101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

Visit www.olerup-ssp.com for **"Instructions for Use" (IFU)**

Lot No.: 33X **Lot-specific information**

Olerup SSP® HLA-A-B-C SSP Combi Tray

Product number:	**101.702-24/06 – including *Taq* pol.** **101.702-24u/06u – without *Taq* pol.**
Lot number:	**33X**
Expiry date:	**2017-April-01**
Number of tests:	**24 tests – Product No. 101.702-24/24u** **6 tests – Product No. 101.702-06/06u**
Number of wells per test:	**95 +1**
Storage - pre-aliquoted primers:	**dark at -20ºC**
- PCR Master Mix:	**-20ºC**
- Adhesive PCR seals	**RT**
- Product Insert	**RT**

This Product Description is only valid for Lot No. 33X.

Complete product documentation consists of generic Instructions for Use (IFU), lot specific Product Insert, Worksheet and Certificate.

CHANGES COMPARED TO THE PREVIOUS *OLERUP* SSP® HLA-A-B-C SSP COMBI TRAY LOT (63V)

The format of the Product Insert and Worksheet have been changed.

As of lot series V, the Specificity Table is included in the lot-specific Product Insert, and the Interpretation Table is included in the Worksheet.

The **HLA-A low resolution** specificity and interpretation tables have been updated for the HLA-A alleles described since the previous *Olerup* SSP® HLA-A-B-C SSP Combi Tray lot was made **(Lot No. 63V)**. The kit design is based on IMGT/HLA database 3.15.0.

The primers of the wells detailed below have been exchanged, added or modified compared to the previous lot.

Well	5'-primer	3'-primer	rationale
19	Added	-	5'-primer added for the A*74:07 allele.
23	Added	-	5'-primers added for the A*03:177 allele.

Lot No.: 33X **Lot-specific information**

The **HLA-B low resolution** specificity and interpretation tables have been updated for the HLA-B alleles described since the previous *Olerup* SSP® HLA-A-B-C SSP Combi Tray lot was made **(Lot No. 63V)**. The kit design is based on IMGT/HLA database 3.15.0.

The primers of the wells detailed below have been exchanged, added or modified compared to the previous lot.

Well	5'-primer	3'-primer	rationale
38	-	Added	3'-primer added for improved allelic resolution of the B*15:101 allele.
63	Added	Exchanged	5'-primer added for increased yield of HLA-specific PCR product of B*54 alleles, 3'-primer exchanged for improved HLA-specific amplification.
65	Added	Added	Primer pair added for improved allelic resolution of the B*08:123 and B*42 alleles.

The **HLA-C low resolution** specificity and interpretation tables have been updated for the HLA-C alleles described since the previous *Olerup* SSP® HLA-A-B-C SSP Combi Tray lot was made **(Lot No. 63V)**. The kit design is based on IMGT/HLA database 3.15.0.

The primers of the wells detailed below have been exchanged, added or modified compared to the previous lot.

Well	5'-primer	3'-primer	rationale
88	Added	-	5'-primer added for the C*08:95 allele.
96	-	-	Updated negative control.

Change in revision R01 compared to R00:
1. Primer mix 28 amplifies the B*15:143, 35:19, 40:170, 44:07 and 50:07 alleles, and primer mix 50 amplifies the B*37:06:01-37:06:02 alleles. Foot notes for these two primer mixes have been added to the Specificity Table.

Changes in revision R02 compared to R01:
1. Primer mix 34 amplifies the C*02:06 and C*15:42 alleles and primer mix 65 amplifies the C*15:15 allele. This has been corrected in the Specificity and Interpretation Tables.
2. Primer mix 21 may generate a false positive band of about 560 base pairs. This band should be disregarded when interpreting HLA-A low resolution typings. A footnote has been added in the Specificity Table.

Lot No.: 33X **Lot-specific information**

Well **96** contains Negative Control primer pairs, that will amplify more than 95% of the *Olerup* SSP® HLA Class I, DRB, DQB1, DPB1 and DQA1 amplicons as well as all the amplicons generated by the control primer pairs matching the human growth hormone gene.

HLA-specific PCR product sizes range from 75 to 200 base pairs.
The PCR product generated by the positive control primer pair is 430 base pairs.

Length of PCR product	**105**	**200**	**105**	**80**	**75**	**80**	**85**
5'-primer[1]	**164**	**340**	**440**	**45**	**45**	**43**	**36**
	5'-CAC3'	**5'-Agg3'**	**5'-TTA3'**	**5'-Tgg3'**	**5'-Tgg3'**	**5'-Tgg3'**	**5'-TAC3'**
							36
							5'-TAT3'
3'-primer[2]	**231**	**2nd I**	**507**	**59**	**58**	**57**	**47**
	5'-TgC3'	**5'-AAA3'**	**5'-TTg3'**	**5'-CTC3'**	**5'-ggC3'**	**5'-CTC3'**	**5'-ACA3'**
							48
							5'-gCA3'
							48
							5'-gCC3'
							52
							5'-TgT3'
A*	+	+	+				
B*	+	+	+				
C*	+	+	+				
DRB1				+	+		
DRB3				+	+		
DRB5				+			
DQB1					+		
DPB1						+	
DQA1							+

[1]The nucleotide position for HLA class I genes and the codon for HLA class II genes, in the 2nd or 3rd exon, matching the specificity-determining 3'-end of the primer is given. Nucleotide and codonnumbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

[2]The nucleotide position for HLA class I genes and the codon for HLA class II genes, in the 2nd or 3rd exon or the 2nd intron, matching the specificity-determining 3'-end of the primer is given in the anti-sense direction. Nucleotide and codon numbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

Lot No.: 33X **Lot-specific information**

PRODUCT DESCRIPTION

HLA-A-B-C SSP Combi Tray

CONTENT

The primer set contains 5'- and 3'-primers for grouping the HLA-A*01:01 to A*80:03 alleles into the corresponding serological groups A1 to A80.
The primer set contains 5'- and 3'-primers for grouping the B*07:02 to B*83:01 alleles into the corresponding serological groups B7 to B81 as well as primer pairs for recognizing the Bw4 and Bw6 sequence motifs.
The primer set contains 5'- and 3'-primers for grouping the HLA-C*01:02 to C*18:07N alleles into the groups C*01:xx to C*18:xx.

PLATE LAYOUT

Each test consists of 96 PCR reactions in a 96 well PCR plate.

1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
9	**10**	**11**	**12**	**13**	**14**	**15**	**16**
17	**18**	**19**	**20**	**21**	**22**	**23**	**24**
25	**26**	**27**	**28**	**29**	**30**	**31**	**32**
33	**34**	**35**	**36**	**37**	**38**	**39**	**40**
41	**42**	**43**	**44**	**45**	**46**	**47**	**48**
49	**50**	**51**	**52**	**53**	**54**	**55**	**56**
57	**58**	**59**	**60**	**61**	**62**	**63**	**64**
65	**66**	**67**	**68**	**69**	**70**	**71**	**72**
73	**74**	**75**	**76**	**77**	**78**	**79**	**80**
81	**82**	**83**	**84**	**85**	**86**	**87**	**88**
89	**90**	**91**	**92**	**93**	**94**	**95**	**NC**

The 96 well PCR plate is marked with 'A-B-C' in silver/gray ink.
Well No. 1 is marked with the Lot No. '33X'.
Wells 1 to 24 – HLA-A low resolution primers.
Wells 25 to 72 – HLA-B low resolution primers.
Wells 73 to 95 – HLA-C low resolution primers.
Well 96 – Negative Control.
A faint row of numbers is seen between wells 1 and 2 or wells 7 and 8 of the PCR trays. These stem from the manufacture of the trays, and should be disregarded.
The PCR plates are covered with a PCR-compatible foil.

