Gel Documentation Form and Worksheet

HLA-B\*56 (101.571-06/06u) Lot No: 0H2 Expiry Date: 2022-11-01

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 mix 7 and 18 may give rise to a lower yield of HLA-specific PCR product than the other B\*56 primer mixes.

Primer mixes 8, 10, 13, 17, 20 and 21 may have tendencies of unspecific amplifications.

Primer mixes 1, 9, 13 and 14 have a tendency to giving rise to primer oligomer formation.

Primer mix 6 may give rise to an unspecific amplification product of approx. 670 bp in some HLA-B alleles. This band should be disregarded in the interpretation of HLA-B\*56 typings.

Primer mix 24 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.

Changes to revision R01 compared to R00:

1. The expiration date has been altered due to shelf-life extension.











**1**HLA-B\*56 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 3.33.0, July 2018.

**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-B\*56 primer mixes have two or more product sizes:

|  |  |  |  |
| --- | --- | --- | --- |
| Primer Mix | Size of spec. PCR product | Amplified HLA-B\*56 alleles | Other amplified Class I alleles |
| **5** | 175 bp  285 bp | \*56:40  \*56:03 | \*40:10:02, 54:01:02, 55:35 |
| **6** | 105 bp  150 bp | \*56:05:01  \*56:32 | \*07:206, 08:26:03, 18:125, 27:05:18, 39:63  \*07:09w, 07:11w, 07:162w, 07:237w, 07:255w, 15:03:01:01-15:03:07, 15:16:01:01-15:16:03, 15:18:01:01-15:18:07, 15:23, 15:29, 15:39:01-15:40:02, 15:47:01w-15:47:02w, 15:49w, 15:61-15:62, 15:64:01-15:64:02, 15:65w, 15:67, 15:69, 15:72, 15:74, 15:80, 15:93, 15:95, 15:98, 15:103, 15:108, 15:115, 15:119, 15:127, 15:131-15:132, 15:134, 15:138, 15:153, 15:158, 15:161, 15:173, 15:176, 15:194-15:195, 15:197:01-15:198, 15:210, 15:220, 15:221w, 15:223, 15:226N, 15:238, 15:242:01-15:242:02, 15:254-15:255, 15:263, 15:266, 15:268, 15:274, 15:281-15:282, 15:288, 15:290, 15:292-15:294N, 15:306-15:307, 15:310-15:311, 15:314, 15:335, 15:337, 15:351, 15:354, 15:362, 15:364, 15:369, 15:376, 15:379w, 15:380N, 15:382, 15:388-15:389, 15:397, 15:402, 15:408, 15:414, 15:426, 15:433-15:434, 15:436, 15:444, 15:447-15:448, 18:15, 18:21w, 18:30w, 18:57, 18:101, 35:11:01-35:11:02, 35:11:03w, 35:21, 35:58, 35:99w, 35:188, 35:232w, 35:277, 35:337:01w-35:337:02w, 46:03w, 46:08, 46:62w, 48:25, 49:04:01-49:04:02, 51:37, 51:45, 53:06, 53:08:01-53:08:02, 53:28, 55:14, 55:68, 57:13w, 57:22, 58:06, 58:19, 58:46, 58:91, **C\*01:102w, C\*03:175, C\*03:199, C\*03:245, C\*08:113, C\*15:09, C\*15:19, C\*15:27, C\*15:61, C\*15:107, C\*15:126, C\*15:143w** |
| **7** | 120 bp  170 bp | \*56:05:01-56:06, 56:21  \*56:33 | \*13:62, 27:153, 40:95, 49:18:01, 50:14, 51:01:01:01-51:01:03, 51:01:05-51:01:12, 51:01:14-51:02:03, 51:02:05-51:03, 51:05, 51:07:01-51:09:03, 51:11N-51:12, 51:13:02-51:14,  51:16-51:23, 51:24:03-51:24:05, 51:26-51:37, 51:39-51:41N, 51:43-51:44N, 51:48-51:55, 51:57-51:58, 51:60-51:61:02, 51:63:01, 51:65-51:80, 51:82-51:91, 51:92:02-51:106:01,  51:107-51:134, 51:136-51:138, 51:140-51:147, 51:149N-51:156, 51:158:01-51:193, 51:195-51:196, 51:198, 51:200-51:212, 51:214-51:219, 51:221-51:224, 51:226, 51:228-51:236, 52:01:01:01-52:01:04, 52:01:06-52:01:14, 52:01:16-52:13, 52:15-52:24, 52:25:02-52:76, 55:01:04, 58:08:01-58:08:02, 78:01:01:01-78:09, **C\*14:92**  \*14:54, 15:21:01:01-15:21:01:02, 15:44, 15:66, 15:189, 15:394, 15:404, 15:420, 35:26, 35:82, 35:85, 35:135, 35:294, 38:28, 39:135, 59:08 |
