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Manual No.	20
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Product No.	120
Lot No.	A16-3 B15-3 C12-2


CTS Collaborative Transplant Study

WORKING INSTRUCTION

HLA-A*/-B*/-C* CTS-PCR-SSP TRAY KIT

LOCUS- AND LOT-SPECIFIC MANUAL

To be applied to the following product:

Product No.	Description
120	HLA-A*/-B*/-C* CTS-PCR-SSP TRAY KIT 

1. Main differences

- **Between Lot A16-3 (the current lot) and Lot A16-2:**
Mix 11 was modified to detect almost only HLA-A*34 alleles.
- **Between Lot B15-3 (the current lot) and Lot B15-2:**
The kit was updated to cover new alleles included in the IMGT/HLA Sequence Database of January 2018. Deleted and renamed alleles were taken into consideration.
- **Between Lot C12-2 (the current lot) and Lot C12-1:**
The kit was updated to cover new alleles included in the IMGT/HLA Sequence Database of January 2018. Deleted and renamed alleles were taken into consideration.

2. Introduction

- Intended use: This kit reveals a low/intermediate resolution typing of HLA-A*, -B* and -C* by the PCR-SSP method.
- Allele coverage: IMGT/HLA Sequence Database Release 3.31.0, January 2018 for HLA-A* , -B* and -C*, except:
 - **HLA-A***01:01:65-01:01:66/01:38/01:72/01:102/01:139/01:167/01:221, A*02:644, A*11:01:35/11:01:57/11:23-11:25:02/11:31/11:35/11:40/11:45/11:50Q/11:78N/11:98/11:111-11:112/11:176/11:183/11:191/11:211/11:223/11:226/11:229/11:250/11:258/11:269, A*24:129, A*25:01:09, A*26:60N/26:85/26:125/26:131/26:143-26:144, A*29:01:07/29:60/29:111, A*30:26/30:82/30:84, A*31:01:07/31:21-31:22/31:75/31:90/31:104/31:109, A*32:01:07/32:01:12/32:28/32:33:02-32:34/32:66/32:71/32:75/32:94, A*33:01:05/33:03:26-33:03:27/33:03:31/33:18:02-33:19/33:30/33:32:01-33:32:02/33:35/33:66/33:81/33:89/33:122/33:130/33:135, A*68:01:11/68:01:25/68:02:07/68:48-68:50/68:137, A*74:16:01, A*80:02
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 - **HLA-C***01:02:10/01:02:27-01:02:28/01:50/01:75/01:101-01:102, C*03:58/03:86/03:94/03:99:01-03:99:02/03:316N, C*04:01:23/04:118/04:130/04:197/04:268, C*05:18:02/05:18:04/05:103:01-05:103:02, C*06:210, C*07:02:48/07:95/07:140/07:165/07:241/07:265/07:304/07:307/07:338/07:342/07:347N/07:447/07:487/07:512/07:525/07:599, C*08:13/08:16:01-08:16:02/08:55N/08:94, C*12:195:03, C*15:02:10/15:02:17/15:41/15:43/15:65/15:99, C*16:35/16:40/16:53/16:68/16:110.

These alleles are considered to be rare and can be detected e. g. by sequencing with our CTS-SEQUENCE Kits (you may contact us for further information).

- This manual is only valid for **Lot No. A16-3 B15-3 C12-2**.
- This manual should be used together with the Main Manual (General Information) which is the 'Working instruction for the CTS-PCR-SSP TRAY and MINITRAY KITS' (Manual No. 100A).

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4. Kit Composition

- Number of PCR primer mixes per test: 96, of which:
 - 24 allele-specific mixes for HLA-A typing
 - 48 allele-specific mixes for HLA-B typing
 - 23 allele-specific mixes for HLA-C typing
 - 1 negative control mix
- Number of tests per tray: 1
- Number of trays per kit: 10
- The primer mixes are aliquoted and dried in thin-walled, green PCR-Trays.
- PCR buffer: 3.0 ml of Mastermix SSP (without Taq polymerase).

For storage condition, please refer to Section 1 of the 'Working instruction for the CTS-PCR-SSP TRAY and MINITRAY KITS' (Manual No. 100A) supplied along with this product.

5. Materials, Reagents and Equipment not supplied

Please refer to Section 2 of the 'Working instruction for the CTS-PCR-SSP TRAY and MINITRAY KITS' (Manual No. 100A) supplied along with this product.

6. Sample Requirements, PCR and Gel Electrophoresis

Please refer to Section 3 to 6 of the 'Working instruction for the CTS-PCR-SSP TRAY and MINITRAY KITS' (Manual No. 100A) supplied along with this product.

7. Result Evaluation

- Check the approximate size of the PCR product against the Primer Mix Specificity Tables (Appendix / Table 1, 2 and 3) to confirm the correct product size.
- Use the Amplification Pattern Tables (Appendix / Table 4, 5 and 6) to make the allele assignments or use the SCORE Software (www.IHWG.org) for detailed result interpretation.

8. Interpretation Hints

- The quality and quantity of DNA as well as of the Taq polymerase are extremely crucial factors. If your bands are too weak, you might try to adjust these two factors until you obtain optimal results.
- Please also refer to Section 7 of the 'Working instruction for the CTS-PCR-SSP TRAY and MINITRAY KITS' (Manual No. 100A) supplied along with this product.

9. Special notes

- **HLA-A locus:**
 - The following mixes will give **short** PCR products (<200 bp): Mixes **5, 17, 20, 23 and 24**. These PCR products might be difficult to distinguish from the 90 bp amplification control (internal positive control)!
In general, these specific products will give a much stronger signal than that of the controls. Furthermore, they will not have migrated as far into the gel as the control bands. If you are not sure whether the strong signal is due to a specific or a generic PCR product, you might let the gel run for additional 15 minutes at a lower voltage. By this way the specific band will be separated from the control band, and you will be able to clearly see a double signal at this position: a very strong specific band, and a weaker, shorter amplification control band.
 - Since mix **5** corresponds to A*23 and mix **23** to A*02 (both alleles/allele groups are common), it is recommended to start the interpretation by checking these reactions very carefully first!
 - Some mixes contain specific primers which may give rise to PCR fragments of **two or more** different sizes simultaneously (see Table 1).
 - **Mix 4:** 225 bp and 235 bp (these two bands tend to merge into a single band). An additional weak band of 740 bp may occur, but is usually invisible.

- **HLA-B locus:**
 - The following mixes will give short allele-specific PCR products (<200 bp): mixes **5, 9, 20, 43, and 47**. These PCR products might be difficult to be distinguished from the 90 bp amplification control (internal positive control) PCR product. In general, the allele-specific product will give a much stronger signal than that of the amplification control and will not migrate as far into the gel as the amplification control band. If you are not sure whether the (strong) signal represents an allele-specific product or just the amplification control, you might let the gel run for an additional 15 minutes at a lower voltage. By this way, the allele-specific band can be separated from the amplification control band and you will be able to clearly see a double signal at this position: a strong allele-specific band and - compared to that - a weaker shorter amplification control band. Since three of these mixes correspond to quite frequent alleles (B*18 and B*35 = mix 5; B*27 = mix 9; B*15(62) = mix 43), it is recommended to start your evaluation by checking these four reactions carefully first!
 - Some HLA-B* mixes will amplify **two or even three fragments of different sizes** (e. g. mixes 9, 15, 19, 25 and 35). Mixes with 2 fragments of almost the same size are not mentioned here.
 - **Mix 9**
 - The most common B*27 alleles (B* 27:02, *27:04 and *27:05) will generate two fragments: a short fragment (155 bp) + a long fragment (525 bp).
 - Amplification of B*27:06 will result only in a short fragment (155 bp).
 - B*47:01:01:01-47:08 will only give rise to a long fragment (525bp).
 - **Special notes to HLA-B*07**
 - The common HLA-B*07 alleles react positively with mix 1 and mix 28. Some HLA-B*07 alleles may cause additional weakly positive reactions with mix 24, especially if high amounts of Taq polymerase or high DNA-concentrations are used.
 - **Special notes to HLA-B*13**
 - B*13:01 reacts positively with mix 3, whereas B*13:02 is amplified by mix 3 and mix 34.
 - The rare alleles B*13:03 and B*13:04 can only be detected by mix 34.
 - Mix 34 may show different PCR products for B*13:
 - Amplification of B*13:04 results in two fragments (430 bp and 490 bp).
 - Amplification of B*13:02:01/03/08Q/09/14-16/18/19 shows only the smaller fragment (430 bp).
 - Amplification of B*13:10 shows only the larger fragment (490 bp).
- **HLA-C locus**
 - **Exclusion/detection of C*04:09N:**
 - If only mix 6 is positive, the DNA may be C*04 positive (e. g. C*04:01), but negative for C*04:09N.
 - In contrast, if mix 6 and 7 are both positive, the DNA is positive for HLA-C*04:09N.
 - **Attention:** The fragment size of mix 7 is relatively **small** (140 bp)!
 - PCR-SSP mix no. 1, 5, 12 and 15 will also detect some HLA-A* specificities (most of them are considered to be rare). Please take this into consideration when interpreting your results.
 - PCR-SSP mix no. 2, 3, 5, 6, 11, 12, 15, 16, 20 and 22 will also detect some HLA-B* specificities (most of them are considered to be rare). Please take this into consideration when interpreting your results.

10. Troubleshooting

Please refer to Section 8 of the 'Working instruction for the CTS-PCR-SSP TRAY and MINITRAY KITS' (Manual No. 100A) supplied along with this product.

11. Precaution

Please refer to Material Safety Data Sheet for the CTS-PCR-SSP TRAY and MINITRAY KITS (Manual No. 100B) supplied along with this product.

12. Contact

If you have any particular questions concerning this kit, which are not answered in this or the Main Manual, please do not hesitate to contact me or my coworkers at:

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13. Appendix

Table 1: Sizes of the PCR products and allele specificities of each **HLA-A*** CTS-PCR-SSP primer mix (**Lot No. A16-3**) based on IMGT/HLA Sequence Database Release 3.31.0, January 2018

Position	Mix	Allele	Serology	Size
H1	Mix 1	A*01:01:01:01:01:64/01:01:67:01:04N/01:06:01:33/01:35:01:37/01:39:01:71/01:73:01:101/01:103:01:138/01:140:01:166/01:168:01:199/01:201:01:220/01:222:01:243, A*11:27/11:38-11:39/11:94/11:209, A*23:31/23:45/23:55, A*24:15/24:41/24:51/24:92/24:235, A*25:36, A*26:29/26:49, A*32:13, A*66:10, B*07:64, B*15:12/15:19/15:270/15:298/15:304N	A1, Null, -, A26(10), B76(15)	225 bp
		A*01:200/01:244, A*02:609w, A*03:107/03:164, A*11:17, A*26:72, A*32:24, A*36:01-36:05	-, A36	580 bp
F1	Mix 3	A*02:01:01:01:02:01:15/02:01:18:02:01:19/02:01:21:02:01:25/02:01:27:02:01:51/02:01:53:02:01:63/02:01:65w/02:01:66:02:01:68/02:01:69w/02:01:70:02:01:73/02:01:75:02:01:80/02:01:83:02:01:94/02:01:95w/02:01:96:02:03:06/02:03:08:02:05:02/02:05:04:02:06:11/02:06:13:02:06:18/02:06:19w/02:06:20:02:11:06/02:11:07w/02:11:08:02:22:02:24:01:02:35:03:02:47/02:49/02:51/02:53N:02:54/02:56:01/02:57:02:63/02:66:02:71/02:73:02:79:02:81:02:87/02:89:02:97:02:99/02:101:01:02:102/02:104/02:105w/02:106:02:113:02N/02:115:02:116/02:118:02:120:02:121/02:123:02:128/02:130:02:134/02:136:02:151/02:153:01:02:168/02:170:02:177/02:179:02:184/02:186:02:187/02:189:02:192/02:193w/02:194/02:196:02:222N/02:224:02:228/02:230:02:245/02:247:02:272/02:273w/02:274/02:276:02:278/02:280:02:285/02:286w/02:287/02:289:01/02:290:02:297/02:299:02:300/02:302:02:303/02:305N:02:307/02:308w/02:310/02:311w/02:312:02:327/02:328w/02:329:02:338/02:340:02:347/02:349:02:376/02:378:02:382/02:384:02:405/02:407:02:411/02:413:02:453/02:455:02:487/02:488w/02:489:02:490N/02:492:02:503/02:505:02:509/02:511:02:526/02:528:01:02:570/02:572:02:581/02:583:02:590/02:591:02:600/02:602:02:621/02:622Nw/02:623:02:640/02:642/02:645:02:661/02:663:02:675N/02:677/02:679:02:680/02:682:02:706, A*24:02:76/24:310:02	A2, Low A2, -, A203, A210, Null	455 bp
		A*01:13/01:176/01:194, A*03:01:01:03:193/03:195:03:199/03:201:03:259/03:261:03:289, A*11:130/11:199:01/11:222, A*30:55/30:89, A*32:04/32:17w/32:52, A*34:08, A*36:02, A*68:71, A*74:13	-, A3, Null	see below
E1	Mix 4	A*01:13/01:176/01:194, A*03:01:01:03:193/03:195:03:199/03:201:03:259/03:261:03:289, A*11:130/11:199:01/11:222, A*30:55/30:89, A*32:04/32:17w/32:52, A*34:08, A*36:02, A*68:71, A*74:13	-, A3, Null	225 bp
		A*03:01:01:03:01:11/03:01:13:03:01:29/03:01:31:03:01:34/03:01:36:03:01:49/03:01:51:03:04:03/03:07:01:03:09/03:11N/03:13:03:17:02/03:19:03:39/03:41/03:43:03:58/03:60:03:71/03:73:03:87/03:89:02:03:96/03:99:03:104/03:106:03:121/03:123:01:03:134/03:136:03:148/03:150:03:151/03:153:03:171/03:174:03:175/03:177/03:181:03:193/03:195/03:197N/03:201:03:202/03:204/03:206:03:210/03:212:03:215/03:217:03:218/03:220:03:222:03:242/03:244/03:246:03:251/03:253:03:258/03:261:03:266N/03:268:03:272/03:274:03:289, A*11:199:01/11:222, A*30:55, A*32:17w, A*34:08, A*68:71, A*74:13	A3, Null, -	740 bp
D1	Mix 5	A*03:01:01:03:01:11/03:01:13:03:01:29/03:01:31:03:01:34/03:01:36:03:01:49/03:01:51:03:04:03/03:07:01:03:09/03:11N/03:13:03:17:02/03:19:03:39/03:41/03:43:03:58/03:60:03:71/03:73:03:87/03:89:02:03:96/03:99:03:104/03:106:03:121/03:123:01:03:134/03:136:03:148/03:150:03:156/03:168N:03:178N/03:181:03:186/03:188:03:193/03:195/03:197N/03:201:03:203/03:205:03:207/03:209:03:214/03:216:03:224/03:226:03:220/03:222:03:224/03:226:03:242/03:244/03:246:03:259/03:261:03:288, A*32:04/32:52, A*36:02	A3, Null, -	235 bp
		A*03:01:01:03:01:05/03:01:07:03:01:29/03:01:31:03:01:34/03:01:36:03:01:48/03:01:51:03:04:03/03:07:01:03:09/03:11N:03:17:02/03:19:03:39/03:41/03:43:03:74/03:76:03:83/03:85:03:94/03:96/03:99:03:104/03:107:03:121/03:123:01:03:134/03:136:03:166/03:168N:03:176/03:178N:03:186/03:188:03:193/03:195:03:199/03:201:03:203/03:205:03:207/03:209:03:214/03:216:03:224/03:226:03:234Q/03:236:03:248/03:250:03:259/03:261:03:287, A*11:130, A*30:89, A*32:04, A*36:02	A23(9), -, Null	195 bp

Position	Mix	Allele	Serology	Size
C1	Mix 6	A*02:46/02:48/02:70/02:129/02:571, A*03:30/03:152/03:273, A*23:01:01:01-23:02/23:04-23:08N/23:10-23:22/23:24-23:27/23:29-23:36/23:38N-23:50/23:52-23:60/23:62-23:68/23:70-23:79/23:81-23:82, A*24:02:01:01-24:02:16/24:02:18-24:02:48/24:02:50-24:02:63/24:02:64w/24:02:65/24:02:66w/24:02:67-24:02:88/24:02:90-24:07:02/24:09N-24:11N/24:13:01-24:15/24:17-24:20:01:02/24:22-24:23/24:25-24:28/24:30/24:32-24:41/24:43-24:64/24:66/24:68-24:76/24:78-24:88/24:90:01N-24:128/24:130-24:155N/24:157/24:159-24:190/24:192-24:199/24:201-24:210/24:212-24:236/24:238-24:272/24:274-24:289/24:291-24:308/24:311-24:325/24:327-24:341/24:343w/24:344-24:358/24:360-24:369/24:371-24:388N/24:390-24:391/24:393-24:394, A*31:08, A*32:79, A*33:21/33:53	-, A24(9)	435 bp
		A*03:30/03:152/03:273, A*23:31/23:45/23:53/23:70, A*24:17/24:41/24:62/24:106/24:208/24:296/24:330, A*31:08, A*32:79, A*33:21/33:53	A2, -, A23(9), Null, A24(9), Low A24(9), A2403, A9, A24(9)/A3	see below
B1	Mix 7	A*02:46/02:48/02:70/02:129/02:571, A*23:01:01:01-23:02/23:04-23:08N/23:10-23:22/23:24-23:27/23:29-23:36/23:38N-23:50/23:52-23:60/23:62-23:68/23:71-23:79/23:81-23:82, A*24:02:01:01-24:02:16/24:02:18-24:02:48/24:02:50-24:02:63/24:02:64w/24:02:65/24:02:66w/24:02:67-24:02:88/24:02:90-24:07:02/24:09N-24:11N/24:13:01-24:15/24:17-24:20:01:02/24:22-24:23/24:25-24:28/24:30/24:32-24:41/24:43-24:64/24:66/24:68-24:76/24:78-24:88/24:90:01N-24:128/24:130-24:155N/24:157/24:159-24:190/24:192-24:199/24:201-24:207:02/24:209-24:210/24:212-24:236/24:238-24:272/24:274-24:289/24:291-24:308/24:311-24:325/24:327-24:341/24:343w/24:344-24:358/24:360-24:369/24:371-24:388N/24:390-24:391/24:393-24:394	-, A24(9), Low A24(9), A2403, A9, Null, A32(19), B51(5)	510 bp
		A*11:178/11:190, A*24:02:01:01-24:02:73/24:02:75-24:03:04/24:05:01-24:05:02/24:07:01-24:11N/24:14:01:01-24:15/24:17/24:20:01:01-24:21:03/24:23/24:25-24:27/24:29-24:43/24:45N-24:64/24:66-24:86N/24:88/24:90:01N-24:93/24:95-24:106/24:108/24:110-24:128/24:130-24:137/24:139-24:166/24:168-24:187/24:189-24:206/24:208-24:210/24:212-24:226:02/24:229-24:277/24:278Nw/24:279-24:284/24:286-24:288/24:291-24:298/24:300-24:314/24:316-24:338/24:340-24:354/24:356-24:372/24:374-24:378/24:380/24:382-24:391/24:393-24:394, A*25:04/25:44, A*32:02/32:22, B*51:05w/51:55	-, A25(10), Null, A30(19)	see below
A1	Mix 8	A*02:52/02:135/02:309/02:454, A*25:01:01:01-25:01:02/25:01:02w/25:01:03-25:01:08/25:01:10-25:10/25:11w/25:12N-25:23/25:25-25:32/25:34-25:42N/25:44-25:46	-, A30(19), Null	550 bp
		A*02:52, A*30:01:01-30:02:11/30:02:13-30:04:01/30:06-30:20/30:22-30:25/30:27N-30:81/30:83/30:85-30:89/30:91-30:95/30:97-30:99/30:02:12/30:101Q-30:123N/30:125-30:127	-	560 bp
H2	Mix 9	A*02:135/02:309/02:454, A*30:02:10, 04:01:49	-	395 bp
		A*32:101Q, B*07:225w/07:260w	A25(10), -, Null	405 bp
H2	Mix 9	A*25:01:01-25:01:02/25:01:02w/25:01:03-25:01:08/25:01:10-25:10/25:11w/25:12N-25:23/25:25-25:32/25:34-25:42N/25:44-25:46	-, A25(10), Null, A26(10), A10, A34(10), A66(10)	see below
		A*02:135/02:309/02:454, A*25:01:01-25:01:07/25:01:08w/25:01:10-25:13/25:15-25:38/25:39w/25:40-25:42N/25:44-25:46, A*26:01:01-26:01:26/26:01:28-26:01:37/26:01:38w/26:01:39-26:06/26:08-26:18/26:20-26:30/26:32-26:43:02/26:45-26:59/26:61-26:71N/26:73-26:75/26:76w/26:77-26:83/26:86-26:91/26:93-26:124/26:126-26:130/26:132-26:142/26:143w/26:145N-26:149, A*34:01:01-34:11/34:13-34:17, A*66:01:01-66:02/66:22-66:24-66:29, B*38:02:04	-, A26(10)	450 bp
H2	Mix 9	A*25:01:01-25:01:07/25:01:08w/25:01:10-25:13/25:15-25:38/25:39w/25:40-25:42N/25:44-25:45, A*26:01:01:01-26:01:26/26:01:28-26:01:37/26:01:38w/26:01:39-26:06/26:08-26:18/26:20-26:30/26:32-26:43:02/26:45-26:59/26:61-26:71N/26:73-26:75/26:76w/26:77-26:83/26:86-26:91/26:93-26:124/26:126-26:130/26:132-26:142/26:143w/26:145N-26:149, A*34:01:01-34:11/34:13-34:17, A*66:01:01-66:02/66:22-66:24-66:29, B*38:02:04	A25(10), -, Null, A26(10), A10, A34(10), A66(10)	445 bp
		A*25:01:01-25:01:07/25:01:08w/25:01:10-25:13/25:15-25:38/25:39w/25:40-25:42N/25:44-25:45, A*26:01:01:01-26:01:26/26:01:28-26:01:37/26:01:38w/26:01:39-26:06/26:08-26:18/26:20-26:30/26:32-26:43:02/26:45-26:59/26:61-26:71N/26:73-26:75/26:76w/26:77-26:83/26:86-26:91/26:93-26:124/26:126-26:130/26:132-26:142/26:143w/26:145N-26:149, A*34:01:01-34:11/34:13-34:17, A*66:01:01-66:02/66:22-66:24-66:29, B*38:02:04	A66(10)	see below

Position	Mix	Allele	Serology	Size
G2	Mix 10	A*01:01:56, A*02:135/02:309/02:454, A*25:11, A*26:01:01:01:09/26:01:03:26:01:12/26:01:14:26:32/26:34:26:43:02/26:45-26:59/26:61-26:84/26:86-26:109/26:111-26:124/26:126-26:130/26:132-26:142/26:143w/26:145N-26:149, A*30:02:10, A*43:01	-, A26(10), Null, A10, A43	see below
		A*02:135/02:309/02:454, A*25:11, A*26:03:01/26:06/26:21/26:30/26:36/26:78/26:92/26:111/26:146	-, A26(10)	415 bp
		A*01:01:56, A*26:01:01:01:09/26:01:03:26:01:12/26:01:14:26:02/26:04:26:05/26:07:01-26:20/26:22-26:29/26:31-26:32/26:34-26:35/26:37-26:43:02/26:45-26:59/26:61-26:77/26:79-26:84/26:86-26:91/26:93-26:109/26:112-26:124/26:126-26:130/26:132-26:142/26:143w/26:145N/26:147-26:149, A*30:02:10, A*43:01	-, A26(10), Null, A10, A43	405 bp
F2	Mix 11	A*26:48/26:69, A*34:01:01-34:01:02/34:05/34:11-34:12/34:14/34:16-34:17	-, A34(10)	580 bp
E2	Mix 12	A*03:103:01-03:103:02/03:282, A*11:116/11:140, A*25:02, A*26:13/26:19/26:33, A*29:32, A*31:89/31:115, A*32:17, A*33:125/33:131, A*34:01:01-34:01:02/34:05-34:06/34:11-34:12/34:14/34:16-34:17, A*66:01:01:01-66:02/66:04/66:06-66:14/66:16-66:27N/66:29, A*74:13	-, A25(10), A34(10), A66(10), Null	415 bp
		A*01:51, A*03:24, A*11:10, A*25:43, A*33:49, A*34:02:01-34:04/34:07-34:10N/34:13/34:15, A*68:103:01-68:103:02	-, A3, A11, A34(10), Null	385 bp
C2	Mix 14	A*02:12-02:13/02:19/02:27/02:37-02:38/02:44/02:49/02:54/02:142/02:226N/02:271/02:280/02:417/02:543/02:630/02:662/02:682-02:683, A*03:02:01w-03:02:04w/03:10/03:31w-03:32w/03:65w/03:69Nw/03:73w/03:76w/03:82w/03:90w/03:106w/03:113w/03:160w/03:167/03:198w/03:218w/03:223w/03:225/03:236w-03:237w/03:242w/03:244w/03:253w/03:274w-03:275Nw/03:281w/03:285w, A*11:01:01:01-11:01:34/11:01:36-11:01:56/11:01:58-11:16/11:18-11:22/11:23w/11:26-11:27/11:29-11:30/11:32:01-11:34/11:36-11:39/11:41-11:44/11:46-11:49/11:51-11:52Q/11:54-11:77/11:79-11:93/11:95-11:97/11:98w/11:99N-11:10/11:113-11:129/11:130w/11:131-11:157/11:159-11:175/11:177/11:179-11:182Q/11:184-11:189/11:192-11:210N/11:212-11:222/11:224-11:225/11:227-11:228/11:229w/11:230-11:249/11:250w/11:251N-11:257/11:258w/11:259-11:268, A*24:19/24:28/24:44/24:89/24:290/24:379, A*31:24w/31:97w, A*33:19w/33:59w/33:102w, A*66:19, A*68:09/68:26/68:28/68:129/68:134, A*69:03	A2, -, Null, A3, A11, A9, A24(9), A28	520 bp
		A*03:01:39, A*29:01:01-29:01:06/29:01:08-29:12/29:14-29:18/29:20-29:38/29:40-29:47/29:49-29:59/29:61-29:97/29:99-29:110/29:111w, A*74:10	-, A29(19), Null	see below
		A*03:01:39, A*29:01:01-29:01:06/29:01:08-29:12/29:14-29:18/29:20-29:38/29:40-29:47/29:49-29:59/29:61-29:97/29:99-29:110/29:111w, A*74:10	A29(19), Null, -	160 bp
B2	Mix 15	A*03:01:39, A*29:01:01-29:01:06/29:01:08-29:12/29:14-29:18/29:20-29:38/29:40-29:47/29:49-29:59/29:61-29:97/29:99-29:110/29:111w, A*74:10	-, A29(19), Null	515 bp
A2	Mix 16	A*30:01:01-30:01:07/30:01:08w/30:01:09-30:02:11/30:02:13-30:04:02/30:06-30:11:02/30:13-30:17/30:19-30:20/30:22-30:25/30:27N-30:40/30:42-30:54/30:56-30:81/30:83/30:85-30:99/30:02:12/30:101Q-30:127	A30(19), -, Null	570 bp
		A*29:14, A*31:01:02:01-31:01:06/31:01:08-31:07/31:09-31:20/31:23-31:74/31:76-31:88/31:91-31:103/31:104w/31:105-31:108/31:110-31:133	-, A31(19), Null	185 bp
G3	Mix 18	A*03:152/03:219, A*23:03:01/23:83, A*24:18/24:21:03/24:204/24:208/24:213, A*29:13, A*31:07-31:08/31:10, A*32:01:01:01-32:01:06/32:01:08-32:01:11/32:01:13-32:27N/32:29-32:30:01/32:31-32:33:01/32:35-32:65/32:67-32:70/32:72-32:74/32:75w/32:76-32:93/32:94w/32:95-32:100/32:102-32:107	-, A24(9)/A3, A31(19), A32(19), Null	see below
		A*23:03:01/23:83, A*24:21:03/24:208, A*29:13, A*31:07-31:08/31:10, A*32:01:01:01-32:01:06/32:01:08-32:01:11/32:01:13-32:03/32:05-32:27N/32:29-32:30:01/32:31-32:33:01/32:35-32:65/32:67-32:70/32:72-32:74/32:75w/32:76-32:93/32:94w/32:95-32:100/32:102-32:107	-, A31(19), A32(19), Null	410 bp
		A*03:152/03:219, A*24:18/24:204/24:213, A*32:04/32:52	-, A24(9)/A3	520 bp