INTERPRETATION

Only HLA-A alleles will be amplified by the 24 wells of the HLA-A low resolution primer set, **wells 1 to 24**, except that a few HLA-B and HLA-C alleles will be amplified by primer mixes 5, 6 and 9.
For further details see Specificity Table.

Only HLA-B alleles will be amplified by the 48 wells of the HLA-B low resolution primer set, **wells 25 to 72**, except that a few HLA-A and HLA-C alleles will be amplified by primer mixes 25, 27, 28, 30 to 32, 37, 38, 41, 43 to 45, 49, 50, 53, 55, 64 to 67 and 69.

Lot No.: 33X **Lot-specific information**

For further details see Specificity Table.

Only HLA-C alleles will be amplified by the 23 wells of the HLA-C low resolution primer set, **wells 73 to 95**, except that a few HLA-A and HLA-B alleles will be amplified by primer mixes 73, 85, 87, 88, 92 and 95.
For further details see Specificity Table.

UNIQUELY IDENTIFIED ALLELES

All the HLA-A alleles, i.e. **A*01:01 to A*80:03**, recognized by the HLA Nomenclature Committee in January 2014[1,2] will be amplified by the primers in the HLA-A low resolution primer set, **wells 1 to 24**. The HLA-A alleles will be grouped into their corresponding serological specificities[3,4].

All the HLA-B alleles, **i.e. B*07:02 to B*83:01**, recognized by the HLA Nomenclature Committee in January 2014[1,2] will be amplified by the primers in the HLA-B low resolution primer set, **wells 25 to 72**. The HLA-B alleles will be grouped into their corresponding serological specificities[3].

All the HLA-C alleles, i.e. **C*01:02 to C*18:07N**, recognized by the HLA Nomenclature Committee in January 2014[1,2] will be amplified by the primers in the HLA-C low resolution primer set, **wells 73 to 95**. The HLA-C alleles will be grouped into the C*01:xx to C*18:xx groups[3].

[1]HLA-A, HLA-B and HLA-C alleles listed on the IMGT/HLA web page 2014-January-17, release 3.15.0, www.ebi.ac.uk/imgt/hla.
[2]Alleles that have been deleted from or renamed in the official WHO HLA Nomenclature up to and including the last IMGT/HLA database release can be retrieved from web page http://hla.alleles.org/alleles/deleted.html.
[3]The HLA-A, HLA-B, HLA-C alleles will be grouped into their corresponding serological specificities, except that following alleles give rise to identical amplification patterns.
These alleles can be separated by the respective high resolution SSP primer sets.

Alleles	Alleles
A*03:88, A*11:130	B*41:09, 41:29, B*45:02-45:03
A*03:152, A*24:92	B*53:30, B*57:45, 57:51, 57:69
A*23:14:01-23:14:02, A*24:24, 24:71	B*55:04, 55:08, 55:13, 55:27, 55:46, 55:49, B*56:01:05, 56:15, 56:19N, 56:22
A*24:14-24:15, 24:51-24:53, 24:57, 24:64, 24:94, 24:114, 24:138, 24:188, 24:222N, 24:228, C*04:01:03	B*55:23, 55:32, B*56:18, 56:31-56:32
A*31:08, A*33:53	B*57:67, B*58:36
B*07:202, B*81:02	C*01:05, 01:22, 01:35-01:36, 01:79:01-01:79:02, B*39:76, B*54:18
B*08:26:01, 08:50, 08:62, 08:85, 08:94, B*42:07	C*01:67, C*14:58
B*13:21, 13:35, 13:59, 13:71, B*44:135, 44:158	C*12:18:02, B*67:02
B*14:08:01, B*39:25N, 39:30, 39:32-39:34, 39:47, 39:50, 39:74, 39:82	C*14:06, 14:08-14:09, 14:28:01, 14:53, A*30:62
B*18:29, 18:72, 18:92, B*35:32:01-35:32:02, 35:37, 35:53N, 35:64:01-35:64:02, 35:68:01-35:68:02, 35:99, 35:118-35:119, 35:174	

[4]The A*01:136 and the A*11:94 and A*11:112 alleles may be distinguished by the different sizes of the specific PCR products generated by primer mixes 1 and 11.

SPECIFICITY TABLE

HLA-A low resolution primer set

Specificities and sizes of the PCR products of the 24 primer mixes used for HLA-A low resolution SSP typing

Primer Mix	Size of spec. PCR product[1]	Size of control band[2]	HLA-A serology[3]	Amplified HLA-A alleles[4,5]
1[6,7]	120 bp, 145 bp, 225 bp	**800 bp**	A1, A36	*01:01:01:01-01:04N, 01:06-01:33, 01:35-01:146, 03:18, 03:135, 11:94, 11:112, 36:01-36:05
2[7]	175 bp, 215 bp, 255 bp, 365 bp, 415 bp	**800 bp**	A2, A203, A210, A19, A28	*02:01:01:01-02:01:15, 02:01:17-02:01:19, 02:01:21-02:01:81, 02:01:83-02:22:02, 02:24:01-02:35:01, 02:35:03-02:47, 02:49-02:77, 02:78[w], 02:79:01-02:97:02, 02:99, 02:101:01-02:128, 02:130-02:478
3[8]	205 bp, 235 bp	1070 bp	A1, A3, A11, A32, A34, A36	*01:12, 01:19, 01:21, 01:126, 02:338, 03:01:01:01-03:17:02, 03:19-03:74, 03:76-03:94, 03:96-03:134, 03:136-03:176, 03:178N-03:182, 11:03, 11:20, 11:25, 11:60, 11:130, 11:158, 11:175, 24:92, 32:04, 34:02:01-34:04, 34:07-34:10N, 36:02
4	190 bp	**800 bp**	A1, A3, A11, A30, A36, A68	*01:01:01:01-01:01:22, 01:01:24-01:01:47, 01:01:49-01:04N, 01:06-01:07, 01:09-01:11N, 01:13, 01:16N-01:18N, 01:20-01:29, 01:31N-01:33, 01:35-01:78, 01:80-01:98, 01:100-01:144, 01:146, 02:78, 02:169, 03:12, 03:18, 03:88, 03:135, 11:01:01-11:27, 11:29-11:52Q, 11:54-11:176, 26:19, 26:72, 30:08, 36:04, 68:13:01, 68:66, 74:19
5	160 bp, 335 bp, 505 bp	1070 bp	A3, A9, A23, A24, A2403, A29, A31, A32	*03:15, 03:19, 03:30, 03:152, 11:139, 23:01:01-23:60, 24:02:01:01-24:11N, 24:13:01-24:15, 24:17-24:64, 24:66-24:210, 24:212-24:270, 29:07, 29:49, 31:08, 31:29, 32:05, 33:19, 33:53, **C*04:01:03**
6[9,11]	135 bp, 200 bp	**800 bp**	A9, A23, A24, A29, A80	*11:166, 23:01:01-23:56, 23:58-23:60, 24:24, 24:71, 29:07, 29:49, 31:29, 80:01:01:01-80:03, **B*18:27**
7	175 bp, 205 bp	1070 bp	A2, A3, A9, A23, A24, A2403, A26	*02:17:01[w]-02:17:03[w], 11:139, 23:14:01-23:14:02, 24:02:01:01-24:11N, 24:13:01-24:13:02, 24:17-24:50, 24:54-24:56, 24:58-24:63, 24:66-24:91, 24:93, 24:95-24:113, 24:115-24:137, 24:139-24:187, 24:189-24:210, 24:212-24:221, 24:223-24:227, 24:229-24:270, 26:16, 33:19, 68:45
8	165 bp, 200 bp	**800 bp**	A2, A3, A10, A11, A25, A26, A28, A32, A34, A66, A68, A69	*01:51, 02:55, 03:24, 03:50, 11:10, 25:01:01-25:16, 25:18-25:24, 26:01:01-26:06, 26:08-26:15, 26:17-26:18, 26:20-26:43:02, 26:45-26:63, 26:65-26:71N, 26:73-26:88, 26:90-26:91, 26:93-26:98, 29:28, 32:15, 33:51, 34:01:01-34:11, 66:01:01-66:19, 68:01:01:01-68:107, 69:01-69:02
9[6,10]	75 bp	**800 bp**	A3, A25, A32	*25:01:01-25:24, 32:01:01-32:01:13, 32:01:15-32:02, 32:04, 32:06-32:37, 32:39-32:59, 32:61, **B*07:81, B*08:52, B*18:67, B*38:41, B*53:05, B*53:16**

