1\*11:77 and 11:186 alleles.

Primer mix 10: Specific PCR fragment of 85 bp in the DRB1\*11:07, 11:23:01-11:23:02, 11:25, 11:45, 11:55, 11:64, 11:67, 11:103:01-11:103:02, 11:105, 11:107, 11:119, 11:125 and 11:173 and the DRB1\*03:08, 03:65, 08:63 and 08:75 alleles. Specific PCR fragment of 120 bp in the DRB1\*11:74:01-11:74:02 alleles.

Primer mix 11: Specific PCR fragment of 155 bp in the DRB1\*11:75 allele. Specific PCR fragment of 200 bp in the DRB1\*11:08:01-11:08:03, 11:36, 11:42, 11:64, 11:68 and 11:130 and the DRB1\*13:20, 13:25, 13:29, 13:43, 13:56, 13:60, 13:71, 13:78, 13:88, 13:119, 13:134, 13:149, 13:180, 14:03:01-14:03:02, 14:12:01-14:12:02, 14:40, 14:69, 14:74, 14:77, 14:84-14:85, 14:98, 14:102, 14:115-14:116, 14:135, 14:144 and 14:156 alleles. Specific PCR fragment of 255 bp in the DRB1\*11:06:01-11:06:03, 11:21, 11:47, 11:129 and 11:174 and the DRB1\*03:20, 13:58, 13:81, 13:163, 14:29 and 14:99 alleles. Specific PCR fragment of 200 bp and 255 bp in the 11:57 allele.

Primer mix 12: Specific PCR fragment of 95 bp in the DRB1\*11:61 allele. Specific PCR fragment of 145 bp in the DRB1\*11:90 allele. Specific PCR fragment of 185 bp in the DRB1\*11:30 and in the DRB3\*02:18 allele.

Primer mix 15: Specific PCR fragment of 60 bp in the DRB1\*11:66 allele. Specific PCR fragment of 105 bp in the DRB1\*11:10:01-11:10:02, 11:12:01-11:13:02, 11:17, 11:52, 11:114, 11:149, 11:170, 11:179 and 11:189-11:191 and the DRB1\*14:11 and 14:148 alleles.

Primer mix 16: Specific PCR fragment of 110 bp in the DRB1\*11:15, 11:24, 11:44, 11:49:01-11:50, 11:76, 11:85, 11:114, 11:127 and 11:183 and the DRB1\*03:26, 03:33, 03:43-03:44, 03:71:01-03:71:02, 13:34, 13:62, 13:64, 13:68, 13:106, 13:136, 13:151, 13:174, 13:204, 14:41, 14:77, 14:97 and 14:110 and in the DRB3\*01:14 alleles. Specific PCR fragment of 255 bp in the DRB1\*11:91 allele.

Primer mix 19: Specific PCR fragment of 180 bp in the DRB1\*11:31, 11:52, 11:96 and 11:148 and the DRB1\*03:10, 13:43, 13:45, 13:159, 13:179, 13:191, 14:01:01-14:01:04, 14:07:01-14:08, 14:16, 14:22, 14:25-14:26, 14:32:01-14:32:03, 14:34-14:35, 14:38:01-14:39, 14:49, 14:53-14:54, 14:58, 14:60, 14:62, 14:69-14:70, 14:72, 14:74-14:75, 14:82, 14:86-14:88, 14:90, 14:92N, 14:97, 14:99, 14:104-14:105, 14:110-14:114, 14:117-14:119, 14:122, 14:124-14:125, 14:128-14:133, 14:137N, 14:139-14:140, 14:142, 14:146-14:147, 14:149-14:151, 14:153, 14:157-14:158, 14:162-14:163, 14:166, 14:168 and 14:171 alleles. Specific PCR fragment of 225 bp in the DRB1\*11:23:01-11:23:02, 11:25, 11:32, 11:45, 11:55, 11:64, 11:70 and 11:119 and the DRB1\*08:20, 13:13, 13:18, 13:47, 13:55, 13:119, 13:144, 13:146, 13:154, 13:156, 13:158, 13:164, 14:03:01-14:03:02, 14:12:01-14:12:02, 14:27, 14:40, 14:63, 14:67, 14:77-14:78, 14:84-14:85, 14:89, 14:102, 14:115-14:116, 14:135-14:136, 14:144 and 14:156 alleles. Specific PCR fragment of 260 bp in the DRB1\*11:86 and the DRB1\*13:16 alleles. Specific PCR fragment of 180 bp and 225 bp in the 14:55 and 14:164 alleles.

Primer mix 21: Specific PCR fragment of 135 bp in the DRB1\*11:59, 11:80, 11:83, 11:87, 11:135, 11:142 and 11:182 and the DRB1\*03:08 and 03:65 alleles. Specific PCR fragment of 175 bp in the DRB1\*11:22 and the DRB1\*04:15, 04:61, 04:138, 04:145, 04:154 and 04:170 alleles.

Primer mix 22: Specific PCR fragment of 115 bp in the DRB1\*11:15 and the DRB1\*03:71:02, 13:62 and 13:151 alleles. Specific PCR fragment of 180 bp in the DRB1\*11:33, 11:35, 11:65:01-11:65:02 and 11:130 alleles. Specific PCR fragment of 215 bp in DRB1\*11:69 and 11:82 and the DRB1\*13:09, 13:129, 13:192, 14:24 and 14:37 alleles. Specific PCR fragment of 245 bp in DRB1\*11:81 allele.