Position	Mix	Allele	Serology	Size
F3	Mix 19	A*02:24:02/02:65/02:152/02:507, A*29:48/29:105, A*32:15/32:93, A*33:01:01:01-33:01:04/33:01:06-33:01:10/33:03:01:01-33:03:25/33:03:26w/33:03:28-33:03:30/33:03:31w/33:03:32-33:18:01/33:20/33:22-33:29/33:31/33:33-33:34/33:36-33:37/33:39-33:52/33:54-33:65/33:66w/33:67-33:80N/33:82-33:88/33:90-33:121/33:123N-33:129N/33:131-33:134/33:136-33:137, A*74:04/74:21, B*07:02:40, B*08:01:07, B*15:02:07, B*55:02:10	- , A2/19, A33(19), A19, Null, B8	see below
		A*02:24:02/02:65/02:152/02:507, A*29:48, A*32:93, A*33:08-33:09, A*74:04/74:21	- , A2/19, A33(19), A19	475 bp
E3	Mix 20	A*29:105, A*32:15, A*33:01:01-33:01:04/33:01:06-33:01:10/33:03:01:01-33:03:25/33:03:26w/33:03:28-33:03:30/33:03:31w/33:03:32-33:07/33:10-33:18:01/33:20/33:22-33:29/33:31/33:33-33:34/33:36-33:37/33:39-33:52/33:54-33:65/33:66w/33:67-33:80N/33:82-33:88/33:90-33:121/33:123N-33:129N/33:131-33:134/33:136-33:137, B*07:02:40, B*08:01:07, B*15:02:07, B*55:02:10	- , A33(19), Null, B8	470 bp
		A*03:01:39, A*29:19/29:39/29:48, A*68:01:28/68:130:02, A*74:01:01-74:09/74:11-74:15/74:16:02-74:28	- , A74(19), Null	160 bp
D3	Mix 21	A*02:01:09/02:05:05/02:06:07/02:11:02/02:35:03/02:50/02:76:02/02:122/02:243:02/02:528:02/02:570/02:591:01, A*03:171/03:271, A*11:57/11:158, A*24:94/24:138/24:188/24:228/24:293, A*29:51/29:69/29:73, A*68:01:01-68:01:10/68:01:12-68:01:24/68:01:26-68:02:06/68:02:08-68:47/68:51-68:128/68:130:01-68:136/68:138-68:174, A*69:01:01-69:03	A2, -, A68(28), A28, Null, A69(28)	645 bp
		A*02:34-02:35:03/02:56:01-02:56:02/02:62/02:78/02:103, A*03:241, A*69:01:01-69:03	A2, -, A69(28)	390 bp

Position	Mix	Allele	Serology	Size		
B3	Mix 23	A*02:01:01:01:02:01:08/02:01:10:02:01:11/02:01:12w/02:01:13:02:01:15/02:01:17:02:01:19/02:01:21:02:01:32/02:01:33w/02:01:34:02:01:39/02:01:39/02:01:41-02:01:81/02:01:83-02:05:04/02:05:06-02:06:06/02:06:08-02:11:01/02:11:03-02:22:02/02:24:01-02:35:01/02:35:02w/02:36-02:76:01/02:77/02:79:01-02:97:02/02:99/02:101:01-02:121/02:123-02:140/02:142-02:243:01/02:244-02:311/02:313-02:469/02:471-02:528:01/02:529-02:569/02:571-02:590/02:591-02:635/02:636w/02:637-02:643N/02:645-02:673/02:674w/02:675N-02:706, A*03:89:01, A*24:02:06/24:340, A*30:07w/30:13w/30:16w/30:22w/30:44w/30:46w, B*51:01:34w, 07:02:27w/07:577w	A2, Low A2, -, A203, A210, Null, A2/19, A24(9)	see below		
		A*02:556, B*51:01:34w	-	175 bp		
		A*02:50/02:556	A2, -	205 bp		
		A*02:50/02:556	A2, -	225 bp		
		A*02:01:01:01:02:01:08/02:01:10:02:01:11/02:01:12w/02:01:13:02:01:15/02:01:18:02:01:19/02:01:21:02:01:32/02:01:33w/02:01:34:02:01:39/02:01:41-02:01:50/02:01:53-02:01:62/02:01:64-02:01:73/02:01:75-02:01:76/02:01:78-02:01:81/02:01:83-02:01:113/02:01:115-02:05:02/02:05:04/02:05:06-02:06:06/02:06:08-02:06:11/02:06:13/02:06:15-02:06:19/02:06:21-02:11:01/02:11:03/02:11:05-02:11:08/02:12-02:22:01:02/02:24:01-02:35:01/02:36-02:44/02:47/02:49/02:51-02:54/02:57-02:60:02/02:62-02:76:01/02:77/02:79:01-02:91/02:93:01-02:97:02/02:99/02:101:01-02:102:02:104-02:112/02:114-02:121/02:123-02:128/02:130-02:140/02:142/02:145-02:168/02:170-02:175/02:177-02:184/02:186-02:194/02:196-02:200/02:202-02:204/02:207-02:216/02:218-02:243:01/02:244-02:248/02:250N-02:311/02:313-02:314N/02:316-02:320/02:322-02:357/02:359-02:368/02:370-02:371/02:373N-02:377/02:379-02:409/02:411-02:418/02:420-02:469/02:471-02:481/02:483-02:503/02:505-02:513/02:515-02:528:01/02:529-02:543/02:545-02:569/02:572-02:590/02:591-02:600/02:602-02:635/02:636w/02:637-02:643N/02:645-02:673/02:674w/02:675N-02:696N/02:698-02:706, A*03:89:01, A*30:22w, B*51:01:34w, 07:02:27w/07:577w	A2, Low A2, -, A203, A210, Null, A2/19	135 bp		
		A*02:01:01:01:02:01:08/02:01:10:02:01:11/02:01:12w/02:01:13:02:01:15/02:01:17:02:01:19/02:01:21:02:01:30/02:01:32/02:01:33w/02:01:34:02:01:39/02:01:39/02:01:41-02:01:66/02:01:68-02:01:81/02:01:83-02:01:121/02:01:123-02:01:126/02:01:128-02:05:04/02:05:06-02:06:06/02:06:08-02:07:05/02:07:07-02:07:11/02:09-02:11:01/02:11:03-02:19/02:21-02:22:02/02:24:01-02:33/02:35:02w/02:36-02:49/02:51-02:54/02:57-02:61/02:63-02:76:01/02:77/02:79:01-02:97:02/02:99/02:101:01-02:102:02:104-02:121/02:123-02:127/02:129-02:138/02:140/02:142-02:157:02/02:159-02:168/02:170-02:194/02:196-02:207/02:210-02:243:01/02:244-02:249/02:251-02:257/02:259-02:271/02:273-02:291/02:293Q-02:311/02:313-02:316/02:318-02:350N/02:352-02:385/02:387-02:414/02:416-02:469/02:472-02:492/02:494-02:528:01/02:529-02:569/02:571-02:579/02:581-02:584/02:586-02:590/02:591-02:608N/02:610:01-02:633/02:635/02:636w/02:637-02:643N/02:645-02:662/02:664-02:673/02:674w/02:675N-02:676/02:678-02:701/02:703-02:706, A*03:89:01, A*24:02:06/24:340, A*30:07w/30:22w	A2, Low A2, -, A203, A210, Null, A2/19, A24(9)	165 bp		
		A*02:01:01:01:02:01:08/02:01:10:02:01:11/02:01:12w/02:01:13:02:01:15/02:01:17:02:01:19/02:01:21:02:01:30/02:01:32/02:01:33w/02:01:34:02:01:39/02:01:39/02:01:41-02:01:66/02:01:68-02:01:81/02:01:83-02:01:121/02:01:123-02:01:126/02:01:128-02:05:04/02:05:06-02:06:06/02:06:08-02:07:05/02:07:07-02:07:11/02:09-02:11:01/02:11:03-02:19/02:21-02:22:02/02:24:01-02:33/02:35:02w/02:36-02:49/02:51-02:54/02:57-02:61/02:63-02:76:01/02:77/02:79:01-02:97:02/02:99/02:101:01-02:102:02:104-02:121/02:123-02:127/02:129-02:138/02:140/02:142-02:157:02/02:159-02:168/02:170-02:194/02:196-02:207/02:210-02:243:01/02:244-02:249/02:251-02:257/02:259-02:271/02:273-02:291/02:293Q-02:311/02:313-02:316/02:318-02:350N/02:352-02:385/02:387-02:414/02:416-02:469/02:472-02:492/02:494-02:528:01/02:529-02:569/02:571-02:579/02:581-02:584/02:586-02:590/02:591-02:608N/02:610:01-02:633/02:635/02:636w/02:637-02:643N/02:645-02:662/02:664-02:673/02:674w/02:675N-02:676/02:678-02:701/02:703-02:706, A*03:89:01, A*24:02:06/24:340, A*30:07w/30:22w	A2, Low A2, -, A203, A210, Null, A2/19	190 bp		
		A*02:01:01:01:02:01:08/02:01:10:02:01:11/02:01:12w/02:01:13:02:01:15/02:01:17:02:01:19/02:01:21:02:01:32/02:01:33w/02:01:34:02:01:39/02:01:39/02:01:41-02:01:39/02:01:41-02:01:48/02:01:50-02:01:81/02:01:83-02:01:107/02:01:109-02:05:04/02:05:06-02:06:01:04/02:06:03-02:06:06/02:06:08-02:10/02:12-02:22:02/02:24:01-02:34/02:36-02:47/02:49/02:51-02:68/02:70-02:76:01/02:77/02:79:01-02:80/02:82N-02:86:02/02:88N-02:89/02:91-02:97:02/02:99/02:101:01-02:111/02:113:01N-02:115/02:117-02:121/02:123/02:125N-02:127/02:130-02:135/02:137-02:140/02:142-02:145/02:147-02:183/02:185-02:243:01/02:244-02:246/02:248-02:260/02:262-02:296/02:299-02:307/02:309-02:311/02:313-02:330/02:332-02:365/02:367-02:380/02:382-02:393/02:395N-02:442/02:444-02:456/02:458-02:469/02:471-02:489/02:491-02:493/02:495-02:496/02:498-02:502/02:504-02:513/02:516N-02:528:01/02:529-02:533/02:535-02:569/02:572-02:576/02:578/02:581-02:583/02:585-02:588/02:590/02:591-02:626/02:628-02:635/02:636w/02:637-02:643N/02:646-02:673/02:674w/02:675N-02:700/02:702-02:704/02:706, A*03:89:01, A*30:13w/30:16w/30:44w/30:46w	A43, A80, - A80, - A43	see below 170 bp 445 bp		
		A*43:01, A*80:01:01:01:02/80:03				
		A*80:01:01:01:01:01:02/80:03				
		A*43:01				

Amplification control (internal positive control): 90 base pairs (bp)

w = weak

? = nucleotide sequence information not available for the primer matching sequence

Bold: mixes which result in PCR fragments of different sizes (the specificities are first indicated all in one row, then split into several groups in the subsequent rows depending on the fragment size)

Table 2: Sizes of the PCR products and allele specificities of each **HLA-B*CTS**. PCR-SSP primer mix (**Lot-No B15-3**) based on IMGT/HLA Sequence Database Release 3.31.0, January 2018

Position	Mix	Allele	Serology	Size
H4	Mix 1	B*07:02:01:01-07:02:32/07:02:33w/07:02:34-07:02:42/07:02:43w/07:02:44-07:05:05/07:05:06w/07:05:07-07:18:02/07:18:03-07:20:07:32/07:34-07:39/07:41-07:52/07:55-07:59/07:61-07:93/07:95-07:99/07:101-07:121/07:124-07:138/07:140-07:164/07:166-07:218/07:220-07:234/07:236-07:242/07:244-07:289/07:291-07:305, B*08:79/08:156/08:187, B*15:297, B*18:35w/18:110w, B*35:66, B*38:63, B*40:25/40:106/40:166, B*42:05:01/42:05:02w, B*46:06, B*48:06, B*81:01-81:08, C*02:23, C*03:260, C*04:77, C*07:38:01-07:38:02	B7, -, B703, B7/B42, Null, B81, Cw7	see below
	Mix 1	B*07:02:01:01-07:02:01:03/07:02:02-07:02:32/07:02:33w/07:02:34-07:02:42/07:02:43w/07:02:44-07:02:51/07:03-07:05:01:03/07:05:02-07:05:05/07:05:06w/07:05:07-07:12/07:14-07:18:02/07:20-07:32/07:34-07:37:01/07:38-07:39/07:41-07:52/07:55-07:59/07:61-07:75:01:01/07:76-07:93/07:95-07:99/07:101-07:121/07:124-07:138/07:140-07:164/07:166-07:218/07:220-07:234/07:236-07:242/07:244-07:289, B*08:79/08:156, B*15:297, B*18:35w/18:110w, B*35:66, B*38:63, B*40:25/40:106/40:166, B*42:05:01/42:05:02w, B*48:06, B*81:01-81:08	B7, -, B703, B7/B42, Null, B81	630 bp
G4	Mix 2	B*07:13, B*46:06, C*02:23, C*03:260, C*04:77, C*07:38:01-07:38:02	-, Cw7	615 bp
	Mix 2	B*07:29/07:186, B*08:01:01-08:01:31/08:01:33-08:05/08:07-08:12:02/08:13-08:25/08:27-08:48/08:51-08:61/08:63-08:93/08:95-08:106/08:108-08:111/08:113-08:169/08:171-08:180/08:182-08:190, B*13:93, B*15:142/15:180/15:429, B*39:12, B*40:328, B*44:49/44:156, B*49:25, B*51:68/51:176, C*02:14:01-02:14:02/02:107, C*06:02:37/06:106:127:02, C*07:01:07/07:04:03/07:14/07:27:02/07:31:02/07:43:02/07:184/07:199:02/07:257:02/07:257:04/07:294/07:463/07:526, C*12:16/12:217	-, B8, Null, B39(16), Cw7	see below
F4	Mix 2	B*08:09/08:84, B*13:93, B*49:25, B*51:68/51:176, C*07:463	B8, -	545 bp
	Mix 3	B*07:29/07:186, B*08:01:01-08:01:01:03/08:01:02-08:01:31/08:01:33-08:05/08:07-08:08N/08:10-08:12:02/08:13-08:25/08:27-08:48/08:51-08:61/08:63-08:83/08:85-08:93/08:95-08:106/08:108-08:111/08:113-08:169/08:171-08:175, B*15:142/15:180, B*39:12, B*40:328, B*44:49/44:156, C*02:14:01-02:14:02/02:107, C*06:02:37/06:106:127:02, C*07:01:07/07:04:03/07:14/07:27:02/07:31:02/07:43:02/07:184/07:199:02/07:257:02/07:257:04/07:294/07:526, C*12:16	-, B8, Null, B39(16), Cw7	560 bp
E4	Mix 3	B*13:01:01-13:02:21/13:06-13:21/13:23/13:25-13:36/13:37w/13:38-13:39/13:41-13:44/13:47/13:49N-13:57/13:59-13:61/13:63N-13:85/13:87-13:96/13:98-13:108	B13, -, Null	585 bp
	Mix 4	B*15:64:02, B*18:01:01-18:01:08/18:01:10-18:01:11/18:01:13-18:01:23/18:01:25-18:07:01/18:08-18:12:01/18:13-18:15/18:17N-18:25/18:27-18:28/18:30-18:36/18:38-18:40/18:42-18:47/18:49-18:54/18:56-18:60/18:62-18:81/18:83-18:96/18:98/18:99w/18:100-18:106/18:107w/18:108-18:121/18:123-18:143, B*35:20:02, B*44:03:12w	-, B18, Null, B35	465 bp
D4	Mix 5	B*07:65/07:134, B*08:32/08:133/08:180, B*15:202/15:239/15:308/15:376, B*18:01:01-18:08/18:10-18:15/18:17N-18:36/18:38-18:47/18:50-18:53/18:55-18:65/18:68-18:78/18:80-18:106/18:109-18:124/18:126-18:131:01:02/18:133-18:135/18:137-18:141/18:143, B*35:01:01-35:03:02/35:03:04-35:08:01:02/35:08:03-35:08:04/35:08:06-35:18/35:20:01-35:24:02/35:28-35:45/35:48/35:50-35:55/35:57-35:62/35:64:01-35:72/35:74-35:153/35:155-35:197/35:199-35:202/35:204-35:206/35:208-35:209/35:211-35:216N/35:218-35:253/35:255-35:270/35:272-35:273/35:275-35:298/35:300-35:310/35:312-35:316/35:318-35:354/35:356-35:360, B*37:11/37:14/37:37/37:67, B*39:19:01-39:19:02, B*40:185/40:209/40:308/40:350/40:365, B*46:40:01-46:40:02, B*56:06/56:45, B*58:64, B*78:01:01-78:05/78:07-78:08	-, B18, Null, B35, B35/22, B39(16), B78	135 bp

Position	Mix	Allele	Serology	Size
A4	Mix 8	B*15:13:01-15:13:02/15:418, B*27:30w, B*38:20w, B*44:06w/44:25w/44:50:01w/44:95w, B*51:04/51:42w/51:46w/51:56:01w/51:56:02-51:56:03/51:139/51:227w, B*53:01:01-53:02/53:04-53:06/53:08:01-53:08:02/53:10/53:15-53:30/53:32-53:35/53:37/53:39-53:43/53:45-53:46/53:48N-53:49, B*57:05, B*58:01:01-58:01:15/58:01:17-58:01:19/58:01:20w/58:01:21-58:01:22/58:04-58:05/58:09-58:13/58:17N/58:19/58:21-58:24/58:28:01-58:29/58:31N-58:37/58:39N-58:42/58:44-58:45:02/58:47-58:59:02/58:61-58:63/58:65-58:74/58:75w/58:76-58:91, C*15:71	B77(15), -, B27, B44(12), B51(5), B53, Null, B58(17)	330 bp
		B*27:01-27:05:22/27:05:24-27:21/27:23-27:74/27:76-27:139/27:141-27:152/27:154-27:167, B*40:124:01-40:124:02/40:180, B*44:97, B*47:01:01-47:10, B*50:20	B27, -, B2708, Null, B47	see below
H5	Mix 9	B*27:02:01:01-27:02:01:02/27:02:02-27:02:03/27:03-27:05:02:01/27:05:03-27:05:10/27:05:12-27:05:22/27:05:24-27:07:05/27:08-27:11/27:13-27:15/27:17/27:19-27:21/27:24-27:25/27:27-27:28/27:30/27:32-27:38/27:40-27:43/27:45-27:58/27:60-27:74/27:76/27:78-27:91/27:93-27:100/27:102-27:118/27:120-27:128/27:130/27:132-27:136/27:138-27:139/27:141-27:152/27:154-27:156/27:158-27:161, B*44:97	B27, -, B2708, Null	155 bp
G5	Mix 10	B*27:01-27:02:01:02/27:02:02-27:02:03/27:03-27:05:02:01/27:05:03-27:05:22/27:05:24-27:05:31/27:08-27:10/27:12-01:01/27:13-27:19/27:23/27:25-27:26/27:28-27:32/27:36-27:40/27:42/27:44-27:45/27:47-27:74/27:77/27:79-27:90:04/27:92-27:101/27:103-27:105/27:108-27:124/27:126/27:128-27:129/27:131-27:134/27:137/27:139/27:141-27:150/27:152/27:155-27:161, B*40:124:01-40:124:02/40:180, B*47:01:01:01-47:10, B*50:20	B27, -, B2708, Null, B47	530 bp
F5	Mix 11	B*07:27/07:236, B*08:126/08:131/08:139, B*18:54, B*37:01:01-37:04:02/37:06:01-37:09/37:12-37:13/37:15-37:21/37:23-37:28/37:30N-37:33N/37:35-37:36/37:38-37:66/37:68-37:70, B*38:17, A*11:133, A*33:60	-, B37, Null	200 bp
		B*13:46/13:51/13:79, B*37:10/37:34, B*38:01:01:01-38:02:03/38:02:04w/38:02:05-38:16/38:18-38:51/38:53-38:68Q, B*39:104, B*44:117/44:251, B*51:13:01-51:13:02/51:92:01-51:92:02/51:172, B*52:14, B*53:04/53:07/53:31/53:33, B*57:76, B*58:20/58:34, B*59:03, A*24:96/24:256	-, B37, B38(16), B16, Null, B53	395 bp
E5	Mix 12	B*07:45w, B*08:55, B*15:48w/15:69/15:108w/15:136w/15:186/15:235/15:249w/15:265, B*35:35/35:236w/35:259w/35:276, B*39:01:01-39:01:01-39:01:03:01-39:01:10/39:01:12-39:06:04/39:07-39:20/39:22-39:24:01/39:25N-39:29/39:31:01-01-39:31:01-02/39:32w/39:35/39:37-39:42/39:44-39:46/39:47w/39:48-39:49/39:50w/39:51-39:73/39:74w/39:75-39:79/39:81/39:83-39:101/39:102w/39:103/39:105-39:106/39:108-39:111/39:113-39:127/39:129-39:131, B*40:184, B*46:19w, B*50:49, B*67:01:01-67:07, C*03:215w, C*07:137:01-07:137:02, C*14:63	-, B62(15), B71(70), B35, B3901, Low B39, B3902, B39(16), Null, B67	520 bp
D5	Mix 13	B*38:26, B*67:01:01-67:01:03/67:03-67:07	-, B67	545 bp
C5	Mix 14	B*07:133, B*40:01:01-40:04/40:06:01:01-40:11:02/40:13-40:16/40:18-40:20:01:02/40:22N-40:25/40:27:01-40:27:02/40:29-40:38/40:40/40:42-40:45/40:47-40:50/40:52-40:62/40:64-40:70:02/40:72:01-40:91/40:94-40:136/40:138-40:162/40:164-40:170/40:171w/40:172-40:173/40:175-40:176/40:177w/40:178-40:183/40:186:01-40:198/40:200-40:207/40:210-40:264/40:266-40:293/40:294w/40:295-40:307/40:309-40:314/40:315w/40:316-40:323/40:325-40:342/40:344-40:349/40:351-40:364, B*41:19, B*44:16/44:21/44:31/44:64:01-44:64:02/44:124/44:150, B*45:10, B*47:01:01-47:07/47:09-47:10, B*48:41, B*49:07, B*50:31	-, B60(40), B61(40), Null, B40, B47, B44(12)	640 bp