Lot No.: 33X **Lot-specific information**

10[6,7,11]	80 bp, 240 bp	**800 bp**	A10, A26, A43	*01:43, 01:51, 11:17, 11:40, 26:01:01-26:02:02, 26:04, 26:07:01-26:20, 26:22-26:29, 26:31-26:43:02, 26:45-26:77, 26:79-26:91, 26:93-26:98, 33:13, 33:48, 43:01, 68:84
11[6,7]	80 bp, 175 bp, 500 bp	1070 bp	A1, A9, A10, A11, A26, A31, A34, A66	*01:13, 01:28, 01:136, 03:63, 03:88, 11:01:01-11:27, 11:29-11:52Q, 11:54-11:176, 24:19, 24:44, 26:03:01-26:03:02, 26:06, 26:21, 26:78, 26:92, 34:01:01-34:08, 34:10N-34:11, 66:01:01-66:01:02, 66:04-66:11, 66:13-66:14, 66:17-66:19, 69:02, 80:02
12[6]	125 bp, 190 bp	**800 bp**	A3, A10, A25, A26, A31, A34, A43, A66	*02:309, 02:454, 03:01:19, 11:11, 25:05-25:06, 26:09, 26:54, 26:91, 31:03-31:04, 34:01:01-34:11, 43:01, 66:02-66:03, 66:16
13	175 bp, 225 bp	1070 bp	A1, A2, A3, A10, A25, A26, A34, A43, A66	*01:01:56[w], 01:13, 02:34-02:35:03, 02:56:01-02:56:02, 02:62, 02:103, 02:135, 03:01:01:01-03:01:22, 03:01:24-03:07, 03:09-03:11N, 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, 03:109-03:110, 03:112-03:141, 03:143-03:151, 03:153-03:171, 03:174-03:175, 03:177, 03:179-03:182, 25:01:01-25:05, 25:07-25:24, 26:01:01-26:01:20, 26:01:22-26:01:31, 26:02:01[w]-26:02:02[w], 26:03:01-26:03:02, 26:05-26:08, 26:10-26:28, 26:29[w], 26:30-26:33, 26:35-26:43:02, 26:45-26:48, 26:49[w], 26:50-26:72, 26:74-26:77, 26:79-26:90, 26:92-26:98, 30:55, 34:08, 43:01, 66:01:01, 66:04-66:09, 66:10[w], 66:11-66:15, 66:17-66:19, 68:71, 74:13
14[6,7,11]	80 bp, 115 bp, 200 bp, 240 bp, 470 bp	1070 bp	A26, A29, A31, A34	*02:237, 02:309, 02:454, 03:95, 26:19, 26:22, 29:01:01:01-29:58, 31:03-31:04, 32:42, 34:04, 66:09
15[6,7,13,14]	90 bp, 135 bp, 205 bp	1070 bp	A1, A30	*01:13, 01:28, 03:43, 03:82, 11:113, 11:162, 30:01:01-30:04:02, 30:06-30:20, 30:22-30:80, 31:35
16	240 bp, 380 bp	1070 bp	A2, A24, A31, A32	*02:237, 03:95, 29:14, 31:01:02-31:82, 32:05, 33:53
17	140 bp, 180 bp	1070 bp	A32	*01:95, 03:43, 03:82, 24:243, 29:13, 29:39, 31:35, 32:01:01-32:03, 32:05-32:61, 74:07
18	200 bp, 390 bp	1070 bp	A33, A68	*02:243:01-02:243:02, 29:48, 32:15, 33:01:01-33:01:07, 33:03:01-33:37, 33:39-33:52, 33:54-33:85, 68:29, 74:04
19	340 bp, 375 bp	**800 bp**	A2, A19, A68, A74	*01:121, 02:65, 02:407, 02:449, 68:25, 74:01-74:20
20[11]	210 bp, 240 bp	**800 bp**	A2, A210, A25, A68	*02:34-02:35:03, 02:46, 02:48, 02:56:01-02:56:02, 02:62, 02:70, 02:78, 02:103, 02:129, 23:01:13, 25:05, 26:54, 68:01:01:01-68:107
21[6,15]	65 bp, 240 bp, 375 bp	**800 bp**	A2, A26, A28, A32, A66, A68, A69	*02:55, 02:149, 02:243:01-02:243:02, 02:309, 23:57, 24:82, 26:22, 31:41, 32:06, 33:22, 66:06, 66:09, 68:29, 68:105, 69:01-69:02
22[6,12]	85 bp, 240 bp	**800 bp**	A2, A36	*02:34-02:35:03, 02:46, 02:48, 02:56:01-02:56:02, 02:62, 02:70, 02:78, 02:103, 02:129, 11:155, 23:01:13, 31:62, 36:01-36:05

23[6,11]	75 bp, 155 bp, 240 bp, 495 bp	**800 bp**	A2, A3, A24, A26, A28, A36, A68, A80	*02:55, 02:237, 03:41, 03:63, 03:75, 03:88, 03:95, 03:177, 11:130, 24:18, 24:204, 24:213, 26:03:01-26:03:02, 26:05-26:06, 26:21, 26:30, 26:78, 33:24, 36:02, 68:05, 68:15, 68:20, 80:01:01:01-80:01:01:02, 80:03
24[13]	360 bp	1070 bp	A10, A26, A31, A66	*02:135, 02:309, 02:454, 03:01:19, 25:13, 26:30, 26:65, 31:04, 34:09, 66:02-66:03, 66:12, 66:16

[1]Alleles are assigned by the presence of specific PCR product(s). However, the sizes of the specific PCR products may be helpful in the interpretation of HLA-A low resolution SSP typings.
When the primers in a primer mix can give rise to HLA-specific PCR products of more than one length this is indicated if the size difference is more than 20 base pairs. Size differences of 20 base pairs or less are not given. For high resolution SSP kits, the alleles listed are specified according to amplicon length.
Nonspecific amplifications, i.e. a ladder or a smear of bands, may sometimes be seen. GC-rich primers have a higher tendency of giving rise to nonspecific amplifications than other primers.
PCR fragments longer than the control bands may sometimes be observed. Such bands should be disregarded and do not influence the interpretation of the SSP typings.
PCR fragments migrating faster than the control bands, but slower than a 400 bp fragment may be seen in some gel read-outs. Such bands can be disregarded and do not influence the interpretation of the SSP typings.
Some primers may give rise to primer oligomer artifacts. Sometimes this phenomenon is an inherit feature of the primer pair(s) of a primer mix. More often it is due to other factors such as too low amount of DNA in the PCR reactions, taking too long time in setting up the PCR reactions, working at elevated room temperature or using thermal cyclers that are not pre-heated.