| **9** | 145 bp  205 bp | \*56:07  \*56:31 | \*07:149, 08:02, 08:117, 13:97, 15:115, 27:01, 27:142, 38:02:01-38:02:06, 38:03-38:04, 38:08, 38:15, 38:18, 38:23, 38:29, 38:35, 38:43-38:50, 38:62, 38:64, 44:40, 44:44, 44:130, 44:156, 44:210:01-44:210:02, 59:08  \*14:56, 15:38:01-15:38:02, 15:185, 15:335, 15:364, 15:368, 18:01:01:01-18:01:13, 18:01:15-18:09, 18:12:01-18:15, 18:17N-18:19, 18:22-18:25, 18:27-18:34, 18:36-18:40, 18:42-18:55, 18:57, 18:59-18:60, 18:62-18:96, 18:98-18:100, 18:102-18:109, 18:111-18:121, 18:123-18:147, 18:149, 35:21, 35:24:01-35:24:02, 35:188, 35:190, 35:287, 39:43, 51:37, 51:45, 53:02, 53:06, 53:28, 57:14:01-57:14:02, 58:09, 58:76 |
| **12** | 150 bp  180 bp | \*56:25, 56:37  \*56:10, 56:23, 56:54 | \*07:78, 13:16, 13:20, 13:31w, 13:48, 15:42, 15:73w, 15:303w, 51:62, 51:106:01-51:106:02, 51:225, 52:25:01-52:25:02, 54:20, 54:33w, 55:01:01-55:01:16, 55:03, 55:05, 55:09, 55:11, 55:15, 55:21w, 55:24-55:25, 55:29, 55:31, 55:33, 55:36, 55:38, 55:40, 55:44-55:45, 55:52-55:55N, 55:59-55:60, 55:64, 55:66, 55:73-55:76, 55:78-55:79, 55:84-55:85, 55:87, **C\*01:90, C\*15:128**  \*13:06, 13:53, 15:42, 15:86, 15:224, 35:60, 46:18, 51:157, 54:01:01-54:02, 54:05N, 54:07-54:08N, 54:10, 54:12-54:13, 54:17-54:25, 54:27-54:32, 54:34-54:38, 55:01:01-55:03, 55:05, 55:07, 55:10-55:12, 55:15-55:16, 55:18-55:19, 55:21, 55:25-55:26, 55:29-55:31, 55:33-55:40, 55:42-55:45, 55:47-55:48, 55:50, 55:52-55:57, 55:59-55:67, 55:69-55:80, 55:82-55:85, 55:87-55:89N, 59:01:01:01-59:01:01:02, 59:05-59:08, 59:10N, **C\*01:90, C\*15:128** |
| **13** | 70 bp  180 bp | \*56:30  \*56:11, 56:22 | \*44:174  \*15:58, 15:133, 15:229, 15:253, 35:03:01:01-35:03:05, 35:03:07-35:03:21, 35:06, 35:13, 35:36, 35:38, 35:55-35:56, 35:59:01-35:59:02, 35:70, 35:74-35:75, 35:84-35:85, 35:98, 35:106, 35:109, 35:127-35:128, 35:136, 35:150:01-35:153, 35:155-35:156, 35:160, 35:163, 35:167, 35:169, 35:179, 35:181, 35:193, 35:195, 35:198, 35:204-35:205, 35:221, 35:223, 35:231, 35:235-35:237, 35:242-35:243, 35:246, 35:256-35:257, 35:261, 35:267, 35:274, 35:278-35:279, 35:281-35:282, 35:290, 35:296, 35:298, 35:312, 35:320, 35:326, 35:329, 35:344, 35:349, 35:354-35:355, 35:358, 35:360, 35:362, 35:364, 35:371, 37:48, 38:30, 38:65, 39:32-39:33, 39:74, 44:251, 46:61, 49:50, 51:13:01-51:13:02, 51:92:01-51:92:02, 51:172, 52:14, 52:75, 53:04, 53:31, 53:33, 57:76, 58:34 |
| **15** | 160 bp  385 bp | \*56:13  \*56:08, 56:14,  56:28N | \*44:15:01:01-44:15:01:02, 44:18, 44:140, 45:01:01-45:01:03, 45:04-45:08, 45:10-45:23, 55:56, 82:01:01:01-82:03  \*35:186 |
| **17** | 80 bp  180 bp | \*56:38N  \*56:05:01-56:06, 56:15, 56:21 | **\***07:20, 07:24, 07:60, 07:100, 07:131, 07:220, 07:223, 08:21, 08:25, 08:175, 13:62, 13:86, 15:09:01-15:10:04, 15:30:01:01-15:30:01:02, 15:37, 15:45, 15:48, 15:63, 15:90, 15:99, 15:150, 15:243, 15:248, 15:287, 15:312-15:313, 15:324, 15:329, 15:338, 15:361, 15:427, 15:435, 15:439, 15:445, 27:76, 27:153, 35:02:01:01-35:02:09, 35:04:01-35:04:03, 35:09:01-35:09:03, 35:12:01-35:12:04, 35:18, 35:22, 35:34, 35:39, 35:44, 35:81, 35:83, 35:95, 35:129N, 35:149, 35:154, 35:162, 35:172, 35:182-35:184, 35:199, 35:201, 35:211, 35:220, 35:233, 35:251, 35:258, 35:266, 35:270, 35:273, 35:285, 35:292, 35:309, 35:311, 35:316, 35:321, 35:323, 35:335, 35:339, 35:357, 35:361, 35:366-35:367, 35:372, 40:05:01:01-40:05:01:02, 40:26, 40:28, 40:63, 40:92, 40:174, 40:324, 40:343, 41:17, 44:62, 44:77, 44:82, 44:107, 44:123, 44:184, 44:213, 46:74, 49:18:01-49:18:02, 50:14, 51:01:01:01-51:01:14, 51:01:16-51:01:31, 51:01:33-51:01:38, 51:01:40-51:01:58, 