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| Lot No. | C12-2 |

CTS Collaborative Transplant Study

WORKING INSTRUCTION
HLA-C*
CTS-PCR-SSP TRAY KIT
LOCUS- AND LOT-SPECIFIC MANUAL

To be applied to the following product:

| Product No. | Description |
|-------------|--|
| 103 | HLA-C* CTS-PCR-SSP TRAY KIT IVD CE 0197 |

1. Main differences

- **Between Lot C12-2 (the current lot) and Lot C12-1**
 The kit was updated to cover new alleles included in the IMGT/HLA 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-C* by the PCR-SSP method.
 Allele coverage: IMGT/HLA Sequence Database Release 3.31.0, January 2018, except:
 Alleles not covered: 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.
 The HLA-C* alleles which are not covered are considered to be uncommon or rare and can be detected by e. g. sequencing with the CTS-SEQUENCE Kit (you may contact us for further information).
- This manual is only valid for **Lot No. C12-2**.
- This manual should be used together with the Main Manual (General Information Sheet) which is the 'Working instruction for the CTS-PCR-SSP **TRAY and MINITRAY KITS**' (Manual No. 100A).

3. Content

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| Table 1: 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 | 5 |
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| Table 2: 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 | 10 |
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4. Kit Composition

- Number of PCR primer mixes per test: 24 (23 allele-specific and 1 negative control mix)
- Number of tests per tray: 4
- Number of trays per kit: 10
- The primer mixes are aliquoted and dried in thin-walled, blue 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 Table (Table 1) to confirm the correct product size.
- Use the Amplification Pattern Tables (Table 2) to make allele assignment. Alternatively, you can 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

- **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-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 |
|----------|----|----|-----|-------|--|---------------------------------|--------|
| H1 | H4 | H7 | H10 | Mix 1 | C*01:02:01:01-01:02:09/01:02:11-01:02:18/01:02:19w/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 |
| G1 | G4 | G7 | G10 | Mix 2 | C*01:10, 02:02:01-02:02:03/02:02:05-02:40:02/02:42/02:44-02:57/02:59-02:77/02:79-02:81/02:83-02:134, 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 |
| F1 | F4 | F7 | 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 |
| E1 | E4 | E7 | 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 |

| Position | | | | Mix | Allele | Serology | Size |
|----------|----|----|-----|--------|---|---------------------------------|--------|
| D1 | D4 | D7 | D10 | Mix 5 | C*01:65/01:131, 03:02:01-03:02:15/03:02:16w/03:02:17/03:04:01-01-03:04:37/03:04:39-03:10/03:14/03:17-01-03:17:02/03:19/03:23-03:29/03:33-03:38:02/03:40:01-03:40:04/03:42/03:44/03:46-03:48/03:51/03:54/03:57:01-03:57:02/03:63-03:65/03:70-03:74/03:77-03:78/03:80:01-03:80:02/03:82/03:84/03:87:01-03:87:02/03:89-03:93/03:95/03:98/03:100-03:101/03:104-03:111/03:114-03:115/03:117-03:118/03:121N/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 |
| C1 | C4 | C7 | C10 | Mix 6 | C*02:02:11, 04:01:01:01-04:01:22/04:01:24-04:01:29/04:01:31-04:01:84/04:03:01-04:14/04:15:02-04:20/04:23-04:36/04:38-04:79/04:81-04:99/04:101-04:117/04:119-04:129/04:131-04:177/04:179-04:186/04:187w/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 |
| B1 | B4 | B7 | B10 | Mix 7 | C*04:09N | Null | 140 bp |
| A1 | A4 | A7 | 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 |
| H2 | H5 | H8 | 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 |
| G2 | G5 | G8 | 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 |

