Gel Documentation Form and Worksheet

HLA-A\*11 (101.416-12/04, -12u/04u) Lot No: 0H1 Expiry Date: 2021-05-01

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 9, 16, 23, 36, 51 and 63 may have tendencies of unspecific amplifications.

Primer mixes 7, 14, 21, 24, 25 and 55 may give rise to a lower yield of HLA-specific PCR product than the other A\*11 primer mixes.

Primer mixes 9, 13, 16, 43, 50 and 60 may have a tendency of giving rise to primer oligomer formation.

Primer mix 31 may give rise to a long unspecific amplification product of about 800 bp. This band should be disregarded when interpreting the A\*11 SSP typings.

Primer mix 64 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**HLA-A\*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 3.25.0, July 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** The following HLA-A\*11 primer mixes have two or more product sizes:

|  |  |  |  |
| --- | --- | --- | --- |
| Primer Mix | Size of spec. PCR product | Amplified HLA-A\*11 alleles | Other amplified Class I alleles |
| **2** | 270 bp  305 bp | \*11:02:01-11:02:06, 11:14, 11:16, 11:38, 11:57, 11:77, 11:101, 11:110, 11:113, 11:140, 11:147, 11:176, 11:201, 11:255-11:256Q, 11:262, 11:281  \*11:272Q |  |
| **5** | 180 bp  210 bp | \*11:05, 11:248  \*11:110 | \*02:294, 32:54, 66:08 |
| **6** | 190 bp  550 bp | \*11:07, 11:22  \*11:06, 11:18 | \*01:79w  \*01:104w, 01:134w, 01:229w, 02:38, 02:101:01, 02:135, 02:154, 02:447, 02:543, 25:11, 26:03:01, 26:06, 26:21, 26:30, 26:36, 26:92, 26:111, 26:146 |
| **8** | 100 bp  175 bp | \*11:09, 11:34  \*11:196, 11:201 | \*01:205, 24:377, 26:75  \*01:129, 02:221, 23:41, 24:286, 29:15, 31:78 |
| **10** | 120 bp  280 bp | \*11:10  \*11:43 | \*01:51, 02:644, 25:01:01:01-25:12N, 25:14-25:38, 25:40-25:45, 25:47-25:48, 26:01:01:01-26:06, 26:08-26:18, 26:20-26:29, 26:32-26:43:02, 26:45-26:64, 26:66-26:71N, 26:73-26:75, 26:77-26:91, 26:93-26:113, 26:115-26:131, 26:133-26:155, 33:13, 34:01:01:01-34:08, 34:10N-34:17, 66:01:01:01-66:01:05, 66:04-66:11, 66:13-66:15, 66:17-66:20, 66:22, 66:24, 66:27N, 66:29-66:31, 69:02**, B\*07:102, B\*08:18, B\*15:357, B\*18:115, B\*35:178, B\*35:282, B\*35:316, B\*73:01-73:02, C\*06:147**  \*01:143, 26:35, 29:66, 31:03, 33:13, **C\*07:449** |
| **15** | 100 bp  215 bp | \*11:12  \*11:24:02-11:25:01, 11:31, 11:35, 11:158 | \*01:194, 02:34w-02:35:03w, 02:56:01-02:56:02, 02:62, 02:78, 02:103, 02:580w, 03:01:01:01-03:01:09, 03:01:11-03:07:02, 03:09-03:22:02, 03:23:01w-03:23:02w, 03:24-03:28, 03:31, 03:33, 03:35, 03:37-03:40, 03:42-03:61, 03:64-03:87, 03:90-03:106, 03:109-03:112, 03:113w, 03:114-03:151, 03:153-03:156, 03:157:01w-03:157:02w, 03:158-03:171, 03:173-03:175, 03:177-03:193, 03:195-03:197N, 03:199, 03:201-03:259, 03:261-03:262N, 03:264-03:272, 03:274-03:305, 24:24, 24:290, 29:01:01:01-29:02:16, 29:02:17:01w-29:02:17:02w, 29:02:18-29:03, 29:04w, 29:05-29:18, 29:21-29:29, 29:31-29:33, 29:35-29:47, 29:49-29:65, 29:67-29:73, 29:75-29:97, 29:99-29:105, 29:107-29:113, 30:01:01:01-30:01:11, 30:08, 30:11:01-30:11:02, 30:14L-30:20, 30:23-30:26, 30:30, 30:35-30:43, 30:48-30:49, 30:52-30:56, 30:58-30:59N, 30:60w, 30:62-30:63, 30:65, 30:71-30:75, 30:78N-30:79, 30:81-30:83, 30:86-30:89, 30:91-30:98, 30:102, 30:104, 30:106, 30:109-30:116, 30:118, 