51:01:60-51:09:03, 51:11N-51:12, 51:18-51:20, 51:22-51:24:05, 51:26-51:30, 51:32-51:33, 51:35, 51:38-51:41N, 51:43-51:44N, 51:46, 51:48-51:61:02, 51:64-51:80, 51:83-51:84, 51:86-51:91, 51:94-51:96, 51:98N-51:100, 51:102-51:105, 51:107-51:142, 51:145-51:152, 51:154-51:156, 51:158:01-51:171, 51:173Q-51:181, 51:183-51:191, 51:193-51:196, 51:198-51:213, 51:215, 51:217-51:219, 51:221-51:222, 51:224, 51:226, 51:228-51:236, 52:01:01:01-52:01:20, 52:01:22-52:07, 52:09:01-52:13, 52:15-52:24, 52:27-52:36, 52:38, 52:40-52:61, 52:64-52:66, 52:68-52:70, 52:72-52:74, 52:76, 53:19, 53:36, 53:42, 55:08, 55:51, 57:02:01-57:03:03, 57:05, 57:07, 57:09, 57:12, 57:17, 57:28N, 57:39, 57:42, 57:46, 57:57, 57:63, 57:66, 57:70, 57:80, 57:82, 57:84, 57:94, 57:96, 58:08:01-58:08:02, 58:28:01-58:28:02, 58:65, 78:01:01:01-78:06, 78:09, **C\*03:81, C\*03:152, C\*03:317, C\*03:382, C\*03:388** |
| **18** | 65 bp  295 bp  405 bp | \*56:55:01:01-56:55:01:02  \*56:16  \*56:28N | \*40:149, 41:22, 49:25, 54:21, 55:10, 57:58, 57:80, 67:06?-67:07?, 82:01:01:01-82:03 |
| **19** | 75 bp  105 bp  185 bp | \*56:29  \*56:08, 56:14  \*56:19N | \*07:176  **C\*03:342, C\*07:46, C\*07:356**  **\***39:40:01N-39:40:02N |
| **21** | 115 bp  170 bp | \*56:17, 56:23, 56:42, 56:44, 56:54  \*56:26 | \*07:16, 07:37:01-07:37:02, 07:50, 07:75:01:01-07:75:01:02, 07:91, 07:207, 07:228:01-07:228:02, 07:306, 08:23, 08:54:01-08:54:02, 08:110, 14:14, 14:18, 15:03:01:01-15:03:07, 15:09:01-15:10:04, 15:18:01:01-15:18:07, 15:29, 15:37, 15:47:01-15:47:02, 15:49, 15:51-15:52, 15:54, 15:62, 15:64:01-15:64:02, 15:68-15:69, 15:72, 15:74, 15:80, 15:90-15:91, 15:93, 15:98-15:99, 15:103, 15:108, 15:114, 15:123-15:124, 15:127, 15:131-15:134, 15:151, 15:153, 15:156, 15:158, 15:161, 15:173, 15:176, 15:186, 15:197:01-15:198, 15:200, 15:210, 15:220-15:221, 15:226N, 15:229, 15:235, 15:238, 15:242:01-15:243, 15:252-15:253, 15:259, 15:263, 15:266, 15:274-15:275:02, 15:281-15:282, 15:290, 15:292-15:293, 15:306-15:307, 15:311-15:314, 15:323, 15:329, 15:335, 15:337-15:338, 15:351, 15:354, 15:369, 15:379-15:380N, 15:382, 15:388-15:389, 15:414, 15:426-15:427, 15:433, 15:435, 15:439, 15:444-15:445, 15:447-15:448, 18:37:01-18:37:02, 18:125, 27:18, 27:23, 27:44, 27:77, 27:129, 27:131, 35:25-35:26, 35:49, 35:361, 38:67, 39:05:01:01-39:05:03, 39:07-39:08, 39:11, 39:13:01-39:13:02, 39:20, 39:37, 39:49, 39:55-39:56, 39:113, 39:118, 40:12, 40:46, 40:93, 42:11, 48:01:01:01-48:40, 48:42-48:46, 55:18, 55:31, 55:78, 81:08 |
| **22** | 105 bp  175 bp  270 bp | \*56:06, 56:45  \*56:18, 56:31-56:32, 56:36  \*56:01:01:05S | \*07:65, 07:134, 35:76  \*07:177, 08:37, 08:89, 08:107, 14:56, 15:50, 15:69, 15:93, 15:186, 15:199, 15:348, 15:368, 15:449, 18:01:01:01-18:01:13, 18:01:15-18:01:17, 18:01:19-18:09, 18:11-18:15, 18:17N-18:19, 18:22-18:25, 18:27-18:34, 18:37:01-18:40, 18:42-18:49, 18:51-18:55, 18:59-18:60, 18:62-18:85, 18:87-18:96, 18:98-18:100, 18:102-18:105, 18:107-18:121, 18:123-18:147, 18:149, 27:157, 35:35, 35:93, 35:188, 35:190, 35:262, 35:277, 35:343, 37:35, 37:56, 38:52, 39:07, 39:43, 39:91, 40:166, 41:51, 42:09, 44:90, 45:06, 46:03, 46:21:01-46:21:02, 46:29, 54:09, 54:14, 55:14, 55:23, 55:68, 57:26, 58:05, 58:35, 58:76, 58:84, **C\*01:102, C\*06:89,** **C\*07:123, C\*07:173, C\*07:294, C\*08:113, C\*12:113, C\*15:09, C\*15:19, C\*15:27, C\*15:61, C\*15:107, C\*15:126, C\*15:143, C\*16:20, C\*16:109** |
| **23** | 85 bp  350 bp | \*56:20:01-56:20:02  \*56:24 | \*07:78, 40:48, 49:40, **C\*01:90, C\*07:536, C\*15:91, C\*15:128** |