[2]The internal positive control primer pairs amplify segments of the human growth hormone gene. The internal positive control bands are 1070 or 800 base pairs respectively, well distribution as outlined in the table. Well number 1 contains the shorter, 800 bp, internal positive control band. The well distribution of the internal controls can help in orientation of the kit on gel photo, as well as allow for kit identification. In the presence of a specific amplification the intensity of the control band often decreases.

[3]The serological reactivity of all HLA-A alleles is not known. In this table we use the expert-assigned serological grouping in Tissue Antigens (2009) 73:95-170 and the serological grouping of the sequence-defined allele.

[4]For several HLA Class I alleles 1st and/or 4th exon(s) and beyond, as well as intron nucleotide sequences, are not available. In these instances it is not known whether some of the primers of the SSP sets are completely matched with the target sequences or not. Assumption is made that unknown sequences in these regions are conserved within allelic groups.

[5]Only HLA-A alleles will be amplified by the 24 wells of the HLA-A low resolution primer set, except that a few HLA-B and HLA-C alleles will be amplified by primer mixes 5, 6 and 9.

[6]HLA-specific PCR products shorter than 125 base pairs have a lower intensity and are less sharp than longer PCR products.

[7]The primer pairs in wells 1, 2, 10, 11, 14 and 15 will in many samples give rise to two or three HLA-specific PCR fragments.

[8]Primer mix 3 may faintly amplify the A*30:04:01-30:04:02, 30:06, 30:17, 30:29, 30:46 and 30:77 alleles.

[9]Primer mix 6 may give rise to a lower yield of A*23 alleles than the other A low primer mixes.

[10]Primer mix 9 may weakly amplify the A*34 alleles.

[11]Primer mixes 6, 10, 14, 20 and 23 have a tendency to giving rise to primer oligomer formation.

[12]Primer mix 22 might faintly amplify most A*11 alleles.

[13]Primer mixes 15 and 24 may give rise to a lower yield of HLA-specific PCR product than the other HLA-A low primer mixes.

[14]Primer mix 15 may have tendency of unspecific amplification.

[15]Primer mix 21 may generate a false positive band of about 560 base pairs. This band should be disregarded when interpreting HLA-A low resolution typings.

'w', might be weakly amplified.

SPECIFICITY TABLE

HLA-B low resolution primer set

Specificities and sizes of the PCR products of the 48 primer mixes used for HLA-B low resolution SSP typing

Primer Mix	Size of spec. PCR product[1]	Size of control band[2]	HLA-B serol.[3]	Amplified HLA-B alleles[4,5]
25[6,10]	110 bp	**800 bp**	7, 703, 40, 41, 42, 48, 61	*07:02:01-07:18:02, 07:20-07:32, 07:34-07:39, 07:41-07:47, 07:49N-07:50, 07:52, 07:54-07:59, 07:61-07:99, 07:101-07:121, 07:123-07:138, 07:140-07:154, 07:156-07:163, 07:166-07:201N, 07:203-07:208, 07:210, 08:79, 15:138, 15:230, 15:241, 15:297, 37:07, 40:15-40:16, 40:23, 40:32, 40:98, 40:136, 40:158, 40:183, 40:198, 40:231, 41:08, 42:05:01-42:05:02, 44:150, 48:05, 48:08, 48:15, **C*02:23, C*04:77**
26	215 bp	1070 bp	8, 44	*08:01:01-08:05, 08:07-08:25, 08:27-08:49, 08:51-08:61, 08:63-08:64, 08:66-08:84, 08:86N-08:93, 08:95-08:115, 15:142, 15:180, 35:218, 44:49, 44:156, 49:25, 51:68
27	140 bp, 235 bp	1070 bp	7, 8, 13, 15, 35, 4005, 44, 50, 49, 61, 62, 77	*07:20, 07:24, 07:60, 07:100, 07:131, 08:21, 08:25, 13:01:01-13:04, 13:06-13:08, 13:10-13:23, 13:25-13:38, 13:40-13:57, 13:59-13:66, 13:68-13:73, 15:07:01-15:07:03, 15:36[w], 15:45, 15:55, 15:68, 15:89[w], 15:126, 15:207, 35:05:01-35:05:03, 35:16-35:17:02, 35:22, 35:30, 35:51, 35:58, 35:72, 35:89, 35:97, 35:113-35:114, 35:125, 35:164, 35:199, 35:232, 35:242, 40:05, 40:71, 40:174, 44:08[w], 44:54, 44:57[w], 44:60, 44:106, 44:110, 44:135, 44:158, 46:12, 51:64, 51:148, 53:14, 55:51, 58:18, **C*03:05, C*03:25, C*03:27, C*03:143, C*03:167**
28[7,16]	130 bp, 265 bp	**800 bp**	12, 13, 14, 17, 21, 35, 40, 41, 44, 45, 47, 49, 50, 60, 61, 64, 65	*13:01:01-13:04, 13:06-13:13, 13:15-13:23, 13:25-13:57, 13:59-13:73, 14:01:01-14:02:08, 14:02:10-14:04, 14:07N, 14:09, 14:11-14:12, 14:14-14:36, 14:38, 15:46, 15:53, 15:106, 15:212, 18:44:01-18:44:02, 35:46-35:47, 35:63, 35:154, 35:207, 35:217, 40:01:01-40:01:37, 40:07, 40:10:01-40:10:02, 40:14:01-40:16, 40:22N-40:23, 40:25, 40:30-40:34, 40:36, 40:38, 40:42-40:43, 40:45, 40:47-40:49, 40:51-40:55, 40:58-40:63, 40:65-40:67, 40:69, 40:72:01-40:73, 40:76-40:77, 40:79-40:81, 40:84, 40:87:01-40:88, 40:92, 40:100-40:102, 40:106, 40:108, 40:110, 40:112-40:114, 40:116-40:118N, 40:121, 40:123-40:126, 40:128-40:130:02, 40:132, 40:134-40:136, 40:139-40:141, 40:146-40:147, 40:150-40:156, 40:158, 40:160:01-40:160:02, 40:163-40:164, 40:166, 40:168, 40:171-40:172, 40:175, 40:178-40:179, 40:182-40:183, 40:186-40:188, 40:191-40:199, 40:204, 40:207-40:208, 40:212-40:213, 40:215-40:219, 40:221-40:223, 40:227-40:228, 40:231, 40:233-40:242, 40:245, 40:247, 40:249-40:250, 40:252-40:253, 40:257-40:264, 41:01:01-41:31, 44:02:01:01-44:03:06, 44:03:08-44:03:15, 44:03:17-44:03:18, 44:03:21-44:05:04, 44:09-44:39, 44:41:01-44:43:02, 44:45-44:56N, 44:58N-44:80, 44:82, 44:84:01-44:102, 44:104-44:110, 44:112-44:129, 44:132-44:133, 44:135-44:144, 44:146-44:155, 44:157-44:183, 44:185-44:187, 45:01:01-45:14, 47:01:01:01-47:09, 49:01:01-49:02, 49:04-49:24, 49:27-49:28, 50:01:01-50:02, 50:04-50:06, 50:08-50:20, 50:31-50:33, 50:35-50:37, 53:30, 57:45, 57:51, 57:69, **C*01:30, C*12:87**