Position	Mix	Allele	Serology	Size
B5	Mix 15	<p>B*07:27w/07:50w/07:183w, B*08:04:01w-08:04:02w/08:17/08:54:01-08:54:02/08:110w, B*13:21/13:71/13:108, B*15:07:01-01-15:07:03/15:33/15:45/15:55w/15:68/15:78:01-15:78:03/15:107/15:116/15:126/15:157/15:166/15:188/15:207/15:248/15:287/15:324/15:331/15:352/15:360/15:383/15:405/15:421/15:431, B*18:14w/18:21w-18:22w/18:40w/18:61w, B*35:72w, B*37:07/37:09/37:12, B*40:01-01-40:01-08/40:01-10-40:06:16/40:09-40:12/40:14-01-40:16/40:18-40:24/40:25w/40:27-01-40:27:02/40:29-40:40/40:42-40:60/40:62-40:67/40:69-40:74/40:76/40:78-40:86/40:88-40:94/40:96-40:105/40:107-40:120/40:122-40:157/40:159-40:161/40:163-40:165/40:167-40:183/40:185-40:195/40:197-40:219/40:221/40:223-40:231/40:233-40:236/40:238-40:299/40:301-40:312/40:313w/40:314-40:321/40:323-40:325/40:326w/40:327-40:362/40:364-40:365, B*41:01-01-41:45N/41:47-41:54, B*42:11, B*44:31/44:53:01-44:54/44:106/44:110/44:135/44:158/44:166/44:182/44:184/44:192:01-44:192:02/44:211/44:213, B*48:01:01-01-48:01:06/48:03:01-48:05/48:07-48:24/48:27-48:30/48:32-48:42, B*49:40, B*52:54, C*16:85</p> <p>B*07:27w/07:50w/07:183w, B*08:04:01w-08:04:02w/08:17/08:54:01-08:54:02/08:110w, B*13:71, B*15:07:01-01-15:07:02-15:07:03/15:45/15:55w/15:68/15:78:01-15:78:03/15:107/15:116/15:126/15:157/15:166/15:188/15:207/15:248/15:287/15:324/15:331/15:352/15:360/15:383/15:405/15:421/15:431, B*18:14w/18:21w-18:22w/18:40w/18:61w, B*35:72w, B*37:07/37:09/37:12, B*40:02-01-01-40:02:01-03/40:02:02-40:02:08/40:02:10-40:03:01-01/40:05:01-01-40:05:01-02/40:09/40:15-40:16/40:18-40:19/40:27:01-40:27:02/40:29/40:31-40:32/40:35:01-40:35:02/40:37/40:39-40:40/40:45/40:50/40:56-40:58/40:71/40:78/40:80/40:82/40:85/40:89-40:91/40:94/40:97-40:98/40:104-40:105/40:107/40:111/40:115/40:119/40:122/40:133Q/40:142N/40:144N-40:145/40:157/40:164/40:169/40:174/40:176/40:180-40:181/40:189/40:200-40:202/40:205-40:206/40:209/40:211/40:214/40:219/40:224-40:226/40:229/40:246/40:248/40:255/40:266-40:267/40:271/40:274/40:276/40:283-40:284/40:287/40:289-40:293/40:296-40:297/40:302-40:305/40:309/40:314/40:320/40:331/40:334-40:335/40:345N, B*41:02:01-41:02:07/41:04/41:10-41:11/41:13/41:15/41:18-41:19/41:23-41:24/41:27/41:31/41:36/41:38-41:43/41:45N/41:47/41:49, B*42:11, B*44:54/44:106/44:110/44:135/44:158/44:166/44:184/44:211/44:213, B*48:01:01-01-48:01:06/48:04:01-48:05/48:07-48:16/48:18-48:20/48:22/48:24/48:27-48:30/48:32-48:39/48:41</p>	<p>-, B62(15), B15, B35, B37, B60(40), B61(40), B4005, Null, B41, B44(12), B48, B48/40</p>	<p>375 bp</p>
A5	Mix 16	<p>B*07:27w/07:50w/07:183w, B*08:04:01w/08:17/08:110w, B*13:21/13:71, B*15:33/15:78:03/15:107/15:116/15:141/15:150/15:188/15:248/15:287/15:324/15:331/15:352/15:360/15:383/15:405/15:421/15:431, B*18:21w/18:40w/18:61w, B*37:07/37:09/37:12, B*40:01-01-40:01-02:04/40:01-03-40:01-08/40:01-10-40:02:01-03/40:02:02-40:02:13/40:02:15-40:02:19/40:02:22-40:03:01-01/40:04-40:06:04-01/40:06:05-40:06:16/40:09-40:12/40:14-01-40:16/40:18-40:20/01:01/40:21-40:24/40:25w/40:27-01-40:27:02/40:29-40:34/40:36-40:40/40:42-40:60/40:62-40:67/40:69-40:70:02/40:72-01-40:74/40:76/40:78-40:81/40:83-40:86/40:88-40:94/40:96-40:105/40:107-40:120/40:122-40:157/40:159-40:161/40:163-40:165/40:167-40:183/40:185-40:195/40:197-40:210/40:212-40:219/40:221/40:223-40:231/40:233-40:236/40:238-40:254/40:256N-40:298:01/40:299/40:301-40:312/40:313w/40:314-40:321/40:323-40:325/40:326w/40:327-40:352, B*41:01-01-41:01:04/41:02:01/41:03:01-41:09/41:12/41:14/41:16-41:17/41:20-41:23/41:25-41:26/41:28-41:35/41:37/41:44/41:48/41:50, B*44:31/44:53:01-44:53:02/44:182/44:192:01-44:192:02, B*48:01:01-01-48:01:06/48:03:01-48:05/48:07-48:11/48:13/48:15-48:24/48:27-48:28/48:30/48:33-48:41, B*49:40, B*52:54, C*16:85</p> <p>B*07:27w/07:50w/07:183w, B*08:04:01w/08:17/08:110w, B*13:21/13:71, B*15:33/15:78:03/15:107/15:116/15:141/15:150/15:188/15:248/15:287/15:352/15:421, B*18:21w/18:40w/18:61w, B*37:07/37:09/37:12, B*40:01-01-40:01-02:04/40:01-03-40:01-08/40:01-10-40:02:01-03/40:02:02-40:02:13/40:02:15-40:02:19/40:02:22-40:03:01-01/40:04-40:06:04-01/40:06:05-40:06:16/40:09-40:12/40:14-01-40:16/40:18-40:20/01:01/40:21-40:24/40:25w/40:27-01-40:27:02/40:29-40:34/40:36-40:40/40:42-40:60/40:62-40:67/40:69-40:70:02/40:72-01-40:74/40:76/40:78-40:81/40:83-40:86/40:88-40:94/40:96-40:105/40:107-40:120/40:122-40:157/40:159-40:161/40:163-40:165/40:167-40:183/40:185-40:195/40:197-40:210/40:212-40:219/40:221/40:223-40:231/40:233-40:236/40:238-40:254/40:256N-40:298:01/40:299/40:301-40:312/40:313w/40:314-40:321/40:323-40:325/40:326w/40:327-40:352, B*41:01-01-41:01:04/41:02:01/41:03:01-41:09/41:12/41:14/41:16-41:17/41:20-41:23/41:25-41:26/41:28-41:35/41:37/41:44/41:48/41:50, B*44:31/44:53:01-44:53:02/44:182/44:192:01-44:192:02, B*48:01:01-01-48:01:06/48:03:01-48:05/48:07-48:11/48:13/48:15-48:24/48:27-48:28/48:30/48:33-48:41, B*49:40, B*52:54, C*16:85</p>	<p>-, B15, B62(15), B37, B60(40), B61(40), B4005, Null, B41, B44(12), B48, B48/40</p>	<p>475 bp</p>
		<p>B*27:24/27:36/27:125, B*40:01-01-40:01:18/40:01-19w/40:01-20-40:01-49/40:07/40:22N-40:23/40:25/40:30-40:31/40:33-40:34/40:36/40:38/40:42-40:43/40:45-40:48/40:51-40:52/40:54-40:55/40:59-40:63/40:65-40:67/40:69/40:73-40:74/40:76/40:79-40:81/40:84/40:87-01-40:88/40:92/40:100-40:102/40:106/40:108/40:112-40:114:02/40:116-40:118N/40:123-40:126/40:128/40:130:01-40:130:02/40:132/40:134-40:135/40:138-40:141/40:146-40:147/40:149-40:156/40:160:01-40:160:02/40:163/40:166/40:168/40:170-40:172/40:175/40:178-40:179/40:182-40:183/40:185-40:188/40:191w/40:192-40:193/40:195-40:196/40:197w/40:198-40:199/40:204/40:207-40:208/40:212-40:213/40:215-40:218/40:221-40:223/40:227-40:228/40:233-40:236/40:238-40:242/40:245/40:247/40:249-40:253/40:257-40:265N/40:272-40:273/40:277-40:282/40:285-40:286N/40:288/40:298:01-40:301/40:308/40:310/40:312/40:315-40:316/40:319/40:321/40:323-40:324/40:326-40:327/40:329/40:332-40:333/40:336/40:338N-40:339/40:344/40:346/40:352-40:353/40:357-40:358/40:360, B*48:22/48:30</p>	<p>-, B60(40), Null, B40</p>	<p>690 bp</p>

Position	Mix	Allele	Serology	Size
H6	Mix 17	B*07:133, B*08:155, B*15:46/15:106/15:143/15:212, B*18:48/18:107, B*35:19/35:47/35:63/35:154/35:217/35:274/35:317, B*37:06:01-37:06:02, B*39:69, B*40:02:01:01-40:06:16/40:08-40:09/40:11:01-40:11:02/40:13-40:16/40:18-40:20:01:02/40:24/40:26-40:29/40:32/40:35:01-40:35:02/40:37/40:39-40:40/40:44/40:50/40:53/40:56-40:58/40:64/40:68/40:70:01-40:72:02/40:75/40:77-40:78/40:82-40:83/40:86/40:89-40:91/40:94-40:99/40:103-40:105/40:107/40:109-40:111/40:115/40:119-40:122/40:127/40:129/40:131/40:133Q/40:136/40:142N-40:145/40:148/40:157-40:159/40:161-40:162/40:164-40:165/40:167/40:169/40:173-40:174/40:176/40:177w/40:180-40:181/40:184/40:189-40:190/40:200-40:203/40:205-40:206/40:211/40:214/40:219-40:220/40:224-40:226/40:229-40:230/40:232/40:237/40:243-40:244/40:246/40:248/40:254-40:256N/40:266-40:271/40:274-40:276/40:283-40:284/40:287/40:289-40:293/40:294w/40:295-40:297/40:302-40:307/40:309/40:311/40:313-40:314/40:317-40:318/40:320/40:322/40:330-40:331/40:334-40:335/40:337N/40:340-40:343/40:345N/40:347-40:349/40:351/40:354/40:356/40:359/40:361N-40:364, B*41:01:01-41:54, B*44:02:01:01-44:02:12/44:02:14-44:03:36/44:03:38-44:05:04/44:07/44:09-44:30/44:32-44:39/44:41:01-44:43:02/44:45-44:51/44:53:01-44:56N/44:58N-44:59:02/44:61N-44:82/44:84:01-44:129/44:131-44:133/44:135-44:144/44:146-44:155/44:157-44:168/44:170-44:181/44:183-44:200/44:202-44:211-44:232/44:234-44:245/44:247-44:277, B*45:01:01-45:21, B*47:01:01:01-47:10, B*49:01:01:01-49:01:02/49:01:04-49:02/49:04:01-49:14/49:16-49:25/49:27-49:48, B*50:01:01:01-50:02/50:04-50:05/50:07-50:20/50:31-50:54, B*51:112, B*53:30/53:39, B*57:45/57:51/57:69, C*16:85	- , B72(70), B35, B61(40), B4005, B60(40), B21, B41, Null, B44(12), B45(12), B12, B47, B49(21), B50(21)	580 bp
G6	Mix 18	B*15:339/15:342, B*27:18/27:29, B*37:02, B*40:124:01-40:124:02/40:180, B*47:01:01:01-47:10, B*48:26, B*50:20	- , B27, B47	425 bp
F6	Mix 19	B*07:12/07:14w/07:18:01/07:18:02w/07:137/07:162/07:174/07:202/07:222/07:235/07:248w/07:279, B*08:129w, B*14:10w, B*15:62/15:80w/15:124, B*27:19w/27:24/27:30w/27:36/27:125/27:127w, B*35:25-35:26/35:49/35:198/35:254, B*38:20w/38:63, B*39:42w, B*40:12/40:46, B*42:13, B*44:40w/44:44w/44:130w/44:156w/44:210:01w-44:210:02w, B*48:01:01:01-48:04:02/48:06-48:07/48:09/48:11/48:15-48:40/48:42, B*56:09/56:11/56:12w, B*58:44, B*81:01-81:08, B*83:01w, C*03:342, C*15:99	B7, -, B70, B27, B35, B44(12), B48, B48/40, B56(22), B55(22), B81, Null	see below
		B*07:12/07:14w/07:18:01/07:18:02w/07:137/07:162/07:235/07:248w, B*08:129w, B*14:10w, B*15:62/15:80w, B*27:19w/27:30w/27:127w, B*35:25-35:26/35:49/35:198/35:254, B*38:20w, B*39:42w, B*42:13, B*44:40w/44:44w/44:130w/44:156w/44:210:01w, B*48:02:01-48:02:03/48:17/48:25, B*56:09/56:11/56:12w, B*58:44, B*83:01w, C*03:342, C*15:99	B7, -, B70, B27, B35, B44(12), B48, B48/40, B56(22), B55(22)	435 bp
		B*07:174/07:202/07:222/07:279, B*15:124, B*27:24/27:36/27:125, B*38:63, B*40:12/40:46, B*48:01:01:01/48:01:02-48:01:06/48:03:01-48:04:02/48:06-48:07/48:09/48:11/48:15-48:24/48:26-48:40, B*81:01-81:08	- , B48, B48/40, B81, Null	580 bp

Position	Mix	Allele	Serology	Size
E6	Mix 20	B*13:36, B*15:02:01-15:02:11/15:08:01-15:08:02/15:11:01-15:11:07/15:13:01-15:13:02/15:15:15/15:21:01:01-15:21:01:02/15:31/15:44/15:55/15:76/15:88-15:89/15:112/15:121/15:139/15:144/15:148/15:170w/15:189/15:191/15:194/15:209N/15:213-15:215/15:223/15:265/15:283-15:284/15:291/15:297/15:301-15:303/15:305/15:319/15:325/15:328/15:330/15:341/15:345/15:350/15:357-15:358/15:367/15:374/15:378/15:384/15:394/15:399/15:404/15:418/15:420/15:425, B*18:143w, B*35:46/35:311, B*51:104	-, B75(15), B77(15), B62(15), B15, Null, B35	140bp
D6	Mix 21	B*07:09/07:11/07:17/07:235/07:237/07:255/07:287, B*08:28/08:35/08:37/08:89/08:107, B*14:56, B*15:03:01:01-15:03:06/15:18:01:01-15:18:02/15:18:04-15:18:06/15:23/15:29/15:47:02/15:49/15:51-15:52/15:54/15:61-15:62/15:64:01-15:64:02/15:68-15:69/15:72/15:74/15:80/15:91/15:93/15:98/15:103/15:108/15:114-15:115/15:119/15:123-15:124/15:127/15:131-15:132/15:134/15:151/15:153/15:156/15:158/15:161/15:173/15:176/15:180/15:186/15:197:01-15:198/15:200/15:210/15:220-15:221/15:226N/15:235/15:238/15:242:01-15:242:02/15:255/15:259/15:263/15:274-15:275:02/15:281-15:282/15:290/15:292-15:294N/15:306-15:307/15:311/15:314/15:335/15:337/15:351/15:354/15:369/15:379-15:380N/15:382/15:388-15:389/15:397/15:414/15:426/15:433, B*18:37:01/18:125, B*27:41/27:78/27:107, B*35:25-35:26/35:49/35:254, B*38:52, B*39:07/39:43/39:91, B*42:09, B*48:02:01-48:02:03/48:14/48:23/48:25, B*55:14/55:23/55:32/55:68, B*56:03/56:09/56:18/56:31-56:32/56:50, B*58:44, C*07:46/07:356/07:546	B7, -, B72(70), B71(70), B15, B70, B35, Null, B48, B22	500 bp
C6	Mix 22	B*08:62, B*27:83/27:128, B*41:01:01-41:07/41:10-41:19/41:20w/41:21-41:32/41:34-41:46/41:48-41:54, B*42:02:01:01-42:02:01:02/42:09/42:17-42:18	-, B41, Null, B42	790 bp
B6	Mix 23	B*07:04/07:19/07:25/07:146, B*08:123/08:132/08:146, B*42:01:01-42:02:01:02/42:04-42:10/42:12-42:18/42:20-42:24, B*44:90, B*45:06, B*55:20/55:56, B*56:13, B*82:01-82:03, B*83:01, C*07:151	B7, -, B42, B56(22), B82	see below
		B*07:04/07:19/07:25/07:146, B*08:123/08:132/08:146, B*42:01:01-42:02:01:02/42:04-42:10/42:12-42:18/42:20-42:24, B*44:90, B*45:06, B*55:20/55:56, B*56:13, B*82:01-82:03, B*83:01, C*07:151	B7, -, B42, B56(22), B82	550 bp
		B*07:04/07:19/07:25/07:146, B*08:123/08:132, B*42:01:01-42:02:01:02/42:04-42:06/42:08-42:10/42:12-42:18/42:20-42:24, B*44:90, B*45:06, B*55:20/55:56, B*56:13, B*82:01-82:03, B*83:01, C*07:151	B7, -, B42, B56(22), B82	540 bp

Position	Mix	Allele	Serology	Size
A6	Mix 24	B*07:02:01:01w-07:04w/07:07w-07:12w/07:14w-07:31w/07:33:03w/07:35w-07:39w/07:41w-07:52w/07:54w-07:64w/07:66w-07:68:03w/07:70w-07:77w/07:79w/07:81w-07:89w/07:91w-07:96:02w/07:98w-07:104w/07:106w-07:111Nw/07:113w-07:114w/07:116w-07:122w/07:124w-07:133w/07:135Nw-07:136:02w/07:139w/07:141w-07:161Nw/07:163w-07:174w/07:177w-07:181Nw/07:183w-07:196w/07:198w-07:200w/07:202w-07:205w/07:208w/07:211w-07:212w/07:215w-07:221w/07:223w-07:224w/07:226w-07:236w/07:238w-07:245w/07:248w/07:250w-07:257w/07:259w/07:261w/07:263w/07:265w-07:268w/07:271w-07:277w/07:279w-07:282w/07:285Nw-07:286w/07:288w-07:292w/07:294w-07:303w, B*08:07w/08:28w/08:37w/08:87w/08:107w/08:111w/08:156w, B*14:23w/14:56w, B*15:10:01w-15:10:04w/15:37w/15:99w/15:312w-15:313w/15:323w/15:338w, B*27:06w/27:21w/27:34w/27:91w/27:106w-27:107w/27:127w/27:136w/27:138w/27:154w, B*39:29w, B*40:09w/40:18w/40:24w/40:31w-40:33w/40:42w/40:44w/40:98w/40:120w, B*41:04w/41:21w, B*42:16w, B*44:02:01:01-44:02:12/44:02:14-44:03:36/44:03:38-44:05:01/44:05:02w-44:05:04w/44:07/44:09/44:11-44:13/44:16/44:19N-44:30/44:32-44:42/44:44-44:56N/44:58N-44:59:02/44:61N/44:63-44:69:02/44:70w/44:71-44:74/44:75w/44:76/44:78w/44:79:01-44:81/44:84:01-44:106/44:107w/44:108N-44:116/44:118-44:122/44:123w/44:124-44:133/44:135/44:136w/44:137-44:138Q/44:139w/44:141-44:143/44:145w/44:146-44:155/44:156w/44:157/44:158w/44:159-44:161/44:163-44:165/44:167-44:183/44:185-44:197/44:198Nw/44:199-44:200/44:202-44:209/44:210:01w-44:210:02w/44:211-44:212/44:214-44:216/44:217Nw/44:218-44:225/44:227-44:229/44:231-44:235/44:236w/44:237N-44:245/44:247-44:249/44:250w/44:252-44:255/44:257-44:262/44:263w-44:264w/44:265-44:275/44:277, B*48:08w, B*55:27w, B*83:01w, C*03:342w	B7, -, B703, B7/ B42, Null, B8, B71(70), B27, B61(40), B60(40), B44(12), B45(12), B47, B21	490 bp
H7	Mix 25	B*07:20/07:140/07:153, B*15:14/15:91/15:131/15:161, B*18:56, B*35:45/35:71/35:169/35:309, B*40:132/40:178, B*44:02:10/44:06/44:09/44:34:01/44:46/44:75/44:90/44:129/44:131/44:254/44:277, B*45:01:01-45:03/45:05-45:07/45:09/45:11-45:21, B*46:17, B*50:02, B*51:23/51:42/51:108, B*82:01-82:03, B*83:01, C*08:93, C*14:61 B*44:02:10/44:06/44:34:01, B*51:23/51:42/51:108 B*07:20/07:140/07:153, B*15:14/15:91/15:131/15:161, B*18:56, B*35:45/35:71/35:169/35:309, B*40:132/40:178, B*44:09/44:46/44:75/44:90/44:129/44:131/44:254, B*45:01:01-45:01:02/45:02-45:03/45:05-45:07/45:09/45:11-45:19, B*46:17, B*50:02, B*82:01-82:03, B*83:01, C*08:93, C*14:61	-, B76(15), B44(12), B45(12), B82 B44(12), - -, B76(15), B45(12), B82	see below 715 bp 545 bp
G7	Mix 26	B*07:133, B*15:46/15:53/15:106/15:143/15:212, B*40:05:01:01-40:05:01:02/40:15-40:16/40:23/40:26/40:28/40:32/40:51/40:95/40:98/40:148/40:158/40:161/40:174/40:183/40:198/40:309/40:355, B*44:76/44:79:01-44:79:02/44:146/44:150, B*47:10, B*49:01:01-01-49:01:02/49:01:03-49:02/49:04:01-49:10/49:12-49:14/49:16-49:25/49:27-49:44/49:46-49:48, B*50:01:01-01-50:02/50:04-50:05/50:07-50:20/50:31-50:48/50:50-50:54, B*51:112	-, B72(70), B4005, B61(40), B21, B49(21), Null, B50(21), B45(12)	605 bp
F7	Mix 27	B*07:78/07:182N, B*13:09/13:39/13:67, B*14:37, B*15:18:03/15:42/15:73/15:86/15:224/15:303, B*35:60/35:291, B*39:17, B*40:48/40:71, B*45:01:01-45:01:03/45:03-45:08/45:10-45:21, B*46:11/46:18, B*50:01:01-01-50:02/50:04-50:08/50:10-50:13/50:15/50:17-50:19/50:31-50:32/50:34-50:40/50:42-50:54, B*54:01:01-54:03/54:05N/54:07-54:08N/54:10/54:13/54:16-54:35/54:36w/54:37-54:38, B*55:01:01-55:01:12/55:01:14-55:03/55:05/55:07/55:09-55:12/55:15-55:16/55:18-55:19/55:21-55:22/55:24-55:26/55:29-55:31/55:33-55:48/55:50/55:52/55:53w/55:54-55:57/55:59-55:67/55:69-55:80/55:82-55:85/55:87, B*56:01:01-56:02:02/56:04/56:08/56:10/56:13-56:14/56:16-56:17/56:19N-56:20:02/56:23-56:30/56:33-56:45/56:47-56:49/56:51-56:55, B*82:01-82:03, C*01:90/01:136/01:145N, C*03:19/03:102/03:307/03:318N, C*07:289/07:536, C*12:15/12:208, C*15:07/15:43/15:85/15:144	-, Null, B71(70), B62(15), B35, B60(40), B45(12), B50(21), B54(22), B55(22), B22, B56(22), B82, CW3	395 bp