30:120, 30:122-30:123N, 30:126, 30:128-30:132N, 31:89, 31:115, 32:17, 33:125, 33:131, 34:09, 66:02, 66:12, 66:16, 66:21, 66:25-66:26Q, 68:01:01:01-68:01:17, 68:01:19-68:02:12, 68:06-68:14, 68:16-68:19, 68:21:01-68:23, 68:25-68:30, 68:32-68:39, 68:41-68:71, 68:73-68:84, 68:86-68:89, 68:91-68:92, 68:94N-68:96, 68:98-68:108, 68:110-68:122, 68:124-68:126, 68:127w, 68:128-68:178, 69:01:01:01-69:01:03, 69:03, 74:13  \*01:06, 01:200, 01:244, 02:156, 02:338, 03:01:01:01-03:01:01:18, 03:01:03-03:01:05, 03:01:07-03:01:48, 03:01:50-03:01:70, 03:03N-03:05:01, 03:07:01, 03:08-03:09, 03:11N-03:17:02, 03:19-03:30, 03:33-03:49, 03:51:01-03:64, 03:67-03:68N, 03:70-03:72, 03:74, 03:77-03:81, 03:83-03:89:02, 03:91N-03:94, 03:96-03:105, 03:107-03:112, 03:114-03:134, 03:136-03:149, 03:151-03:152, 03:154:01-03:159, 03:161N-03:166, 03:168N-03:176, 03:178N-03:186, 03:188-03:193, 03:195-03:197N, 03:199, 03:201-03:203, 03:205-03:207, 03:209-03:214, 03:216-03:217, 03:219-03:222, 03:224, 03:226-03:228, 03:230, 03:231:02-03:235, 03:238-03:241, 03:243, 03:245-03:248, 03:250-03:252, 03:254-03:259, 03:261-03:265, 03:267-03:273, 03:276-03:280:01, 03:282-03:284N, 03:286N-03:287, 03:289-03:305, 30:01:01:01-30:02:04, 30:02:06-30:03, 30:07-30:16, 30:18-30:20, 30:22-30:27N, 30:30-30:45, 30:48-30:51, 30:53-30:71, 30:73N-30:76N, 30:78N-30:79, 30:81-30:89, 30:91-30:98, 30:100-30:102, 30:104, 30:106-30:112, 30:114-30:116, 30:118-30:130N, 30:132N, 31:03-31:04, 32:04, 33:49, 33:144, 34:02:01, 34:02:03-34:04, 34:07-34:10N, 34:13, 34:15, 74:23 |
| **16** | 95 bp  210 bp | \*11:13  \*11:07, 11:26, 11:54, 11:117 | \*01:221w, 02:38, 02:101:01, 02:154, 02:447, 02:543, 03:18w, 03:135w, 23:10w, 24:10:01-24:10:02, 24:46w, 24:210, 24:300, 24:340, 25:10, 25:43, 30:117, 31:24, 33:61, 68:134 |
| **18** | 225 bp  240 bp | \*11:47, 11:221  \*11:15:01, 11:170Q | \*30:39 |
| **19** | 100 bp  175 bp  265 bp | \*11:134  \*11:42  \*11:46, 11:215N | **\***68:147  **B\*39:75, B\*40:268**  **\***66:27N**, B\*07:111N, B\*37:64** |
| **20** | 180 bp  235 bp | \*11:42, 11:131  \*11:17, 11:40, 11:223, 11:271 | **B\*39:75, B\*40:268**  **\***01:43, 26:01:01:01-26:01:29, 26:01:31-26:02:02, 26:04, 26:07:01-26:15, 26:17-26:19, 26:22-26:29, 26:31-26:34, 26:36-26:43:02, 26:45-26:56, 26:58-26:77, 26:79-26:91, 26:93-26:110, 26:112-26:136, 26:138-26:155, 43:01 |
| **22** | 150 bp  230 bp | \*11:37  \*11:06, 11:18 | **B\*27:87**  **\***02:05:01:01-02:06:04, 02:06:06-02:06:21, 02:06:23, 02:08, 02:10, 02:14, 02:21, 02:28, 02:41, 02:44, 02:51, 02:54, 02:57, 02:61, 02:72, 02:79:01-02:79:02, 02:84, 02:91, 02:99, 02:106, 02:108, 02:122, 02:126-02:127, 02:137, 02:142-02:144, 02:154, 02:169-02:170, 02:172, 02:178-02:180, 02:229, 02:232, 02:244, 02:248, 02:259, 02:271, 02:278, 02:286, 02:290, 02:295, 02:300, 02:310, 02:324, 02:328, 02:330, 02:333, 02:337, 02:344, 02:355, 02:358-02:359, 02:373N, 02:376, 02:382, 02:387, 02:398, 02:404-02:405, 02:409, 02:413, 02:415, 02:419:01-02:421, 02:428, 02:433, 02:438, 02:453-02:454, 02:465, 02:470-02:476N, 02:484, 02:489, 02:493, 02:495-02:496, 02:506N-02:507, 02:527, 02:532, 02:546, 02:550, 02:558, 02:572, 02:577, 02:591:01-02:593, 02:602, 02:623, 02:625-02:626, 02:630-02:631, 02:646, 02:655, 02:670, 02:672Q, 02:676, 02:697-02:698, 02:718, 02:723, 02:725, 02:727, 02:731, 02:737, 26:03:01, 26:06, 26:21, 26:30, 26:78, 26:92, 26:111, 68:15 |
