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Lot No.	A16-3 B15-3 DR42-2

CTS Collaborative Transplant Study

WORKING INSTRUCTION

HLA-A*/-B*/-DRB1* CTS-PCR-SSP TRAY KIT

LOCUS- AND LOT-SPECIFIC MANUAL

To be applied to the following product:

Product No.	Description
121	HLA-A*/-B*/-DRB1* 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 DR42-2 (the current lot) and Lot DR42-1:**
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 -DRB1* (besides HLA-DRB3*/4*/5* low resolution) by the PCR-SSP method.
- Allele coverage: IMGT/HLA Sequence Database Release 3.31.0, January 2018 for HLA-A* , -B* and -DRB1*, 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
 - **HLA-B***08:01:32/08:12:03/08:26:01-08:26:03/08:50/08:94/08:112/08:170/08:181, B*13:22:01-13:22:02/13:58/13:86/13:97, B*14:02:03/14:02:06/14:08:01-14:08:02/14:21/14:42/14:53/14:55, B*15:162/15:253/15:396, B*27:05:23/27:75/27:140, B*37:05/37:22/37:29, B*39:01:11/39:06:05/39:24:02/39:30/39:34/39:36/39:80/39:82/39:102/39:107/39:128, B*44:02:13/44:03:37/44:83/44:134/44:201, B*51:45/51:81/51:148/51:220, B*53:38/53:44, B*55:58, B*57:82, B*58:27, B*59:08
 - **HLA-DRB1***01:02:12/01:18:01-01:18:02/01:22/01:33N/01:44:01-01:44:02/01:60/01:76, DRB1*04:11:04/04:156, DRB1*08:01:06/08:57/08:80, DRB1*09:09/09:23, DRB1*10:12, DRB1*11:02:03/11:04:13/11:86/11:94/11:110/11:123/11:156/11:167/11:172/11:185/11:187/11:192/11:208, DRB1*12:31N/12:42/12:57, DRB1*13:195, DRB1*15:01:22/15:34/15:115N, DRB3*02:26-02:27/02:47/02:58/02:66.
- 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 DR42-2**.
- 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-DRB 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, 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 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-DRB1* locus**
 - Mix 6 and mix 7 detect (among other alleles) the most common HLA-DRB1*03 alleles which correspond either to serological split HLA-DR17 or HLA-DR18, respectively.

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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Hien Tran, M.D.

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
		G1	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
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/02:11:08-02:22:02/02:24:01-02:35:01/02:35:03-02:47/02:49/02:51/02:53N-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/02:492-02:503/02:505-02:509/02:511-02:526/02:528:01-02:570/02:572-02:581/02:583-02:590/02:591:02-02:600/02:602-02:621/02:622Nw/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
		E1	A*01:13/01:176/01:194, A*03:01:01:01:03:193/03:195-03:199/03:201-03:259/03:261-03:289, 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
E1	Mix 4	A*01:13/01:176/01:194, A*03:01:01:01:03:01:07/03:01:09-03:01:11/03:01:13-03:01:22/03:01:24-03:07:02/03:10-03:11N/03:13-03:31/03:33-03:35/03:37-03:40/03:42-03:56/03:58/03:60-03:71/03:73-03:87/03:90-03:106/03:110/03:112-03:127/03:129N-03:141/03:143-03:148/03:150-03:151/03:153-03:171/03:174-03:175/03:177/03:181-03:193/03:195/03:197N/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	225 bp
		E1	A*03:01:01:01:11/03:01:13-03:01:29/03:01:31-03:01:34/03:01:36-03:01:49/03:01:51-03:04:03/03:07:01-03:09/03:11N/03:13-03:17:02/03:19-03:39/03:41/03:43-03:58/03:60-03:71/03:73-03:87/03:89:02-03:96/03:99-03:104/03:106-03:121/03:123:01-03:134/03:136-03:148/03:150-03:166/03:168N-03:178N/03:181-03:186/03:188-03:193/03:195/03:197N-03:199/03:201-03:204/03:206-03:207/03:209-03:220/03:222-03:224/03:226-03:242/03:244/03:246-03:259/03:261-03:288, A*32:04/32:52, A*36:02	A3, Null, -
D1	Mix 5	A*03:01:01:01:03:01:05/03:01:07-03:01:29/03:01:31-03:01:34/03:01:36-03:01:48/03:01:51-03:04:03/03:07:01-03:09/03:11N-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	A3, Null, -	235 bp
		D1	A*23:01:01:01:23:23/23:25-23:33/23:35-23:56/23:58-23:65/23:67-23:68/23:70-23:83, A*24:24/24:71/24:315/24:392, A*29:07/29:49, A*31:29, B*18:27	A23(9), -, Null

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	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/24:157/24:159-24:190/24:192-24:199/24:201-24:209-24:210/24:212-24:236/24:238-24:272/24:274-24:289/24:291-24:308/24:311-24:325/24:327-24:341/24:343w/24:344-24:358/24:360-24:369/24:371-24:388N/24:390-24:391/24:393-24:394	A2, -, A23(9), Null, A24(9), Low A24(9), A2403, A9, A24(9)/A3
B1	Mix 7	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	-, A24(9), Low A24(9), A2403, A9, Null, A32(19), B51(5)	510 bp
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	-, A25(10), Null, A30(19)	see below
		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	-, A30(19), Null	550 bp
H2	Mix 9	A*02:135/02:309/02:454, A*30:02:10, 04:01:49	-	560 bp
		A*32:101Q, B*07:225w/07:260w	-	395 bp
		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	405 bp
		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*26:01:01-26:01:26/26:01:37/26:01:38w/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)	see below
		A*02:135/02:309/02:454, A*26:07:01-26:07:02/26:92	-, A26(10)	450 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	A25(10), -, Null, A26(10), A10, A34(10), A66(10)	445 bp