Position	Mix	Allele	Serology	Size		
E7	Mix 28	B*07:02:01:01-07:02:27/07:02:28w/07:02:29-07:02:52/07:04-07:07/07:09w/07:10/07:11w/07:12/07:15/07:18:01-07:26/07:29-07:31/07:33:01-07:36/07:39-07:49N/07:51-07:68:03/07:70-07:84/07:86-07:95/07:97-07:114/07:116-07:117/07:118w/07:119-07:125/07:126w/07:127-07:131/07:132w/07:133-07:179/07:181N-07:196/07:198-07:206/07:208-07:218/07:220-07:224/07:226-07:227/07:229-07:234/07:235w/07:236/07:237w/07:238-07:245/07:246w/07:247-07:254/07:255w/07:256-07:258/07:261-07:283/07:285N/07:287-07:301/07:302w/07:303-07:305, B*08:123/08:132, B*15:76w/15:101w/15:255w, B*35:76w/35:229w, B*38:26, B*40:166, B*42:01-01-42:02:01-02/42:04-42:06/42:08/42:09w/42:10/42:12-42:19/42:21-42:24, B*45:06, B*54:01:01-54:05N/54:06w-54:07w/54:08N/54:09w/54:10-54:13/54:14w/54:16-54:29/54:31-54:35/54:36w/54:37-54:38, B*55:01:01-55:05/55:07-55:17/55:19-55:22/55:23w/55:24-55:26/55:27w/55:28-55:31/55:32w/55:33-55:52/55:53w/55:54-55:57/55:59-55:60/55:62-55:63/55:64w/55:65-55:67/55:68w/55:69-55:77/55:79-55:87, B*56:01:01-56:02:02/56:03w/56:04-56:07/56:09w/56:10/56:11w/56:12-56:13/56:15-56:16/56:18w/56:19N-56:21/56:22w/56:24-56:30/56:31w-56:32w/56:34-56:41/56:43/56:45-56:49/56:50w/56:51-56:53/56:55, B*67:01:01-67:01:03/67:03-67:07, B*81:01-81:08, B*82:01-82:03	B7, -, B7/B42, Null, B35/22, B54(22), B55(22), B22, B56(22), B78, B67, B81, B82	see below		
		B*07:02:01:01-07:02:01:03/07:02:02-07:02:27/07:02:28w/07:02:29-07:02:51/07:04-07:05:01:03/07:05:02-07:07/07:09w/07:10/07:11w/07:12/07:15/07:18:01-07:26/07:29-07:31/07:33:01-07:36/07:39-07:49N/07:51-07:68:03/07:70-07:75:01-01/07:76-07:77/07:79-07:84/07:86-07:95/07:97-07:114/07:116-07:117/07:118w/07:119-07:125/07:126w/07:127-07:131/07:132w/07:133-07:179/07:181N/07:183-07:196/07:198-07:206/07:208-07:218/07:220-07:224/07:226-07:227/07:229-07:234/07:235w/07:236/07:237w/07:238-07:245/07:246w/07:247-07:254/07:255w/07:256-07:258/07:261-07:283/07:285N/07:287-07:290, B*08:123/08:132, B*15:76w/15:101w/15:255w, B*35:76w/35:229w, B*38:26, B*40:166, B*42:01:01-42:02:01-02/42:04-42:06/42:08/42:09w/42:10/42:12-42:19/42:21-42:24, B*54:04/54:06w-54:07w/54:09w/54:11/54:14w/54:25/54:31, B*55:01:04/55:04/55:08/55:13-55:14/55:17/55:20/55:23w/55:27w/55:28/55:32w/55:34/55:39/55:42/55:44/55:47/55:49/55:51/55:53w/55:64w/55:68w/55:81, B*56:03w/56:05:01-56:06/56:09w/56:11w/56:12/56:15/56:18w/56:21/56:22w/56:31w-56:32w/56:50w, B*67:01:01-67:01:03/67:03-67:07, B*81:01-81:08	B7, -, B7/B42, Null, B35/22, B54(22), B55(22), B56(22), B22, B78, B67, B81	410 bp		
		B*07:78/07:182N, B*45:06, B*54:01:01-54:03/54:05N/54:07w/54:08N/54:10/54:12-54:13/54:16-54:29/54:31-54:35/54:36w/54:37-54:38, B*55:01:01-55:02:01-02/55:02-55:03/55:05/55:07/55:09-55:12/55:15-55:16/55:19/55:21-55:22/55:24-55:26/55:29-55:31/55:33-55:48/55:50/55:52/55:53w/55:54-55:57/55:59-55:60/55:62-55:63/55:64w/55:65-55:67/55:69-55:77/55:79-55:80/55:82/55:84, B*56:01:01-56:02:02/56:04/56:07/56:10/56:13/56:16/56:19N-56:20:02/56:24-56:30/56:34-56:41/56:43/56:45-56:49/56:51-56:52, B*82:01-82:03	-, Null, B54(22), B55(22), B22, B56(22), B82	425 bp		
		B*54:01:01-54:01:06/54:02-54:05N/54:07-54:08N/54:10-54:37, B*55:07, B*59:06, C*07:463w	B54(22), -, Null	435 bp		
		B*07:20w/07:24/07:60/07:100/07:131/07:220/07:223/07:235, B*15:76/15:101/15:255, B*35:76/35:229w, B*44:90, B*45:06w, B*54:03/54:06/54:33, B*55:08/55:51, B*56:01:01-56:07/56:09/56:11/56:13/56:15-56:16/56:20:01-56:22/56:24-56:30/56:34-56:41/56:43/56:45-56:53/56:55, B*82:01w-82:02w/82:03, B*83:01w	-, B7, B35/22, B56(22), B22, B78, Null, B82	560 bp		
		B*44:18, B*49:01:01-49:01:10/49:03/49:06-49:14/49:16-49:17/49:19N-49:48, B*51:15/51:62/51:106:01-51:106:02/51:157/51:223/51:225, B*52:25:01-52:25:02, B*54:12, B*58:73, B*59:01:01-59:01:01-59:04-59:07/59:09-59:10N, A*24:90:02N, C*15:71	-, B49(21), Null, B59	395 bp		
		B*07:143, B*15:71/15:175/15:204/15:210/15:212/15:225/15:344/15:381/15:426, B*18:15/18:19/18:21/18:30/18:57/18:101, B*27:04:01-27:04:06/27:06/27:10/27:15/27:18/27:20-27:21/27:24-27:25/27:40/27:63/27:66N/27:68-27:69/27:79/27:86/27:91-27:92/27:100/27:103/27:105-27:109/27:112-27:115/27:120/27:138/27:147/27:149/27:153/27:165, B*37:07, B*40:05:01-40:05:01:02/40:15-40:16/40:23/40:26/40:28/40:32/40:51/40:95/40:98/40:148/40:158/40:161/40:174/40:183/40:198/40:309/40:355, B*46:14, B*49:01:01-49:01:01-02/49:01:03-49:09/49:12-49:14/49:16-49:23/49:26-49:30/49:32-49:44/49:46-49:48, B*50:01:01-50:02/50:04-50:12/50:14-50:20/50:31-50:42/50:44-50:48/50:50-50:54, B*51:103/51:116/51:151, B*52:51, A*26:89, C*03:278, 06:77	-, B62(15), B27, Null, B4005, B61(40), B21, B49(21), B50(21), B45(12)	715 bp		
		D7	Mix 29	B*54:01:01-54:01:06/54:02-54:05N/54:07-54:08N/54:10-54:37, B*55:07, B*59:06, C*07:463w	B54(22), -, Null	435 bp
				B*07:20w/07:24/07:60/07:100/07:131/07:220/07:223/07:235, B*15:76/15:101/15:255, B*35:76/35:229w, B*44:90, B*45:06w, B*54:03/54:06/54:33, B*55:08/55:51, B*56:01:01-56:07/56:09/56:11/56:13/56:15-56:16/56:20:01-56:22/56:24-56:30/56:34-56:41/56:43/56:45-56:53/56:55, B*82:01w-82:02w/82:03, B*83:01w	-, B7, B35/22, B56(22), B22, B78, Null, B82	560 bp
		C7	Mix 30	B*44:18, B*49:01:01-49:01:10/49:03/49:06-49:14/49:16-49:17/49:19N-49:48, B*51:15/51:62/51:106:01-51:106:02/51:157/51:223/51:225, B*52:25:01-52:25:02, B*54:12, B*58:73, B*59:01:01-59:01:01-59:04-59:07/59:09-59:10N, A*24:90:02N, C*15:71	-, B49(21), Null, B59	395 bp
B7	Mix 31	B*07:143, B*15:71/15:175/15:204/15:210/15:212/15:225/15:344/15:381/15:426, B*18:15/18:19/18:21/18:30/18:57/18:101, B*27:04:01-27:04:06/27:06/27:10/27:15/27:18/27:20-27:21/27:24-27:25/27:40/27:63/27:66N/27:68-27:69/27:79/27:86/27:91-27:92/27:100/27:103/27:105-27:109/27:112-27:115/27:120/27:138/27:147/27:149/27:153/27:165, B*37:07, B*40:05:01-40:05:01:02/40:15-40:16/40:23/40:26/40:28/40:32/40:51/40:95/40:98/40:148/40:158/40:161/40:174/40:183/40:198/40:309/40:355, B*46:14, B*49:01:01-49:01:01-02/49:01:03-49:09/49:12-49:14/49:16-49:23/49:26-49:30/49:32-49:44/49:46-49:48, B*50:01:01-50:02/50:04-50:12/50:14-50:20/50:31-50:42/50:44-50:48/50:50-50:54, B*51:103/51:116/51:151, B*52:51, A*26:89, C*03:278, 06:77	-, B62(15), B27, Null, B4005, B61(40), B21, B49(21), B50(21), B45(12)	715 bp		
A7	Mix 32	B*07:143, B*15:71/15:175/15:204/15:210/15:212/15:225/15:344/15:381/15:426, B*18:15/18:19/18:21/18:30/18:57/18:101, B*27:04:01-27:04:06/27:06/27:10/27:15/27:18/27:20-27:21/27:24-27:25/27:40/27:63/27:66N/27:68-27:69/27:79/27:86/27:91-27:92/27:100/27:103/27:105-27:109/27:112-27:115/27:120/27:138/27:147/27:149/27:153/27:165, B*37:07, B*40:05:01-40:05:01:02/40:15-40:16/40:23/40:26/40:28/40:32/40:51/40:95/40:98/40:148/40:158/40:161/40:174/40:183/40:198/40:309/40:355, B*46:14, B*49:01:01-49:01:01-02/49:01:03-49:09/49:12-49:14/49:16-49:23/49:26-49:30/49:32-49:44/49:46-49:48, B*50:01:01-50:02/50:04-50:12/50:14-50:20/50:31-50:42/50:44-50:48/50:50-50:54, B*51:103/51:116/51:151, B*52:51, A*26:89, C*03:278, 06:77	-, B62(15), B27, Null, B4005, B61(40), B21, B49(21), B50(21), B45(12)	715 bp		

Position	Mix	Allele	Serology	Size
H8	Mix 33	B*35:186, B*46:01:01-46:01:04/46:01:05w/46:01:07-46:05/46:07N-46:30/46:31w/46:32-46:40:02/46:42-46:44/46:46-46:53/46:55N-46:73, B*56:14, B*67:02, 01:32:01-01:32:02, C*02:56, 03:102/03:263:01-03:263:02, 04:180:01-04:180:02, 06:20, 07:81/07:168, 08:123/08:139, 14:82, 15:126, 16:98/16:102/16:110	-, B46, Null	470 bp
		B*13:02:01-01-13:04/13:08-13:10/13:14-13:16/13:18-13:19/13:26:01-13:27/13:30-13:35/13:37-13:38/13:40-13:42/13:44-13:49N/13:53-13:56:02N/13:59/13:62/13:64-13:70/13:72/13:74-13:75/13:81-13:82/13:84-13:85/13:88-13:89/13:91/13:93-13:94/13:96/13:98-13:105, B*15:01:01-01-15:01:04/15:01:06-15:02:11/15:04:01-01-15:08:02/15:11:01-15:16:03/15:19-15:21:01:02/15:24:01-15:28/15:31-15:36/15:38:01-15:40:02/15:42-15:45/15:50/15:55-15:57/15:60/15:63/15:65-15:67/15:70-15:71/15:75-15:79N/15:81-15:85/15:87-15:89/15:92/15:94N-15:97/15:101-15:102/15:104-15:105/15:107/15:109-15:113/15:116-15:118/15:120-15:122/15:125-15:126/15:128-15:129/15:135-15:142/15:144-15:149N/15:152/15:154-15:155/15:157/15:159-15:160/15:163-15:167/15:169/15:170w/15:171-15:172/15:174-15:175/15:178-15:179:02/15:181N-15:185/15:187/15:189-15:195/15:199/15:201/15:202w/15:203-15:207/15:209N/15:211/15:213-15:215/15:217-15:218Q/15:222-15:223/15:225/15:227-15:228/15:231-15:234/15:236-15:237/15:240-15:241/15:244-15:251/15:254/15:256-15:258N/15:260-15:262N/15:264-15:265/15:267-15:272N/15:276-15:280/15:283-15:289/15:291/15:295-15:305/15:309-15:310/15:315-15:322/15:325-15:328/15:330-15:333/15:336/15:340-15:341/15:343-15:350/15:352-15:353/15:355/15:357-15:360/15:362-15:368/15:370-15:375N/15:377Q-15:378/15:381/15:383-15:387/15:390-15:395/15:398-15:402/15:404-15:410/15:412-15:413/15:415/15:417-15:422/15:425/15:428-15:432, B*18:143w, B*35:46/35:207, B*44:08/44:57/44:60, B*46:01:01-46:03/46:05-46:39/46:41N-46:46/46:48-46:60/46:62-46:69/46:71-46:73, B*51:104, B*52:02:01-52:02:02, B*55:35, B*56:39, B*57:01:01-57:01:01:02/57:01:03-57:01:24/57:04:01-57:04:02/57:06/57:08/57:10-57:11/57:13-57:15/57:18-57:27/57:29-57:31/57:33-57:38/57:40-57:41/57:43-57:44/57:47-57:50/57:52/57:53w/57:54-57:56/57:58-57:62/57:64-57:65/57:67:01-57:68/57:71-57:79N/57:81/57:83/57:85-57:93, B*58:36, C*01:73, C*07:336w	B13, -, B15/B21, Null, B62(15), B75(15), B76(15), B77(15), B63(15), B35, B44(12), B46, B57(17)	see below
G8	Mix 34	B*13:02:01-01/13:02:02-13:02:19/13:03-13:04/13:08-13:09/13:14-13:16/13:18-13:19/13:27/13:30-13:35/13:37-13:38/13:40-13:42/13:44-13:49N/13:53-13:56:02N/13:59/13:62/13:64-13:70/13:72/13:74-13:75/13:81-13:82/13:84-13:85/13:88-13:89/13:91/13:93-13:94/13:96/13:98-13:99, B*15:04:01-01-15:04:01:02/15:04:03-15:04:04/15:42/15:83/15:137/15:155/15:303/15:310, B*46:11/46:18/46:32, B*51:104, B*52:02:01-52:02:02, B*55:35, B*56:39	B13, -, B15/B21, Null, B62(15)	430 bp
		B*13:04/13:10/13:26:01-13:26:02/13:72, B*15:01:01-01-15:01:01:09/15:01:02-15:01:04/15:01:06-15:01:40/15:02:01-15:02:11/15:04:01-01-15:05:02/15:06-15:07:01:01/15:07:02-15:08:02/15:11:01-15:16:01:02/15:16:02-15:16:03/15:19-15:21:01:01/15:24:01-15:28/15:31-15:36/15:38:01-15:40:02/15:43-15:45/15:50/15:55-15:57/15:60/15:63/15:65-15:67/15:70-15:71/15:75-15:79N/15:81-15:82/15:84-15:85/15:87-15:89/15:92/15:94N-15:97/15:101-15:102/15:104-15:105/15:107/15:109-15:113/15:116-15:118/15:120-15:122/15:125-15:126/15:128-15:129/15:135-15:136/15:138-15:142/15:144-15:149N/15:152/15:154-15:155/15:157/15:159-15:160/15:163-15:167/15:169/15:170w/15:171-15:172/15:174-15:175/15:178-15:179:02/15:181N-15:185/15:187/15:189-15:195/15:199/15:201/15:202w/15:203-15:207/15:209N/15:211/15:213-15:215/15:217-15:218Q/15:222-15:223/15:225/15:227-15:228/15:231-15:234/15:236-15:237/15:240-15:241/15:244-15:251/15:254/15:256-15:258N/15:260-15:262N/15:264-15:265/15:267-15:272N/15:276-15:280/15:283-15:289/15:291/15:295-15:305/15:309-15:310/15:315-15:322/15:325-15:328/15:330-15:333/15:336/15:340-15:341/15:343-15:350/15:352-15:353/15:355/15:357-15:360/15:362-15:368/15:370-15:375N/15:377Q-15:378/15:381/15:383-15:387/15:390-15:395/15:398-15:402/15:404-15:410/15:412-15:413/15:415/15:417-15:422/15:425/15:428-15:432, B*35:46/35:207, B*44:08/44:57/44:60, B*46:01:01-46:03/46:05-46:39/46:41N-46:46/46:48-46:60/46:62-46:69/46:71-46:73, B*51:104, B*52:02:01-52:02:02, B*55:35, B*56:39, B*57:01:01-57:01:01:02/57:01:03-57:01:24/57:04:01-57:04:02/57:06/57:08/57:10-57:11/57:13-57:15/57:18-57:27/57:29-57:31/57:33-57:38/57:40-57:41/57:43-57:44/57:47-57:50/57:52/57:53w/57:54-57:56/57:58-57:62/57:64-57:65/57:67:01-57:68/57:71-57:79N/57:81/57:83/57:85-57:90, B*58:36, C*01:73, C*07:336w	B15/B21, -, B62(15), Null, B75(15), B76(15), B77(15), B63(15), B35, B44(12), B46, B57(17)	490 bp

Position	Mix	Allele	Serology	Size
F8		B*57:01:01:01:57:10/57:12-57:81/57:84-57:93, B*58:14	B57(17), -, Null	see below
	Mix 35	B*57:01:01:01:57:01:02-57:01:23/57:02:01-57:04:02/57:06-57:10/57:12-57:81/57:84-57:90, B*58:14	B57(17), -, Null	360 bp
		B*57:04:01/57:05	B57(17), -	410 bp
E8	Mix 36	B*57:01:19/57:14:01, B*58:01:01:01:58:01:04/58:01:06-58:02:02/58:04-58:26/58:28:01-58:29/58:31N-58:76/58:78-58:81/58:83-58:91	-, B58(17), B17, Null	490 bp
		B*15:13:01-15:13:02/15:16:01:01w-15:16:03w/15:67w/15:95w/15:222w/15:254w/15:362w/15:408w/15:418, B*27:30w, B*38:20w, B*40:109/40:340, B*44:06w/44:18w/44:25w/44:50:01w/44:95w, B*49:01:01:01w-49:01:10w/49:03w-49:14w/49:16w-49:46w/49:48w, B*51:01:01:01-51:05/51:07:01-51:24:05/51:26-51:40/51:42w/51:43-51:44N/51:46w/51:48-51:53/51:55/51:56:01w/51:56:02-51:58/51:60-51:61:02/51:63:01-51:63:02/51:65-51:77/51:79-51:80/51:82-51:113/51:114w/51:115-51:134/51:136-51:147/51:149N-51:189/51:191-51:193/51:195-51:212/51:214-51:219/51:221-51:226/51:227w/51:228-51:229, B*52:01:01:01-52:19/52:21:01-52:67/52:69-52:73, B*53:01:01-53:02/53:04-53:06/53:08:01-53:08:02/53:10/53:15-53:30/53:32-53:35/53:37/53:39-53:43/53:45-53:46/53:48N-53:49, B*54:12, B*56:21, B*57:05, B*58:01:01:01-58:01:15/58:01:17-58:01:19/58:01:20w/58:01:21-58:01:22/58:04-58:05/58:08:01-58:13/58:17N/58:19/58:21-58:24/58:28:01-58:29/58:31N-58:37/58:39N-58:42/58:44-58:45:02/58:47-58:59:02/58:61-58:63/58:65-58:74/58:75w/58:76-58:91, B*59:01:01:01-59:07/59:09-59:10N, C*15:71	B77(15), -, B63(15), B27, B44(12), B49(21), Null, B51(5), B5102, B5103, B52(5), B53, B58(17), B17, B59	330 bp
C8		B*35:01:10/35:04:02/35:251, B*51:01:01:01:51:01:03/51:01:05-51:01:10/51:01:11w/51:01:12/51:01:14-51:01:16/51:01:17w/51:01:18-51:02:03/51:02:05-51:06:03/51:08:01-51:09:03/51:11N-51:12/51:13:02-51:14/51:16-51:21/51:23/51:24:03-51:24:05/51:26-51:41N/51:43/51:46/51:48-51:61:02/51:63:01/51:64-51:80/51:82-51:91/51:92:02-51:106:01/51:107w/51:108-51:117/51:119-51:135/51:137-51:147/51:149N-51:156/51:158:01-51:167/51:169/51:171-51:196/51:171-51:196/51:171-51:196/51:200-51:213/51:215-51:219/51:221/51:223-51:224/51:226-51:229, B*78:01:01:01-78:02:02/78:04/78:07-78:09	B35, -, B51(5), B5102, B5103, Null, B78	450 bp
		B*07:02:11/07:05:03, B*15:09:01-15:09:02/15:252/15:435, B*35:01:10/35:04:02/35:251, B*51:01:01:01-51:01:03/51:01:05-51:01:12/51:01:14-51:01:37/51:01:39-51:02:03/51:02:05-51:09:03/51:11N-51:12/51:13:02-51:14/51:16-51:23/51:24:03-51:24:05/51:26-51:41N/51:43-51:44N/51:46/51:48-51:61:02/51:63:01/51:64-51:80/51:82-51:91/51:92:02-51:106:01/51:107w/51:108-51:135/51:137-51:147/51:149N-51:156/51:158:01-51:167/51:169/51:171-51:177/51:179-51:196/51:198/51:200-51:219/51:221-51:224/51:226-51:229, B*55:01:04, B*56:05:01-56:06/56:21, B*78:01:01:01-78:04/78:07-78:09	B7, B70, -, B35, B51(5), B5102, B5103, Null, B55(22), B56(22), B78	460 bp
A8	Mix 40	B*13:62, B*15:01:02/15:277-15:278, B*40:01:06/40:26/40:28/40:95, B*44:03:40/44:62, B*49:18:01, B*50:14, B*51:07:01w-51:07:02w/51:214w/51:222w, B*52:01:01:01-52:01:04/52:01:06-52:01:14/52:01:16-52:05/52:07-52:13/52:15-52:24/52:25:02-52:72/52:73w, B*53:28, B*78:05-78:06	-, B62(15), B60(40), B21, B51(5), B52(5), Null	450 bp
		B*07:02:11/07:05:03, B*15:01:02/15:09:01-15:09:02/15:243/15:252/15:277-15:278/15:435, B*27:153, B*35:01:10/35:04:02/35:251, B*40:01:06/40:26/40:28/40:95, B*50:14, B*55:01:04, B*56:05:01-56:06, B*78:01:01:01-78:09, C*12:03:31	B7, B62(15), B70, -, B35, B60(40), B21, B55(22), B56(22), B78	410 bp

Position	Mix	Allele	Serology	Size
G9	Mix 42	B*14:19/14:27, B*15:09:01-15:10:04/15:18:01:01-15:18:06/15:21:01:01-15:21:01:02/15:23/15:37/15:51/15:72/15:80/15:90/15:99/15:108/15:115/15:119/15:133-15:134/15:153/15:161w/15:176/15:189/15:197:01-15:198/15:200/15:221/15:226N/15:229/15:263/15:275:01-15:275:02/15:290/15:292-15:294N/15:306-15:307/15:311-15:314/15:329/15:335/15:337-15:338/15:351/15:354/15:380N/15:382/15:388/15:394/15:404/15:414/15:420/15:426-15:427/15:433-15:435, B*35:26/35:82/35:85/35:135/35:294, B*38:30/38:65, B*39:32-39:33/39:74, B*44:263w, B*49:26, B*51:22, B*56:33, B*78:03	- , B70, B71(70), B75(15), Null	575 bp
F9	Mix 43	B*13:09/13:67, B*15:01:01-15:01:04/15:01:06-15:02:11/15:04:01:01-15:08:02/15:11:01-15:12/15:14-15:15/15:19-15:21:01:02/15:25:01-15:28/15:30:01:01-15:35/15:38:01-15:40:02/15:42/15:44-15:45/15:48/15:50/15:55-15:56/15:58/15:60/15:63/15:65-15:66/15:70-15:71/15:73/15:75-15:79N/15:81-15:86/15:88/15:92/15:94N/15:96-15:97/15:101-15:102/15:104-15:105/15:107/15:109-15:113/15:116-15:118/15:120-15:122/15:125-15:126/15:128-15:129/15:135-15:142/15:144-15:150/15:152/15:154-15:155/15:159-15:160/15:163-15:167/15:169/15:170w/15:171-15:172/15:174-15:175/15:178-15:179:02/15:181N-15:185/15:187-15:195/15:199/15:201/15:202w/15:203-15:207/15:209N/15:211/15:213-15:215/15:217-15:219/15:223-15:225/15:227-15:228/15:231-15:234/15:236-15:237/15:240-15:241/15:244-15:251/15:257-15:258N/15:260-15:262N/15:264-15:265/15:267/15:269-15:272N/15:276-15:280/15:283-15:288/15:291/15:295-15:305/15:309-15:310/15:315-15:317/15:319-15:322/15:324-15:328/15:330-15:334/15:336/15:340-15:350/15:352-15:353/15:355/15:357-15:359/15:363:01-15:368/15:370-15:375N/15:377Q-15:378/15:381/15:383-15:387/15:390-15:395/15:398-15:402/15:404-15:407/15:409-15:410/15:412-15:413/15:415-15:417/15:419-15:422/15:425/15:428-15:432, B*18:143w, B*35:46/35:207/35:311, B*40:21/40:137, B*46:72, B*55:35, B*56:39, B*57:12	- , B62(15), Null, B75(15), B76(15), B15, B35	150 bp
E9	Mix 44	B*15:12/15:14/15:19/15:270/15:298/15:304N, B*44:08/44:57/44:60, B*46:17, B*57:07/57:93	B76(15), -, Null, B44(12)	650 bp
D9	Mix 45	B*07:219, B*15:16:01:01-15:17:06/15:67/15:95/15:168/15:177/15:196/15:208/15:216/15:230/15:254/15:268/15:273/15:356/15:361-15:362/15:403/15:408/15:411/15:423-15:424, B*57:13/57:22/57:57/57:63, B*58:06/58:08:01-58:08:02/58:19/58:46/58:78/58:91	- , B63(15), B17	530 bp
C9	Mix 46	B*14:01:01-14:02:02/14:02:04-14:02:05/14:02:07-14:04/14:07N/14:09/14:11-14:12/14:14-14:20/14:22-14:36/14:38-14:41N/14:43-14:52/14:54/14:57-14:59	B64(14), -, B65(14), B14, Null	400 bp
B9	Mix 47	B*14:02:01:01-14:02:02/14:02:04-14:02:05/14:02:07-14:03/14:05-14:06:02/14:09/14:11/14:13/14:15-14:18/14:20/14:22-14:23/14:24w/14:25/14:27/14:29-14:31/14:33-14:39/14:41N/14:43-14:45/14:48/14:50-14:52/14:56-14:59, B*15:189, B*35:03:17/35:26, B*38:05/38:33, B*39:04/39:129, B*49:26	B65(14), -, B14, Null, B38(16), B39(16)	185 bp
A9	Mix 48	B*73:01-73:02, C*07:463w	B73, -	300 bp

Amplification control (internal positive control): 90 base pairs (bp)

w = weak

? = nucleotide sequence information not available for the primer matching sequence

Bold: mixes which result in PCR fragments of different sizes (the specificities are first indicated all in one row, then split into several groups in the subsequent rows depending on the fragment size)

Table 3: Sizes of the PCR products and allele specificities of each **HLA-C* CTS**. PCR-SSP primer mix (**Lot-No C12-2**) based on IMGT/HLA Sequence Database Release 3.31.0, January 2018