| **24** | 295 bp  465 bp | \*11:48  \*11:21N | \*01:41  \*01:04:01:01N-01:04:01:02N, 03:21N, 23:07N, 24:11N |
| **25** | 190 bp  225 bp | \*11:135  \*11:24:01, 11:25:02, 11:47, 11:219, 11:221 | \*03:210, 68:160  \*03:01:02, 03:05:02, 30:02:05, 34:02:02, 68:43:01, 80:01:01:01-80:03 |
| **26** | 305 bp  370 bp | \*11:26, 11:118  \*11:41 | **\***01:03:01:01-01:03:01:02, 01:192, 26:32, 26:70, 29:66, 32:62, 33:13, 36:03, 74:10, **C\*06:72**  \*01:223, 26:125, 34:12, 66:30, **C\*04:210, C\*04:237, C\*06:90, C\*07:277, C\*07:394** |
| **27** | 160 bp  205 bp  260 bp | \*11:208N  \*11:17, 11:155, 11:226, 11:271  \*11:27, 11:38-11:39, 11:55, 11:94, 11:209, 11:271 | \*26:71N, 68:94N  \*01:01:01:01-01:01:11, 01:01:13-01:01:15, 01:01:17-01:01:54, 01:01:56-01:01:57, 01:01:59-01:02, 01:04:01:01N-01:04:01:02N, 01:07-01:09:02, 01:11N, 01:13-01:18N, 01:22N-01:25, 01:27N-01:33, 01:35-01:40, 01:42-01:62, 01:64-01:65, 01:67:01-01:72, 01:74-01:88:03, 01:90-01:118, 01:120-01:125, 01:127-01:129, 01:131-01:135, 01:137-01:159, 01:161-01:191, 01:193-01:195, 01:197-01:199, 01:201-01:243, 01:245-01:254, 01:256-01:261, 03:18, 03:187, 26:62, 26:72, 36:01-36:02, 36:04-36:06  \*01:01:01:01-01:01:57, 01:01:59-01:01:65, 01:01:67-01:02, 01:04:01:01N-01:04:01:02N, 01:06-01:19, 01:21-01:33, 01:35-01:40, 01:42-01:62, 01:64-01:65, 01:67:01-01:71, 01:74-01:88:03, 01:90-01:101, 01:103-01:129, 01:131-01:166, 01:168-01:191, 01:193-01:199, 01:201-01:243, 01:245-01:254, 01:256-01:261, 03:18, 03:97, 03:122, 03:135, 03:167, 24:92, 30:75, 80:01:01:01-80:03 |
| **28** | 140 bp  240 bp  280 bp | \*11:80  \*11:15:02, 11:49, 11:170Q | \*03:289, **C\*06:219, C\*07:541**  \*26:35 |
| **30** | 140 bp  190 bp  235 bp  270 bp | \*11:80  \*11:131, 11:156  \*11:45, 11:50Q, 11:182Q  \*11:29, 11:55, 11:215N | \*66:11  \*66:27N, **B\*07:111N** |
| **31** | 85 bp  230 bp  285 bp | \*11:256Q  \*11:49  \*11:30, 11:43 | **C\*06:219, C\*07:541**  \*01:101, 01:143, 03:87, 29:66, 30:92, 31:03, 33:13, **C\*07:449** |
| **32** | 205 bp  295 bp | \*11:31, 11:35, 11:158, 11:183  \*11:32:01-11:32:02, 11:50Q, 11:147 | \*01:21, 01:126, 01:200, 01:244, 02:156, 02:338, 03:07:01, 03:42, 03:133, 03:171, 30:04:01-30:04:02, 30:06, 30:09, 30:17, 30:29, 30:46, 30:77, 30:90, 30:103, 30:105, 30:117, 31:03-31:04, 33:49, 33:144, 68:103:01-68:103:02, 74:23  \*01:115, 03:154:01-03:154:02, 30:51, 30:106 |
| **33** | 110 bp  280 bp  305 bp | \*11:61  \*11:74  \*11:56 | **C\*07:221** |
| **34** | 85 bp  150 bp  190 bp  265 bp | \*11:58  \*11:208N, 11:251N  \*11:67, 11:156  \*11:46 | \*26:119  \*26:71N, 68:94N  **B\*37:64** |
| **35** | 95 bp  290 bp  450 bp | \*11:62, 11:178, 11:190  \*11:68  \*11:62 | \*01:95, 01:125, 03:219, 23:09, 23:28, 24:77, 24:191, 31:07, 31:10, 32:03, **B\*15:95**  \*01:125 |
| **36** | 65 bp  220 bp  380 bp | \*11:65  \*11:193, 11:210N  \*11:64 | \*03:174, **B\*44:36**  \*24:264  \*31:65, 68:165 |
| **37** | 105 bp  185 bp  265 bp  290 bp | \*11:66  \*11:57, 11:158  \*11:51  \*11:72 | \*02:156, 02:338, 03:171, 03:271, 68:103:01-68:103:02  \*03:287 |
| **38** | 95 bp  130 bp  225 bp | \*11:105, 11:189  \*11:75, 11:251N  \*11:78N | \*02:484, 26:77, 66:13, **B\*39:110**  **B\*07:117** |