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
A2	Mix 15	A*68:01:28/68:130:02	-, A29(19), Null	515 bp
		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
H3	Mix 17	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
		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
G3	Mix 18	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
		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/02:01:34:02:01:39/02:01:41:02:01:50/02:01:53:02:01:62/02:01:64:02:01:73/02:01:75:02:01:76/02:01:78:02:01:81/02:01:83:02:01:113/02:01:115:02:05:02/02:05:04/02:05:06:02:06:06/02:06:08:02:06:11/02:06:13/02:06:15:02:06:19/02:06:21:02:11:01/02:11:03/02:11:05:02:11:08/02:12:02:22:01:02:24:01:02:35:01/02:36:02:44/02:47/02:49/02:51:02:54/02:57:02:60:02/02:62:02:76:01/02:77/02:79:01:02:91/02:93:01-02:97:02/02:99/02:101:01:02:104:02:112/02:114:02:121/02:123:02:128/02:130:02:140/02:142:02:145:02:168/02:170:02:175/02:177-02:184/02:186:02:194/02:196:02:200/02:202:02:204/02:207:02:216/02:218:02:243:01/02:244:02:248/02:250N-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
B3	Mix 23	A*02:01:01:01:02:01:08/02:01:10:02:01:11/02:01:12w/02:01:13:02:01:15/02:01:17:02:01:19/02:01:21:02:01:30/02:01:32/02:01:33w/02:01:34:02:01:39/02:01:41:02:01:66/02:01:68:02:01:81/02:01:83:02:01:121/02:01:123:02:01:126/02:01:128:02:05:04/02:05:06:02:06:06/02:06:08-02:07:05/02:07:07:02:07:11/02:09:02:11:01/02:11:03:02:19/02:21:02:22:02/02:24:01:02:33/02:35:02w/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/02:01:34:02:01:39/02:01:41:02:01:81/02:01:83:02:01:121/02:01:123:02:01:126/02:01:128:02:05:04/02:05:06:02:06:06/02:06:08-02:07:05/02:07:07:02:07:11/02:09:02:11:01/02:11:03:02:19/02:21:02:22:02/02:24:01:02:33/02:35:02w/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/02:01:34:02:01:39/02:01:41:02:01:48/02:01:50:02:01:50:02:01:81/02:01:83:02:01:107/02:01:109:02:05:04/02:05:06:02:06:01:04/02:06:03:02:06:06/02:06:08:02:10/02:12:02:22:02/02:24:01:02:34/02:36:02:47/02:49/02:51:02:68/02:70:02:76:01/02:77/02:79:01:02:80/02:82N-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	A2, Low A2, -, A203, A210, Null, A2/19	190 bp
A3	Mix 24	A*43:01, A*80:01:01:80:01:01:02/80:03	A43, A80, -	see below
		A*80:01:01:01:80:01:01:02/80:03	A80, -	170 bp
		A*43:01	A43	445 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: 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/07:05:05/07:05:06w/07:05:07-07:18:02/07:20:07:32/07:34-07:39/07:41-07:52/07:55-07:59/07:61-07:93/07:95-07:99/07:101-07:121/07:124-07:138/07:140-07:164/07:166-07:218/07:220-07:234/07:236-07:242/07:244-07:289/07:291-07:305, 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
		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
		B*07:29/07:186, B*08:01:01-01-08:01:31/08:01:33-08:05/08:07-08:12:02/08:13-08:25/08:27-08:48/08:51-08:61/08:63-08:93/08:95-08:106/08:108-08:111/08:113-08:169/08:171-08:180/08:182-08:190, 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 3	B*08:09/08:84, B*13:93, B*49:25, B*51:68/51:176, C*07:463	B8, -	545 bp
		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 4	B*13:01:01-01-13:02:21/13:06-13:21/13:23/13:25-13:36/13:37w/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
		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
C4	Mix 6	B*08:107, B*35:01:01:01:35:01:16/35:01:18-35:02:05/35:02:06w/35:02:07-35:03:06/35:03:08-35:04:02/35:05:01:01-35:09:03/35:11:01-35:11:03/35:12:04/35:14:01-35:15:02/35:17:01-35:19/35:21:31/35:23-35:25/35:27/35:29:01-35:30/35:32:01/35:33-35:38/35:40N-35:42:02/35:45-35:50/35:52-35:58/35:61:02-35:62/35:64:01-35:66/35:68:01-35:68:02/35:70-35:71/35:74-35:75/35:77-35:78/35:81/35:84/35:89-35:94/35:96-35:98/35:100-35:101:02/35:103-35:111/35:113-35:116/35:119-35:134N/35:136-35:148/35:150:01-35:163/35:165N-35:175/35:177-35:184/35:187-35:190/35:192-35:198/35:200/35:202w/35:203-35:206/35:209-35:211/35:213-35:214/35:216N-35:225/35:227-35:229/35:231-35:232/35:235-35:241/35:243-35:250/35:252-35:260/35:262-35:264/35:267-35:269/35:271-35:275/35:277-35:293/35:295/35:297-35:316/35:319-35:360, B*51:56:02, B*53:01:01-53:06/53:08:01-53:08:02/53:10-53:16/53:18-53:27/53:29-53:37/53:39/53:41-53:43/53:45-53:49, C*06:147	-, B35, Null, B53	400 bp
B4	Mix 7	B*07:12/07:14w/07:18:01/07:18:02w/07:17/07:137/07:162-07:163/07:193/07:235/07:248, B*08:49/08:129w, B*13:36, B*14:10w, B*15:02:01-15:02:04/15:02:05w/15:02:06-15:02:11/15:13:01-15:13:02/15:21:01-15:21:02/15:44/15:80w/15:88-15:89/15:112w/15:121/15:139/15:144/15:170/15:194/15:213-15:214/15:223/15:265/15:283/15:291/15:297/15:301-15:302N/15:308/15:319/15:325/15:328/15:330/15:341/15:345/15:357/15:378/15:394/15:399/15:404/15:418/15:420/15:425, B*18:18:01:01-18:18:01:02/18:105, B*35:01:01:01-35:01:03/35:01:04w/35:01:05-35:03:19/35:03:20w/35:03:21-35:04:03/35:06-35:08:02/35:08:03w/35:08:04-35:09:03/35:11:01-35:11:03/35:12:01w/35:12:02/35:12:03w-35:12:04w/35:14:01-35:15:02/35:18-35:21/35:23w/35:24:01/35:24:02w/35:25-35:27/35:29:01-35:29:02/35:33-35:36/35:38/35:39w/35:40N-35:42:02/35:45-35:50/35:52-35:57/35:59:01w/35:59:02/35:61:01w-35:61:02w/35:62/35:64:01-35:65Q/35:70-35:71/35:74/35:76-35:78/35:81-35:85/35:88/35:90-35:96/35:98/35:100-35:101:02/35:103-35:112/35:115-35:116/35:119/35:120w/35:121-35:124/35:126-35:134N/35:136-35:148/35:149w/35:150:01-35:150:02/35:152-35:175/35:177-35:184/35:187-35:198/35:200/35:201w/35:203-35:206/35:209-35:220/35:222-35:225/35:227-35:231/35:233w/35:236-35:241/35:243-35:250/35:252-35:257/35:258w/35:259-35:264/35:266w/35:267-35:269/35:271-35:272/35:274-35:275/35:277-35:285/35:287/35:288w/35:289-35:291/35:293-35:316/35:319-35:360, B*37:08/37:67, B*38:20w, B*39:09:01:01-39:09:01:03/39:09:03/39:42w/39:88/39:112/39:127, B*40:68, B*42:13, B*44:06w/44:12w/44:232w/44:263, B*51:04/51:42w/51:46w/51:56:01w/51:56:02-51:56:03/51:139/51:139/51:200/51:227w, B*53:01:01-53:13/53:15-53:16/53:18-53:27/53:29-53:37/53:39-53:43/53:45-53:46/53:48N-53:49, B*56:09/56:11/56:12w, B*83:01w, C*15:27	B7, -, B75(15), B77(15), B70, B15, Null, B35, B35/22, B37, B39(16), B44(12), B51(5), B53, B56(22), B55(22)	see below
B4	Mix 7	B*07:12/07:14w/07:18:01/07:18:02w/07:137/07:162/07:235, B*08:129w, B*13:36, B*14:10w, B*15:02:01-15:02:04/15:02:05w/15:02:06-15:02:11/15:13:01-15:13:02/15:21:01:01-15:21:02/15:44/15:80w/15:88-15:89/15:112w/15:121/15:139/15:144/15:170/15:194/15:213-15:214/15:223/15:265/15:283/15:291/15:297/15:301-15:302N/15:308/15:319/15:325/15:328/15:330/15:341/15:345/15:357/15:378/15:394/15:399/15:404/15:418/15:420/15:425, B*18:18:01:01-18:18:01:02/18:105, B*35:01:01:01-35:01:03/35:01:04w/35:01:05-35:03:19/35:03:20w/35:03:21-35:04:03/35:06-35:08:02/35:08:03w/35:08:04-35:09:03/35:11:01-35:11:03/35:12:01w/35:12:02/35:12:03w-35:12:04w/35:14:01-35:15:02/35:18-35:21/35:23w/35:24:01/35:24:02w/35:25-35:27/35:29:01-35:29:02/35:33-35:36/35:38/35:39w/35:40N-35:42:02/35:45-35:50/35:52-35:57/35:59:01w/35:59:02/35:61:01w-35:61:02w/35:62/35:64:01-35:65Q/35:70-35:71/35:74/35:76-35:78/35:81-35:85/35:88/35:90-35:96/35:98/35:100-35:101:02/35:103-35:112/35:115-35:116/35:119/35:120w/35:121-35:124/35:126-35:134N/35:136-35:148/35:149w/35:150:01-35:150:02/35:152-35:175/35:177-35:184/35:187-35:198/35:200/35:201w/35:203-35:206/35:209-35:220/35:222-35:225/35:227-35:231/35:233w/35:236-35:241/35:243-35:250/35:252-35:257/35:258w/35:259-35:264/35:266w/35:267-35:269/35:271-35:272/35:274-35:275/35:277-35:285/35:287/35:288w/35:289-35:291/35:293-35:316/35:319-35:360, B*37:08/37:67, B*38:20w, B*39:09:01:01-39:09:01:03/39:09:03/39:42w/39:88/39:112/39:127, B*40:68, B*42:13, B*44:06w/44:12w/44:232w/44:263, B*51:04/51:42w/51:46w/51:56:01w/51:56:02-51:56:03/51:139/51:139/51:200/51:227w, B*53:01:01-53:13/53:15-53:16/53:18-53:27/53:29-53:37/53:39-53:43/53:45-53:46/53:48N-53:49, B*56:09/56:11/56:12w, B*83:01w, C*15:27	B7, -, B75(15), B77(15), B70, B15, Null, B35, B35/22, B44(12), B51(5), B53, B56(22), B55(22)	380 bp
		B*07:77/07:163/07:193/07:248, B*08:49, B*13:36, B*14:10w, B*15:02:01-15:02:04/15:02:05w/15:02:06-15:02:11/15:13:01-15:13:02/15:21:01:01-15:21:02/15:44/15:80w/15:88-15:89/15:112w/15:121/15:139/15:144/15:170/15:194/15:213-15:214/15:223/15:265/15:283/15:291/15:297/15:301-15:302N/15:308/15:319/15:325/15:328/15:330/15:341/15:345/15:357/15:378/15:394/15:399/15:404/15:418/15:420/15:425, B*18:18:01:01-18:18:01:02/18:105, B*35:01:01:01-35:01:03/35:01:04w/35:01:05-35:03:19/35:03:20w/35:03:21-35:04:03/35:06-35:08:02/35:08:03w/35:08:04-35:09:03/35:11:01-35:11:03/35:12:01w/35:12:02/35:12:03w-35:12:04w/35:14:01-35:15:02/35:18-35:21/35:23w/35:24:01/35:24:02w/35:25-35:27/35:29:01-35:29:02/35:33-35:36/35:38/35:39w/35:40N-35:42:02/35:45-35:50/35:52-35:57/35:59:01w/35:59:02/35:61:01w-35:61:02w/35:62/35:64:01-35:65Q/35:70-35:71/35:74/35:76-35:78/35:81-35:85/35:88/35:90-35:96/35:98/35:100-35:101:02/35:103-35:112/35:115-35:116/35:119/35:120w/35:121-35:124/35:126-35:134N/35:136-35:148/35:149w/35:150:01-35:150:02/35:152-35:175/35:177-35:184/35:187-35:198/35:200/35:201w/35:203-35:206/35:209-35:220/35:222-35:225/35:227-35:231/35:233w/35:236-35:241/35:243-35:250/35:252-35:257/35:258w/35:259-35:264/35:266w/35:267-35:269/35:271-35:272/35:274-35:275/35:277-35:285/35:287/35:288w/35:289-35:291/35:293-35:316/35:319-35:360, B*37:08/37:67, B*38:20w, B*39:09:01:01-39:09:01:03/39:09:03/39:42w/39:88/39:112/39:127, B*40:68, B*42:13, B*44:06w/44:12w/44:232w/44:263, B*51:04/51:42w/51:46w/51:56:01w/51:56:02-51:56:03/51:139/51:139/51:200/51:227w, B*53:01:01-53:13/53:15-53:16/53:18-53:27/53:29-53:37/53:39-53:43/53:45-53:46/53:48N-53:49, B*56:09/56:11/56:12w, B*83:01w, C*15:27	-, B37, B39(16), B53	395 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*39:01:01-39:01:03:01-39:01:10/39:01:12-39:06:04/39:07-39:20/39:22-39:29/39:25N-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/15:68/15:78:01-15:78:03/15:107/15:116/15:126/15:126/15:141/15:150/15:188/15:207/15:248/15:287/15:324/15:331/15:352/15:360/15:383/15:405/15:421/15:431, 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/15:68/15:78:01-15:78:03/15:107/15:116/15:126/15:126/15:141/15:150/15:188/15:207/15:248/15:287/15:324/15:331/15:352/15:360/15:383/15:405/15:421/15:431, 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*15:33/15:78:01-15:78:03/15:107/15:116/15:141/15:150/15:188/15:248/15:287/15:324/15:331/15:352/15:360/15:383/15:405/15:421, 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*15:33/15:78:01-15:78:03/15:107/15:116/15:141/15:150/15:188/15:248/15:287/15:324/15:331/15:352/15:360/15:383/15:405/15:421, 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/15:306-15:307/15:311/15:314/15:335/15:337/15:351/15:354/15:359/15:379-15:380N/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 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 B*07:04/07:19/07:25/07:146, B*08:123/08:132, B*42:01:01-42:02:01:02/42:04-42:10/42:12-42:18/42:20-42:24, 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 B7, -, B42, B56(22), B82 B7, -, B42, B56(22), B82	see below 550 bp 540 bp
A6	Mix 24	B*07:02:01:01w-07:04w/07:07w-07:12w/07:14w-07:31w/07:33:01w-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/07:305w, 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/44:63-44:64:69:02/44:70w/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