Position	Mix	Allele	Serology	Size
H10	Mix 1	C*01:02:01:01:02:09/01:02:11-01:02:18/01:02:19w/01:02:20/01:02:21w/01:02:22-01:02:26/01:02:29-01:49:02/01:51-01:54/01:55w/01:56N-01:66/01:67w/01:68-01:74/01:76-01:100/01:103-01:113/01:114w/01:115-01:121Q/01:122w/01:123-01:130/01:132-01:140/01:63:01/01:142-01:148, 04:71w, 14:58w, A*01:91w, A*03:99w, A*32:86w	Cw1, -, Null	570 bp
G10	Mix 2	C*01:10, 02:02:01:02:02:03/02:05-02:40:02/02:42/02:44-02:57/02:59-02:77/02:79-02:81/02:83-02:134, 03:34/03:142/03:261/03:272, 04:32/04:77/04:265, 05:105, 06:08, 07:15, 08:31, 12:119/12:198, 14:25, 16:29/16:50, 17:01:01:02-17:06/17:08-17:16/17:18-17:22/17:24-17:32/17:34-17:38, 18:03, B*07:13, B*46:06/46:25/46:30	-, Cw2, Null	570 bp
F10	Mix 3	C*01:65/01:131, 03:02:01-03:02:15/03:02:16w/03:02:17-03:04:28/03:04:30-03:11:02/03:13:01-03:15/03:17:01-03:40:04/03:42-03:57:02/03:59-03:85/03:87:01-03:93/03:95/03:97-03:98/03:100-03:112/03:114-03:150/03:152-03:178/03:180-03:183/03:184:01w/03:184:02-03:193/03:195-03:250/03:252-03:259/03:261-03:273/03:275-03:276/03:277Nw/03:278-03:285/03:287-03:292/03:294-03:310/03:311w/03:312-03:313/03:315/03:317-03:321/03:323N-03:371, 04:201/04:212, 06:192, 07:133/07:242/07:330:01-07:330:02, B*56:37	-, Cw10(w3), Cw9(w3), Cw3, Null	580 bp
E10	Mix 4	C*01:97/01:131, 03:02:01-03:03:31/03:03:33-03:04:22/03:04:23w/03:04:24-03:04:26/03:04:28/03:04:30w/03:04:31-03:06:02/03:08-03:11:02/03:13:01-03:13:02/03:16-03:24/03:26-03:40:01/03:40:03-03:43:01/03:44-03:46-03:57:02/03:59-03:85/03:87:02-03:93/03:95-03:98/03:100-03:101/03:103-03:118/03:119:02-03:129/03:131-03:139/03:141-03:162/03:164-03:178/03:180-03:183/03:184:01w/03:184:02-03:189N/03:190w/03:191-03:219/03:221-03:242/03:244Q-03:262/03:264-03:266/03:269-03:272/03:273w/03:275-03:276/03:277Nw/03:278-03:296/03:298-03:310/03:311w/03:312-03:315/03:317-03:330/03:332-03:360/03:362-03:371, 04:11/04:29/04:36/04:55/04:172/04:214, 07:02:32/07:17:03/07:242, 08:01:07/08:02:07/08:33:02, 12:03:20, 14:02:01:01-14:02:01:04/14:02:03-14:03/14:05-14:11/14:13-14:16/14:18-14:48/14:50-14:63/14:65-14:71/14:72w/14:73-14:76/14:78-14:81/14:83-14:90, 16:01:06	-, Cw10(w3), Cw9(w3), Cw3, Null	450 bp
D10	Mix 5	C*01:65/01:131, 03:02:01-03:02:15/03:02:16w/03:02:17/03:04:01-03:04:37/03:04:39-03:10/03:14/03:17:01-03:17:02/03:19/03:23-03:29/03:33-03:38:02/03:40:01-03:40:04/03:42/03:44/03:46-03:48/03:51/03:54/03:57:01-03:57:02/03:63-03:65/03:70-03:74/03:77-03:78/03:80:01-03:80:02/03:82/03:84/03:87:01-03:87:02/03:89-03:93/03:95/03:98/03:100-03:101/03:104-03:111/03:114-03:115/03:117-03:118/03:121N/03:123/03:125/03:128-03:131/03:134-03:135/03:137-03:140/03:143/03:145-03:149/03:153-03:157/03:159/03:162-03:164/03:166/03:169Q-03:170/03:172-03:174/03:178-03:181/03:183-03:184:02/03:186:01-03:186:02/03:190-03:191/03:193/03:197-03:201N/03:208N-03:213/03:215-03:216/03:218-03:219/03:221-03:222/03:224N-03:226/03:232-03:236/03:238-03:240/03:244Q-03:250/03:252/03:255-03:259/03:261/03:263:01-03:266/03:269-03:270/03:277N-03:282/03:283w/03:287/03:292/03:294/03:296/03:298-03:303/03:305-03:306/03:309-03:311/03:313/03:315/03:317-03:318N/03:323N/03:326/03:328-03:335/03:337-03:338/03:340/03:342-03:344/03:347-03:350/03:353-03:355/03:358-03:359/03:361-03:362/03:365-03:366N/03:368-03:369/03:371, A*03:146, A*68:118, B*15:96/15:331, B*27:118, B*44:274, B*56:37	-, Cw10(w3), Cw3, Null, B62(15)	535 bp
C10	Mix 6	C*02:02:11, 04:01:01-04:01:22/04:01:24-04:01:29/04:01:31-04:01:84/04:03:01-04:14/04:15:02-04:20/04:23-04:36/04:38-04:79/04:81-04:99/04:101-04:117/04:119-04:129/04:131-04:177/04:179-04:186/04:187w/04:188-04:196/04:198-04:267/04:269-04:286, 05:01:20/05:64:01, 08:02:06/08:19:01/08:62/08:144, 12:02:09/12:10:01/12:31/12:96, 15:78:02, 16:104, B*08:01:36, B*37:01:06, B*67:02	Cw2, Cw4, -, Null, B37	475 bp
B10	Mix 7	C*04:09N	Null	140 bp
A10	Mix 8	C*02:22, 04:223:01, 05:01:01-01:05:01:01:09/05:01:03-05:01:17/05:01:19/05:01:21-05:01:30/05:01:33-05:01:36/05:03-05:04:01/05:05:01-05:18:01/05:18:03/05:19/05:21-05:31/05:33-05:102/05:104-05:106:01/05:108/05:110-05:127/05:130-05:146/05:149-05:157, 08:10, 16:02:05	-, Cw5, Null	430 bp

Position	Mix	Allele	Serology	Size
H11	Mix 9	C*05:01:01:01:05:01:27/05:01:29-05:01:36/05:03:05:11/05:13-05:17/05:19-05:28/05:30-05:44:02/05:45w/05:46-05:91N/05:93-05:96/05:98-05:102/05:104-05:105/05:108-05:114/05:116-05:133/05:135-05:139/05:141-05:142/05:144-05:150/05:152-05:154N/05:156-05:157, 07:41w, 08:02:01:01-08:02:15/08:04:01-08:05/08:07/08:12/08:15:01-08:15:02/08:17/08:18w/08:19:01-08:19:02/08:23/08:28-08:32/08:34/08:37/08:43/08:45/08:47-08:49/08:51-08:53/08:57/08:62-08:63/08:67-08:71/08:73-08:77/08:90/08:92-08:93/08:100/08:103-08:104/08:108/08:110-08:116/08:120/08:123/08:125-08:126/08:132/08:134/08:139-08:140/08:142/08:146/08:149-08:152/08:156/08:158-08:159	Cw5, -, Null, Cw8	600 bp
G11	Mix 10	C*01:23/01:58, 04:37/04:230, 06:02:01:01-06:02:01:10/06:02:03-06:02:45/06:02:47-06:29/06:31-06:34:02/06:36-06:46N/06:48/06:50-06:57/06:59-06:71/06:73-06:85/06:87-06:100/06:102:01-06:116N/06:118-06:125/06:128N-06:130/06:132:01-06:135/06:137-06:138/06:139w/06:140-06:141/06:145w/06:146-06:170/06:171Nw/06:172-06:197/06:199-06:203/06:205-06:209/06:212, 07:31:01-07:31:02/07:364/07:514, 12:28/12:135, 16:26/16:46/16:55/16:64	-, Cw6, Null	310 bp
F11	Mix 11	C*06:31/06:118, 07:01:01:01-07:01:13/07:01:15-07:02:24/07:02:25w-07:02:26w/07:02:27-07:02:47/07:02:49-07:02:55/07:02:57-07:21/07:22w/07:23-07:25/07:27:01-07:32N/07:35-07:40/07:42-07:61N/07:62w/07:63/07:65-07:91/07:93-07:94/07:97-07:130/07:131:01w/07:132w/07:133-07:136/07:137-01w/07:137:02/07:138w-07:139w/07:141:01-07:164N/07:166-07:240/07:243-07:245/07:247-07:264N/07:266/07:267w/07:268-07:292/07:293w/07:294/07:297-07:303/07:305-07:306/07:308-07:313/07:315/07:318-07:321/07:322w/07:323-07:324/07:326-07:337/07:339-07:341:02/07:343-07:346/07:348-07:350N/07:352-07:367/07:368:02w/07:369-07:401/07:403-07:446/07:448/07:450-07:486/07:488-07:511/07:513Q-07:516/07:518/07:519w/07:520-07:524/07:526-07:577/07:580-07:582Q/07:584-07:598/07:600:01N-07:600:02N/07:601w/07:602-07:610, 16:21/16:80, B*08:143	-, Cw7, Null	720 bp
E11	Mix 12	C*06:31w/06:118, 07:01:01:01-07:01:44/07:01:45w/07:01:46-07:01:56/07:01:58-07:02:39/07:02:41-07:02:47/07:02:49-07:03/07:05-07:10/07:13-07:19/07:21/07:22w/07:23-07:29:02/07:31:01-07:33N/07:35-07:40/07:42-07:44/07:46-07:62/07:65-07:67/07:69-07:72/07:74-07:91/07:93-07:94/07:97-100/07:102-07:135/07:136w/07:137:02/07:138w/07:141:01-07:141:02/07:143-07:150Q/07:152N-07:164N/07:166-07:171/07:173-07:180/07:182-07:198N/07:200-07:240/07:243-07:263/07:264Nw/07:266-07:271/07:273-07:294/07:296-07:301/07:303/07:305-07:306/07:308-07:322/07:325-07:327/07:330:01-07:331w/07:332-07:335/07:337/07:339-07:341:02/07:343-07:346/07:348-07:353/07:356/07:359-07:360/07:362-07:363/07:366-07:375/07:377/07:379-07:384/07:386-07:389/07:391-07:393N/07:396-07:402/07:404-07:405/07:407-07:419/07:421-07:425/07:427/07:429-07:446/07:448-07:458/07:460-07:465/07:468-07:479/07:481-07:486/07:488-07:500/07:502-07:511/07:513Q-07:522/07:524/07:526-07:528/07:529w/07:530-07:533/07:536-07:561/07:564-07:568/07:570-07:577/07:579-07:582Q/07:584/07:587-07:598/07:601-07:610, 08:14/08:80, 16:80, A*01:199, A*11:133, B*07:51/07:220/07:226, B*08:143, B*15:200, B*39:60/39:82	-, Cw7, Null	675 bp
D11	Mix 13	C*01:43, 02:87, 03:280, 07:101/07:148/07:161/07:583, 08:01:01:01-08:09/08:11-08:12/08:14-08:15:02/08:17/08:18w/08:19:01-08:24/08:26N-08:54/08:56-08:63/08:65-08:93/08:95-08:145/08:146w/08:147-08:159, 12:127/12:203	-, Cw8, Null	165 bp

Position	Mix	Allele	Serology	Size
C11		C*01:04w/01:21, 07:01:20/07:01:27/07:02:38/07:04:08/07:17:04/07:460, 12:02:01-12:02:05/12:02:07/12:02:09-12:02:11/12:02:13/12:02:15/12:03:19/12:03:32/12:08:12/12:10:01-12:10:02/12:14:02/12:14:02/12:18:01/12:19/12:22/12:27/12:30/12:36/12:40/12:44/12:49w/12:56/12:59/12:64/12:67-12:69/12:72-12:74/12:80N/12:83-12:86/12:96/12:103-12:106/12:112/12:114/12:117/12:123-12:124/12:126-12:128/12:130/12:132/12:134/12:136-12:137/12:142/12:145/12:148N/12:151/12:155Q/12:161-12:162/12:166/12:168-12:169/12:177/12:179/12:183/12:193/12:196/12:198-12:199/12:204/12:207-12:208/12:212/12:214/12:217/12:219N/12:221	- Null	see below
		Mix 14	-	375 bp
B11		C*01:04w/01:21, 07:01:20/07:01:27/07:02:38/07:04:08/07:17:04, 12:02:01-12:02:05/12:02:07/12:02:09-12:02:11/12:02:13/12:02:15/12:03:19/12:03:32/12:08:12/12:10:01-12:10:02/12:14:02/12:16/12:18:01/12:22/12:27/12:30/12:36/12:40/12:44/12:49w/12:56/12:64/12:67-12:69/12:72-12:74/12:80N/12:83-12:86/12:96/12:103-12:106/12:112/12:114/12:117/12:123-12:124/12:126-12:128/12:130/12:132/12:134/12:136-12:137/12:142/12:145/12:148N/12:151/12:155Q/12:161-12:162/12:166/12:168-12:169/12:177/12:179/12:183/12:193/12:196/12:198/12:200/12:204/12:207-12:208/12:212/12:214/12:217/12:219N/12:221	- Null	465 bp
		Mix 15	- Cw8, Null	425 bp
A11		C*01:04w/01:21, 05:106:02, 08:01:19/08:02:02, 12:02:01-12:02:13/12:02:15-12:03:01/09/12:03:03-12:03:07/12:03:09-12:03:15/12:03:18-12:03:19/12:03:21-12:03:26/12:03:28-12:03:29/12:03:31-12:03:32/12:03:33w/12:03:35-12:03:43/12:04:02-12:08/12:10:01-12:13/12:14:02-12:18:01/12:20-12:25/12:27/12:29-12:32/12:34-12:58/12:60-12:72/12:74-12:75/12:77-12:131/12:133-12:134/12:136-12:143/12:145/12:147-12:180/12:182-12:184/12:186-12:195:02/12:196-12:221, 14:02:08, 15:02:14, 16:01:17/16:02:13/16:15:02, A*03:01:64, B*27:05:27, B*40:02:21, B*57:01:24	- Null, B7	230 bp
		Mix 16	-	
H12		C*02:12/02:49w/02:55:01w-02:55:02w/02:115, 03:15w/03:27/03:38:01-03:38:02/03:69/03:130w/03:136/03:163w/03:246/03:274/03:297w, 04:03:01w/04:03:03w-04:03:04w/04:06:01w-04:06:02w/04:16w/04:80w/04:103w/04:107w/04:147w/04:160w/04:171w/04:190w/04:256w/04:286w, 05:42w/05:46w, 06:03:01w-06:03:02w/06:76:01w-06:76:02w/06:132:01w-06:132:02w, 07:26:01-07:26:03/07:92/07:96:01-07:96:02/07:314:01-07:314:03/07:317/07:351/07:578/07:583, 08:05/08:21/08:25/08:137, 12:02:01-12:03:43/12:04:01w-12:04:02w/12:06-12:08/12:10:01-12:15/12:18:01-12:20/12:22-12:32/12:34-12:40/12:41w/12:42Q-12:48/12:50-12:53/12:54w/12:56-12:59/12:60w/12:61-12:97/12:99:01-12:125/12:127-12:128/12:129w/12:130-12:141/12:142w/12:143-12:145/12:146w/12:148N-12:163/12:164w/12:165-12:187/12:189-12:194/12:196-12:214/12:216/12:218-12:221, 15:03w/15:16w/15:25, 16:15:01-16:15:02/16:25w/16:64, 17:01:01:02w-17:03:01:03w/17:04w-17:19w/17:21w/17:22/17:23w-17:26w/17:28w-17:38w, 18:09w, B*07:13/07:15/07:160, B*67:02	- Cw6, Null	340 bp
		Mix 17	-	
G12		C*01:14, 02:05:01-02:05:03, 04:37/04:230, 05:16/05:85/05:107, 06:02:01:01-06:02:01:10/06:02:03-06:02:11/06:02:13-06:10/06:12-06:34:02/06:36-06:46N/06:48/06:50-06:51/06:53:01-06:57/06:59-06:60/06:62-06:68/06:70:01-06:71/06:73-06:81/06:83-06:100/06:102:01-06:116N/06:118-06:121/06:122w/06:123/06:124w/06:125-06:126/06:128N-06:130/06:132:01-06:135/06:137-06:138/06:139w/06:140-06:141/06:145w/06:146/06:148-06:159/06:161-06:182/06:183w/06:185-06:209/06:212, 12:04:01-12:05/12:09/12:33/12:135w/12:154w, 15:37/15:55/15:58/15:102/15:125/15:133, 16:02:01-16:02:14/16:09/16:12/16:19/16:25/16:37w/16:46-16:48/16:60/16:63/16:69-16:70/16:74/16:77N/16:84/16:88-16:91/16:99/16:101-16:103/16:107-16:108, 17:21	Cw2, -, Null, Cw6	515 bp
		Mix 18	-	

Position	Mix	Allele	Serology	Size
F12	Mix 19	C*03:231, 04:01:30/04:15:01/04:37/04:100/04:178, 05:78:01-05:78:02, 07:64/07:402, 12:55, 14:02:01:01-14:02:03/14:02:05-14:02:08/14:02:10-14:18/14:19w/14:20-14:32/14:34w/14:35N-14:40/14:41w/14:42-14:77/14:79-14:90, 15:36	-, Null	575 bp
E12	Mix 20	C*02:06:01-02:06:02/02:23/02:36:01-02:36:02/02:68, 03:04:25, 04:80/04:108/04:178, 05:10/05:132/05:148, 08:44/08:61/08:82/08:113/08:126w, 12:15/12:44/12:113/12:208, 14:54, 15:02:01:01-15:02:16/15:02:18-15:13:01:02/15:15-15:19/15:21-15:40/15:42/15:66-15:98/15:100-15:101/15:103-15:151, 16:20/16:109, B*35:08:02/35:08:05, B*67:02	-, Null, B35	see below
		C*02:62, 03:04:25, 04:80/04:100/04:178, 05:10/05:148, 08:44/08:61/08:82/08:126w, 12:44, 14:54, 15:02:01:01-15:02:01:07/15:02:02-15:02:09/15:02:11-15:02:16/15:02:18-15:05:07/15:05:09-15:13:01:02/15:15-15:19/15:21/15:23-15:36/15:38-15:40/15:42/15:44:01-15:45/15:47-15:54/15:56-15:57/15:59-15:64/15:66-15:69/15:71/15:73-15:91/15:93-15:98/15:100-15:101/15:103-15:120/15:122N/15:124/15:126-15:139/15:141-15:148/15:150-15:151, B*35:08:02/35:08:05	-, Null, B35	445 bp
D12	Mix 21	C*02:06:01-02:06:02/02:23/02:36:01-02:36:02/02:68, 04:108, 05:132, 08:113, 12:15/12:113/12:208, 15:02:01:01/15:02:01:08N-15:02:07/15:02:23/15:03/15:05:01-15:09/15:22-15:24/15:29/15:36-15:37/15:44:02/15:46/15:54-15:55/15:58-15:59/15:69-15:70/15:72/15:78:01-15:78:02/15:90/15:92N/15:104-15:105Q/15:108/15:110-15:111/15:115N-15:117/15:121/15:123/15:125/15:133/15:140/15:147-15:149, 16:20/16:109, B*67:02	-, Null	500 bp
C12	Mix 22	C*16:01:01-16:02:14/16:04:01-16:04:02/16:04:03-16:04:05/16:06-16:34/16:36-16:39/02/16:41-16:47/16:49-16:52/16:54-16:67/16:69-16:87/16:89N-16:109/16:111-16:116	-, Null	470 bp
B12	Mix 23	C*17:01:01-17:06/17:09-17:32/17:34-17:38, B*37:70	-, Null	210 bp
A12	Mix 24	C*03:39/03:67/03:344, 04:42:01-04:42:02/04:220, 06:02:08/06:34:02, 07:02:32/07:17:03/07:242, 18:01-18:08/18:10	Cw3, -, Null	655 bp
		Negative Control		None (90 bp)

Amplification control (internal positive control): 90 base pairs (bp)

w = weak

? = nucleotide sequence information not available for the primer matching sequence

Bold: mixes which result in PCR fragments of different sizes (the specificities are first indicated all in one row, then split into several groups in the subsequent rows depending on the fragment size)

Allele	Serology	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
A*02:01:17/02:01:26/02:01:52/02:01:64/02:01:74/02:01:81/02:03:07/02:05:03/02:06:12/02:55/02:64:01-02:64:02/02:72/02:80/02:88N/02:114/02:117/02:119/02:169/02:178/02:185/02:188/02:195/02:223N/02:229/02:246/02:275/02:279/02:288/02:289/02:298/02:301N/02:304/02:339/02:348/02:377/02:383/02:406/02:412/02:491/02:504/02:510/02:527/02:582/02:601/02:641/02:643N/02:676/02:678/02:681	A2, -, Null																							23	
A*02:01:40/02:141/02:312/02:470	A2, -		3																						
A*02:01:65/02:01:69/02:01:95/02:06:19/02:11:07/02:10:5/02:193/02:273/02:286/02:308/02:311/02:328/02:488/02:622N	-, A2, Null		w																						23
A*02:12-02:13/02:19/02:27/02:37-02:38/02:44/02:49/02:54/02:142/02:226N/02:271/02:280/02:417/02:543/02:630/02:682-02:683	A2, -, Null		3										14												23
A*02:24:02/02:507	-		3																19						23
A*02:34-02:35:01/02:56:01/02:62	A2, -		3																				22	23	
A*02:35:02	A2																						22	w	
A*02:35:03	A2		3																			21	22		
A*02:46/02:70	A2		3				6																		23
A*02:48/02:129/02:571	-						6																		23
A*02:50	A2																					21			23
A*02:52	-							8																	23
A*02:56:02/02:103	-																						22	23	
A*02:65/02:152	A2/19, -																			19					23
A*02:78	A2		3																				22		
A*02:122/02:591:01, A*11:158, A*68:01:01-68:01:10/68:01:12-68:01:24/68:01:26-68:01:27/68:01:29-68:02:06/68:02:08-68:08:02/68:10-68:25/68:27:01-68:27:02/68:29-68:47/68:51-68:70/68:72-68:102/68:104:01-68:128/68:130:01/68:131-68:133/68:135-68:136/68:138-68:174	-, A68(28), A28, Null																				21				
A*02:135/02:309/02:454	-								8	9	10														23
A*02:609	-		w	3																					23
A*02:662	-												14												23

Allele	Serology	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
A*03:01:01:01:03:01:38/03:01:40-03:01:64/03:03:03N-03:09/03:11N-03:23:02/ 03:25-03:29/03:33-03:64/03:66-03:68N/03:70-03:72/03:74-03:75/03:77-03:81/ 03:83-03:88/03:89-02/03:91N-03:102/03:104-03:105/03:108-03:112/03:114- 03:151/03:153-03:159/03:161N-03:163/03:165-03:166/03:168N-03:170/ 03:172-03:193/03:195-03:197N/03:199/03:201-03:217/03:220-03:222/03:224/ 03:226-03:235/03:238-03:240/03:243/03:245-03:252/03:254-03:259/03:261- 03:270/03:272/03:276-03:280:02/03:283N-03:284N/03:286N-03:289	A3, Null, -			4																					
A*03:01:39	-			4											15						20				
A*03:02:01-03:02:04/03:31-03:32/03:65/03:69N/03:73/03:76/03:82/03:90/ 03:106/03:113/03:160/03:198/03:218/03:223/03:236-03:237/03:242/03:244/ 03:253/03:274-03:275N/03:281/03:285, A*11:130	A3, -, Null			4									w												
A*03:10/03:167/03:225, A*11:199:01/11:222	-			4											14										
A*03:24	A3			4									13												
A*03:30/03:273	-			4	6																				
A*03:89:01	-			4																			23		
A*03:103:01-03:103:02/03:282	-			4								12													
A*03:107/03:164, A*36:02	-	2		4																					
A*03:152	-			4	6													18							
A*03:171/03:271, A*68:71	-			4																		21			
A*03:219, A*32:04/32:52	-			4														18							
A*03:241	-			4																			22		
A*11:01:01:01:11:01:34/11:01:36-11:01:56/11:01:58-11:09/11:11-11:16/11:18- 11:22/11:26/11:29-11:30/11:32:01-11:34/11:36-11:37/11:41-11:44/11:46- 11:49/11:51-11:52Q/11:54-11:56/11:58-11:77/11:79-11:93/11:95-11:97/ 11:99N-11:110/11:113-11:115N/11:117-11:129/11:131-11:139/11:141-11:157/ 11:159-11:175/11:177/11:179-11:182Q/11:184-11:189/11:192-11:198/ 11:199:02-11:208N/11:210N/11:212-11:221/11:224-11:225/11:227-11:228/ 11:230-11:249/11:251N-11:257/11:259-11:268, A*24:89/24:290, A*68:129	A11, -, Null														14										
A*11:10	A11												13	14											
A*11:23/11:98/11:229/11:250/11:258, A*33:19	-														w										
A*11:27/11:38-11:39/11:209	-	1												14											
A*11:57, A*68:09/68:26/68:28/68:134	-, A28													14									21		
A*11:116/11:140	-											12	14												

Allele	Serology	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
A*11:178/11:190, A*24:02:17/24:02:49/24:02:89/24:08/24:21:01-24:21:02/24:29/24:31/24:42/24:67/24:77/24:156/24:158N/24:191/24:200/24:237/24:273/24:309-24:310:01/24:326/24:342/24:359N/24:370N/24:389N, B*51:55	-, A24(9), Null						7																		
A*23:01:01-23:02/23:04-23:08N/23:10-23:22/23:25-23:27/23:29-23:30/23:32-23:33/23:35-23:36/23:38N-23:44/23:46-23:50/23:52-23:54/23:56/23:58-23:60/23:62-23:65/23:67-23:68/23:70-23:79/23:81-23:82, A*24:315	A23(9), -, Null				5	6																			
A*23:03:01/23:83	-					5												18							
A*23:03:02/23:09/23:23/23:28/23:37:01-23:37:02/23:51/23:61/23:80, A*24:24/24:392, B*18:27	-					5																			
A*23:24/23:34/23:57/23:66, A*24:02:74/24:04/24:06/24:13:01-24:13:02/24:22/24:87/24:107/24:109/24:167/24:207:01-24:207:02/24:227/24:285/24:289/24:299/24:339/24:355/24:373/24:381, A*33:21/33:53	-, A24(9), A9					6																			
A*23:31/23:45/23:55	-	1				5	6																		
A*24:02:01:01-24:02:05/24:02:07-24:02:16/24:02:18-24:02:48/24:02:50-24:02:63/24:02:65/24:02:67-24:02:73/24:02:75/24:02:77-24:02:88/24:02:90-24:03:04/24:05:01-24:05:02/24:07:01-24:07:02/24:09N-24:11N/24:14:01:01-24:14:01:03/24:17/24:20:01:01-24:20:01:02/24:23/24:25-24:27/24:30/24:32-24:40N/24:43/24:45N-24:50/24:52-24:64/24:66/24:68-24:70/24:72-24:76/24:78-24:86N/24:88/24:90:01N-24:91/24:93/24:95-24:106/24:108/24:110-24:128/24:130-24:137/24:139-24:155N/24:157/24:159-24:166/24:168-24:187/24:189-24:190/24:192-24:199/24:201-24:203/24:205-24:206/24:209-24:210/24:212/24:214-24:226:02/24:229-24:234/24:236/24:238-24:272/24:274-24:277/24:279-24:284/24:286-24:288/24:291-24:292/24:294Q-24:298/24:300-24:308/24:311-24:314/24:316-24:325/24:327-24:338/24:341/24:344-24:354/24:356-24:358/24:360-24:369/24:371-24:372/24:374-24:378/24:380/24:382-24:388N/24:390-24:391/24:393-24:394	A24(9), Low A24(9), -, A2403, A9, Null					6	7																		
A*24:02:06/24:340	A24(9), -						6	7																	23
A*24:02:64/24:02:66/24:343	-						w	7																	
A*24:02:76	-			3			6	7																	
A*24:15/24:41/24:51/24:92/24:235	-	1					6	7																	
A*24:18, A*31:08, A*32:79	A24(9)/A3, -						6											18							
A*24:19/24:28/24:44/24:379	A9, A24(9), -						6						14												
A*24:21:03, A*32:02/32:22	-, A32(19)							7										18							
A*24:71	-					5	6	7																	
A*24:94/24:138/24:188/24:228	-						6														21				