| **39** | 205 bp  255 bp  280 bp | \*11:166  \*11:235Q  \*11:52Q, 11:74 | \*01:203, 80:01:01:01-80:03, **C\*04:129, C\*05:25, C\*05:42, C\*06:05, C\*06:67, C\*07:101, C\*07:148, C\*07:161, C\*07:583, C\*08:28, C\*08:137** |
| **41** | 90 bp  215 bp | \*11:59  \*11:01:57, 11:31, 11:35, 11:60, 11:158, 11:183, 11:209 | \*03:191, 03:236  \*01:12, 01:19, 01:21, 01:126, 01:200, 01:244, 02:156, 02:338, 03:02:01-03:02:04, 03:07:01-03:07:02, 03:10, 03:31-03:32, 03:42, 03:73, 03:76, 03:82, 03:90, 03:106, 03:113, 03:133, 03:160, 03:171, 03:198, 03:218, 03:223, 03:236-03:237, 03:242, 03:244, 03:253, 03:274-03:275N, 03:281, 03:285, 24:92, 30:04:01w-30:04:02w, 30:06w, 30:09, 30:17w, 30:29w, 30:46w, 30:77w, 30:90w, 30:99w, 30:103w, 30:105w, 30:117w, 31:03-31:04, 33:49, 33:144, 68:103:01w-68:103:02w, 74:23 |
| **42** | 95 bp  175 bp  235 bp  560 bp | \*11:134, 11:189  \*11:63  \*11:287N  \*11:69N | \*02:484, 26:77, 68:147  \*01:56N |
| **43** | 265 bp  305 bp  445 bp | \*11:51  \*11:272Q  \*11:70:01-11:70:02, 11:121 | \*01:83:01-01:83:02, 02:65, 02:80, 02:114, 02:117, 02:152, 02:246, 02:279, 02:298, 02:304, 02:406, 02:527, 02:582, 02:662, 03:23:01-03:23:02, 03:89:01-03:89:02, 03:198, 29:48, 31:109, 32:93, 33:08-33:09, 68:30, 68:75:01-68:75:02, 74:04, 74:21, **B\*57:04:01-57:04:03, B\*57:32** |
| **44** | 145 bp  215 bp | \*11:76  \*11:106 |  |
| **45** | 210 bp  235 bp  340 bp  400 bp | \*11:79  \*11:219  \*11:129, 11:163  \*11:210N | \*68:43:01 |
| **49** | 180 bp  230 bp | \*11:16, 11:35, 11:57, 11:73, 11:109N, 11:158  \*11:23, 11:50Q, 11:182Q | \*02:156, 02:338, 03:123:01-03:123:02, 03:171, 68:103:01-68:103:02  \*03:229 |
| **50** | 210 bp  310 bp  400 bp | \*11:142  \*11:86  \*11:210N | \*03:304  \*01:246, 03:218 |
| **51** | 170 bp  285 bp | \*11:77, 11:126  \*11:172 | \*03:26  \*01:37 |
| **52** | 90 bp  230 bp  545 bp | \*11:34  \*11:81  \*11:108 | \*01:205, 26:75  \*01:45, 02:453, 02:557, 02:690, 03:78, 24:271, 66:17 |
| **53** | 160 bp  195 bp | \*11:154  \*11:100, 11:175 | \*01:109, 03:182 |
| **54** | 195 bp  270 bp | \*11:109N, 11:166, 11:238N  \*11:89, 11:153:01-11:153:02 | \*01:203, 80:01:01:01-80:03, **C\*04:129, C\*05:25, C\*05:42, C\*06:05, C\*06:67, C\*07:101, C\*07:148, C\*07:161, C\*07:583, C\*08:28, C\*08:137**  \*01:86, 03:04:01-03:04:03, 30:34 |
| **55** | 115 bp  170 bp  235 bp | \*11:102, 11:128  \*11:194  \*11:90 | \*01:148, 01:177, 23:88, 24:249, 30:114  \*03:208, 80:01:01:01-80:02 |
| **56** | 65 bp  185 bp  230 bp | \*11:94, 11:112, 11:211  \*11:238N  \*11:99N | \*01:10, 01:21, 01:26, 01:192, 03:135, **B\*15:90w, B\*45:05w** |
| **58** | 100 bp  140 bp  245 bp | \*11:105, 11:115N  \*11:251N  \*11:180N | \*66:13, **B\*39:110** |
| **59** | 165 bp  340 bp  370 bp | \*11:174  \*11:163  \*11:124 |  |
| **60** | 105 bp  270 bp | \*11:128, 11:137:01N-11:137:02N  \*11:127N, 11:153:01-11:153:02 | \*01:148, 03:11N  \*01:86, 03:04:01-03:04:03, 30:34 |
| **61** | 90 bp  130 bp  265 bp | \*11:34  \*11:03, 11:175  \*11:54 | \*01:205, 26:75  \*02:393, 02:489, 02:541, 02:589, 02:592, 03:135, 03:225, 03:280:01-03:280:02, 24:177, 24:289, 26:28, 26:52, 29:83, 31:97, 31:110, **B\*15:173, B\*50:11, C\*03:299, C\*12:74, C\*12:197**  \*03:145:02, 33:70 |
| **63** | 145 bp  170 bp  275 bp | \*11:171  \*11:154, 11:194  \*11:120 |  |