Position	Mix	Allele	Serology	Size
H7		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	-, B76(15), B44(12), B45(12), B82	see below
	Mix 25	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), B45(12), B82	715 bp 545 bp
G7		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*49:01:01-01-49:01:01-02/49:01-03-49:02/49:04:01-49:10/49:12-49:14/49:16-49:25/49:27-49:44/49:46-49:48, 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		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*56:01:01-01-56:02:02/56:04/56:08/56:10/56:13-56:14/56:16-56:17/56:19N-56:20/56:22-56:30/56:33-56:45/56:47-56:49/56:51-56:55, 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/07:236-07:245/07:246w/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/07:02:29-07:02:51/07:04-07:05:02-07:07/07:09w/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*40:05:01-40:05:01-40:15-40:16/40:23/40:26/40:28/40:32/40:51/40:95/40:98/40:148/40:158/40:161/40:174/40:183/40:198/40:309/40:355, B*46:14, B*49:01:01-49:01:01-49:01:02/49:01-49:01:03-49:09/49:12-49:14/49:16-49:23/49:26-49:30/49:32-49:44/49:46-49:48, 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*40:05:01-40:05:01-40:15-40:16/40:23/40:26/40:28/40:32/40:51/40:95/40:98/40:148/40:158/40:161/40:174/40:183/40:198/40:309/40:355, B*46:14, B*49:01:01-49:01:01-49:01:02/49:01-49:01:03-49:09/49:12-49:14/49:16-49:23/49:26-49:30/49:32-49:44/49:46-49:48, 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*40:05:01-40:05:01-40:15-40:16/40:23/40:26/40:28/40:32/40:51/40:95/40:98/40:148/40:158/40:161/40:174/40:183/40:198/40:309/40:355, B*46:14, B*49:01:01-49:01:01-49:01:02/49:01-49:01:03-49:09/49:12-49:14/49:16-49:23/49:26-49:30/49:32-49:44/49:46-49:48, 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-51:156/51:158:01-51:167/51:169/51:170w/51:171-51:196/51:198/51:200-51:213/51:215-51:219/51:221/51:223-51:224/51:226-51:229, 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-51:156/51:158:01-51:167/51:169/51:170w/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-DRB1*** CTS-PCR-SSP primer mix (**Lot No. DR42-2**) based on IMGT/HLA Sequence Database Release 3.31.0, January 2018

Position	Mix	Allele	Serology	Size
H10	Mix 1	DRB1*01:01:01:01:02:11:01:02:13:01:17:01:19:01:21:01:23:01:32:01:34:01:38/01:39Nw-01:40Nw/01:41:01:43/01:45-01:48/01:49w/01:50-01:59/01:61-01:64/01:65:01w-01:65:02w/01:66-01:75/01:77-01:84	DR1, -, DR103, Null	140 bp
		DRB1*01:03:01:01:03:02/01:39Nw/01:42/01:61	DR103, -, Null	200 bp
F10	Mix 3	DRB1*15:01:01:01:15:01:21/15:01:23-15:33/15:35-15:112/15:113Nw/15:114/15:116-15:147, DRB1*16:09:01-16:10/16:33/16:36-16:37	DR15(2), -, DR2, Null, DR16(2)	see below
		DRB1*15:01:01:01:15:01:21/15:01:23-15:01:28/15:01:30-15:02:09/15:02:11-15:02:17/15:03:01:01-15:05/15:08/15:10/15:12-15:33/15:35-15:46/15:49-15:58/15:60-15:64/15:66:01-15:67/15:69-15:72/15:74-15:76/15:78-15:87/15:89-15:93/15:95/15:98-15:106/15:108-15:112/15:113Nw/15:114/15:116-15:124/15:126-15:129N/15:131-15:135/15:137N-15:142/15:144-15:147, DRB1*16:09:01-16:10/16:33/16:36-16:37	DR15(2), -, DR2, Null, DR16(2)	140 bp
		DRB1*15:01:01:01:15:01:06/15:01:08-15:01:13/15:01:15-15:01:21/15:01:24-15:09/15:11-15:20/15:22-15:24/15:26/15:28-15:33/15:35-15:43/15:45/15:47-15:49/15:51-15:53/15:55-15:65/15:67-15:79/15:81-15:83/15:85-15:90/15:92-15:99/15:101-15:102/15:104:01-15:112/15:113Nw/15:114/15:116/15:118/15:121/15:123-15:126/15:128/15:130-15:147	DR15(2), -, DR2, Null	215 bp
E10	Mix 4	DRB1*15:21, DRB1*16:01:01:16:01:08/16:01:10-16:05:02/16:07-16:47	-, DR16(2), DR2, Null	210 bp
D10	Mix 5	DRB1*03:01:01:01:03:01:03/03:01:02w/03:01:03/03:01:05-03:01:13/03:01:14w/03:01:15-03:02:01/03:02:02w/03:02:03-03:05:02/03:05:03w/03:06-03:08/03:09?/03:10-03:11:01/03:12?/03:13:01/03:13:02w/03:14-03:15:01/03:15:02w/03:16-03:41:02/03:43-03:75/03:77-03:83/03:85-03:86/03:88-03:91/03:93-03:96/03:98-03:110/03:112-03:124/03:127w/03:128-03:129/03:130w/03:131-03:134/03:135w/03:136-03:142, DRB1*11:07:01/11:07:02w/11:53/11:103:01-11:103:02/11:105/11:107/11:125/11:136/11:173, DRB1*14:104w/14:111w/14:171, DRB3*01:14w	DR17(3), -, DR18(3), DR3, Null, DR11(5)	225 bp
		DRB1*03:01:01:01:03:01:26/03:04:01-03:04:02/03:06/03:08/03:10-03:11:01/03:12?/03:13:01-03:13:02/03:15:01-03:16/03:18-03:20/03:22-03:23/03:25-03:26/03:28/03:30-03:34/03:36-03:37/03:39/03:42-03:48/03:50-03:52/03:54w/03:55-03:56/03:58-03:62/03:64-03:73/03:75-03:80/03:82-03:87/03:89/03:91-03:96/03:98-03:99/03:100:01w-03:100:02w/03:104/03:106-03:112/03:114/03:116-03:118/03:121/03:123-03:129/03:132-03:142, DRB1*09:06, DRB1*11:59/11:83/11:135/11:182, DRB1*13:27/13:71/13:129/13:144/13:176, DRB1*14:82/14:95/14:132, DRB3*01:34	DR17(3), -, DR3, Null, DR13(6)	220 bp
B10	Mix 7	DRB1*03:02:01-03:02:03/03:05:01-03:05:03/03:09/03:14/03:27/03:29/03:38/03:53/03:74/03:81/03:88/03:90/03:102-03:103/03:115/03:122/03:130-03:131, DRB1*11:09/11:20/11:28:02/11:87/11:122, DRB1*13:02:01-01-13:02:03/13:02:05-13:02:13/13:05:01-13:05:03/13:26:01-13:26:02/13:29/13:31/13:34/13:36/13:39/13:41/13:50:02-13:50:03/13:56/13:63/13:65/13:67/13:73-13:74/13:85/13:96:01-13:96:02/13:99/13:103-13:104/13:109/13:119-13:120/13:123-13:124/13:126/13:128/13:136/13:139-13:140/13:142N-13:143/13:145/13:147/13:155/13:157-13:159/13:165/13:168/13:170-13:171:02/13:179/13:189/13:196/13:198-13:199/13:202-13:203/13:207-13:212/13:220/13:225/13:235-13:237/13:239-13:241/13:243-13:244, DRB1*14:02:01-01-14:03:02/14:09/14:13/14:19?/14:24/14:27:01-14:27:02/14:30/14:46-14:48/14:51/14:63/14:67/14:85/14:89/14:98/14:109/14:115/14:134-14:135/14:144/14:174/14:179, DRB1*16:08, DRB3*01:08/01:46, DRB3*02:06?/02:20	DR18(3), -, DR3, DR11(5), DR13(6), Null, DR14(6), DR1403	190 bp