**4**The HLA-B\*56 primer set cannot separate the B\*56:09 and the B\*35:78 alleles. These alleles can be distinguished by the HLA-B low resolution and/or B\*35 kits.

The HLA-B\*56 primer set cannot separate the B\*56:23 and the B\*55:31 and B\*55:78 alleles. These alleles can be distinguished by the HLA-B low resolution and/or B\*55 kits.

The HLA-B\*56 primer set cannot separate the B\*56:50 and the B\*55:13, 55:27-55:28, 55:32, 55:58 and 55:81 alleles. These alleles can be distinguished by the HLA-B low resolution and/or B\*55 kits.

The HLA-B\*56 primer set cannot separate the B\*56:54 and the B\*55:18 alleles. These alleles can be distinguished by the HLA-B low resolution and/or B\*55 kits.

**5**The following HLA-B\*56 alleles can be distinguished by the different sizes of the HLA-specific PCR product:

|  |  |  |  |
| --- | --- | --- | --- |
| **Alleles** | **Primer mix** | **Alleles** | **Primer mix** |
| B\*56:01:01:05S, 56:45 | 22 | B\*56:18, 07:65 | 22 |
| B\*56:16, 56:55:01:01-56:55:01:02 | 18 | B\*56:19N, 56:29 | 19 |
| B\*56:17, 56:26 | 21 |

‘w’, may be weakly amplified.

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