Allele	Serology	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
A*24:204/24:208/24:213	-						6	7										18							
A*24:278N	Null						6	w																	
A*24:293	-						6	7													21				
A*24:310:02	-		3					7																	
A*25:01:01:01:25:01:02/25:01:03-25:01:07/25:01:10-25:01:12/25:03/25:05-25:10/25:12N-25:13/25:15-25:23/25:25-25:32/25:34-25:35/25:37-25:38/25:40-25:42N/25:45-25:46	A25(10), -, Null								8	9															
A*25:01:02	A25(10)								w	9															
A*25:01:08/25:39	-								8	w															
A*25:02	A25(10)								8	9		12													
A*25:04/25:44	-							7	8	9															
A*25:11	-								w	9	10														
A*25:14, A*30:12/30:18/30:41, A*32:101Q, 04:01:49	-, A30(19)								8																
A*25:24/25:33, A*26:01:02/26:01:13/26:110, A*66:03:01:01-66:03:01:02/66:05/66:15/66:28N, B*38:02:04	-, A26(10), A10, Null									9															
A*25:36	-	1							8	9															
A*25:43	-											13													
A*26:01:01:01:26:01:01:09/26:01:03-26:01:12/26:01:14-26:01:26/26:01:28-26:01:37/26:01:39-26:12/26:14-26:18/26:20-26:28/26:30/26:32/26:34-26:43:02/26:45-26:47/26:50-26:59/26:61-26:68/26:70-26:71N/26:73-26:75/26:77-26:83/26:86-26:109/26:111-26:124/26:126-26:130/26:132-26:142/26:145N-26:149	A26(10), -, Null, A10									9	10														
A*26:01:27/26:31/26:84	-										10														
A*26:01:38/26:76	-									w	10														
A*26:13	-									9	10	12													
A*26:19	-										10	12													
A*26:29/26:49	A26(10), -	1								9	10														
A*26:33, A*34:06, A*66:01:01:01-66:02/66:04/66:06-66:09/66:11-66:14/66:16-66:18/66:20-66:22/66:24-66:27N/66:29	-, A66(10), Null									9		12													
A*26:48/26:69	-									9	10	11													
A*26:72	-		2								10														
A*26:143	-									w	w														

Allele	Serology	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
A*29:01:01:01:29:01:06/29:01:08-29:06/29:08N-29:12/29:15-29:18/29:20-29:31/29:33-29:38/29:40-29:47/29:50/29:52-29:59/29:61-29:68/29:70-29:72/29:74-29:104/29:106-29:110, A*32:30:02, A*74:10	A29(19), Null, -														15										
A*29:07/29:49	-				5											15									
A*29:13, A*32:30:01/32:32	-															15	18								
A*29:14	-															15	17								
A*29:19/29:39	-															15				20					
A*29:32	-											12				15									
A*29:48	-															15				19	20				
A*29:51/29:69/29:73	-															15						21			
A*29:105	-															15				19					
A*29:111	-															w									
A*30:01:01:30:01:07/30:01:09-30:02:09/30:02:11/30:02:13-30:04:01/30:06/30:08-30:11:02/30:14L-30:15/30:17/30:19-30:20/30:23-30:25/30:27N-30:40/30:42-30:43/30:45/30:47-30:54/30:56-30:81/30:83/30:85-30:88/30:91-30:95/30:97-30:99/30:02:12/30:101Q-30:123N/30:125-30:127	A30(19), -, Null							8									16								
A*30:01:08	-								8								w								
A*30:02:10	-								8	10															
A*30:04:02/30:90/30:96/30:124	-																16								
A*30:07/30:13/30:16/30:22/30:44/30:46	-								8								16								w
A*30:55	-				4				8																
A*30:89	-				4				8								16								
A*31:01:02:01:31:01:06/31:01:08-31:06/31:09/31:11-31:20/31:23/31:25-31:28/31:30-31:74/31:76-31:88/31:91-31:96/31:98-31:103/31:105-31:108/31:110-31:114/31:116-31:133	A31(19), -, Null																	17							
A*31:07/31:10	-, A31(19)																	17	18						
A*31:24/31:97	-														w			17							
A*31:29	-					5												17							
A*31:89, A*66:23	-												12												
A*31:104	-																						w		
A*31:115	-												12					17							

Allele	Serology	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
A*32:01:01:01:32:01:06/32:01:08-32:01:11/32:01:13-32:01:28/32:03/32:05-32:12/32:14/32:16/32:18-32:21/32:23/32:25-32:27N/32:29/32:31/32:33:01/32:35-32:51/32:53-32:65/32:67-32:70/32:72-32:74/32:76-32:78/32:80-32:92N/32:95-32:100/32:102-32:107	A32(19), -, Null																	18							
A*32:13	-	1																18							
A*32:15/32:93	-																	18	19						
A*32:17	-			w								12						18							
A*32:24	-	2																18							
A*32:75/32:94	-																	w							
A*33:01:01:01:33:01:04/33:01:06-33:01:10/33:03:01:01-33:03:25/33:03:28-33:03:30/33:03:32-33:18:01/33:20/33:22-33:29/33:31/33:33-33:34/33:36-33:37/33:39-33:48/33:50-33:52/33:54-33:58/33:60-33:65/33:67-33:80N/33:82-33:88/33:90-33:101/33:103-33:121/33:123N-33:124/33:126-33:129N/33:132-33:134/33:136-33:137, B*07:02:40, B*08:01:07, B*15:02:07, B*55:02:10	A33(19), -, A19, Null, B8									9	11	12						19							
A*33:03:26/33:03:31/33:66	-																		w						
A*33:49	-												13						19						
A*33:59/33:102	-													w					19						
A*33:125/33:131	-											12								19					
A*34:01:01:34:01:02/34:05/34:11/34:14/34:16-34:17	A34(10), -								9	11	12														
A*34:02:01-34:04/34:07/34:09-34:10N/34:13/34:15	A34(10), -, Null								9				13												
A*34:08	-				4				9				13												
A*34:12	-										11	12													
A*43:01	A43									10														24	
A*66:10	-	1							9			12													
A*66:19	-								9			12	14												
A*68:01:28/68:130:02	-												15							20	21				
A*68:103:01-68:103:02	-												13								21				
A*69:01:01:01:69:02	A69(28), -																				21	22			
A*69:03	-												14								21	22			
A*74:01:01-74:03/74:05-74:09/74:11-74:12N/74:14N-74:15/74:16:02-74:20/74:22-74:28	A74(19), -, Null																			20					
A*74:04/74:21	-																			19	20				

Allele	Serology	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
A*74:13	-				4								12								20				
A*80:01:01-80:01:01:02/80:03	A80, -																								24
B*07:225/07:260	-								w																
B*51:01:34, 07:02:27/07:577	-																								
B*51:05	B51(5)							w																w	

w = weak

? = nucleotide sequence information not available for the primer matching sequence

Table 5: Amplification patterns for all **HLA-B*** alleles detected by the HLA-B*. CTS-PCR-SSP primer mixes (**Lot-No B15-3**) based on IMGT/HLA Sequence Database Release 3.31.0, January 2018

Allele	Mixes	Serology
B*07:02:01:01-07:02:10/07:02:12-07:02:27/07:02:29-07:02:32/07:02:34-07:02:42/07:02:44-07:02:52/07:07/07:10/07:15/07:21-07:23/07:26/07:30-07:31/07:35-07:36/07:39/07:41-07:44/07:46-07:49N/07:51-07:52/07:55-07:59/07:61-07:64/07:66-07:68:03/07:70-07:76/07:79/07:81-07:84/07:86-07:89/07:91-07:93/07:95/07:98-07:99/07:101-07:104/07:106-07:111N/07:113-07:114/07:116-07:117/07:119-07:121/07:124-07:125/07:127-07:130/07:135N-07:136:02/07:141-07:142/07:144-07:145/07:147-07:152/07:154-07:161N/07:164/07:166-07:173/07:177-07:179/07:181N/07:184-07:185/07:187-07:192/07:194-07:196/07:198-07:200/07:203-07:205/07:208/07:211-07:212/07:215-07:218/07:221/07:224/07:226-07:227/07:229-07:234/07:238-07:242/07:244-07:245/07:250-07:254/07:256-07:257/07:261/07:263/07:265-07:268/07:271-07:277/07:280-07:282/07:285N/07:288-07:289/07:291-07:292/07:294-07:301/07:303/07:305	1+24w+28	B7, -, B7/B42, Null
B*07:02:11	1+24w+28+39+41	B7
B*07:02:28/07:118/07:126/07:132/07:302	1+24w+28w	-
B*07:02:33/07:02:43	1w+24w+28	-
B*07:03/07:08:01-07:08:02/07:16/07:28/07:37:01-07:38/07:85/07:96:01-07:96:02/07:180/07:228:01-07:228:02/07:259/07:286	1+24w	B703, -
B*07:04/07:25/07:146	1+23+24w+28	B7, -
B*07:05:01:01-07:05:02/07:05:04-07:05:05/07:05:07-07:06:02/07:34/07:80/07:90/07:97/07:105/07:112/07:138/07:175-07:176/07:201N/07:206/07:209-07:210/07:213-07:214/07:247/07:249/07:258/07:262/07:264/07:269-07:270/07:278/07:283/07:293/07:304	1+28	B7, -, Null
B*07:05:03	1+28+39+41	B7
B*07:05:06	1w+28	-
B*07:09/07:11/07:255	1+21+24w+28w	B7, -
B*07:12/07:18:01	1+7+19+24w+28	B7, -
B*07:13/07:32/07:69/07:115/07:197/07:207/07:225/07:260/07:284, 02:23, 03:260, 04:77, 07:38:01-07:38:02	1	-, Cw7
B*07:14	1+7w+19w+24w	B7
B*07:17	1+21+24w	B7
B*07:18:02	1+7w+19w+24w+28	-
B*07:19, B*42:16	23+24w+28	-
B*07:20	1+24w+25+28+30w	-
B*07:24/07:131/07:220/07:223	1+24w+28+30	B7, -
B*07:27	1+10+15w+24w	-
B*07:29/07:186	1+2+24w+28	-
B*07:33:01-07:33:03/07:54/07:94/07:122/07:139/07:165/07:243/07:290	24w+28	-
B*07:40/07:53/07:123, B*42:19, B*55:01:13/55:04/55:13/55:17/55:28/55:49/55:81/55:86	28	B7, -, B55(22)
B*07:45	1+12w+24w+28	-
B*07:50	1+15w+24w	-
B*07:60/07:100	24w+28+30	-
B*07:65/07:134	1+5+28	-
B*07:77/07:163/07:193	1+7+24w+28	-
B*07:78/07:182N	1+27+28	-, Null
B*07:133	1+14+17+24w+26+28	-
B*07:137	1+7+19+28	-
B*07:140	1+25+28	-

Allele	Mixes	Serology
B*07:143	1+24w+28+32	-
B*07:153	1+24w+25+28	-
B*07:162	1+7+19+21+28	-
B*07:174/07:202/07:279	1+19+24w+28	-
B*07:183	1+15w+24w+28	-
B*07:219	24w+45	-
B*07:222, B*81:01-81:08	1+19+28	-, B81, Null
B*07:235	7+19+21+24w+28w+30	-
B*07:236	1+10+24w+28	-
B*07:237	1+21+28w	-
B*07:246	1+28w	-
B*07:248	1+7+19w+24w+28	-
B*07:287	1+21+28	-
B*08:01:01:01-08:01:31/08:01:33-08:03/08:05/08:08N-08:12:02/08:13-08:16/ 08:18-08:25/08:27/08:29-08:31/08:33-08:34/08:36/08:38-08:48/08:51- 08:53:02/08:56:01-08:61/08:63-08:78/08:80-08:86N/08:88/08:90-08:93/08:95- 08:106/08:108-08:109/08:113-08:122/08:124-08:125/08:127-08:128/08:130/ 08:134-08:138/08:140-08:145/08:147-08:154/08:157-08:169/08:171-08:179/ 08:182-08:186/08:188-08:190, C*02:14:01-02:14:02/02:107, C*06:02:37/ 06:106:01/06:127:02, C*07:01:07/07:04:03/07:14/07:27:02/07:31:02/07:43:02/ 07:184/07:199:02/07:257:02/07:257:04/07:294/07:526, C*12:16/12:217	2	B8, -, Null, Cw7
B*08:04:01-08:04:02/08:110	2+15w	-
B*08:07/08:87/08:111	2+24w	B8, -
B*08:17/08:54:01-08:54:02	2+15	-
B*08:28/08:37	2+21+24w	-
B*08:32/08:133/08:180	2+5	-
B*08:35/08:89, B*15:180	2+21	-
B*08:49, B*39:112, B*53:09, 15:27	7	-
B*08:55, B*39:12	2+12	-, B39(16)
B*08:62	22	-
B*08:79/08:187	1+2	-
B*08:107	6+21+24w	-
B*08:123/08:132	2+23+28	-
B*08:126/08:131/08:139	2+10	-
B*08:129	2+7w+19w	-
B*08:146	2+23	-
B*08:155	2+17	-
B*08:156	1+2+24w	-
B*13:01:01:01-13:01:12/13:06-13:07N/13:11-13:13:02/13:17/13:20/13:23/ 13:25/13:28-13:29/13:43/13:50/13:52/13:57/13:60-13:61/13:63N/13:73/ 13:76N-13:78/13:80/13:83/13:87/13:90/13:92/13:95/13:106-13:107	3	B13, -, Null
B*13:02:01:01-13:02:21/13:08/13:10/13:14-13:16/13:18-13:19/13:26:01- 13:27/13:30-13:35/13:38/13:41-13:42/13:44/13:47/13:49N/13:53-13:56:02N/ 13:59/13:64-13:66/13:68-13:70/13:72/13:74-13:75/13:81-13:82/13:84-13:85/ 13:88-13:89/13:91/13:94/13:96/13:98-13:105	3+34	B13, -, Null
B*13:03-13:04/13:40/13:45/13:48, B*15:24:01-15:24:02/15:36/15:43/15:57/ 15:87/15:157/15:256/15:289/15:318, B*46:01:06/46:41N/46:45/46:54, B*57:11/57:83, C*01:73	34	-, B15/B21, B62(15), Null
B*13:09/13:67	3+27+34+43	-
B*13:21/13:71/13:108	3+15	-

Allele	Mixes	Serology
B*13:36	3+7+20	-
B*13:37	3w+34	-
B*13:39	3+27	-
B*13:46	11+34	-
B*13:51/13:79	3+11	-
B*13:62	34+40	-
B*13:93	2+3+34	-
B*14:01:01:01-14:01:06/14:04/14:07N/14:12/14:14/14:26/14:28/14:32/14:40/14:46-14:47/14:49/14:54	46	B64(14), -, Null
B*14:02:01:01-14:02:02/14:02:04-14:02:05/14:02:07-14:03/14:09/14:11/14:15-14:18/14:20/14:22/14:25/14:29-14:31/14:33-14:36/14:38-14:39/14:41N/14:43-14:45/14:48/14:50-14:52/14:57-14:59	46+47	B65(14), -, B14, Null
B*14:05-14:06:02/14:13	47	-, B14
B*14:10	7w+19w	-
B*14:19	42+46	-
B*14:23	24w+46+47	-
B*14:24	46+47w	-
B*14:27	42+46+47	-
B*14:37	27+47	-
B*14:56	21+24w+47	-
B*15:01:01:01-15:01:01:12/15:01:03-15:01:04/15:01:06-15:01:41/15:04:01:01-15:06/15:20/15:25:01-15:28/15:32:01-15:32:02/15:34-15:35/15:38:01-15:40:02/15:50/15:56/15:60/15:63/15:65-15:66/15:70/15:75/15:77/15:79N/15:81-15:85/15:92/15:94N/15:96-15:97/15:102/15:104-15:105/15:109-15:111N/15:113/15:117-15:118/15:120/15:122/15:125/15:128-15:129/15:135/15:137-15:138/15:140/15:145-15:147/15:149N/15:152/15:154-15:155/15:159-15:160/15:163-15:167/15:169/15:171-15:172/15:174/15:178-15:179:02/15:181N-15:185/15:187/15:190N/15:192-15:193/15:195/15:199/15:201/15:203/15:205-15:206/15:211/15:217-15:218Q/15:227-15:228/15:231-15:234/15:236-15:237/15:240-15:241/15:244-15:247/15:250-15:251/15:257-15:258N/15:260-15:262N/15:264/15:267/15:269/15:271-15:272N/15:276/15:279-15:280/15:285-15:286/15:288/15:295-15:296/15:299-15:300/15:309-15:310/15:315-15:317/15:320-15:322/15:326-15:327/15:332-15:333/15:336/15:340/15:343/15:346-15:349:02/15:353/15:355/15:359/15:363:01-15:366/15:368/15:370-15:373/15:375N/15:377Q/15:385-15:387/15:390-15:393/15:395/15:398/15:400N-15:402/15:406-15:407/15:409-15:410/15:412-15:413/15:415/15:417/15:419/15:422/15:428/15:430/15:432, B*35:207	34+43	B62(15), Null, -
B*15:01:02/15:277-15:278	34+40+41+43	B62(15), -
B*15:02:01-15:02:04/15:02:06-15:02:11/15:44/15:88/15:121/15:139/15:144/15:194/15:213-15:214/15:223/15:283/15:291/15:301-15:302N/15:319/15:325/15:328/15:330/15:341/15:345/15:357-15:358/15:374/15:378/15:399/15:425	7+20+34+43	B75(15), -, Null
B*15:02:05/15:112	7w+20+34+43	-, B15
B*15:03:01:01-15:03:06/15:29/15:47:01-15:47:02/15:49/15:52/15:54/15:61/15:64:01/15:74/15:93/15:98/15:103/15:114/15:123/15:127/15:132/15:151/15:156/15:158/15:173/15:220/15:238/15:242:01-15:242:02/15:259/15:266/15:274/15:281-15:282/15:369/15:379/15:389/15:397, B*18:37:01, B*38:52, B*39:43, C*07:46/07:356/07:546	21	B72(70), -, B15, B71(70), B70
B*15:07:01:01-15:07:03/15:33/15:45/15:78:01-15:78:03/15:107/15:116/15:126/15:141/15:207/15:248/15:287/15:331/15:352/15:383/15:405/15:421/15:431	15+34+43	B62(15), -, B15
B*15:08:01-15:08:02/15:11:01-15:11:07/15:15/15:31/15:148/15:191/15:209N/15:215/15:284/15:305/15:350/15:367/15:384	20+34+43	B75(15), -, B62(15), Null
B*15:09:01-15:09:02/15:435	39+41+42	B70, -

Allele	Mixes	Serology
B*15:10:01-15:10:04/15:37/15:99/15:312-15:313/15:338	24w+42	B71(70), -, B70
B*15:12/15:19/15:270/15:298/15:304N	34+43+44	B76(15), -, Null
B*15:13:01-15:13:02/15:418	7+8+20+34+37	B77(15), -
B*15:14	25+34+43+44	B76(15)
B*15:16:01:01-15:16:03/15:67/15:95/15:254/15:362/15:408	34+37w+45	B63(15), -
B*15:17:01:01-15:17:06/15:168/15:177/15:196/15:208/15:216/15:230/15:273/15:356/15:361/15:403/15:411/15:423-15:424	45	B63(15), -
B*15:18:01:01-15:18:02/15:18:04-15:18:06/15:23/15:51/15:72/15:115/15:119/15:134/15:153/15:176/15:197:01-15:198/15:200/15:221/15:226N/15:263/15:275:01-15:275:02/15:290/15:292-15:294N/15:306-15:307/15:311/15:314/15:335/15:337/15:351/15:354/15:380N/15:382/15:388/15:414/15:433	21+42	B71(70), -, B70, Null
B*15:18:03, B*56:33	27+42	B71(70), -
B*15:21:01:01-15:21:01:02/15:394/15:404/15:420	7+20+34+42+43	B75(15), -
B*15:30:01:01-15:30:01:02/15:58/15:219/15:334/15:416	43	B62(15), -
B*15:42	27+34+43	-
B*15:46/15:53/15:106/15:143	17+26	B72(70), -
B*15:48	12w+43	B62(15)
B*15:55	15w+20+34+43	B15
B*15:62/15:124, B*48:02:01-48:02:03/48:25	19+21	-, B48
B*15:64:02, B*18:125	4+21	-
B*15:68, B*48:14	15+21	B35, -
B*15:69/15:186/15:235, B*39:07/39:91	12+21	-
B*15:71/15:175/15:204/15:225/15:344/15:381	32+34+43	B62(15), -
B*15:73/15:86/15:224	27+43	B62(15), -
B*15:76	20+28w+30+34+43	-
B*15:80	7w+19w+21+42	B70
B*15:89	7+20+34	-
B*15:90/15:133/15:229/15:329/15:427/15:434, B*39:33	42	-
B*15:91/15:131	21+25	-
B*15:101	28w+30+34+43	-
B*15:108	12w+21+42	B71(70)
B*15:136/15:249	12w+34+43	-
B*15:142/15:429	2+34+43	-
B*15:150/15:188/15:324, B*40:21/40:137	15+43	-
B*15:161	21+25+42w	-
B*15:170	7+20w+34w+43w	-
B*15:189	20+34+42+43+47	-
B*15:202	5+34w+43w	-
B*15:210	21+32	-
B*15:212, B*49:02, B*50:09/50:16/50:33/50:41	17+26+32	-, B49(21)
B*15:222	34+37w	-
B*15:239/15:376, B*18:01:09/18:01:12/18:01:24/18:07:02/18:12:02/18:26/18:29/18:41/18:55/18:82/18:97/18:122, B*35:10/35:13/35:16/35:22/35:28/35:31/35:32:02/35:43:01-35:44/35:51/35:67/35:69/35:79-35:80/35:86-35:87/35:99/35:102/35:117-35:118/35:176/35:185/35:199/35:208/35:226/35:234/35:242/35:265/35:270/35:318, B*37:11/37:14/37:37	5	-, B35
B*15:243, 12:03:31	41	-
B*15:252	39+41	-
B*15:255, B*56:03/56:50	21+28w+30	-, B22

Allele	Mixes	Serology
B*15:265	7+12+20+34+43	-
B*15:268	34+45	-
B*15:297	1+7+20+34+43	-
B*15:303	20+27+34+43	-
B*15:308, B*35:01:17/35:03:07/35:04:03/35:12:02/35:20:01/35:59:02/35:83/35:88/35:95/35:112/35:164/35:191/35:212/35:215/35:230/35:261/35:296, B*37:67	5+7	-, B35
B*15:323	24w	-
B*15:339	18	-
B*15:342	18+43	-
B*15:360	15+34	-
B*15:426	21+32+42	-
B*18:01:01:01-18:01:08/18:01:10-18:01:11/18:01:13-18:01:23/18:01:25-18:07:01/18:08/18:10-18:12:01/18:13/18:17N/18:20/18:23N-18:25/18:27-18:28/18:31-18:34/18:36/18:38-18:39/18:42-18:47/18:50-18:53/18:58-18:60/18:62-18:65/18:68-18:78/18:80-18:81/18:83-18:96/18:98/18:100/18:102-18:104/18:106/18:109/18:111-18:121/18:123-18:124/18:126-18:131:01:02/18:133-18:135/18:137-18:141	4+5	B18, -, Null
B*18:09/18:49/18:66-18:67/18:79/18:108/18:132/18:136/18:142	4	B18, -
B*18:14/18:22/18:40	4+5+15w	-
B*18:15/18:19/18:30/18:57/18:101	4+5+32	-
B*18:18:01:01-18:18:01:02/18:105, B*35:20:02	4+5+7	-, B35
B*18:21	4+5+15w+32	-
B*18:35/18:110	1w+4+5	-
B*18:48, B*35:63/35:317, B*44:10/44:14-44:15:01:02/44:17/44:43:01-44:43:02/44:77/44:82/44:140/44:144/44:162/44:226/44:230/44:256/44:276	17	-, B44(12), B12
B*18:54	4+10	-
B*18:56	4+5+25	-
B*18:61, B*35:72	5+15w	-
B*18:99	4w+5	-
B*18:107	4w+17	-
B*18:143	4+5+20w+34w+43w	-
B*27:01-27:03/27:05:02:01-27:05:22/27:05:24-27:05:32/27:07:01-27:09/27:11-27:14/27:16-27:17/27:23/27:26-27:28/27:31-27:33/27:35/27:37-27:39/27:42-27:53/27:55-27:62/27:64N-27:65N/27:67/27:70-27:74/27:76-27:77/27:80-27:82/27:84-27:85/27:87-27:90:04/27:93-27:99/27:101-27:102/27:104/27:110-27:111/27:116-27:119/27:121-27:124/27:126/27:129-27:135/27:137/27:139/27:141-27:146/27:148/27:150-27:152/27:155-27:164/27:166-27:167	9	B27, -, B2708, Null
B*27:04:01-27:04:06/27:10/27:15/27:20/27:25/27:40/27:54/27:63/27:66N/27:68-27:69/27:79/27:86/27:92/27:100/27:103/27:105/27:108-27:109/27:112-27:115/27:120/27:147/27:149/27:165	9+32	B27, -, Null
B*27:06/27:21/27:91/27:106/27:138	9+24w+32	B27, -
B*27:18	9+18+32	-
B*27:19	9+19w	B27
B*27:24	9+16+19+32	-
B*27:29	9+18	B27
B*27:30	8w+9+19w+37w	B27
B*27:34/27:136/27:154	9+24w	-
B*27:36/27:125	9+16+19	-
B*27:41/27:78	9+21	-