Position	Mix	Allele	Serology	Size
A10	Mix 8	DRB1*03:49, DRB1*04:01:01-04:05:11/04:05:13-04:11:03/04:12-04:155/04:157N-04:237, DRB1*08:38, DRB1*11:22/11:102:01-11:102:02/11:175, DRB1*14:10/14:57/14:143/14:161/14:182	-, DR4, Null, DR14(6)	see below
		DRB1*04:28/04:35/04:42-04:43/04:59/04:147/04:199/04:210/04:230, DRB1*11:22	DR4, -	145 bp
		DRB1*04:01:01-04:01:06/04:01:08-04:01:10/04:01:12-04:05:04/04:05:06-04:05:11/04:05:13-04:11:03/04:12-04:27/04:29-04:34/04:36-04:41/04:44:01-04:48/04:50-04:58/04:60-04:63/04:65/04:67-04:84/04:86-04:146/04:148-04:155/04:157N-04:161/04:163-04:173/04:175-04:191/04:193-04:195/04:197-04:198/04:200-04:209/04:211-04:212N/04:214N-04:219/04:221-04:226/04:228/04:231-04:237, DRB1*14:10/14:57/14:143/14:182	DR4, -, Null, DR14(6)	145 bp
		DRB1*04:01:01-04:01:07/04:01:09-04:01:17/04:05:01:01-04:05:11/04:05:13-04:05:18/04:07:01:01-04:09/04:14/04:16-04:17:02/04:19-04:21/04:24/04:26/04:28-04:31/04:33-04:35/04:38/04:43/04:45/04:47-04:48/04:54/04:57/04:61-04:63/04:69/04:72:01-04:72:02/04:74-04:77/04:80-04:84/04:86-04:87/04:89-04:90/04:92/04:98:01-04:98:02/04:102-04:107/04:111-04:113/04:115-04:117/04:119N/04:123/04:125/04:127-04:132/04:135/04:137/04:139-04:141/04:145/04:152-04:153/04:155/04:158N-04:160/04:162/04:166/04:170-04:175/04:178N-04:179/04:184-04:185/04:187-04:190/04:194/04:196-04:197/04:199-04:200/04:202/04:205-04:206/04:208-04:209/04:212N/04:214N/04:216-04:217/04:222/04:225/04:227/04:231-04:233/04:236, DRB1*11:22, DRB1*14:143	DR4, -, Null	260 bp
		DRB1*03:49, DRB1*04:28/04:35/04:42-04:43/04:59/04:147/04:199/04:210/04:230, DRB1*11:102:01-11:102:02/11:175	-, DR4	85 bp
		DRB1*04:01:01-04:01:06/04:01:08-04:01:10/04:01:12-04:02:03/04:02:05-04:05:04/04:05:06-04:05:11/04:05:13-04:05:16/04:05:18-04:11:03/04:12-04:27/04:29-04:34/04:36-04:41/04:44:01-04:48/04:50-04:58/04:60-04:62/04:64-04:109/04:111-04:122/04:124-04:146/04:148-04:155/04:157N-04:160/04:163-04:171/04:173/04:175-04:195/04:197-04:198/04:201/04:203-04:209/04:212N-04:226/04:228-04:229/04:231-04:237, DRB1*08:38, DRB1*14:161	DR4, -, Null	85 bp
		DRB1*04:01:01-04:01:07/04:01:09-04:01:17/04:05:01:01-04:05:11/04:05:13-04:05:16/04:05:18/04:07:01:01-04:09/04:14/04:16-04:17:02/04:19-04:21/04:24/04:26/04:28-04:31/04:33-04:35/04:38/04:43/04:45/04:47-04:48/04:54/04:57/04:61-04:62/04:64/04:66/04:69/04:72:01-04:72:02/04:74-04:77/04:80-04:84/04:86-04:87/04:89-04:90/04:92/04:98:01-04:98:02/04:102-04:107/04:111-04:113/04:115-04:117/04:119N/04:125/04:127-04:132/04:135/04:137/04:139-04:141/04:145/04:152-04:153/04:155/04:158N-04:160/04:162/04:166/04:170-04:175/04:178N-04:179/04:184-04:185/04:187-04:190/04:194/04:196-04:197/04:199-04:200/04:202/04:205-04:206/04:208-04:209/04:212N-04:214N/04:216-04:217/04:222/04:225/04:227/04:231-04:233/04:236, DRB1*08:38, DRB1*14:161	DR4, -, Null	200 bp
		DRB1*01:21w, DRB1*07:01:01-07:01:22/07:03-07:84	-, DR7, Null	see below
		DRB1*07:01:01-07:01:06/07:01:09-07:01:11/07:01:13-07:01:14/07:01:16-07:01:18/07:01:21-07:01:22/07:03-07:05/07:08-07:11/07:14-07:27/07:29-07:44/07:46-07:56/07:58N-07:82/07:84	DR7, -, Null	115 bp
		DRB1*01:21w, DRB1*07:01:01-07:01:03/07:01:05-07:01:13/07:01:15-07:01:22/07:03-07:05-07:10N/07:12-07:24/07:26N-07:31/07:33-07:34/07:36-07:58N/07:60/07:62-07:84	-, DR7, Null	190 bp

Position	Mix	Allele	Serology	Size
G11	Mix 10	DRB1*08:01:01-08:01:02/08:01:04-08:01:05/08:02:01-01-08:04:01/08:04:03-08:19/08:21-08:30:03/08:32-08:56/08:58-08:66/08:68:01-08:79/08:81-08:82, DRB1*11:67/11:193:01-11:193:02, DRB1*12:16:01-12:16:03/12:22/12:39/12:46, DRB1*14:04:01-14:04:03/14:15/14:28/14:31/14:50/14:68:01-14:68:02/14:71/14:73/14:76/14:79/14:93/14:107/14:120/14:138/14:145/14:148/14:152N/14:180	DR8, -, Null, DR1404, DR14(6)	see below
		DRB1*08:01:01-08:01:02/08:01:04-08:01:05/08:03:02-01-08:03:07/08:05-08:06/08:10/08:12/08:14/08:16-08:18/08:22-08:23/08:26-08:27/08:29/08:32-08:33/08:35-08:40/08:43/08:46/08:48/08:50/08:53-08:56/08:58/08:60N/08:62/08:64-08:66/08:68:01-08:68:02/08:70-08:71/08:74/08:76-08:79, DRB1*12:46	DR8, -, Null	165 bp
		DRB1*08:08, DRB1*14:04:01-14:04:03/14:28/14:31/14:50/14:68:01-14:68:02/14:71/14:73/14:76/14:79/14:93/14:107/14:120/14:138/14:145/14:148/14:152N/14:180	-, DR1404, DR14(6), Null	165 bp
		DRB1*08:01:01-08:01:02/08:01:04-08:01:05/08:02:01-01-08:03:06/08:04:01/08:04:03-08:04:07/08:06-08:17/08:19/08:21-08:23/08:26-08:28/08:30:01-08:30:03/08:32-08:39/08:42/08:44-08:46/08:48-08:55/08:58-08:66/08:68:01-08:79/08:81-08:82, DRB1*11:67, DRB1*14:15	DR8, -, Null	215 bp
		DRB1*08:01:01-08:01:02/08:01:04-08:01:05/08:02:01-01/08:02:02-08:03:07/08:05/08:07-08:09/08:11/08:13-08:19/08:21/08:23-08:27/08:29-08:30:02/08:32-08:38/08:40-08:47/08:49/08:51/08:53/08:56/08:58/08:60N-08:63/08:66/08:68:01-08:69/08:71-08:74/08:76-08:79, DRB1*11:193:01-11:193:02, DRB1*12:16:01-12:16:03/12:22/12:39, DRB1*14:68:01-14:68:02/14:93	DR8, -, Null	250 bp
		DRB1*09:01:02:01-09:05/09:07-09:08/09:10-09:22/09:24-09:32	DR9, -	220 bp
		DRB1*01:34w, DRB1*10:01:01-10:11/10:13-10:24	-, DR10	205 bp
		DRB1*01:75, DRB1*03:08/03:65/03:140, DRB1*04:15/04:61/04:138/04:145/04:154/04:170, DRB1*08:31/08:41/08:63/08:75, DRB1*10:23, DRB1*11:01:01-11:02:02/11:02:04-11:04:12/11:04:14-11:11:01/11:11:03-11:21/11:22?/11:23:01-11:25/11:26?/11:27:01-11:39/11:40?/11:41-11:70/11:72-11:85/11:87-11:93/11:95-11:109/11:111-11:122/11:124-11:155/11:157-11:166/11:168-11:171/11:173-11:184/11:186/11:188-11:191/11:193:01-11:202/11:203w/11:204-11:207/11:209-11:210/11:211w/11:212-11:220, DRB1*12:04/12:49, DRB1*14:11, DRB1*15:99/15:109, DRB1*16:16/16:27, DRB3*01:42, DRB3*02:18, DRB5*01:13	-, DR4, DR11(5), DR11(5)/DR13(6), Null, DR14(6)	125 bp
		DRB1*08:25/08:32/08:47/08:53, DRB1*12:01:01-12:01:04/12:01:05w/12:01:06-12:19/12:20w/12:21-12:30/12:32-12:41/12:43-12:68	-, DR12(5), Null	see below
		DRB1*08:32/08:53, DRB1*12:01:01-12:01:03/12:01:05w/12:01:06-12:02:06/12:03:02-12:13/12:15-12:19/12:20w/12:21-12:28/12:30/12:32-12:35/12:37/12:39-12:41/12:43-12:44/12:46-12:50/12:53-12:55/12:59-12:62/12:64-12:68	-, DR12(5), Null	105 bp
C11	Mix 14	DRB1*08:25/08:47, DRB1*12:01:01-12:01:05/12:01:03-12:01:04/12:01:05w/12:01:06-12:02:03/12:02:05-12:15/12:16:02-12:19/12:20w/12:21/12:23-12:30/12:32-12:41/12:43-12:48/12:50-12:56/12:58-12:65/12:67-12:68	-, DR12(5), Null	210 bp
		DRB1*03:125, DRB1*11:09/11:16/11:20/11:28:02/11:40w/11:58:01/11:59w/11:83/11:87/11:113/11:115/11:122w/11:182, DRB1*13:01:01-13:02:13/13:05:01-13:06/13:10/13:15-13:16/13:18/13:26:01-13:28/13:31-13:32/13:34-13:36/13:39-13:42/13:50:02-13:51/13:53/13:59/13:61:01-13:61:02/13:63w/13:65/13:67/13:69/13:73-13:74/13:79-13:80/13:85/13:87/13:91-13:93/13:96:01-13:96:02/13:98-13:99/13:102-13:105/13:109-13:110/13:111w/13:112-13:113N/13:117/13:120-13:121/13:123-13:128/13:130-13:131/13:136-13:148/13:153/13:155-13:160/13:165-13:166/13:168/13:170-13:171:02/13:173/13:176-13:177/13:179/13:183-13:187/13:189-13:191/13:198-13:203/13:205/13:207-13:215/13:217-13:218/13:220-13:222/13:223w/13:225-13:226/13:233/13:234w/13:236-13:245, DRB1*14:27:01-14:27:02/14:63/14:67/14:78, DRB1*16:08	-, DR11(5), DR11(5)/DR13(6), DR13(6), Null, DR14(6)	130 bp