Primer mix 24: Specific PCR fragment of 155 bp in the DRB1\*11:39, 11:43, 11:50, 11:115, 11:145, 11:151, 11:168 and 11:171 and the DRB1\*03:17, 03:37, 03:80, 13:118, 13:131, 13:135, 13:150, 14:59, 14:86, 14:96 and 14:153-14:154 alleles. Specific PCR fragment of 250 bp in the DRB1\*11:06:01-11:06:03, 11:21, 11:47, 11:57, 11:81 and 11:129 and the DRB1\*03:20, 13:58, 13:81, 13:163, 14:29 and 14:99 alleles. Specific PCR fragment of 155 bp and 250 bp in the DRB1\*11:174 allele.

Primer mix 26: Specific PCR fragment of 120 bp in the DRB1\*11:09-11:10:02, 11:13:01-11:13:02, 11:16-11:17, 11:20, 11:40, 11:46:01-11:46:02, 11:52, 11:59, 11:62:01-11:62:02, 11:80, 11:83, 11:87, 11:113, 11:118, 11:122, 11:149, 11:182 and 11:189-11:190 and the DRB1\*03:08, 03:65, 14:11 and 14:148 alleles. Specific PCR fragment of 160 bp in the DRB1\*11:78 and 11:152 alleles.

Primer mix 27: Specific PCR fragment of 85 bp in the DRB1 \*11:11:01, 11:11:03, 11:14:01-11:14:02, 11:20, 11:68, 11:73, 11:93, 11:122, 11:168 and the DRB1\*01:03 and 01:39N, 04:14, 04:106, 04:132, 08:40, 13:02:01-13:02:03, 13:02:05-13:02:09, 13:02:11-13:02:12, 13:23:01-13:23:02, 13:29, 13:31, 13:33:01-13:34, 13:36-13:39, 13:41, 13:45, 13:63, 13:65-13:67, 13:73-13:74, 13:85, 13:88, 13:90, 13:95-13:97:02, 13:99, 13:101, 13:103-13:104, 13:107, 13:115, 13:123-13:124, 13:126, 13:128, 13:135, 13:139, 13:143, 13:145, 13:147, 13:155, 13:159, 13:165, 13:168, 13:171:01-13:171:02, 13:179, 13:182, 13:195, 13:198, 13:202 and 13:207-13:212 alleles. Specific PCR fragment of 215 bp in the DRB1\*11:154 allele.

Primer mix 34: Specific PCR fragment of 80 bp in the DRB1\*11:31, 11:96 and 11:148 and the DRB1\*03:10, 13:43, 13:45, 13:179, 14:35, 14:53, 14:72, 14:128, 14:132 and 14:138 alleles. Specific fragment of 135 bp in the DRB1\*11:169N allele. Specific PCR fragment of 290 bp in the DRB1\*11:97 allele.

Primer mix 36: Specific PCR fragment of 90 bp in the DRB1\*11:102:01-11:102:02 and 11:175 and the DRB1\*03:49 and 14:161 alleles. Specific PCR fragment of 115 bp in the DRB1\*11:99 allele. Specific PCR fragment of 165 bp in the DRB1\*11:110 allele. Specific PCR fragment of 250 bp in the DRB1\*11:128 allele.

Primer mix 42: Specific PCR fragment of 135 bp in the DRB1\*11:72, 11:92 and 11:180 alleles. Specific PCR fragment of 180 bp in the DRB1\*11:104 allele.

Primer mix 44: Specific PCR fragment of 200 bp in the DRB1\*11:111 allele. Specific PCR fragment of 270 bp in the DRB1\*11:187 allele.

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

|  |  |
| --- | --- |
| Alleles | Primer mix |
| DRB1\*11:24, 11:91 | 16 |
| DRB1\*11:61, 11:90 | 12 |
| DRB1\*11:93, 11:154 | 27 |
| DRB1\*11:97, 11:169N | 34 |
| DRB1\*11:99, 11:128, 11:175 | 36 |

The DRB1\*11 subtyping kit cannot distinguish the silent mutations in the DRB1\*11:01:01-11:01:11 and 11:01:13-11:01:27, the DRB1\*11:02:01-11:02:04, the DRB1\*11:03:01-11:03:02, the DRB1\*11:04:01-11:04:03 and 11:04:05-11:04:12, the DRB1\*11:06:01-11:06:03, the DRB1\*11:08:01-11:08:03, the DRB1\*11:10:01-11:10:02, the DRB1\*11:11:01 and 11:11:03, the DRB1\*11:12:01 and 11:12:03, the DRB1\*11:13:01-11:13:02, the DRB1\*11:14:01-11:14:02, the DRB1\*11:19:01-11:19:03, the DRB1\*11:23:01-11:23:02, the DRB1\*11:27:01-11:27:03, the DRB1\*11:28:01-11:28:02, the DRB1\*11:37:01-11:37:02, the DRB1\*11:49:01-11:49:02, the DRB1\*11:54:01-11:54:02, the DRB1\*11:58:01-11:58:02, the DRB1\*11:65:01-11:65:02, the DRB1\*11:74:01-11:74:02, the DRB1\*11:84:01-11:84:03, the DRB1\*11:101:01-11:101:02, the DRB1\*11:102:01-11:102:02 or the DRB1\*11:103:01-11:103:02 alleles.

Change in revision R01 compared to R00:

1. The DRB1\*08:40, DRB1\*11:73, 11:93, 11:184, DRB1\*13:03:01-13:03:06, 13:33:01-13:33:03, 13:37, 13:66:01-13:66:02, 13:85, 13:88, 13:90, 13:95, 13:101, 13:115, 13:120, 13:122, 13:151-13:152, 13:167, 13:170, 13:172, 13:174, 13:180, 13:188, 13:194, 13:216, 13:219, 13:227 and 13:230 alleles are amplified by primer mix 27. The DRB1\*11:132, DRB1\*13:10, 13:81, 13:89, 13:94:01-13:94:02 and 13:176 alleles are amplified by primer mix 28. This has been corrected in the Specificity and Interpretation Tables.