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 bp305 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 bp175 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 bp240 bp | \*11:47, 11:221\*11:15:01, 11:170Q | \*30:39 |
| **19** | 100 bp175 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 bp465 bp | \*11:48\*11:21N | \*01:41\*01:04:01:01N-01:04:01:02N, 03:21N, 23:07N, 24:11N |
| **25** | 190 bp225 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 bp205 bp260 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 bp240 bp 280 bp | \*11:80\*11:15:02, 11:49, 11:170Q | \*03:289, **C\*06:219, C\*07:541**\*26:35 |
| **30** | 140 bp190 bp235 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 bp230 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 bp150 bp190 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 bp450 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 bp185 bp265 bp290 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 bp130 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 bp255 bp280 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 bp215 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 bp175 bp 235 bp560 bp | \*11:134, 11:189\*11:63\*11:287N\*11:69N | \*02:484, 26:77, 68:147\*01:56N |
| **43** | 265 bp305 bp445 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 bp235 bp340 bp400 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 bp400 bp | \*11:142\*11:86\*11:210N | \*03:304\*01:246, 03:218 |
| **51** | 170 bp285 bp | \*11:77, 11:126\*11:172 | \*03:26\*01:37 |
| **52** | 90 bp230 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 bp195 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 bp170 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 bp185 bp230 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 bp140 bp245 bp | \*11:105, 11:115N\*11:251N\*11:180N | \*66:13, **B\*39:110** |
| **59** | 165 bp340 bp370 bp | \*11:174\*11:163\*11:124 |  |
| **60** | 105 bp270 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 bp130 bp265 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 bp170 bp275 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.