Position	Mix	Allele	Serology	Size
		DRB1*03:12?, DRB1*11:03:01-11:03:02/11:11:01/11:11:03/11:36/11:40-11:41/11:55/11:59/11:63:01-11:63:02/11:68/11:76/11:85/11:122/11:138-11:139/11:151/11:161/11:168/11:176/11:213, DRB1*13:03:01-13:04/13:12:01-13:13/13:20-13:21:02/13:24/13:29/13:30?/13:32-13:33:03/13:38/13:43/13:48-13:49/13:54/13:55?/13:58/13:63/13:65-13:66:02/13:71/13:75/13:78/13:81/13:88-13:90/13:93-13:95/13:101/13:108/13:111/13:115/13:118/13:120/13:122/13:133-13:134/13:139/13:149/13:151-13:152/13:154/13:161/13:164/13:167/13:169/13:174/13:188/13:194/13:216/13:219/13:227-13:228/13:230/13:247, DRB1*14:13/14:63/14:65/14:78/14:85/14:169-14:170	DR3, DR11(5), -, DR13(6), DR14(6)	see below
A11	Mix 16	DRB1*03:12?, DRB1*13:03:01-13:04/13:12:01-13:13/13:21:01-13:21:02/13:30?/13:32-13:33:03/13:38/13:48-13:49/13:55?/13:58/13:65-13:66:02/13:75/13:81/13:88-13:90/13:93-13:95/13:101/13:108/13:115/13:118/13:120/13:122/13:133-13:134/13:139/13:151-13:152/13:154/13:161/13:164/13:167/13:169/13:174/13:188/13:194/13:216/13:219/13:227-13:228/13:230, DRB1*14:13/14:63/14:65/14:78/14:85/14:169-14:170	DR3, DR13(6), -, DR14(6)	170 bp
		DRB1*03:12?, DRB1*11:03:01-11:03:02/11:11:01/11:11:03/11:36/11:40-11:41/11:55/11:59/11:63:01-11:63:02/11:68/11:76/11:85/11:122/11:138-11:139/11:151/11:161/11:168/11:176/11:213, DRB1*13:20-13:21:02/13:24/13:29/13:43/13:49/13:54/13:55?/13:63/13:71/13:75/13:78/13:108/13:111/13:149/13:247, DRB1*14:13/14:65/14:85/14:169-14:170	DR3, DR11(5), -, DR13(6), DR14(6)	200 bp
H12	Mix 17	DRB1*11:09/11:28:02/11:40w/11:58:01/11:59w/11:83/11:87/11:113/11:115/11:122w/11:182, DRB1*13:05:01-13:05:03/13:18/13:26:01-13:26:02/13:42/13:50:02-13:50:03/13:63w/13:111w/13:136/13:144/13:158/13:189/13:199/13:203, DRB1*14:27:01-14:27:02, DRB1*16:08	DR11(5), -, DR13(6), DR14(6)	130 bp

Position	Mix	Allele	Serology	Size
G12	Mix 18	DRB1*03:01:01-03:01:06/03:01:07w/03:01:08-03:01:13/03:01:14w/03:01:15-03:07/03:09?/03:10-03:11:01/03:12?/03:13:01-03:37/03:38w/03:39-03:41:02/03:43-03:45/03:46w/03:47-03:58/03:59w/03:60-03:64/03:66-03:78/03:79w/03:80-03:86/03:88-03:110/03:112-03:126/03:127w/03:128-03:129/03:130w/03:131-03:134/03:135w/03:136-03:139/03:141-03:142, DRB1*08:01:01-08:01:02/08:01:04-08:01:05/08:02:01-01-08:04:01/08:04:03-08:24:02/08:25w/08:26-08:30/08:32-08:33/08:34w/08:35-08:40/08:42-08:46/08:47w/08:48-08:51/08:52w/08:53-08:56/08:58-08:62/08:64-08:68:02/08:70-08:74/08:76-08:79/08:81-08:82, DRB1*12:01:01:01w-12:01:07w/12:01:09w-12:02:05w/12:02:07w-12:03:03w/12:05w-12:08w/12:09/12:10w-12:17w/12:19w-12:23w/12:24N-12:25/12:26w-12:30w/12:32w/12:34w-12:41w/12:43w-12:45w/12:46/12:48/12:50w-12:53w/12:54/12:55w-12:56w/12:58w-12:61w/12:62/12:63w-12:66w/12:67/12:68w, DRB1*13:01:01-13:02:11/13:02:12w/13:02:13-13:29/13:30?/13:31-13:53/13:54w/13:55?/13:56-13:66:02/13:68-13:76/13:77w/13:78-13:99/13:100w/13:101-13:102/13:103w/13:104-13:109/13:110-13:119/13:120-13:129/13:130-13:139/13:140-13:149/13:150-13:159/13:160-13:166/13:167-13:176/13:177w/13:178-13:184-13:194/13:196-13:198/13:199w/13:201-13:217/13:218w/13:219-13:227/13:229-13:247, DRB1*14:01:01-14:09/14:12:01-14:38:02/14:40-14:45/14:47/14:48w/14:49-14:54:01:02/14:54:03-14:56/14:58-14:60/14:62-14:65/14:67-14:124/14:125w/14:126:01-14:140/14:142/14:144-14:147/14:149-14:176/14:177w/14:178-14:181/14:183-14:190, DRB3*01:14w	DR17(3), -, Null, DR14(6)	170 bp
		DRB1*03:01:06/03:01:07w/03:01:09/03:01:14w/03:01:15/03:09?/03:13:01-03:13:02/03:46w/03:50/03:59w/03:64/03:67N/03:69/03:86/03:88/03:117/03:130w/03:135w, DRB1*13:02:12w/13:39/13:78-13:79/13:103w/13:112/13:121/13:128/13:142N/13:160w/13:163/13:165w/13:173/13:181/13:199w/13:218w, DRB1*14:08/14:23:02/14:34/14:64/14:72/14:109/14:115/14:130	DR17(3), -, DR14(6), DR6, DR13(6), Null	175 bp
G12	Mix 18	DRB1*03:10, DRB1*13:43/13:45/13:159/13:171:01/13:179/13:191/13:197/13:217, DRB1*14:01:01-14:01:04/14:07:01-14:07:02/14:16/14:22/14:25-14:26/14:32:01-14:32:03/14:35/14:38:01-14:38:02/14:49/14:53-14:54:01:02/14:54:03-14:55/14:58/14:60/14:62/14:69-14:70/14:74-14:75/14:82/14:86-14:88/14:90/14:92N/14:97/14:99/14:101/14:104-14:105/14:110-14:114/14:117-14:119/14:122/14:124/14:125w/14:128-14:129/14:131-14:133/14:137N/14:139-14:140/14:142/14:146-14:147/14:149-14:151/14:153/14:157-14:158/14:162-14:164/14:166N/14:168/14:171-14:173/14:178/14:184-14:186/14:189-14:190	DR17(3), -, DR14(6), DR6, DR13(6), Null	175 bp
		DRB1*03:01:01-03:01:05/03:01:07w/03:01:08-03:01:13/03:01:14w/03:01:15-03:07/03:09?/03:11:01/03:12?/03:13:01-03:37/03:38w/03:39-03:41:02/03:43-03:45/03:47-03:58/03:59w/03:60-03:63/03:66-03:78/03:79w/03:80-03:86/03:88-03:91/03:93-03:110/03:112-03:126/03:127w/03:128-03:129/03:131-03:134/03:135w/03:136-03:139/03:141-03:142, DRB1*08:20, DRB1*13:01:01-13:02:11/13:02:12w/13:02:13-13:16/13:18-13:29/13:30?/13:31-13:42/13:44/13:46-13:53/13:54w/13:55?/13:56-13:66:02/13:68-13:76/13:77w/13:78-13:99/13:100w/13:101-13:102/13:103w/13:104-13:115/13:117-13:158/13:160w/13:161/13:162w/13:163-13:164/13:166-13:170/13:171:02-13:174/13:176-13:178/13:180-13:182/13:184-13:190/13:192-13:194/13:196/13:198/13:199w/13:201-13:213/13:215-13:216/13:218w/13:219-13:227/13:229-13:247, DRB1*14:02:01-14:03:02/14:05:01-14:06:03/14:09/14:12:01-14:14/14:17-14:21/14:23:01/14:23:03-14:24/14:27:01-14:27:02/14:29-14:30/14:33/14:36-14:37/14:40-14:45/14:47/14:48w/14:51/14:56/14:59/14:63-14:65/14:67/14:77-14:78/14:80-14:81/14:83-14:85/14:89/14:91/14:94-14:96/14:98/14:100/14:102-14:103/14:106/14:108-14:109/14:115-14:116/14:121/14:123/14:127:01-14:127:02/14:130/14:134-14:136/14:144/14:154-14:156/14:159-14:161/14:165/14:167/14:169-14:170/14:174/14:176/14:177w/14:179/14:181/14:183/14:187-14:188N, DRB3*01:14w	DR17(3), -, DR18(3), DR3, Null, DR13(6), DR14(6), DR6	175 bp
G12	Mix 18	DRB1*08:15/08:21, DRB1*12:48	-	165 bp
		DRB1*08:08, DRB1*14:04:01-14:04:03/14:28/14:31/14:50/14:68:02/14:71/14:73/14:76/14:79/14:93/14:107/14:120/14:138/14:140/14:145/14:152N/14:180	-, DR1404, DR14(6), Null	165 bp