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

|  |  |  |  |
| --- | --- | --- | --- |
| Alleles | Primer mix | Alleles | Primer mix |
| A\*11:01:57, 11:59 | 41 | A\*11:79, 11:129 | 45 |
| A\*11:09, 11:196 | 8 | A\*11:81, 11:108 | 52 |
| A\*11:13, 11:117 | 16 | A\*11:86, 11:142 | 50 |
| A\*11:58, 11:67 | 34 | A\*11:99N, 11:112 | 56 |
| A\*11:62, 11:68 | 35 | A\*11:115N, 11:180N | 58 |
| A\*11:63, 11:69N | 42 | A\*11:120, 11:171 | 63 |
| A\*11:64, 11:65 , 11:193 | 36 | A\*11:124, 11:174 | 59 |
| A\*11:66, 11:72 | 37 | A\*11:127N, 11:137:01N-11:137:02N | 60 |

‘w’, may be weakly amplified.

Changes in revision R01 compared to R00:

1. Primer mix 12 amplifies the A\*01:15N allele. This has been corrected in the Specificity and Interpretation Tables.
2. Primer mix 24 amplifies the A\*01:04:01:02N allele. This has been corrected in the Specificity and Interpretation Tables.

Change in revision R02 compared to R01:

1. Primer mix 62 amplifies the A\*11:08 and the A\*03:66, 03:225 alleles. This has been corrected in the Specificity and Interpretation Tables.