Allele	Mixes	Serology
B*27:83/27:128	9+22	-
B*27:107	9+21+24w+32	-
B*27:127	9+19w+24w	-
B*27:153	32+41	-
B*35:01:01:01-35:01:03/35:01:05-35:01:09/35:01:11-35:01:16/35:01:18-35:02:05/35:02:07-35:03:02/35:03:04-35:03:06/35:03:08-35:03:16/35:03:18-35:03:19/35:03:21-35:04:01/35:06-35:08:01:02/35:08:04/35:08:06-35:09:03/35:11:01-35:11:03/35:14:01-35:15:02/35:18/35:21/35:24:01/35:29:01-35:29:02/35:33-35:34/35:36/35:38/35:40N-35:42:02/35:48/35:50/35:52-35:55/35:57/35:62/35:64:01-35:65Q/35:70/35:74/35:77-35:78/35:81/35:84/35:90-35:94/35:96/35:98/35:100-35:101:02/35:103-35:111/35:115-35:116/35:119/35:121-35:124/35:126-35:134N/35:136-35:148/35:150:01-35:150:02/35:152-35:153/35:155-35:163/35:165N-35:168/35:170-35:175/35:177-35:184/35:187-35:190/35:192-35:197/35:200/35:204-35:206/35:209/35:211/35:213-35:214/35:216N/35:218-35:220/35:222-35:225/35:227-35:228/35:231/35:237-35:241/35:243-35:250/35:252-35:253/35:255-35:257/35:260/35:262-35:264/35:267-35:269/35:272/35:275/35:277-35:285/35:287/35:289-35:290/35:293/35:295/35:297-35:298/35:300-35:308/35:310/35:312-35:316/35:319-35:354/35:356-35:360	5+6+7	B35, -, Null
B*35:01:04/35:03:20/35:08:03/35:12:04/35:23/35:24:02/35:61:02/35:120/35:258/35:288	5+6+7w	B35, -
B*35:01:10/35:04:02	5+6+7+38+39+41	B35
B*35:02:06	5+6w+7	-
B*35:03:03/35:08:02/35:08:05/35:27/35:56/35:203/35:210/35:271/35:299/35:355, B*53:03/53:11-53:13/53:36	6+7	B35, -, B53
B*35:03:17	5+6+7+47	-
B*35:05:01:01-35:05:03/35:17:01-35:17:02/35:30/35:32:01/35:37/35:58/35:68:01-35:68:02/35:75/35:89/35:97/35:113-35:114/35:125/35:151/35:221/35:232/35:235/35:273/35:286/35:292	5+6	B35, -
B*35:12:01/35:12:03/35:39/35:59:01/35:61:01/35:149/35:201/35:233/35:266	5+7w	B35, -
B*35:19/35:47/35:154/35:217/35:274	6+7+17	B35, -
B*35:25/35:49/35:254	6+7+19+21	B35, -
B*35:26	7+19+21+42+47	-
B*35:35	5+6+7+12	B35
B*35:45/35:71/35:169/35:309	5+6+7+25	-
B*35:46	6+7+20+34+43	B35
B*35:60	5+27	B35
B*35:66	1+5+6	-
B*35:76	5+7+28w+30	B35/22
B*35:82/35:85/35:294	5+7+42	-
B*35:135	5+42	-
B*35:186, B*46:40:01-46:40:02	5+33	-
B*35:198	6+7+19	-
B*35:202	5+6w	-
B*35:229	5+6+7+28w+30w	-
B*35:236/35:259	5+6+7+12w	-
B*35:251, B*78:01:01:01-78:02:02/78:04/78:07-78:08	5+38+39+41	-, B78
B*35:276, B*39:19:01-39:19:02	5+12	-, B39(16)
B*35:291	5+6+7+27	-
B*35:311	6+7+20+43	-

Allele	Mixes	Serology
B*37:01:01:01-37:01:11/37:03N-37:04:02/37:13/37:15-37:21/37:23-37:28/ 37:30N-37:33N/37:35-37:36/37:38-37:66/37:68-37:70, B*38:17, A*11:133, A*33:60	10	B37, -, Null
B*37:02	10+18	-
B*37:06:01-37:06:02	10+17	-
B*37:07	10+15+32	-
B*37:08	7+10	B37
B*37:09/37:12	10+15	B37, -
B*37:10/37:34, B*38:01:01:01-38:02:03/38:02:05-38:04/38:06-38:16/38:18- 38:19/38:21-38:25/38:27-38:29/38:31-38:32/38:34N-38:51/38:53-38:62/38:64/ 38:66-38:68Q, B*39:104, A*24:96/24:256	11	B37, -, B38(16), B16, Null
B*38:02:04	11w	-
B*38:05/38:33	11+47	B38(16), -
B*38:20	7w+8w+11+19w+37w	-
B*38:26	11+13+28	-
B*38:30/38:65	11+42	-
B*38:63	1+11+19	-
B*39:01:01:01-39:01:01:07/39:01:03:01-39:01:10/39:01:12-39:03:01:02/ 39:05:01:01-39:06:04/39:08/39:09:02/39:10:01-39:11/39:13:01-39:16/39:18/ 39:20/39:22-39:24:01/39:25N-39:28/39:31:01:01-39:31:01:02/39:35/39:37- 39:41/39:44-39:46/39:48-39:49/39:51-39:68/39:70-39:73/39:75-39:79/39:81/ 39:83-39:87N/39:89-39:90/39:92-39:101/39:103/39:105-39:106/39:108- 39:111/39:113-39:126/39:130-39:131, C*07:137:01-07:137:02, C*14:63	12	B3901, Low B39, -, B3902, B39(16), Null
B*39:04/39:129	12+47	B39(16), -
B*39:09:01:01-39:09:01:03/39:09:03/39:88/39:127	7+12	B39(16), -
B*39:17	12+27	-
B*39:29	12+24w	-
B*39:32/39:74	12w+42	-
B*39:42	7w+12+19w	-
B*39:47/39:50/39:102, 03:215	12w	-
B*39:69, B*40:184	12+17	-
B*40:01:01-40:01:05/40:01:07-40:01:08/40:01:10-40:01:18/40:01:20-40:01:49/ 40:22N/40:30/40:34/40:36/40:38/40:43/40:45/40:47/40:52/40:54-40:55/ 40:59-40:60/40:62/40:65-40:67/40:69/40:73-40:74/40:76/40:79-40:81/40:84/ 40:88/40:100-40:102/40:108/40:112-40:114:02/40:116-40:118N/40:123/ 40:125-40:126/40:128/40:130:01-40:130:02/40:134-40:135/40:138-40:141/ 40:146-40:147/40:149-40:156/40:160:01-40:160:02/40:168/40:170/40:172/ 40:175/40:179/40:182/40:186:01-40:188/40:192-40:193/40:195/40:204/ 40:207/40:212-40:213/40:215-40:218/40:221/40:223/40:227-40:228/40:233- 40:236/40:238-40:242/40:245/40:247/40:249-40:253/40:257-40:264/40:272- 40:273/40:277-40:282/40:285-40:286N/40:288/40:298:01-40:299/40:301/ 40:310/40:312/40:316/40:319/40:321/40:323/40:327/40:329/40:332-40:333/ 40:336/40:338N-40:339/40:344/40:346/40:352-40:353/40:357-40:358/40:360	14+15+16	B60(40), -, Null, B40
B*40:01:06	14+15+16+40+41	B60(40)
B*40:01:09/40:07/40:61/40:87:01-40:87:02/40:196/40:222/40:300	14+16	-, B60(40)
B*40:01:19/40:191/40:197	14+15+16w	-

Allele	Mixes	Serology
B*40:02:01:01-40:04/40:06:01:01-40:06:16/40:11:01-40:11:02/40:14:01-40:14:03/40:19-40:20:01:02/40:27:01-40:27:02/40:29/40:35:01-40:35:02/40:37/40:40/40:50/40:53/40:56-40:58/40:64/40:70:01-40:70:02/40:72:01-40:72:02/40:78/40:82-40:83/40:86/40:89-40:91/40:94/40:96-40:97/40:99/40:103-40:105/40:107/40:110-40:111/40:115/40:119/40:122/40:127/40:129/40:131/40:133Q/40:136/40:142N-40:145/40:157/40:159/40:164-40:165/40:167/40:169/40:173/40:176/40:181/40:189-40:190/40:200-40:203/40:205-40:206/40:211/40:214/40:219/40:224-40:226/40:229-40:230/40:243-40:244/40:246/40:248/40:254-40:256N/40:266-40:271/40:274-40:276/40:283-40:284/40:287/40:289-40:293/40:295-40:297/40:302-40:307/40:311/40:314/40:317-40:318/40:320/40:330-40:331/40:334-40:335/40:337N/40:341-40:342/40:345N/40:347-40:349/40:351/40:354/40:356/40:359/40:361N-40:362/40:364	14+15+17	B61(40), -, B60(40), B40, Null
B*40:05:01:01-40:05:01:02/40:174	15+17+26+32	B4005, -
B*40:08/40:13/40:75/40:77/40:121/40:162/40:220/40:232/40:237/40:322/40:363	14+17	-
B*40:09/40:18/40:24/40:44/40:120	14+15+17+24w	B61(40), -
B*40:10:01:01-40:10:02/40:49/40:85/40:194/40:210/40:231/40:325, B*44:31, B*48:41	14+15	B60(40), -, B44(12)
B*40:12, B*48:01:01:01-48:01:06/48:03:01-48:04:02/48:07/48:09/48:11/48:15-48:21/48:24/48:27-48:29/48:32-48:40/48:42	15+19	-, B48, B48/40
B*40:15-40:16/40:148/40:161/40:309	14+15+17+26+32	-, B61(40)
B*40:23/40:183/40:198	14+15+16+26+32	-
B*40:25	1+14+15w+16	-
B*40:26/40:28, B*50:14	17+26+32+40+41	B21, -
B*40:31/40:33/40:42	14+15+16+24w	B60(40), -
B*40:32/40:98	14+15+17+24w+26+32	-
B*40:39/40:343, B*41:08-41:09/41:33/41:47, B*44:166/44:184/44:213, C*16:85	15+17	B41, -
B*40:46, B*48:22/48:30	15+16+19	-
B*40:48	14+15+16+27	B60(40)
B*40:51	15+16+26+32	-
B*40:63/40:92/40:163/40:199/40:208/40:265N/40:324	15+16	-, Null
B*40:68	7+14+17	-
B*40:71	15+17+27	-
B*40:93, B*42:11, B*48:05/48:10/48:12-48:13	15	-, B48
B*40:95	14+17+26+32+40+41	-
B*40:106	1+14+16	-
B*40:109/40:340	14+15+17+37	-
B*40:124:01-40:124:02	9+14+15+16+18	-
B*40:132/40:178	14+15+16+25	-
B*40:158	14+17+26+32	-
B*40:166	1+14+16+28	-
B*40:171/40:315	14w+15+16	-
B*40:177/40:294	14w+15+17w	-
B*40:180	9+14+15+17+18	-
B*40:185/40:308	5+15+16	-
B*40:209/40:350/40:365	5+15	-
B*40:313	14+15w+17	-
B*40:326	14+15w+16	-
B*40:328	2+14+15	-

Allele	Mixes	Serology
B*40:355	14+15+26+32	-
B*41:01:01-41:03:02/41:05-41:07/41:10-41:18/41:22-41:32/41:34-41:45N/ 41:48-41:54	15+17+22	B41, -, Null
B*41:04/41:21	15+17+22+24w	-
B*41:19	14+15+17+22	-
B*41:20	15+17+22w	-
B*41:46	17+22	-
B*42:01:01-42:01:03/42:04/42:06/42:08/42:10/42:12/42:14-42:15/42:21- 42:24, B*55:20	23+28	B42, -
B*42:02:01:01-42:02:01:02/42:17-42:18	22+23+28	B42, -
B*42:05:01	1+23+28	-
B*42:05:02	1w+23+28	-
B*42:07/42:20,C* 07:151	23	-
B*42:09	21+22+23+28w	-
B*42:13	7+19+23+28	-
B*44:02:01:01-44:02:09/44:02:11-44:02:12/44:02:14-44:03:11/44:03:13- 44:03:36/44:03:38-44:03:39/44:03:41-44:05:01/44:07/44:11/44:13/44:19N- 44:20/44:22-44:24/44:26-44:30/44:32-44:33/44:34:02-44:39/44:41:01-44:42/ 44:45/44:47-44:48/44:50:02-44:51/44:55-44:56N/44:58N-44:59:02/44:61N/ 44:63/44:65-44:69:02/44:71-44:74/44:80-44:81/44:84:01-44:89/44:91-44:94/ 44:96/44:98-44:105/44:108N-44:109/44:111-44:116/44:118-44:122/44:125- 44:128:02/44:132-44:133/44:137-44:138Q/44:141-44:143/44:147-44:149N/ 44:151-44:155/44:157/44:159-44:161/44:163-44:165/44:167-44:168/44:170- 44:181/44:183/44:185-44:191/44:193-44:197/44:199-44:200/44:202-44:209/ 44:212/44:214-44:216/44:218-44:225/44:227-44:229/44:231/44:234-44:235/ 44:237N-44:245/44:247-44:249/44:252-44:253/44:255/44:257-44:262/44:265- 44:275	17+24	B44(12), -, Null, B21
B*44:02:10/44:09/44:34:01/44:46/44:129/44:131/44:254/44:277	17+24+25	B44(12), B45(12), -
B*44:03:12	4w+17+24	-
B*44:03:40	17+24+40	-
B*44:05:02-44:05:04/44:70/44:78/44:107/44:123/44:136/44:139/44:198N/ 44:217N/44:236/44:250/44:264	17+24w	B44(12), -, Null
B*44:06, B*51:42	7w+8w+25+37w	B44(12)
B*44:08/44:57/44:60	34+44	B44(12), -
B*44:12/44:232	7w+17+24	B44(12), -
B*44:16/44:21/44:64:01-44:64:02/44:124	14+17+24	B47, -
B*44:18, B*49:01:02/49:11/49:45	17+31+37w	-, B49(21)
B*44:25/44:50:01/44:95	8w+17+24+37w	-
B*44:40/44:44/44:130	19w+24	B44(12), -
B*44:49	2+17+24	-
B*44:52N/44:169/44:233	24	Null, -
B*44:53:01-44:54/44:106/44:110/44:135/44:192:01-44:192:02/44:211	15+17+24	B44(12), -
B*44:62	17+40	-
B*44:75	17+24w+25	-
B*44:76/44:79:01-44:79:02/44:146	17+24+26	-
B*44:90	17+23+24+25+30	-
B*44:97	9+17+24	-
B*44:117/44:251	11+17	-
B*44:145	17w+24w	-

Allele	Mixes	Serology
B*44:150	14+17+24+26	-
B*44:156	2+19w+24w	-
B*44:158	15+17+24w	-
B*44:182	15+24	-
B*44:210:01-44:210:02	19w+24w	-
B*44:263	7+17+24w+42w	-
B*45:01:01-45:01:03/45:03/45:05/45:07/45:11-45:21	17+25+27	B45(12), -
B*45:02/45:09	17+25	-
B*45:04/45:08	17+27	-
B*45:06	17+23+25+27+28+30w	-
B*45:10	14+17+27	-
B*46:01:01-46:01:04/46:01:07-46:03/46:05/46:07N-46:10/46:12-46:13:03/ 46:15N-46:16/46:20-46:30/46:32-46:39/46:42-46:44/46:46/46:48-46:53/ 46:55N-46:60/46:62-46:69/46:71/46:73	33+34	B46, -, Null
B*46:01:05/46:31	33w+34	-
B*46:04/46:47/46:61/46:70, C*01:32:01-01:32:02, C*02:56, C*03:263:01- 03:263:02, C*04:180:01-04:180:02, C*06:20, 07:81/07:168, C*08:123/08:139, C*14:82, C*15:126, C*16:98/16:102/16:110	33	B46, -
B*46:06	1+34	-
B*46:11/46:18	27+33+34	-
B*46:14	32+33+34	-
B*46:17	25+33+34+44	-
B*46:19	12w+33+34	-
B*46:72	33+34+43	-
B*47:01:01-47:07/47:09	9+14+17+18	B47, -
B*47:08	9+17+18	-
B*47:10	9+14+17+18+26	-
B*48:06	1+19	-
B*48:08	15+24w	-
B*48:23	15+19+21	-
B*48:26	18+19	-
B*48:31, 15:99	19	-
B*49:01:01-49:01:01:02/49:01:04-49:01:10/49:06/49:08-49:09/49:12-49:14/ 49:16-49:17/49:19N-49:23/49:27-49:30/49:32-49:39/49:41-49:44/49:46/49:48	17+26+31+32+37w	B49(21), -, Null
B*49:01:03	26+31+32+37w	-
B*49:03	31+32+37w	-
B*49:04:01-49:05/49:18:02	17+26+32+37w	-, B49(21)
B*49:07	14+17+26+31+32+37w	-
B*49:10/49:24/49:31	17+26+31+37w	-
B*49:18:01	17+26+32+37w+40	-
B*49:25	2+17+26+31+37w	-
B*49:26	31+32+37w+42+47	-
B*49:40	15+17+26+31+32+37w	-
B*49:47	17+26+31+32	-
B*50:01:01-50:01:09/50:04-50:05/50:07-50:08/50:10-50:12/50:15/50:17- 50:19/50:32/50:34-50:40/50:42/50:44-50:48/50:50-50:54	17+26+27+32	B50(21), -
B*50:02	17+25+26+27+32	B45(12)
B*50:06	27+32	-
B*50:13/50:43	17+26+27	-

Allele	Mixes	Serology
B*50:20	9+17+18+26+32	-
B*50:31	14+17+26+27+32	-
B*50:49	12+17+27	-
B*51:01:01:01-51:01:03/51:01:05-51:01:10/51:01:12/51:01:14-51:01:16/ 51:01:18-51:01:37/51:01:39-51:02:03/51:02:05-51:03/51:05/51:08:01- 51:09:03/51:11N-51:12/51:14/51:16-51:21/51:24:03-51:24:05/51:26-51:40/ 51:43/51:48-51:53/51:55/51:57-51:58/51:60-51:61:02/51:63:01/51:65-51:67/ 51:69-51:77/51:79-51:80/51:82-51:91/51:93-51:102/51:105/51:109-51:111/ 51:113/51:115/51:117/51:119-51:134/51:137-51:138/51:140-51:147/51:149N- 51:150/51:152-51:156/51:158:01-51:167/51:169/51:171/51:173Q-51:175/ 51:177/51:179-51:189/51:191-51:193/51:195-51:196/51:198/51:201-51:212/ 51:215-51:219/51:221/51:224/51:226/51:228-51:229	37+38+39	B51(5), -, B5102, B5103, Null
B*51:01:04/51:01:13/51:02:04/51:10/51:24:01-51:24:02/51:63:02/51:136/ 51:168/51:197/51:199, B*52:01:05/52:01:15/52:06:01-52:06:03, B*59:02	37	B51(5), B5102, - , B52(5), B59
B*51:01:11/51:01:17	37+38w+39	B51(5), -
B*51:01:38/51:178N	37+38	-, Null
B*51:04/51:56:03/51:139	7+8+37+38+39	B51(5), -
B*51:06:01-51:06:03/51:41N/51:54/51:59/51:64/51:78:01-51:78:02/51:135/ 51:190/51:194/51:213	38+39	B51(5), -, Null
B*51:07:01-51:07:02/51:214/51:222	37+39+40w	B51(5), -
B*51:13:01/51:92:01, B*52:14, B*59:03	11+37	-
B*51:13:02/51:92:02/51:172	11+37+38+39	-
B*51:15/51:106:02/51:157/51:225, B*52:25:01, B*59:01:01:01-59:01:01:02/ 59:04-59:05/59:07/59:09-59:10N	31+37	-, B59, Null
B*51:22	37+39+42	-
B*51:23/51:108	25+37+38+39	-
B*51:44N/51:118N	37+39	Null
B*51:46/51:56:01/51:227	7w+8w+37w+38+39	B51(5), -
B*51:56:02	6+7+8+37+38+39	-
B*51:62, A*24:90:02N	31	-, Null
B*51:68/51:176	2+37+38+39	-
B*51:103/51:116/51:151	32+37+38+39	-
B*51:104	20+34+37+38+39	-
B*51:106:01/51:223	31+37+38+39	-
B*51:107/51:170	37+38w+39w	-
B*51:112	17+26+37+38+39	-
B*51:114	37w+38+39	-
B*51:200	7+37+38+39	-
B*52:01:01:01-52:01:04/52:01:06-52:01:14/52:01:16-52:01:29/52:03-52:05/ 52:07-52:13/52:15-52:19/52:21:01-52:24/52:26-52:50/52:52-52:53/52:55- 52:67/52:69-52:72	37+40	B52(5), -, Null
B*52:02:01-52:02:02	34+37+40	-
B*52:20/52:68	40	-
B*52:25:02	31+37+40	-
B*52:51	32+37+40	-
B*52:54	15+37+40	-
B*52:73	37+40w	-
B*53:01:01-53:02/53:05:01-53:06/53:08:01-53:08:02/53:10/53:15-53:16/53:18- 53:27/53:29/53:32/53:34-53:35/53:37/53:41-53:43/53:45-53:46/53:48N-53:49	6+7+8+37	B53, -, Null
B*53:04/53:33	6+7+8+11+37	-

Allele	Mixes	Serology
B*53:07	7+11	B53
B*53:14/53:47, 06:147	6	-
B*53:17:01-53:17:02, B*58:01:05/58:77/58:82	8+37	-
B*53:28	8+37+40	-
B*53:30/53:39	6+7+8+17+37	-
B*53:31	6+7+11	-
B*53:40	7+8+37	-
B*54:01:01-54:01:06/54:02/54:05N/54:08N/54:10/54:13/54:16-54:29/54:31-54:32/54:34-54:35/54:37, B*55:07	27+28+29	B54(22), -, Null
B*54:01:07/54:38, B*55:01:01-55:01:03/55:01:05-55:01:12/55:01:14-55:03/55:05/55:09-55:12/55:15-55:16/55:19/55:21-55:22/55:24-55:26/55:29-55:31/55:33-55:34/55:36-55:48/55:50/55:52/55:54-55:55N/55:57/55:59-55:60/55:62-55:63/55:65-55:67/55:69-55:77/55:79-55:80/55:82-55:85/55:87, B*56:10/56:19N	27+28	-, B55(22), B22, Null
B*54:03/54:33	27+28+29+30	-
B*54:04/54:11	28+29	-, B54(22)
B*54:06, B*56:22	28w+30	-
B*54:07	27+28w+29	-
B*54:09	28w	-
B*54:12	28+29+31+37	-
B*54:14	28w+29	-
B*54:15	29	-
B*54:30	27+29	-
B*54:36	27w+28w+29	-
B*55:01:04	27+28+39+41	B55(22)
B*55:08/55:51, B*56:07/56:15/56:46	28+30	B56(22), -
B*55:14	21+28	-
B*55:18/55:61/55:78, B*56:08/56:17/56:23/56:42/56:44/56:54, C*01:90/01:136/01:145N, C*03:19/03:307/03:318N, C*07:289/07:536, C*12:15/12:208, C*15:07/15:43/15:85/15:144	27	-, Null, Cw3
B*55:23/55:32/55:68, B*56:18/56:31-56:32	21+28w	-
B*55:27	24w+28w	-
B*55:35	27+28+34+43	-
B*55:53	27w+28w	-
B*55:56	23+27+28	-
B*55:64	27+28w	-
B*56:01:01:01-56:02:02/56:04/56:16/56:20:01-56:20:02/56:24-56:30/56:34-56:38N/56:40-56:41/56:43/56:47-56:49/56:51-56:53/56:55	27+28+30	B56(22), -, Null
B*56:05:01-56:05:02	28+30+39+41	B56(22)
B*56:06	5+28+30+39+41	B78
B*56:09	7+19+21+28w+30	-
B*56:11	7+19+28w+30	B56(22)
B*56:12	7w+19w+28	B55(22)
B*56:13	23+27+28+30	B56(22)
B*56:14, 03:102	27+33	-
B*56:21	28+30+37+39	-
B*56:39	27+28+30+34+43	-
B*56:45	5+27+28+30	-

Allele	Mixes	Serology
B*57:01:01:01-57:01:01:02/57:01:03-57:01:18/57:01:20-57:01:24/57:04:01-57:04:02/57:06/57:08/57:10/57:14:02-57:15/57:18-57:21/57:23-57:27/57:29-57:31/57:33-57:38/57:40-57:41/57:43-57:44/57:47-57:50/57:52/57:54-57:56/57:58-57:62/57:64-57:65/57:67:01-57:68/57:71-57:75/57:77-57:79N/57:81/57:85-57:92	34+35	B57(17), -, Null
B*57:01:02/57:02:01-57:03:03/57:09/57:16-57:17/57:28N/57:32/57:39/57:42/57:46/57:66/57:70/57:80/57:84	35	B57(17), -, Null
B*57:01:19/57:14:01	34+35+36	-
B*57:05	8+35+37	-
B*57:07	35+44	-
B*57:12	35+43	-
B*57:13/57:22	34+35+45	-
B*57:45/57:51/57:69	17+35	-
B*57:53	34w+35	-
B*57:57/57:63	35+45	-
B*57:76	11+34+35	-
B*57:93	34+35+44	-
B*58:01:01:01-58:01:04/58:01:06-58:01:15/58:01:17-58:01:19/58:01:21-58:01:22/58:04-58:05/58:09-58:13/58:17N/58:21-58:24/58:28:01-58:29/58:31N-58:33/58:35/58:37/58:39N-58:42/58:45:01-58:45:02/58:47-58:59:02/58:61-58:63/58:65-58:72N/58:74/58:76/58:79-58:81/58:83-58:90	8+36+37	B58(17), -, Null
B*58:01:16/58:02:01-58:02:02/58:07/58:15-58:16:02/58:18/58:25-58:26/58:38/58:43/58:60	36	-, B58(17)
B*58:01:20/58:75	8w+36+37w	-
B*58:06/58:46	36+45	-
B*58:08:01-58:08:02	36+37+45	B17, -
B*58:14	35+36	-
B*58:19/58:78/58:91	8+36+37+45	-
B*58:20	11+36	-
B*58:34	8+11+36+37	-
B*58:36	8+34+36+37	-
B*58:44	8+19+21+36+37	-
B*58:64	5+36	-
B*58:73	8+31+36+37	-
B*59:06	29+31+37	-
B*67:01:01-67:01:03/67:03-67:07	12+13+28	B67, -
B*67:02	12+33	-
B*73:01-73:02	48	B73, -
B*78:03	5+39+41+42	-
B*78:05	5+40+41	-
B*78:06	40+41	-
B*78:09	38+39+41	-
B*82:01-82:02:02	23+25+27+28+30w	B82, -
B*82:03	23+25+27+28+30	-
B*83:01	7w+19w+23+24w+25+30w	-
A*26:89, C*03:278, C*06:77	32	-
C*03:342	19+24w	-
C*07:336	34w	-