Position	Mix	Allele	Serology	Size
		DRB1*03:92, DRB1*08:01:01-08:01:02/08:01:04-08:01:05/08:02:01-01-08:04:01/08:04:03-08:07/08:09-08:14/08:16-08:19/08:21-08:24:02/08:25w/08:26-08:30:03/08:32-08:33/08:34w/08:35-08:40/08:42-08:46/08:47w/08:48-08:51/08:52w/08:53-08:56/08:58-08:62/08:64-08:68:02/08:70-08:74/08:76-08:79/08:81-08:82, DRB1*12:01:01-12:01:07w/12:01:09w-12:02:05w/12:02:07w-12:03:03w/12:05w-12:08w/12:09/12:10w-12:17w/12:19w-12:23w/12:24N-12:25/12:26w-12:30w/12:32w/12:34w-12:41w/12:43w-12:45w/12:46/12:48/12:50w-12:53w/12:54/12:55w-12:56w/12:58w-12:61w/12:62/12:63w-12:66w/12:67/12:68w, DRB1*13:17/13:116/13:175/13:214, DRB1*14:15/14:52/14:126:02/14:175	- , DR8, Null, DR12(5), DR13(6)	170 bp
		DRB1*03:10/03:97/03:126, DRB1*08:08/08:29, DRB1*11:17/11:52-11:54:02/11:89/11:150/11:159/11:202, DRB1*12:66, DRB1*13:43/13:45/13:76/13:159/13:171:01/13:179/13:188/13:191/13:197/13:206/13:217, DRB1*14:01:01-14:01:04/14:04:01-14:05:04/14:07:01-14:08/14:11/14:14/14:16/14:18/14:22-14:23:04/14:25-14:26/14:28/14:31-14:33/14:35-14:36/14:38:01-14:39/14:42-14:45/14:49-14:51/14:53-14:56/14:58-14:62/14:64/14:68:01-14:76/14:79/14:82/14:86-14:88/14:90-14:93/14:95-14:97/14:99/14:101/14:103-14:107/14:110-14:114/14:117-14:120/14:124/14:125w/14:126:01-14:126:02/14:128-14:134/14:137N-14:140/14:142/14:145-14:155/14:157-14:158/14:160-14:164/14:166N-14:169/14:171-14:173/14:175/14:178/14:180/14:184-14:190	DR17(3), -, DR11(5), DR14(6), DR1404, DR6, DR13(6), Null	see below
		DRB1*08:08, DRB1*14:04:01-14:04:03/14:28/14:31/14:50/14:61/14:68:01-14:68:02/14:71/14:73/14:76/14:79/14:93/14:107/14:120/14:138/14:145/14:152N/14:180	- , DR1404, DR14(6), Null	175 bp
F12	Mix 19	DRB1*08:29, DRB1*12:66, DRB1*14:04:01-14:04:02/14:11/14:28/14:50/14:61/14:68:01/14:71/14:73/14:76/14:79/14:93/14:120/14:126:02/14:138/14:145/14:148/14:152N/14:175	- , DR1404, DR14(6), Null	225 bp
		DRB1*03:10, DRB1*13:43/13:45/13:159/13:171:01/13:179/13:191/13:197/13:217, DRB1*14:01:01-14:01:04/14:07:01-14:07:02/14:16/14:22/14:25-14:26/14:32:01-14:32:03/14:35/14:38:01-14:39/14:49/14:53-14:54:01-02/14:54:03-14:55/14:58/14:60/14:62/14:69-14:70/14:74-14:75/14:82/14:86-14:88/14:90/14:92N/14:97/14:99/14:104-14:105/14:110-14:114/14:117-14:119/14:122/14:124/14:125w/14:128-14:129/14:131-14:133/14:137N/14:139-14:140/14:142/14:146-14:147/14:149-14:151/14:153/14:157-14:158/14:162-14:164/14:166N/14:168/14:171-14:173/14:184-14:186/14:189-14:190	DR17(3), -, DR14(6), DR6, DR13(6), Null	175 bp
		DRB1*03:97/03:126, DRB1*11:17/11:52-11:54:02/11:89/11:150/11:159/11:202, DRB1*13:76/13:188/13:206, DRB1*14:01:01-14:01:04/14:05:01-14:05:04/14:07:01-14:08/14:14/14:18/14:23:01-14:23:04/14:26/14:33/14:35-14:36/14:38:01/14:39/14:42-14:45/14:51/14:54:01-14:54:06/14:56/14:58-14:60/14:62/14:64/14:70/14:72/14:75/14:82/14:86/14:88/14:90-14:92N/14:95-14:97/14:99/14:101/14:103/14:106/14:110/14:112-14:114/14:117-14:118/14:122/14:124/14:125w/14:129-14:134/14:137N/14:139-14:140/14:142/14:146-14:147/14:149-14:151/14:153-14:155/14:157-14:158/14:160-14:163/14:166N-14:169/14:178/14:184-14:190	- , DR11(5), DR14(6), DR6, Null	225 bp

Position	Mix	Allele	Serology	Size
E12	Mix 20	DRB1*03:126, DRB1*04:211, DRB1*11:09/11:28:02w/11:58:01w/11:83/11:87/11:113/11:115w/11:182, DRB1*12:58, DRB1*13:05:01-13:06/13:18/13:26:01-13:26:02/13:42/13:50:02w-13:50:03w/13:56/13:77/13:119/13:136/13:144/13:146/13:156-13:158/13:163/13:181/13:189w/13:193/13:199/13:203/13:235, DRB1*14:02:01-14:03:02/14:06:01-14:06:03/14:09/14:12:01-14:13/14:17-14:18/14:27:01-14:27:02/14:29-14:30/14:33/14:46-14:48/14:51-14:52/14:59/14:63-14:64/14:67/14:78/14:80-14:81/14:83/14:85/14:89/14:95/14:98w/14:106/14:108/14:115/14:121/14:132-14:135/14:144/14:154/14:165/14:170/14:174/14:176-14:177/14:179, DRB1*16:08w	-, DR11(5), DR13(6), DR14(6), DR1403, DR6	see below
		DRB1*03:126, DRB1*04:211, DRB1*11:09/11:28:02w/11:58:01w/11:83/11:87/11:113/11:115w/11:182, DRB1*12:58, DRB1*13:05:01-13:06/13:26:01-13:26:02/13:42/13:50:02w-13:50:03w/13:56/13:77/13:136/13:157/13:163/13:181/13:189w/13:193/13:199/13:203/13:235, DRB1*14:02:01-14:02:03/14:06:01-14:06:03/14:09/14:13/14:17-14:18/14:29-14:30/14:33/14:46-14:48/14:51-14:52/14:59/14:64/14:80-14:81/14:83/14:95/14:98w/14:106/14:108/14:121/14:132-14:134/14:154/14:165/14:170/14:176-14:177/14:179, DRB1*16:08w	-, DR11(5), DR13(6), DR14(6), DR6	145 bp
		DRB1*13:18/13:119/13:144/13:146/13:156/13:158, DRB1*14:03:01-14:03:02/14:12:01-14:12:02/14:27:01-14:27:02/14:63/14:67/14:78/14:85/14:89/14:98w/14:115/14:135/14:144/14:174	DR13(6), -, DR1403, DR14(6)	150 bp
D12	Mix 21	DRB1*09:07, DRB4*01:02?, DRB5*01:01-01:25/01:26w/01:27N-01:35, DRB5*02:02:01-02:18	-, DR51, Null	175 bp/ 210 bp
C12	Mix 22	DRB1*03:42/03:87, DRB1*14:141, DRB3*01:01:02:01-01:13/01:15-01:47, DRB3*02:01-02:25/02:28-02:46/02:48-02:57/02:59-02:65/02:67N-02:68, DRB3*03:01-01-03:15	-, DR52, Null	215 bp
B12	Mix 23	DRB4*01:01-01:01-04/01:05?/01:06-01:07:02/01:08?/01:09-01:22/01:23w/01:24-01:26/01:27?/01:28-01:59/01:60?/01:61N-01:63, DRB4*02:01N, DRB4*03:01N	DR53, -, Null	215 bp/ 255 bp
A12	Mix 24	Negative Control	-	none (440 bp)