29[8]	185 bp, 235 bp	**800 bp**	7, 16, 17, 27, 2708, 37, 38, 3901, 3902, 39, 64, 67	*07:02:32, 07:197, 14:01:01-14:01:04, 14:07N-14:08:01, 14:10, 14:12, 14:14, 14:19, 14:26, 14:32, 27:01-27:05:15, 27:05:17-27:05:19, 27:05:21-27:06, 27:07:04-27:10, 27:12-27:13, 27:16-27:18, 27:20, 27:23, 27:26-27:27, 27:29, 27:31, 27:35-27:37, 27:39-27:42, 27:44-27:46, 27:48-27:61, 27:64N-27:69, 27:72-27:75, 27:77-27:80, 27:82-27:117, 37:02, 38:01:01-38:02:02, 38:02:04-38:03, 38:07-38:24, 38:26-38:32, 38:34N-38:50, 39:01:01:01-39:01:01:03, 39:01:03-39:01:08, 39:01:10-39:02:01, 39:03, 39:05:01-39:06:02, 39:06:04-39:09:01, 39:11, 39:14-39:15, 39:18, 39:19:02, 39:22, 39:24:01-39:39:01, 39:40:01N-39:44, 39:46-39:48, 39:50-39:62, 39:64-39:71, 39:73-39:75, 39:77, 39:79-39:82, 39:84-39:87N, 47:04-47:05, 48:21, 48:26, 67:01:01, 67:03-67:04
30	190 bp	**800 bp**	14, 35, 38, 39, 65	*07:28, 08:87, 14:02:01-14:02:02, 14:02:04-14:02:05, 14:02:07-14:06:02, 14:09, 14:11, 14:13, 14:15-14:18, 14:20, 14:22-14:23, 14:25, 14:27, 14:29-14:31, 14:33-14:38, 15:77, 15:189, 15:233, 35:26, 38:05, 38:33, 39:04, 44:16, 44:37:01-44:37:02, 44:64:01-44:64:02, 44:91, 44:132, 44:150, 52:26, 57:04, **A*23:31, A*24:106, C*07:231, C*16:10**
31	290 bp	1070 bp	15, 22, 62, 63, 71, 72, 75, 76, 77, 46	*15:01:01:01-15:01:03, 15:01:06-15:02:08, 15:03:03, 15:04:01-15:08:01, 15:10:02-15:11:03, 15:11:05-15:15, 15:17:01:01-15:17:02, 15:19-15:21, 15:24:01-15:28, 15:30-15:36, 15:38:01-15:40, 15:42-15:46, 15:48, 15:50, 15:55-15:58, 15:60, 15:63, 15:65-15:66, 15:70-15:71, 15:73, 15:75-15:79N, 15:81-15:89, 15:92, 15:94N, 15:96-15:97, 15:101-15:102, 15:104-15:107, 15:109-15:113, 15:116-15:118, 15:120-15:122, 15:125-15:126, 15:128-15:129, 15:135-15:150, 15:152, 15:154-15:155, 15:157, 15:159-15:160, 15:162-15:172, 15:174-15:175, 15:177-15:179:01, 15:181N-15:185, 15:187-15:196, 15:199, 15:201-15:209N, 15:211, 15:213-15:219, 15:223-15:225, 15:227-15:228, 15:230-15:234, 15:236-15:237, 15:239-15:241, 15:244-15:251, 15:256-15:262N, 15:264-15:265, 15:267-15:273, 15:276-15:280, 15:283-15:289, 15:291, 15:295-15:304N, 46:01:01-46:57, **C*01:73, C*07:02:30, C*08:16:02**
32	165 bp, 225 bp, 285 bp, 330 bp	1070 bp	5, 8, 12, 21, 22, 37, 41, 42, 44, 45, 48, 51, 56, 57, 60, 62, 70, 71, 72, 82	*08:01:01-08:01:22, 08:02-08:05, 08:08N-08:13, 08:15-08:27, 08:29-08:36, 08:38-08:48, 08:50-08:73, 08:75-08:76, 08:78, 08:80-08:86N, 08:88, 08:90-08:106, 08:109-08:110, 08:112-08:115, 13:46, 15:03:01-15:03:04, 15:09-15:10:02, 15:18:01-15:18:06, 15:23, 15:29, 15:37, 15:46-15:47:02, 15:49, 15:51-15:54, 15:61-15:62, 15:64:01-15:64:02, 15:69, 15:72, 15:74, 15:80, 15:83, 15:90-15:91, 15:93, 15:98-15:99, 15:103, 15:106, 15:108, 15:114-15:115, 15:119, 15:123-15:124, 15:127, 15:131-15:134, 15:143, 15:151, 15:153, 15:156, 15:158, 15:161, 15:173, 15:176, 15:186, 15:197-15:198, 15:200, 15:210, 15:212, 15:220-15:221, 15:226N, 15:229, 15:235, 15:238, 15:242-15:243, 15:252-15:253, 15:255, 15:259, 15:263, 15:266, 15:274-15:275, 15:281-15:282, 15:290, 15:292-15:294N, 35:87, 37:12, 38:30, 40:12, 40:136, 40:231, 41:01:01-41:03:02, 41:05-41:09, 41:11-41:17, 41:19-41:31, 42:01:01-42:02, 42:04-42:08, 42:10-42:15, 42:17-42:19, 44:14-44:15, 44:18, 44:20, 44:62, 44:100, 44:166, 45:01:01-45:14, 51:08:01, 51:20, 51:36, 51:44N, 51:97, 51:141, 51:153, 52:19, 55:20, 55:56, 56:13, 57:09, 82:01-82:03, **C*07:46**
33[8,9,11]	165 bp, 190 bp,	1070 bp	5, 17, 21, 35, 51,	*13:62, 15:01:02, 15:09, 15:16:01-15:17:02, 15:67, 15:95, 15:162, 15:168, 15:177, 15:196, 15:208, 15:216, 15:222,