| Position | | | | Mix | Allele | Serology | Size |
|----------|----|----|-----|--------|--|--------------|-----------|
| F2 | F5 | F8 | 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 |
| E2 | E5 | E8 | 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- 07:40/07:42-07:44/07:46-07:62/07:65-07:67/07:69-07:72/07:74-07:91/07:93-07:94/07:97-07:100/07:102- 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- 07:294/07:296-07:301/07:303/07:305-07:306/07:308-07:322/07:325-07:327/07:330:01-07:330:02/ 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 |
| D2 | D5 | D8 | 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 |
| C2 | C5 | C8 | C11 | Mix 14 | 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/ 12:02:09-12:02:11/12:02:13/12:02:15/12:03:19/12:03:32/12:08/12:10:01-12:10:02/12:14:02/12:16/ 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/ 12:168-12:169/12:177/12:179/12:183/12:193/12:196/12:198-12:200/12:204/12:207-12:208/12:212/ 12:214/12:217/12:219N/12:221 | -, Null | see below |
| | | | | | C*07:460, 12:19/12:59/12:199 | - | 375 bp |
| | | | | | 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- 12:02:11/12:02:13/12:02:15/12:03:19/12:03:32/12:08/12:10:01-12:10:02/12:14:02/12:16/12:18:01/12:22/ 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 |

| Position | | | | Mix | Allele | Serology | Size |
|----------|----|----|-----|--------|---|-------------------|--------|
| B2 | B5 | B8 | B11 | Mix 15 | C*01:04/01:21, 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 | -, Cw8, Null | 425 bp |
| A2 | A5 | A8 | A11 | Mix 16 | 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 | -, Null, B7 | 230 bp |
| H3 | H6 | H9 | H12 | Mix 17 | 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 | -, Cw6, Null | 340 bp |
| G3 | G6 | G9 | G12 | Mix 18 | C*02:02:01-02:02:03/02:02:05-02:02:11/02:02:13-02:02:20/02:02:22-02:02:34/02:04-02:11/02:12w/02:13-02:15/02:17/02:19-02:26:03/02:28-02:31/02:33-02:40:02/02:42-02:64/02:66-02:71/02:73-02:86/02:88-02:114/02:116-02:125/02:126w/02:127-02:128/02:130/02:132-02:134, 04:94:01-04:94:02, 05:08/05:52/05:89/05:106:01-05:106:02, 06:02:01:01-06:02:01:10/06:02:03-06:02:11/06:02:13-06:03:02/06:07-06:10/06:12-06:39/06:40w/06:41-06:51/06:53:01-06:60/06:62-06:68/06:70:01-06:78/06:80-06:81/06:83-06:117/06:119-06:121/06:122w/06:123/06:124w/06:125-06:146/06:148-06:152N/06:154-06:159/06:161-06:182/06:183w/06:185-06:196/06:198-06:203/06:205-06:209/06:212, 12:04:01-12:05/12:21/12:33/12:41/12:60/12:72w/12:135w/12:146/12:154w, 15:74, 16:91, 18:03 | Cw2, -, Null, Cw6 | 515 bp |
| F3 | F6 | F9 | 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 |

| Position | | | | Mix | Allele | Serology | Size |
|----------|----|----|-----|--------|--|--------------|--------------|
| E3 | E6 | E9 | E12 | Mix 20 | C*02:06:01-02:06:02/02:23/02:36:01-02:36:02/02:62/02:68, 03:04:25, 04:80/04:100/04:108/04:178, 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, 15:02:01-01-15:02:09/15:02:11-15:02:16/15:02:18-15:13:01-02/15:15-15:19/15:21-15:40/15:42/15:44:01-15:64/15:66-15:98/15:100-15:101/15:103-15:151, 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 |
| | | | | | 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 |
| D3 | D6 | D9 | D12 | Mix 21 | C*16:01:01:01-16:02:14/16:04:01:01-16:04:01:02/16:04:03-16:04:05/16:06-16:34/16:36-16:39:02/16:41-16:47/16:49-16:52/16:54-16:67/16:69-16:87/16:89N-16:109/16:111-16:116 | -, Null | 470 bp |
| C3 | C6 | C9 | C12 | Mix 22 | C*17:01:01:02-17:06/17:09-17:32/17:34-17:38, B*37:70 | -, Null | 210 bp |
| B3 | B6 | B9 | B12 | Mix 23 | 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 |
| A3 | A6 | A9 | A12 | Mix 24 | 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)