Mix 7: HLA-DRB1*03:81 serology unclear

HLA-DRB1*08:04:02 not listed since the primer matching sequences are unknown

Amplification control (internal positive control): 440 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																			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 reagents (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*47:01:01:01-47:07/47:09	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*49:01:01:01-49:01:01:02/49:01:04-49:01:10/49:06/49:08-49:09/49:12-49:14/ 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*50:01:01:01-50:01:09/50:04-50:05/50:07-50:08/50:10-50:12/50:15/50:17- 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-DRB1*** and other HLA-DRB* alleles detected by the HLA-DRB1* CTS-PCR-SSP primer mixes (**Lot No. DR42-2**) 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
DRB1*01:01:01:02:11/01:02:13/01:04:01:17/01:19:01:20:02/01:23:01:32/01:35:01:38/01:41/01:43/01:45:01:48/01:50:01:59/01:62N:01:64/01:66-01:74/01:77-01:84	DR1, -, Null	1																						
DRB1*01:03:01:01:03:02/01:42/01:61	DR103, -	1	2																					
DRB1*01:21	-	1							w															
DRB1*01:34	-	1									w													
DRB1*01:39N	Null	w	w																					
DRB1*01:40N/01:49/01:65:01-01:65:02	Null, -	w																						
DRB1*01:75	-	1											13											
DRB1*03:01:01:01:03:01:03:01:03/03:01:05:03:01:06/03:01:08-03:01:13/03:01:15-03:01:26/03:04:01-03:04:02/03:06/03:11:01/03:13:01/03:15:01/03:16/03:18-03:20/03:22-03:23/03:25-03:26/03:28/03:30-03:34/03:36-03:37/03:39/03:43-03:45/03:47-03:48/03:50-03:52/03:55-03:56/03:58/03:60-03:62/03:64/03:66-03:73/03:75/03:77-03:78/03:80/03:82-03:83/03:85-03:86/03:89/03:91/03:93-03:96/03:98-03:99/03:104/03:106-03:110/03:112/03:114/03:116-03:118/03:121/03:123-03:124/03:128-03:129/03:132-03:134/03:136-03:139/03:141-03:142	DR17(3), -, DR3, Null				5	6												18						
DRB1*03:01:02/03:13:02/03:15:02	DR17(3), -				w	6													18					
DRB1*03:01:04/03:76/03:84/03:92, DRB1*13:129	DR17(3), -					6													18					
DRB1*03:01:07/03:46/03:59/03:79	DR17(3), -					5	6												w					
DRB1*03:01:14/03:127/03:135	-					w	6												w					
DRB1*03:02:01/03:02:03/03:05:01-03:05:02/03:14/03:27/03:29/03:53/03:74/03:81/03:88/03:90/03:102-03:103/03:115/03:122/03:131	DR18(3), -, DR3					5	7												18					
DRB1*03:02:02/03:05:03	DR18(3), DR3					w	7												18					
DRB1*03:03/03:07/03:17/03:21/03:24/03:35/03:40-03:41:02/03:57/03:63/03:101/03:105/03:113/03:119-03:120	DR18(3), DR3, -					5													18					
DRB1*03:08/03:65/03:140	-					5	6						13											
DRB1*03:09	-					?													?					
DRB1*03:10	DR17(3)					5	6												18	19				
DRB1*03:12	DR3					?	?												?					
DRB1*03:38	-					5	7												w					
DRB1*03:42/03:87, DRB3*01:34	-						6																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
DRB1*03:49	-					5			8										18					
DRB1*03:54/03:100:01-03:100:02	-					5	w												18					
DRB1*03:97, DRB1*13:45/13:76/13:197/13:206, DRB1*14:01:01-14:01:04/14:05:01-14:05:04/14:07:01-14:08/14:14/14:16/14:22-14:23:04/14:25-14:26/14:32:01-14:32:03/14:35-14:36/14:38:01-14:38:02/14:42-14:45/14:49/14:53-14:54:01:02/14:54:03-14:56/14:58/14:60/14:62/14:69-14:70/14:72/14:74-14:75/14:86-14:88/14:90-14:92N/14:96-14:97/14:99/14:101/14:103/14:105/14:110/14:112-14:114/14:117-14:119/14:122/14:124/14:126:01-14:126:02/14:128-14:131/14:137N/14:139-14:140/14:142/14:146-14:147/14:149-14:151/14:153/14:155/14:157-14:158/14:160/14:162-14:164/14:166N-14:168/14:172-14:173/14:175/14:178/14:184-14:190	-, DR14(6), DR6, DR13(6), Null																	18	19					
DRB1*03:111, DRB1*09:06	-						6																	
DRB1*03:125, DRB1*13:27/13:176	-, DR13(6)						6								15				18					
DRB1*03:126, DRB1*14:95/14:132	-						6												18	19	20			
DRB1*03:130	-					w		7											w					
DRB1*04:01:01-04:05:11/04:05:13-04:11:03/04:12-04:14/04:16-04:60/04:62-04:137/04:139-04:144/04:146-04:153/04:155/04:157N-04:169/04:171-04:210/04:212N-04:237, DRB1*14:10/14:57/14:143/14:182	DR4, -, Null, DR14(6)								8															
DRB1*04:15/04:61/04:138/04:145/04:154/04:170, DRB1*11:102:01-11:102:02/11:175	DR4, -								8			13												
DRB1*04:211	-								8												20			
DRB1*07:01:01-07:01:22/07:03-07:84	DR7, -, Null									9														
DRB1*08:01:01-08:01:02/08:01:04-08:01:05/08:02:01:01-08:04:01/08:04:03-08:07/08:09-08:19/08:21-08:24:02/08:26-08:28/08:30:01-08:30:03/08:33/08:35-08:37/08:39-08:40/08:42-08:46/08:48-08:51/08:54-08:56/08:58-08:62/08:64-08:66/08:68:01-08:68:02/08:70-08:74/08:76-08:79/08:81-08:82, DRB1*14:15	DR8, -, Null									10									18					
DRB1*08:08/08:29, DRB1*14:04:01-14:04:03/14:28/14:31/14:50/14:68:01-14:68:02/14:71/14:73/14:76/14:79/14:93/14:107/14:120/14:138/14:145/14:152N/14:180	-, DR1404, DR14(6), Null										10								18	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	
DRB1*08:20/08:67, DRB1*13:07:01-13:09/13:11:01-13:11:02/13:14:01-13:14:03/13:17/13:19/13:22-13:23:02/13:25/13:37/13:44/13:46-13:47/13:50:01/13:52/13:57/13:60/13:62/13:64/13:68/13:70/13:72/13:82-13:84/13:86/13:97:01-13:97:02/13:106-13:107/13:114/13:116/13:132/13:135/13:150/13:172/13:175/13:178/13:180/13:182/13:192/13:204/13:224/13:229/13:231-13:232/13:246, DRB1*14:20-14:21/14:34/14:37/14:40-14:41/14:77/14:84/14:94/14:100/14:102/14:116/14:123/14:127:01-14:127:02/14:136/14:156/14:159/14:181/14:183	- , DR13(6), DR14(6)																	18							
DRB1*08:25/08:47, DRB1*12:16:01-12:16:03/12:22/12:39	-									10			14						W						
DRB1*08:31, DRB1*11:01:01-11:02:02/11:02:04-11:02:05/11:04:01-11:04:12/11:04:14-11:06:03/11:08:01-11:08:03/11:10:01-11:10:02/11:12:01-11:15/11:18-11:19:03/11:21/11:23:01-11:25/11:27:01-11:28:01/11:29:01-11:35/11:37:01-11:39/11:42:01-11:51/11:56-11:57/11:58:02/11:60-11:62:02/11:64-11:66/11:69-11:70/11:72-11:75/11:77-11:82/11:84:01-11:84:03/11:88/11:90-11:93/11:95-11:101:02/11:104/11:106/11:108-11:109/11:111-11:112/11:114/11:116-11:121/11:124/11:126-11:134/11:137/11:140-11:149/11:152-11:155/11:157-11:158/11:160/11:162-11:166/11:169N-11:171/11:174/11:177-11:181/11:183-11:184/11:186/11:188-11:191/11:194-11:201/11:204-11:207/11:209-11:210/11:212/11:214-11:220	DR11(5), -, Null											13													
DRB1*08:32/08:53, DRB1*12:46	-									10			14						18						
DRB1*08:34/08:52	-									10									W						
DRB1*08:38	-								8	10									18						
DRB1*08:41/08:63/08:75, DRB1*11:67/11:193:01-11:193:02	-									10			13												
DRB1*08:69	-									10															
DRB1*09:01:02:01-09:05/09:08/09:10-09:22/09:24-09:32	DR9, -										11														
DRB1*09:07	-										11											21			
DRB1*10:01:01-10:11/10:13-10:22/10:24	DR10, -											12													
DRB1*10:23	-											12	13												
DRB1*11:03:01-11:03:02/11:11:01/11:11:03/11:36/11:41/11:55/11:63:01-11:63:02/11:68/11:76/11:85/11:138-11:139/11:151/11:161/11:168/11:176/11:213	DR11(5), -												13				16								
DRB1*11:07:01/11:11:03:02/11:105/11:107/11:125/11:136/11:173	DR11(5), -				5								13												
DRB1*11:07:02	-				W								13												
DRB1*11:09/11:87	DR11(5), -						7						13	15	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
DRB1*11:16	DR11(5)/DR13(6)													13		15								
DRB1*11:17/11:52/11:54:01-11:54:02/11:89/11:150/11:159/11:202, DRB1*14:11	-, DR11(5), DR14(6)													13						19				
DRB1*11:20	DR11(5)						7							13		15								
DRB1*11:22	-								8					?										
DRB1*11:26	DR11(5)													?										
DRB1*11:28:02	-						7							13		15	17			w				
DRB1*11:40	-													?		w	16	w						
DRB1*11:53	-				5									13						19				
DRB1*11:58:01/11:115	-													13		15	17				w			
DRB1*11:59	-						6							13		w	16	w						
DRB1*11:83/11:182	-						6							13		15	17				20			
DRB1*11:113	-													13		15	17				20			
DRB1*11:122	-							7						13		w	16	w						
DRB1*11:135	-						6							13										
DRB1*11:203/11:211	-													w										
DRB1*12:01:01-12:01:04/12:01:06-12:01:07/12:01:09-12:02:05/12:02:07- 12:03:03/12:05-12:08/12:10-12:15/12:17/12:19/12:21/12:23/12:26-12:30/ 12:32/12:34-12:38/12:40-12:41/12:43-12:45/12:50-12:53/12:55-12:56/12:59- 12:61/12:63-12:65/12:68	DR12(5), -, Null														14				w					
DRB1*12:01:05/12:20	-																		w					
DRB1*12:01:08/12:02:06/12:18/12:33/12:47	-															14								
DRB1*12:04/12:49	-													13	14									
DRB1*12:09/12:24N-12:25/12:48/12:54/12:62/12:67	-, Null														14					18				
DRB1*12:58	-														14					w		20		
DRB1*12:66	-														14					w	19			
DRB1*13:01:01-13:01:18/13:02:04/13:10/13:15-13:16/13:28/13:35/ 13:40/13:51/13:53/13:59/13:61:01-13:61:02/13:69/13:79-13:80/13:87/ 13:91-13:92/13:98/13:102/13:105/13:110/13:112-13:113N/13:117/13:121/ 13:125/13:127/13:130-13:131/13:137N-13:138/13:141/13:148/13:153/ 13:166/13:173/13:177/13:184-13:187/13:190/13:201/13:205/13:213- 13:215/13:221-13:222/13:226/13:233/13:238/13:242:01-13:242:02/13:245	DR13(6), -, Null															15								