	390 bp		5102, 5103, 52, 56, 62, 63, 70, 78	15:230, 15:243, 15:254, 15:268, 15:273, 15:277-15:278, 35:01:10, 35:04:02, 40:26, 40:28, 44:62, 49:18, 50:14, 51:01:01-51:01:03, 51:01:05-51:02:03, 51:02:05-51:09:02, 51:11N-51:12, 51:13:02-51:14, 51:16-51:23, 51:24:03-51:24:05, 51:26-51:33, 51:37-51:41N, 51:43-51:44N, 51:46, 51:48-51:61:02, 51:63-51:80, 51:82-51:91, 51:94-51:98N, 51:100-51:130, 51:132-51:142, 51:145-51:147, 51:149N-51:156, 51:158:01-51:166, 52:01:01:01-52:01:04, 52:01:06-52:01:14, 52:01:16-52:13, 52:15-52:24, 52:26-52:36, 53:28, 56:05:01-56:06, 56:21, 58:08:01-58:08:02, 78:01:01-78:07
34	180 bp	**800 bp**	13, 22, 55, 60	*07:78, 13:01:01-13:02:16, 13:07N-13:09, 13:11, 13:14-13:20, 13:22:01-13:23, 13:25, 13:27-13:34, 13:36-13:45, 13:47, 13:49N-13:50, 13:52, 13:54-13:58, 13:60-13:61, 13:63N-13:70, 13:73, 40:48, 45:10, 49:07, 50:31, 54:26, 55:09, 55:22, 55:24, **C*02:06, C*15:42**
35[6]	100 bp, 195 bp	1070 bp	8, 12, 27, 38, 39, 3902, 44, 45, 48, 60, 70, 71, 72, 82	*07:27, 07:50, 08:04, 08:17, 08:54, 08:110, 15:03:01-15:03:04, 15:47:01-15:47:02, 15:49, 15:54, 15:61-15:62, 15:64:01-15:64:02, 15:68-15:69, 15:91, 15:98, 15:103, 15:123, 15:127, 15:131-15:132, 15:151, 15:156, 15:158, 15:173, 15:210, 15:220, 15:235, 15:242, 15:253, 15:259, 15:266, 15:274, 15:281-15:282, 18:37, 27:18, 27:29, 37:28, 38:03, 39:02:01-39:02:02, 39:08, 39:13:01-39:13:02, 39:23, 39:39:01-39:39:02, 39:49, 40:12, 40:46, 40:93, 42:11, 44:10, 44:15, 44:18, 44:40, 44:44, 44:130, 44:140, 44:156, 45:01:01, 45:05-45:07, 45:11-45:14, 48:01:01-48:05, 48:07-48:30, 48:32-48:34, 49:20, 50:02, 52:16, 55:18, 58:44, 82:01-82:03
36	280 bp	1070 bp	5, 7, 8, 13, 15, 16, 17, 18, 22, 35, 40, 42, 44, 46, 48, 49, 51, 53, 55, 56, 57, 58, 60, 61, 62, 63, 70, 71, 72, 75, 76, 77, 78	*07:09, 07:11, 07:17, 07:162, 08:28, 08:35, 08:37, 08:89, 08:107, 13:04, 13:10, 13:26:01-13:26:02, 13:72, 15:01:01:01-15:01:04, 15:01:06-15:08:01, 15:11:01-15:16:03, 15:18:01-15:21, 15:23-15:29, 15:31-15:36, 15:38:01-15:40, 15:43-15:44, 15:46-15:47:02, 15:49-15:57, 15:60-15:62, 15:64:01-15:72, 15:74-15:76, 15:78:01-15:82, 15:84-15:85, 15:87-15:89, 15:91-15:98, 15:101-15:129, 15:131-15:132, 15:134-15:136, 15:138-15:149N, 15:151-15:161, 15:163-15:167, 15:169-15:176, 15:178-15:187, 15:189-15:195, 15:197-15:207, 15:209N-15:215, 15:217-15:223, 15:225-15:228, 15:231-15:232, 15:234-15:242, 15:244-15:247, 15:249-15:251, 15:254-15:268, 15:270-15:272N, 15:274-15:286, 15:288-15:302N, 15:304N, 18:01:01:01-18:15, 18:17N-18:25, 18:27-18:40, 18:42-18:60, 18:62-18:96, 27:41, 27:107, 35:01:01:01-35:01:39, 35:05:01-35:05:03, 35:07-35:08:06, 35:10-35:11:03, 35:14:01-35:17:02, 35:19-35:21, 35:23-35:30, 35:32:01-35:32:02, 35:35, 35:37, 35:40N-35:43:01, 35:45-35:54, 35:57-35:58, 35:61:01-35:64:02, 35:66-35:69, 35:71-35:72, 35:76-35:80, 35:82, 35:86, 35:89-35:94, 35:97, 35:99-35:105, 35:107-35:108:02, 35:110-35:126, 35:130N-35:135, 35:137-35:148, 35:158-35:159, 35:161, 35:165N-35:166, 35:168, 35:170-35:171, 35:173N-35:178, 35:180, 35:185-35:192, 35:194, 35:196-35:197, 35:200, 35:202-35:203, 35:206-35:210, 35:212, 35:215-35:219, 35:222, 35:224-35:229, 35:232, 35:238-35:241, 35:244-35:245, 35:247-35:248, 37:35, 39:07, 39:43, 40:03, 40:20, 40:38, 40:52, 40:59-40:60, 40:105, 40:158-40:159, 40:222, 40:267, 41:24, 41:30, 42:09, 44:17, 44:43:01-44:43:02, 44:144, 45:09, 46:01:01-46:10, 46:12-46:17, 46:19-46:57, 48:02:01-48:02:03, 48:14, 48:23, 48:25, 49:04-49:05, 50:33, 51:37, 51:45, 51:63, 51:97, 53:01:01-53:03, 53:05-53:06, 53:08:01-53:18, 53:20-

				53:30, 54:06, 54:09, 54:14, 55:14, 55:23, 55:32, 56:03, 56:09, 56:18, 56:31-56:32, 57:01:01-57:01:17, 57:06, 57:08, 57:10-57:11, 57:13-57:16, 57:18-57:27, 57:29-57:31, 57:33-57:38, 57:40-57:41, 57:43-57:45, 57:47-57:56, 57:58-57:62, 57:64-57:65, 57:67-57:69, 58:01:01-58:02, 58:04-58:07, 58:09-58:19, 58:21-58:26, 58:29, 58:31N-58:33, 58:35-58:58
37	195 bp	1070 bp	27, 35, 37, 44, 58, 76	*15:12, 15:14, 15:19, 15:91, 15:131, 15:161, 15:270, 15:298, 15:304N, 18:54, 18:56, 35:45, 35:71, 37:01:01-37:09, 37:12-37:13, 37:15-37:21, 37:23-37:28, 37:30N-37:33N, 37:35-37:36, 37:38-37:47, 38:17, 44:17, 44:43:01-44:43:02, 44:144, 45:09, 46:17, 53:22, 58:07, **A*24:174, C*14:61**
38[6]	105 bp, 395 bp, 435 bp	1070 bp	5, 7, 15, 41, 42, 62, 63, 70, 71, 75, 77	*07:04, 07:25, 07:146, 15:09-15:10:02, 15:13:01-15:13:02, 15:16:01-15:18:06, 15:21, 15:23-15:24:02, 15:37, 15:44, 15:51-15:52, 15:66-15:67, 15:72, 15:76, 15:80, 15:87, 15:90, 15:93, 15:95, 15:99, 15:101, 15:108, 15:114-15:115, 15:119, 15:124, 15:133-15:134, 15:153, 15:157, 15:161-15:162, 15:168, 15:176-15:177, 15:186, 15:189, 15:196-15:198, 15:200, 15:208, 15:216, 15:221-15:222, 15:226N, 15:229-15:230, 15:238, 15:243, 15:252, 15:254-15:255, 15:263, 15:268, 15:273, 15:275, 15:290, 15:292-15:294N, 40:136, 40:231, 41:08, 42:05:01-42:05:02, **C*07:335**
39[6]	115 bp, 150 bp	1070 bp	18	*18:01:01:01-18:15, 18:17N-18:28, 18:30-18:71, 18:73-18:91, 18:93-18:96, 48:28
40[6]	80 bp	1070 bp	7, 27, 2708, 44, 60	*07:73, 08:88, 08:102, 27:01-27:05:22, 27:05:24-27:21, 27:23-27:51, 27:53-27:66N, 27:68-27:74, 27:76-27:117, 38:22, 40:46, 40:93, 44:40, 44:44, 44:130, 49:26
41	150 bp	**800 bp**	12, 13, 17, 18, 22, 27, 35, 37, 39, 44, 45, 47, 48, 51, 53, 56, 57, 58, 62, 70, 75, 77, 78	*08:49, 13:01:01-13:01:08, 13:06-13:07N, 13:12:01-13:13, 13:17, 13:20, 13:22:01-13:23, 13:25-13:26:02, 13:28-13:29, 13:36, 13:39, 13:43, 13:50-13:52, 13:57, 13:60-13:61, 13:63N, 13:73, 14:10, 15:02:01-15:02:08, 15:13:01-15:13:02, 15:20-15:21, 15:25:01-15:25:03, 15:36, 15:44, 15:62, 15:77, 15:80, 15:85, 15:88-15:89, 15:106, 15:112, 15:121, 15:139, 15:144, 15:154, 15:165, 15:170, 15:194, 15:204, 15:213-15:214, 15:223, 15:240, 15:250, 15:265, 15:271, 15:283, 15:289, 15:291, 15:297, 15:301-15:302N, 18:22, 18:69, 27:19, 27:30, 35:01:01:01-35:04:03, 35:06-35:08:06, 35:10-35:17:02, 35:19-35:21, 35:23-35:30, 35:33-35:36, 35:38-35:42:02, 35:45-35:50, 35:52, 35:54-35:57, 35:59, 35:61:01-35:63, 35:65Q, 35:69-35:71, 35:74, 35:76-35:78, 35:80-35:85, 35:90-35:96, 35:98, 35:100-35:101:02, 35:103-35:113, 35:115-35:116, 35:120-35:126, 35:128-35:134N, 35:136-35:150:01, 35:152-35:173N, 35:175-35:184, 35:186-35:198, 35:200-35:204, 35:206-35:229, 35:231, 35:233, 35:236-35:248, 37:01:01-37:01:07, 37:01:09, 37:03N-37:06:02, 37:08, 37:10-37:11, 37:13-37:43, 37:45-37:47, 38:20, 39:42, 40:28, 44:02:01:01-44:14, 44:16-44:17, 44:19N, 44:21-44:30, 44:32-44:40, 44:42-44:46, 44:48-44:52N, 44:55-44:64:02, 44:66-44:98, 44:101-44:105, 44:107-44:134, 44:136-44:137, 44:139-44:157, 44:159-44:165, 44:167-44:181, 44:183, 44:185-44:187, 46:33, 48:02:01-48:02:03, 48:25, 50:17, 51:04, 51:42, 51:46, 51:56:01-51:56:02, 51:139, 53:01:01-53:13, 53:15-53:31, 55:14, 56:09, 56:11-56:12, 57:01:01-57:01:04, 57:01:06-57:10, 57:12, 57:14-57:20, 57:22-57:30, 57:32-57:46, 57:48-57:69, 58:01:01-58:01:02, 58:01:04-58:01:15, 58:04-58:05, 58:09-58:15, 58:17N, 58:19, 58:21-58:24, 58:28-58:29, 58:31N-58:37, 58:39N-58:42, 58:44-