Table 2: 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/ 01:02:29-01:03:01/01:05-01:09/01:11-01:13/01:15-01:20/01:22/01:24-01:42/ 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 | | 5 | | | | | | | | | | | | | | | | | | |
| 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- 03:37:02/03:40:01/03:40:03-03:40:04/03:42/03:44/03:46-03:48/03:51/ 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*02:02:01-02:02:03/02:02:05-02:02:10/02:02:13-02:02:20/02:02:22-02:02:34/02:04:02/02:07-02:11/02:13-02:15/02:17/02:19-02:21/02:24-02:26:03/02:28-02:31/02:33-02:35/02:37-02:40/02:42/02:44-02:48/02:50-02:54/02:56-02:57/02:59-02:61/02:63-02:64/02:66-02:67Q/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 | w | | | | | | | | | | | | | | | | | | |
| C*03:03:01:01-03:03:31/03:03:33-03:03:37/03:04:38/03:11:01-03:11:02/03:13:01-03:13:02/03:18:01-03:18:02/03:20N-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 | | | | | | | | | | | | | | | 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*03:04:27/03:07:01-03:07:02/03:14/03:25/03:40:02/03:87:01/03:140/ 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*04:03:01/04:03:03-04:03:04/04:06:01-04:06:02/04:16/04:103/04:107/ 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*05:01:01:01-05:01:01:09/05:01:03-05:01:17/05:01:19/05:01:21-05:01:27/ 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*07:01:01:01-07:01:13/07:01:15-07:01:19/07:01:21-07:01:26/07:01:28-07:01:44/07:01:46-07:01:56/07:01:58-07:02:24/07:02:27-07:02:31/07:02:33-07:02:37/07:02:39/07:02:41-07:02:47/07:02:49-07:02:55/07:02:57-07:03/07:05-07:10/07:13-07:14/07:16-07:17:02/07:18-07:19/07:21/07:23-07:25/07:27-01-07:29:02/07:32N/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/12:151/12:155Q/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*12:02:06/12:02:08/12:02:12/12:03:01:01-12:03:01:09/12:03:03-12:03:07/ 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 | | | | | | | | | | | | | | | 15 | 16 | | | | | | | |
| C*12:02:09/12:10:01/12:96 | - | | | | | | 6 | | | | | | | | 14 | 15 | 16 | | | | | | | |
| 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*14:02:01:01-14:02:01:04/14:02:03/14:02:05-14:02:07/14:02:10-14:03/14:05-14:11/14:13-14:16/14:18/14:20-14:24:02/14:26-14:32/14:35N-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*15:02:01:01-15:02:09/15:02:11-15:02:13/15:02:15-15:02:16/15:02:18-15:02:30/15:04:01-15:13:01:02/15:15/15:17-15:19/15:21-15:24/15:26-15:35/15:38-15:40/15:42/15:44:01-15:54/15:56-15:57/15:59-15:64/15:66-15:73/15:75-15:78:01/15:79-15:98/15:100-15:101/15:103-15:124/15:126-15:132/15:134-15:151, B*35:08:02/35:08:05 | -, Null, B35 | | | | | | | | | | | | | | | | | | | | 20 | | | |
| C*15:02:14 | - | | | | | | | | | | | | | | | 15 | | | | | 20 | | | |
| C*15:25 | - | | | | | | | | | | | | | | | | 16 | | | | 20 | | | |
| C*15:37/15:55/15:58/15:125/15:133 | - | | | | | | | | | | | | | | | | | 17 | | | 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 | -, Null | | | | | | | | | | | | | | | | | | | | | 21 | | |
| C*16:01:06 | - | | | | 4 | | | | | | | | | | | | | | | | | | 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 | -, Null | | | | | | | | | | | | | | | | | 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 | -, Null | | 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