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
DRB1*13:02:01-01-13:02:03/13:02:05-13:02:11/13:02:13/13:31/13:34/13:36/13:39/13:41/13:73-13:74/13:85/13:96:01-13:96:02/13:99/13:104/13:109/13:123-13:124/13:126/13:128/13:140/13:142N-13:143/13:145/13:147/13:155/13:168/13:170/13:171:02/13:198/13:202/13:207-13:212/13:220/13:225/13:236-13:237/13:239-13:241/13:243-13:244	DR13(6), -, Null						7								15			18						
DRB1*13:02:12/13:103/13:165	-						7								15			w						
DRB1*13:03:01-13:04/13:12:01-13:13/13:20-13:21:02/13:24/13:33:01-13:33:03/13:38/13:48-13:49/13:58/13:66:01-13:66:02/13:75/13:78/13:81/13:88-13:90/13:94:01-13:95/13:101/13:108/13:115/13:118/13:122/13:133-13:134/13:149/13:151-13:152/13:154/13:161/13:164/13:167/13:169/13:174/13:194/13:216/13:219/13:227/13:230/13:247, DRB1*14:65	DR13(6), -							7							15	17	18	18	20					
DRB1*13:05:01-13:05:03/13:26:01-13:26:02/13:136/13:158/13:203, DRB1*14:27:01-14:27:02	DR13(6), -, DR14(6)														15	17	18	18	20					
DRB1*13:06/13:146/13:156	DR13(6), -														15			18	20					
DRB1*13:18/13:42	DR13(6)														15	17	18	20						
DRB1*13:29	DR13(6)						7									16		18						
DRB1*13:30/13:55	-																?	?						
DRB1*13:32/13:93	-														15	16		18						
DRB1*13:43/13:188, DRB1*14:169	-															16		18	19					
DRB1*13:50:02-13:50:03/13:189	-						7								15		17	18	w					
DRB1*13:54	DR14(6)															16		w						
DRB1*13:56/13:119/13:235, DRB1*14:02:01-14:03:02/14:09/14:30/14:47/14:89/14:115/14:135/14:144/14:174/14:179	-, DR14(6), DR1403						7											18	20					
DRB1*13:63	-						7								w	16	w	18						
DRB1*13:65/13:120/13:139	-						7								15	16		18						
DRB1*13:67	-						7								15									
DRB1*13:71	-						6									16		18						
DRB1*13:77, DRB1*14:177	-																	w	20					
DRB1*13:100/13:162	-																	w						
DRB1*13:111	-																	w	16	w	18			
DRB1*13:144	-						6								15		17	18	20					
DRB1*13:157, DRB1*14:67	-							7							15			18	20					
DRB1*13:159/13:171:01/13:179	-						7								15			18	19					
DRB1*13:160/13:218	-														15			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
DRB1*13:163/13:181/13:193, DRB1*14:06:01-14:06:03/14:12:01-14:12:02/14:17/14:29/14:52/14:80-14:81/14:83/14:108/14:121/14:165/14:176	-, DR14(6), DR6																	18	20					
DRB1*13:183/13:200N	-, Null														15									
DRB1*13:191/13:217	-														15			18	19					
DRB1*13:196, DRB1*14:24/14:109	-							7										18						
DRB1*13:199	-							7							15	17	20							
DRB1*13:223/13:234	-														w			18						
DRB1*13:228	-															16								
DRB1*14:13/14:85	DR14(6), -							7								16		18		20				
DRB1*14:18/14:33/14:59/14:64/14:106/14:133/14:154	DR6, -																	18	19	20				
DRB1*14:19	DR14(6)							?										18						
DRB1*14:39/14:54:02/14:61	-																		19					
DRB1*14:46	-							7												20				
DRB1*14:48	-							7										w		20				
DRB1*14:51/14:134	-							7										18	19	20				
DRB1*14:63	-							7							15	16		18		20				
DRB1*14:78	-														15	16		18		20				
DRB1*14:82	-							6										18	19					
DRB1*14:98	-							7										18		w				
DRB1*14:104/14:111	-									w								18	19					
DRB1*14:125	-																	w	w					
DRB1*14:141, DRB3*01:02:01-01:07/01:09-01:13/01:15-01:33/01:35-01:41/01:43-01:45/01:47, DRB3*02:01-02:05/02:07-02:17/02:19/02:21-02:25/02:28-02:46/02:48-02:57/02:59-02:65/02:67N-02:68, DRB3*03:01:01-03:15	-, DR52, Null																					22		
DRB1*14:148	-																		19					
DRB1*14:161	-								8									18	19					
DRB1*14:170	-															16		18		20				
DRB1*14:171	-									5								18	19					
DRB1*15:01:01-01:15:01:21/15:01:23-15:20/15:22-15:33/15:35-15:98/15:100-15:108/15:110-15:112/15:114/15:116-15:147	DR15(2), -, DR2, Null			3																				
DRB1*15:21, DRB1*16:09:01-16:10/16:33/16:36-16:37	-, DR16(2)			3	4																			

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
DRB1*15:99/15:109	-			3									13											
DRB1*15:113N	Null		w																					
DRB1*16:01:01-16:01:08/16:01:10-16:05:02/16:07/16:11-16:15/16:17-16:26/16:28-16:32/16:34-16:35/16:38:01-16:47	DR16(2), -, DR2, Null		4																					
DRB1*16:01:09	-		w																					
DRB1*16:08	-		4		4		7									15	17	w						
DRB1*16:16/16:27	-		4									13												
DRB3*01:08/01:46, DRB3*02:20	-						7																22	
DRB3*01:14	-					w											w							
DRB3*01:42, DRB3*02:18	-											13											22	
DRB3*02:06	-							?														22		
DRB4*01:01:01-01:01:02/01:03:01:01-01:04/01:06-01:07:02/01:09-01:22/01:24-01:26/01:28-01:59/01:61N-01:63, DRB4*02:01N, DRB4*03:01N	DR53, -, Null																							23
DRB4*01:02	-																					?	23	
DRB4*01:05/01:08/01:27/01:60	DR53, -																						?	
DRB4*01:23	-																						w	
DRB5*01:01:01-01:12/01:14-01:25/01:27N-01:35, DRB5*02:02:01-02:18	DR51, -, Null																					21		
DRB5*01:13	-												13									21		
DRB5*01:26	-																					w		

w = weak

? = nucleotide sequence information not available for the primer matching sequence (HLA-DRB1*08:04:02 is not listed)