				58:45:02, 58:47-58:58, 83:01, **C*03:102**
42	140 bp	1070 bp	8, 18, 22, 35, 39, 78	*07:65, 07:134, 08:32, 15:202, 15:239, 18:01:01:01-18:08, 18:10-18:15, 18:17N-18:36, 18:38-18:47, 18:50-18:53, 18:55-18:65, 18:68-18:78, 18:80-18:96, 35:01:01:01-35:18, 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, 35:218-35:248, 37:11, 37:37, 39:19:01-39:19:02, 40:185, 40:209, 46:40, 56:06, 78:01:01-78:05, 78:07
43[6,10]	55 bp, 245 bp, 390 bp, 415 bp	1070 bp	5, 15, 44, 48, 60, 62, 63, 70, 71, 72, 75, 76, 77, 82	*15:01:01:01-15:01:04, 15:01:06-15:21, 15:23-15:40, 15:42-15:58, 15:60-15:67, 15:69-15:99, 15:102-15:129, 15:131-15:179:01, 15:181N-15:235, 15:237-15:254, 15:256-15:304N, 40:12, 46:50, 82:01-82:03, **C*03:179, C*14:61**
44[10]	210 bp	**800 bp**	27, 37	*07:27, 08:49, 18:54, 37:01:01-37:47, 38:17, **C*07:302**
45	170 bp	**800 bp**	16, 35, 38, 39, 3901, 3902, 67, 72	*08:55, 15:69, 15:186, 35:35, 38:01:01-38:02:05, 38:02:07-38:09, 38:11-38:21, 38:23-38:29, 38:31-38:35, 38:38-38:44, 38:46-38:49, 39:01:01:01-39:01:01:03, 39:01:03-39:20, 39:22-39:24:02, 39:26-39:29, 39:31, 39:35, 39:37-39:42, 39:44-39:46, 39:48-39:49, 39:51-39:73, 39:75-39:81, 39:83-39:87N, 40:184, 51:101, 58:20, 67:01:01-67:04, **C*15:51**
46[6]	110 bp	1070 bp	38	*27:07:04, 38:01:01-38:02:02, 38:02:04-38:03, 38:05, 38:08-38:24, 38:26-38:34N, 38:36-38:50, 49:26, 52:01:10
47	395 bp	1070 bp	14, 16, 38, 39, 3901, 64, 65	*07:69, 07:85, 07:180, 08:65, 14:01:01-14:20, 14:22-14:38, 38:01:01-38:02:07, 38:04-38:05, 38:08-38:25, 38:27-38:50, 39:01:01:01-39:01:01:03, 39:01:03-39:01:17, 39:03-39:07, 39:09:01, 39:11-39:12, 39:14-39:15, 39:18-39:19:02, 39:22, 39:24:01-39:38Q, 39:40:01N-39:48, 39:50-39:57, 39:59-39:62, 39:64-39:82, 39:84-39:87N, 49:26
48	160 bp, 425 bp	1070 bp	7, 703, 8, 14, 15, 16, 21, 39, 3901, 3902, 40, 41, 42, 45, 48, 50, 60, 61, 64, 65, 67, 70, 73, 81	*07:02:01-07:26, 07:28-07:35, 07:37, 07:39-07:64, 07:66-07:80, 07:82-07:148, 07:150-07:178, 07:181N-07:191, 07:193-07:194, 07:196-07:210, 08:01:01-08:01:23, 08:04-08:05, 08:07-08:35, 08:37-08:51, 08:53:01-08:77, 08:79-08:115, 14:01:01-14:02:04, 14:02:06-14:02:07, 14:02:09-14:29, 14:31-14:38, 27:14, 27:81, 39:01:01:01-39:01:01:03, 39:01:03-39:20, 39:22-39:24:01, 39:25N-39:87N, 40:01:01-40:01:37, 40:06:01:01-40:06:04, 40:06:06-40:07, 40:09?, 40:11:01?-40:11:02?, 40:14:01?-40:15?, 40:16, 40:18?, 40:21?-40:22N?, 40:23, 40:24?-40:38?, 40:42?-40:43?, 40:44, 40:45?-40:46?, 40:48?-40:50?, 40:51, 40:52?, 40:53, 40:54?-40:58?, 40:59-40:60, 40:61?-40:65?, 40:66, 40:67?-40:69?, 40:70:01-40:70:02, 40:71?, 40:72:01-40:73, 40:74?, 40:75, 40:77, 40:78?, 40:79, 40:80?-40:82?, 40:83, 40:84?-40:85?, 40:86, 40:87:01?-40:88?, 40:90?-40:92?, 40:93, 40:95?, 40:96, 40:98?-40:102?, 40:103, 40:104?-40:108?, 40:109-40:110, 40:111?-40:116?, 40:118N?-40:121?, 40:123?, 40:124:01, 40:124:02?-40:126?, 40:127, 40:128?-40:130:02?, 40:131, 40:132?-40:134?, 40:136?-40:137?, 40:138-40:140, 40:141?, 40:145?, 40:146-40:148, 40:149?, 40:150, 40:151?, 40:152-40:153, 40:154?, 40:155:01N, 40:156?, 40:158?, 40:159, 40:160:01?-40:160:02?, 40:161-40:162, 40:163?-40:164?, 40:165, 40:166?, 40:167, 40:168?-40:171?, 40:172, 40:173?-40:176?, 40:177, 40:178?-40:185?, 40:186, 40:187?, 40:189?, 40:190, 40:191?-40:200?, 40:202?-40:213?, 40:215?-40:228?, 40:230, 40:231?-40:243?, 40:244, 40:245?-40:249?, 40:250-40:253, 40:256N, 40:257?, 40:258-40:265N, 40:268-40:270, 41:01:01-41:31, 42:01:01-42:02, 42:04-42:20,