Allele	Mixes	Serology
C*07:463	2+29w+48w	-
C*08:93, C*14:61	25	-
C*15:71	8+31+37	-

w = weak

Table 6: Amplification patterns of HLA-C* and other HLA alleles detected by the HLA-C* CTS-PCR-SSP primer mixes (Lot No. C12-2) based on IMGT/HLA Sequence Database Release 3.31.0, January 2018

Allele	Serology	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
C*01:02:01:01:01:02:09/01:02:11:01:02:18/01:02:20/01:02:22:01:02:26/ 01:02:29-01:03/01:05-01:09/01:11-01:13/01:15:01-01:20/01:22/01:24-01:42/ 01:44-01:49:02/01:51-01:54/01:56N-01:57/01:59-01:64/01:66/01:68-01:74/ 01:76-01:96/01:98N-01:100/01:103-01:113/01:115-01:121Q/01:123-01:130/ 01:132-01:140/01:63:01/01:142-01:148	Cw1, -, Null	1																						
C*01:02:19/01:02:21/01:55/01:67/01:114/01:122, A*01:91, A*03:99, A*32:86	-	w																						
C*01:04	-	1											w		15									
C*01:10	-	1	2																					
C*01:14	-	1																17						
C*01:21	-	1											14		15									
C*01:23/01:58	-	1							10															
C*01:43	-	1										13												
C*01:65	-	1	3																					
C*01:97	-	1		4																				
C*01:131, 03:02:01:03:02:15/03:02:17/03:04:01:01-03:04:22/03:04:24/ 03:04:26/03:04:28/03:04:31-03:04:37/03:04:39-03:06:02/03:08-03:10/ 03:17:01-03:17:02/03:19/03:23-03:24/03:26/03:28-03:29/03:33/03:35:01- 03:37:02/03:40:01/03:40-03:40:03:40:04/03:42/03:44/03:46-03:48/03:51/ 03:54/03:57:01-03:57:02/03:63-03:65/03:70-03:74/03:77-03:78/03:80:01- 03:80:02/03:82/03:84/03:87:02/03:89-03:93/03:95/03:98/03:100-03:101/ 03:104-03:111/03:114-03:115/03:117-03:118/03:121N/03:123/03:125/ 03:128-03:129/03:131/03:134-03:135/03:137-03:139/03:143/03:145-03:149/ 03:153-03:157/03:159/03:162/03:164/03:166/03:169Q-03:170/03:172- 03:174/03:178/03:180-03:181/03:183/03:184:02/03:186:01-03:186:02/ 03:191/03:193/03:197-03:201N/03:208N-03:213/03:215-03:216/03:218- 03:219/03:221-03:222/03:224N-03:226/03:232-03:236/03:238-03:240/ 03:244Q-03:245/03:247-03:250/03:252/03:255-03:259/03:264-03:266/ 03:269-03:270/03:278-03:279/03:281-03:282/03:287/03:292/03:294/03:296/ 03:298-03:303/03:305-03:306/03:309-03:310/03:313/03:315/03:317- 03:318N/03:323N/03:326/03:328-03:330/03:332-03:335/03:337-03:338/ 03:340/03:342-03:343/03:347-03:350/03:353-03:355/03:358-03:359/03:362/ 03:365-03:366N/03:368-03:369/03:371	-, Cw10(w3), Cw3, Null			3	4	5																		

Allele	Serology	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
C*02:01-02:02:03/02:02:05-02:02:10/02:02:13-02:02:20/02:02:22-02:02:34/02:04/02:07-02:11/02:13-02:15/02:17/02:19-02:21/02:24-02:26/03/02:28-02:31/02:33-02:35/02:37-02:40/02:42/02:44-02:48/02:50-02:54/02:56-02:57/02:59-02:61/02:63-02:64/02:66-02:67Q/02:69-02:71/02:73-02:77/02:79-02:81/02:83-02:86/02:88-02:114/02:116-02:125/02:127-02:128/02:130/02:132-02:134	Cw2, -, Null		2															18							
C*02:02:11	Cw2		2			6												18							
C*02:02:12/02:02:21/02:03/02:16:01-02:16:02/02:18/02:27:01-02:27:02/02:32/02:65/02:72/02:129/02:131, B*46:06/46:25/46:30	-		2																						
C*02:05:01-02:05:03	-		2															17	18						
C*02:06:01-02:06:02/02:23/02:36:01-02:36:02/02:62/02:68	-		2															18	20						
C*02:12	-		2													16		w							
C*02:22	-		2					8										18							
C*02:43:01-02:43:02/02:58/02:78/02:82, 06:35/06:47/06:49N/06:58/06:72/06:101/06:117/06:127:01-01-06:127:02/06:131/06:136/06:142-06:144	-, Null																		18						
C*02:49/02:55:01-02:55:02	-		2														w	18							
C*02:87	-		2									13													
C*02:115, B*07:13	-		2														16								
C*02:126	-		2																w						
C*03:02:16	-									w	4														
C*03:01:01-03:03:31/03:03:33-03:37/03:04:38/03:11:01-03:11:02/03:13:01-03:13:02/03:18:01-03:18:02/03:20N-03:22Q/03:30-03:32/03:43:01/03:49-03:50/03:52-03:53/03:55-03:56/03:59-03:62/03:66/03:68/03:75-03:76/03:79/03:81/03:83/03:85/03:88/03:97/03:103/03:112/03:116:01-03:116:02/03:119-02:03:120/03:122/03:124/03:126-03:127/03:132-03:133/03:141/03:144/03:150/03:152/03:158/03:160-03:161/03:165/03:167-03:168/03:171/03:175-03:177/03:182/03:185/03:187-03:189N/03:192/03:195-03:196/03:202-03:207/03:214/03:217/03:223/03:227-03:230/03:237/03:241-03:242/03:253-03:254/03:262/03:271/03:275-03:276/03:284-03:285/03:288-03:291/03:295/03:304/03:307-03:308/03:312/03:319-03:321/03:324-03:325/03:327/03:336/03:339/03:341/03:345-03:346/03:351-03:352/03:356-03:357/03:360/03:363N-03:364/03:367/03:370	Cw9(w3), -, Cw3, Null																	3	4						
C*03:03:32/03:43:02/03:45/03:102/03:119:01/03:220/03:243/03:267-03:268	-																			3					
C*03:04:23/03:04:30/03:190	-																			3	w	5			
C*03:04:25	-																			3	4	5			

Allele	Serology	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
C*03:04:27/03:07:02/03:14/03:25/03:40:02/03:87:01/03:140/03:263:01-03:263:02/03:331/03:361, B*56:37	-, CW3			3		5																		
C*03:04:29/03:179, A*03:146, A*68:118, B*15:96/15:331, B*27:118, B*44:274	-, B62(15)					5																		
C*03:15/03:297	-			3												w								
C*03:16/03:41:01-03:41:02/03:96/03:113:01-03:113:02/03:151/03:194/03:251/03:260/03:286/03:293/03:314/03:322, 14:02:04/14:02:09/14:33/14:78	-				4																			
C*03:27/03:38:01-03:38:02/03:246	-			3	4	5										16								
C*03:34/03:261	-			2	3	4	5																	
C*03:39/03:67, 07:242	Cw3, -				3	4																		23
C*03:69/03:136	-				3	4										16								
C*03:130/03:163	-				3	5										w								
C*03:142/03:272	-			2	3	4																		
C*03:184:01/03:277N/03:311	-, Null			w	w	5																		
C*03:231	-				3	4													19					
C*03:273	-				3	w																		
C*03:274, 07:92/07:96:01-07:96:02/07:578, 08:25, 12:02:14/12:03:02/12:03:08/12:03:16-12:03:17/12:03:27/12:03:30/12:03:34:01-12:03:34:02/12:14:01/12:18:02/12:26/12:76/12:144/12:181/12:185, B*07:15/07:160	-, B7															16								
C*03:280	-				3	4	5						13											
C*03:283	-				3	4	w																	
C*03:344	-				3	4	5																	23
C*04:01:01:01-04:01:22/04:01:24-04:01:29/04:01:31-04:01:84/04:03:02/04:04:01:01-04:05/04:07-04:08/04:10/04:12-04:14/04:15:02-04:15:03/04:17-04:20/04:23-04:28/04:30-04:31/04:33-04:35/04:38-04:41/04:43-04:54/04:56-04:70/04:72-04:76/04:78-04:79/04:81-04:93N/04:95N-04:99/04:101-04:102/04:104-04:106/04:109-04:117/04:119-04:129/04:131-04:146/04:148-04:159/04:161-04:170N/04:173N-04:177/04:179-04:186/04:188-04:189/04:191N-04:196/04:198-04:200/04:202-04:211/04:213/04:215N-04:219/04:221-04:222/04:223:02-04:229/04:231-04:255N/04:257-04:264/04:266-04:267/04:269-04:285, B*08:01:36, B*37:01:06	Cw4, -, Null, B37						6																	
C*04:01:30/04:15:01, 07:64, 14:02:02/14:04/14:12/14:17/14:49/14:64/14:77/14:82	-																		19					

Allele	Serology	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
C*04:03:01/04:03:03-04:04:06:01-04:06:02/04:16/04:103/04:107/04:147/04:160/04:171/04:190/04:256/04:286	-					6											w								
C*04:09N	Null					6	7																		
C*04:11/04:29/04:36/04:55/04:172/04:214	-		4			6																			
C*04:32/04:77/04:265	-	2				6																			
C*04:37	-									10								17	19						
C*04:42:01-04:42:02/04:220	-					6																		23	
C*04:71	-	w				6																			
C*04:80, 15:03/15:16	-																w				20				
C*04:94:01-04:94:02	-					6													18						
C*04:100/04:178, 15:36	-																			19	20				
C*04:108, 15:78:02	-					6															20				
C*04:187	-					w																			
C*04:201/04:212	-		3			6																			
C*04:223:01	-					6			8																
C*04:230	-					6				10								17							
C*05:01:01:01-05:01:09/05:01:03-05:01:17/05:01:19/05:01:21-05:01:27/05:01:29-05:01:30/05:01:33-05:01:36/05:03-05:04:01/05:05:01-05:07N/05:09:01-05:09:03/05:11/05:13-05:15/05:17/05:19/05:21-05:28/05:30-05:31/05:33-05:41/05:43-05:44:02/05:47-05:51Q/05:53-05:63/05:64:02-05:77/05:79-05:84/05:86-05:88/05:90-05:91N/05:93-05:96/05:98-05:102/05:104/05:108/05:110-05:114/05:116-05:127/05:130-05:131/05:133/05:135-05:139/05:141-05:142/05:144-05:146/05:149-05:150/05:152-05:154N/05:156-05:157	Cw5, -, Null								8	9															
C*05:01:02/05:01:18/05:01:31-05:01:32/05:04:02/05:20/05:32/05:109/05:128N-05:129/05:147	Cw5, -, Null								9																
C*05:01:20	-					6			9																
C*05:01:28/05:12/05:18:01/05:18:03/05:29:01-05:29:02/05:92N/05:97/05:115/05:134/05:140/05:143/05:151/05:155, 08:10	-, Null								8																
C*05:08/05:52/05:89	-								8	9									18						
C*05:10/05:132	-								8	9											20				
C*05:16/05:85	-								8	9									17						
C*05:42/05:46	-								8	9							w								

Allele	Serology	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
C*05:45	-								8	w														
C*05:64:01	-						6		8	9														
C*05:78:01-05:78:02	-								8	9										19				
C*05:105	-	2							8	9														
C*05:106:01	-								8										18					
C*05:106:02, 12:21	-												15						18					
C*05:107, 06:204, 12:09, 15:102, 16:48/16:88	-																	17						
C*05:148	-									9										20				
C*06:02:01:01-06:02:01:10/06:02:03-06:02:07/06:02:09-06:02:11/06:02:13-06:02:45/06:02:47-06:02:50/06:07/06:09-06:10/06:12-06:29/06:32-06:34:01/06:36-06:39/06:41-06:46N/06:48/06:50-06:51/06:53:01-06:57/06:59-06:60/06:62-06:68/06:70:01-06:71/06:73-06:75/06:77-06:78/06:80-06:81/06:83-06:85/06:87-06:100/06:102:01-06:116N/06:119-06:121/06:123/06:125/06:128N-06:130/06:133-06:135/06:137-06:138/06:140-06:141/06:146/06:148-06:152N/06:154-06:159/06:161-06:170/06:172-06:182/06:185-06:191/06:193-06:196/06:199-06:203/06:205-06:209/06:212	Cw6, -, Null									10								17	18					
C*06:02:08/06:34:02	-										10								17	18				23
C*06:02:12/06:11/06:52/06:61/06:69/06:82/06:147/06:160/06:184	-									10														
C*06:02:46/06:30/06:86/06:126/06:198, 12:33	-																		17	18				
C*06:03:01-06:03:02/06:76:01-06:76:02/06:132:01-06:132:02	-									10							w	17	18					
C*06:04:01-06:06/06:79N/06:153/06:197	-, Cw6, Null									10									17					
C*06:08	-		2							10									17	18				
C*06:31	-									10	11	w							17	18				
C*06:40	-									10									17	w				
C*06:118	-									10	11	12							17					
C*06:122/06:124/06:183	-									10									w	w				
C*06:139/06:145	-									w									w	18				
C*06:171N	Null									w									17	18				
C*06:192	-		3							10									17	18				

Allele	Serology	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
C*07:01:01:01:07:01:13/07:01:15:07:01:19/07:01:21:07:01:21-07:01:26/07:01:28-07:01:44/07:01:46-07:01:56/07:01:58-07:02:24/07:02:27-07:02:31/07:02:33-07:02:37/07:02:39/07:02:41-07:02:47/07:02:49-07:02:55/07:02:57-07:03/07:05-07:10/07:13-07:14/07:16-07:17:02/07:18-07:19/07:21/07:23-07:25/07:27:01-07:29:02/07:32N/07:35-07:40/07:42-07:44/07:46-07:61N/07:65-07:67/07:69-07:72/07:74-07:91/07:93-07:94/07:97-07:100/07:102-07:130/07:134-07:135/07:137:02/07:141:01-07:141:02/07:143-07:147/07:149-07:150Q/07:152N-07:160/07:162-07:164N/07:166-07:171/07:173-07:180/07:182-07:198N/07:200-07:240/07:243-07:245/07:247-07:263/07:266/07:268-07:271/07:273-07:292/07:294/07:297-07:301/07:303/07:305-07:306/07:308-07:313/07:315/07:318-07:321/07:326-07:327/07:332-07:335/07:337/07:339-07:341:02/07:343-07:346/07:348-07:350N/07:352-07:353/07:356/07:359-07:360/07:362-07:363/07:366-07:367/07:369-07:375/07:377/07:379-07:384/07:386-07:389/07:391-07:393N/07:396-07:401/07:404-07:405/07:407-07:419/07:421-07:425/07:427/07:429-07:446/07:448/07:450-07:458/07:461-07:465/07:468-07:479/07:481-07:486/07:488-07:500/07:502-07:511/07:513Q/07:515-07:516/07:518/07:520-07:522/07:524/07:526-07:528/07:530-07:533/07:536-07:561/07:564-07:568/07:570-07:577/07:580-07:582Q/07:584/07:587-07:598/07:602-07:610, B*08:143	Cw7, -, Null										11	12													
C*07:01:14/07:02:56/07:33N/07:131:02/07:246:01-07:246:02/07:296/07:316/07:325/07:368:01/07:449/07:517/07:579, A*01:199, A*11:133, B*07:51/07:220/07:226, B*15:200, B*39:60/39:82	-, Null											12													
C*07:01:20/07:01:27/07:02:38/07:17:04/07:460	-											11	12	14											
C*07:01:45/07:136/07:264N/07:331/07:529	-, Null											11	w												
C*07:01:57/07:02:40/07:04:01:01-07:04:07/07:04:09-07:04:11/07:11-07:12/07:20/07:30/07:45/07:63/07:68/07:73/07:142/07:151/07:172:01-07:172:02/07:181/07:199:01-07:199:02/07:272/07:302/07:323-07:324/07:328-07:329N/07:336/07:354-07:355/07:357-07:358/07:361/07:365/07:376/07:378/07:385/07:390/07:394-07:395/07:403/07:406/07:420/07:426/07:428/07:459/07:466-07:467/07:480/07:501/07:523/07:534-07:535/07:562-07:563/07:569/07:585-07:586/07:600:01N-07:600:02N	-, Cw7, Null										11														
C*07:02:25-07:02:26/07:62/07:131:01/07:132/07:267/07:293/07:322/07:368:02/07:519/07:601	-										w	12													
C*07:02:32/07:17:03	-			4							11	12											23		
C*07:04:08	-										11		14												
C*07:15	-	2									11	12													
C*07:22/07:138	-										w	w													

Allele	Serology	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
C*07:26:01-07:26:03/07:314:01-07:314:03/07:317/07:351	-												12			16								
C*07:31:01-07:31:02/07:514	-									10	11	12												
C*07:41	-								w															
C*07:101	-										11	13												
C*07:133/07:330:01-07:330:02	-		3								11	12												
C*07:137:01/07:139	-									w														
C*07:148/07:161	-										11	12	13											
C*07:364	-									10	11													
C*07:402	-											12						19						
C*07:583, 08:21/08:137	-												13			16								
C*08:01:01-01-08:01:06/08:01:08-08:01:18/08:01:20-08:01:21/08:03:01-08:03:04/08:06/08:08:01-08:09/08:11/08:20/08:22/08:24/08:26N-08:27/08:33:01/08:33:03/08:35-08:36N/08:38-08:42/08:46/08:50/08:54/08:56/08:58-08:60/08:65-08:66/08:72:01-08:72:02/08:78-08:79/08:81/08:83-08:89N/08:91/08:95-08:99/08:101-08:102/08:105-08:107/08:109/08:117-08:119/08:121N-08:122/08:124/08:127N-08:131/08:133/08:135-08:136/08:138/08:141Q/08:143/08:145/08:147-08:148/08:153-08:155/08:157	Cw8, -, Null												13											
C*08:01:07/08:33:02	-			4									13											
C*08:01:19	-												13		15									
C*08:02:01-01-08:02:01:02/08:02:03-08:02:05/08:02:08-08:02:15/08:04:01-08:04:03/08:07/08:12/08:15:01-08:15:02/08:17/08:19:02/08:23/08:28-08:30/08:32/08:34/08:37/08:43/08:45/08:47-08:49/08:51-08:53/08:57/08:63/08:67-08:71/08:73-08:77/08:90/08:92-08:93/08:100/08:103-08:104/08:108/08:110-08:112/08:114-08:116/08:120/08:123/08:125/08:132/08:134/08:139-08:140/08:142/08:149-08:152/08:156/08:158-08:159	Cw8, -, Null								9				13											
C*08:02:02	Cw8								9				13		15									
C*08:02:06/08:19:01/08:62	-				6				9				13											
C*08:02:07	-			4					9				13											
C*08:05	-								9				13			16								
C*08:14/08:80	-											12	13											
C*08:18	-								w				w											
C*08:31	-		2						9				13											
C*08:44/08:61/08:82	-												13							20				

Allele	Serology	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
C*08:113	-									9			13								20			
C*08:126	-									9			13								w			
C*08:144	-					6							13											
C*08:146	-									9			w											
C*12:02:01-12:02:05/12:02:07/12:02:10-12:02:11/12:02:13/12:02:15/ 12:03:19/12:03:32/12:08/12:10:02/12:14:02/12:18:01/12:22/12:27/12:30/ 12:36/12:40/12:56/12:64/12:67-12:69/12:74/12:80N/12:83-12:86/12:103- 12:106/12:112/12:114/12:117/12:123-12:124/12:128/12:130/12:134/ 12:136-12:137/12:145/12:148N/12:151/12:155O/12:161-12:162/12:166/ 12:168-12:169/12:177/12:179/12:183/12:193/12:196/12:199-12:200/ 12:204/12:207/12:212/12:214/12:219N/12:221	- -, Null													14	15	16								
C*12:02:06/12:02:08/12:02:12/12:03:01-12:03:01-12:03:09/12:03:03-12:03:07/ 12:03:09-12:03:15/12:03:18/12:03:21-12:03:26/12:03:28-12:03:29/12:03:31/ 12:03:35-12:03:43/12:06-12:07/12:11-12:13/12:20/12:23-12:25/12:29/ 12:32/12:34-12:35/12:37-12:39N/12:42Q-12:43/12:45-12:48/12:50-12:53/ 12:57:01-12:58/12:61-12:63/12:65-12:66/12:70-12:71/12:75/12:77-12:79/ 12:81-12:82/12:87-12:95/12:97/12:99:01-12:102/12:107-12:111/12:115- 12:116/12:118/12:120-12:122/12:125/12:131/12:133/12:138-12:141/ 12:143/12:149-12:150/12:152-12:153/12:156-12:160/12:163/12:165/12:167/ 12:170-12:176/12:178/12:180/12:182/12:184/12:186-12:187/12:189-12:192/ 12:194/12:197/12:201-12:202/12:205-12:206/12:209-12:211/12:213/12:216/ 12:218/12:220	- -, Null						6							14	15	16								
C*12:02:09/12:10:01/12:96	-						6																	
C*12:03:20	-			4													16							
C*12:03:33	-															w	16							
C*12:04:01	-																w	17	18					
C*12:04:02	-															15	w	17	18					
C*12:05	-															15		17	18					
C*12:15/12:113	-															15	16				20			
C*12:16/12:126/12:217	-													14	15									
C*12:17/12:98/12:147/12:188/12:195:01-12:195:02/12:215, A*03:01:64, B*27:05:27, B*40:02:21, B*57:01:24	-															15								
C*12:19/12:59/12:73/12:132	-													14		16								
C*12:28	-									10						16								
C*12:31	-						6									15	16							

Allele	Serology	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
C*12:41/12:60	-														15	W	18							
C*12:44/12:208	-														14	15	16				20			
C*12:49	-														W	15								
C*12:54/12:129/12:164	-															15	W							
C*12:55	-															15				19				
C*12:72	-														14	15	16	W						
C*12:119	-		2													15	16							
C*12:127	-												13	14	15	16								
C*12:135	-									10						16	W	W						
C*12:142	-														14	15	W							
C*12:146	-															W	18							
C*12:154	-															15	16	W	W					
C*12:198	-		2												14	15	16							
C*12:203	-												13		15	16								
C*14:02:01-14:02:01-14:02:03/14:02:05-14:02:07/14:02:10-14:03/14:05-14:11/14:13-14:16/14:18/14:20-14:24:02/14:26-14:32/14:35N-14:40/14:42-14:48/14:50-14:53/14:55-14:57/14:59-14:63/14:65-14:71/14:73-14:76/14:79-14:81/14:83-14:90	- Null			4																19				
C*14:02:08	-				4											15				19				
C*14:19/14:34/14:41	-				4															W				
C*14:25	-		2		4															19				
C*14:54	-				4															19	20			
C*14:58	-	W			4															19				
C*14:72	-				W															19				
C*15:02:01-15:02:09/15:02:11-15:02:13/15:02:15-15:02:16/15:02:18-15:02:30/15:04:01-15:13:01:02/15:15/15:17-15:19/15:21-15:24/15:26-15:35/15:38-15:40/15:42/15:44:01-15:54/15:56-15:57/15:59-15:64/15:66-15:73/15:75-15:78:01/15:79-15:98/15:100-15:101/15:103-15:124/15:126-15:132/15:134-15:151, B*35:08:02/35:08:05	- Null, B35																				20			
C*15:02:14	-															15								
C*15:25	-															16					20			
C*15:37/15:55/15:58/15:125/15:133	-																				20			

Allele	Serology	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
C*15:74	-																		18	20				
C*16:01:01:01-16:01:05/16:01:07-16:01:16/16:01:18-16:01:22/16:04:01:01-16:04:01:02/16:04:03-16:04:05/16:06-16:08/16:10-16:11/16:13-16:14/16:16Q-16:18/16:22-16:24/16:27-16:28/16:30N-16:34/16:36/16:38-16:39:02/16:41-16:45/16:49/16:51-16:52/16:54/16:56-16:59/16:61-16:62/16:65-16:67/16:71-16:73/16:75-16:76/16:78-16:79/16:81-16:83/16:85-16:87/16:92-16:98/16:100/16:105-16:106/16:111-16:116	-				4																	21		
C*16:01:06	-																					21		
C*16:01:17	-														15							21		
C*16:02:01-16:02:04/16:02:06-16:02:12/16:02:14/16:09/16:12/16:19/16:47/16:60/16:63/16:69-16:70/16:74/16:77N/16:84/16:89N-16:90/16:99/16:101-16:103/16:107-16:108	-																	17				21		
C*16:02:05	-							8										17				21		
C*16:02:13	-														15		17					21		
C*16:15:01	-															16						21		
C*16:15:02	-														15	16						21		
C*16:20/16:109	-																				20	21		
C*16:21	-										11											21		
C*16:25	-															w	17					21		
C*16:26/16:55	-									10												21		
C*16:29/16:50	-		2																			21		
C*16:37	-																w					21		
C*16:46	-										10							17				21		
C*16:64	-										10					16						21		
C*16:80	-											11	12									21		
C*16:91	-																	17	18			21		
C*16:104	-						6															21		
C*17:01:01:02-17:03:01:03/17:04-17:06/17:09-17:16/17:18-17:19/17:24-17:26/17:28-17:32/17:34-17:38	-		2													w						22		
C*17:03:02/17:20/17:27N	-		2																			22		
C*17:07/17:33, 18:09	-															w								
C*17:08	-		2													w								
C*17:17/17:23	-															w						22		

Allele	Serology	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
C*17:21	-		2														w	17					22	
C*17:22	-		2														16						22	
C*18:01-18:02/18:04-18:08/18:10	-, Null																							23
C*18:03	-		2																18					23
B*37:70	-																						22	
B*67:02	-						6										16			20				

w = weak

? = nucleotide sequence information not available for the primer matching sequence