				45:01:01-45:14, 48:01:01-48:17, 48:19-48:34, 50:01:01-50:02, 50:04-50:20, 50:31-50:37, 51:01:09, 51:01:21, 51:01:25, 51:10, 51:24:02-51:24:04, 54:11, 56:20:02, 67:01:01-67:04, 73:01-73:02, 81:02
49[12]	180 bp	1070 bp	15, 40, 44, 48, 60, 62, 71	*15:116, 15:124, 35:230, 40:01:01-40:01:06, 40:01:08-40:01:17, 40:01:19-40:01:37, 40:07, 40:10:01-40:10:02, 40:12, 40:21-40:23, 40:25, 40:30, 40:33-40:34, 40:36, 40:38, 40:42-40:43, 40:46-40:49, 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, 40:116-40:118N, 40:123-40:126, 40:128, 40:130:01-40:130:02, 40:132, 40:134-40:135, 40:137-40:141, 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, 40:191, 40:193-40:196, 40:198-40:199, 40:204, 40:207-40:208, 40:210, 40:212-40:213, 40:215-40:218, 40:221-40:223, 40:227-40:228, 40:231, 40:234-40:236, 40:238-40:242, 40:245, 40:247, 40:249-40:253, 40:257-40:265N, 44:31, 44:169, 44:182, 46:06, 46:43, 48:03:01-48:03:02, 48:17, 48:23, 57:59, **C*03:129, C*03:234, C*17:16**
50[10,17]	290 bp, 465 bp	1070 bp	21, 4005, 41, 50, 60, 61	*13:02:06, 13:26:01, 13:72, 15:16:03, 15:20, 15:85, 15:194, 18:48, 35:46, 35:207, 40:02:01-40:06:08, 40:08, 40:09?, 40:10:02?-40:11:02?, 40:13, 40:14:01?-40:15?, 40:18?-40:19?, 40:20, 40:22N?, 40:24?-40:31?, 40:33?-40:38?, 40:39, 40:42?, 40:44?-40:45?, 40:47?-40:50?, 40:52?-40:58?, 40:61?-40:65?, 40:67?-40:69?, 40:70:01-40:70:02, 40:71?, 40:72:02?, 40:74?-40:76?, 40:78?, 40:80?-40:82?, 40:84?-40:88?, 40:89, 40:90?-40:92?, 40:94, 40:95?-40:96?, 40:97, 40:98?-40:121?, 40:122, 40:123?, 40:124:02?-40:136?, 40:141?, 40:142N-40:144N, 40:145?, 40:148?-40:149?, 40:151?, 40:154?, 40:156?-40:169?, 40:173?-40:176?, 40:178?-40:184?, 40:187?-40:208?, 40:210?-40:213?, 40:214, 40:216N?-40:228?, 40:229, 40:230?-40:236?, 40:238?-40:248?, 40:254-40:255, 40:256N?-40:257?, 40:266-40:270, 46:01:07, 46:33, 47:01:01:01-47:09, 57:05, 57:67, 58:36, **C*01:73**
51[6]	105 bp	1070 bp	7, 8, 22, 41, 42	*07:04, 07:25, 07:146, 08:01:01-08:05, 08:07-08:12:03, 08:14-08:19N, 08:21-08:24, 08:26:01-08:39, 08:41-08:54, 08:56:01-08:69, 08:71-08:78, 08:80-08:102, 08:104-08:112, 08:114-08:115, 35:87, 40:136, 40:231, 41:01:01-41:08, 41:10-41:28, 41:30-41:31, 42:01:01-42:02, 42:04-42:07, 42:09-42:18, 42:20, 44:166, 55:20
52[9]	325 bp	**800 bp**	7, 22, 27, 2708, 35, 42, 45, 46, 54, 55, 56, 67, 73, 78, 81, 82	*07:02:01-07:02:41, 07:04-07:07, 07:09-07:15, 07:17-07:26, 07:28-07:31, 07:33:01-07:36, 07:39-07:46, 07:47[w], 07:48-07:49N, 07:51-07:68:03, 07:70-07:84, 07:86-07:179, 07:181N-07:206, 07:208-07:210, 14:21, 15:76, 15:101, 15:255, 27:01-27:11, 27:13-27:15, 27:17, 27:19-27:21, 27:24-27:28, 27:30-27:38, 27:40-27:58, 27:60-27:76, 27:78-27:91, 27:93-27:117, 35:76, 35:186, 35:229, 38:26, 40:166, 42:01:01-42:02, 42:04-42:06, 42:08-42:10, 42:12-42:20, 44:90, 44:97, 45:06, 46:01:01-46:01:15, 46:02[w], 46:03-46:40, 46:42-46:48, 46:50-46:57, 54:01:01-54:29, 54:31-54:32, 55:01:01-55:05, 55:07-55:17, 55:19-55:63, 56:01:01-56:16, 56:18-56:22, 56:24-56:32, 56:34-56:41, 56:43, 67:01:01-67:04, 73:01-73:02, 81:01-81:06, 82:01-82:03, 83:01
53[6]	80 bp,	1070 bp	12, 35, 37,	*08:49, 08:60, 08:76, 08:87, 35:38, 35:45, 35:71, 35:115,

Lot No.: 33X **Lot-specific information**

	115 bp, 160 bp, 195 bp, 225 bp, 260 bp		42, 44, 45, 47, 57	35:169, 37:01:01-37:01:07, 37:01:09, 37:03N-37:06:02, 37:08, 37:10-37:38, 37:41-37:43, 37:45-37:47, 40:132, 40:178, 40:231, 42:13, 44:02:01:01-44:14, 44:16-44:17, 44:19N-44:36, 44:38-44:63, 44:65-44:134, 44:136-44:149N, 44:151-44:157, 44:159-44:165, 44:167-44:183, 44:185-44:187, 51:42, 53:22, 57:07, 57:09, 57:24, 83:01, **C*15:25**
54	215 bp	**800 bp**	5, 8, 12, 17, 21, 22, 41, 42, 44, 45, 51, 5102, 5103, 52, 53, 56, 62	*08:09, 08:84, 13:46, 15:83, 41:01:01, 41:05-41:07, 41:09, 41:12, 41:14, 41:16-41:17, 41:20-41:22, 41:25-41:26, 41:28-41:30, 42:04, 44:06, 44:15, 44:18, 44:20, 44:100, 45:01:01-45:14, 51:01:01, 51:01:03-51:01:08, 51:01:10-51:01:39, 51:01:41-51:02:01, 51:02:03-51:04, 51:06:01-51:07:01, 51:08:01-51:09:01, 51:10-51:14, 51:16-51:24:05, 51:26-51:46, 51:48-51:53, 51:55-51:77, 51:79-51:88, 51:90-51:92, 51:94-51:102, 51:104-51:115, 51:117-51:118N, 51:120-51:131, 51:133-51:143, 51:145-51:147, 51:149N-51:166, 52:01:02, 52:01:04, 52:01:09, 52:02:01, 52:03, 52:06:01-52:06:02, 52:09, 52:10:03, 52:19, 52:21, 53:06, 55:20, 55:56, 56:13, 58:08:01
55	130 bp, 270 bp	**800 bp**	17, 18, 22, 35, 37, 46, 51, 53, 62, 78	*14:10, 15:57[w], 15:289, 18:22, 18:69, 35:21, 35:24:01-35:24:02, 35:81, 35:96, 35:109, 35:157, 35:188, 35:190, 35:233, 37:04:01-37:04:02, 40:28, 46:01:01-46:39, 46:41N-46:46, 46:48-46:57, 51:04, 51:46, 51:56:01-51:56:02, 51:139, 53:02, 53:06, 53:28, 57:14, 58:09, **C*01:73, C*15:39**
56[6,13]	90 bp, 410 bp	1070 bp	15, 22, 27, 35, 47, 54, 55, 56, 78, 81, 82	*07:65, 27:01[w], 27:02:01-27:11, 27:13-27:15, 27:17, 27:19-27:21, 27:24-27:28, 27:30-27:38, 27:40-27:58, 27:60-27:76, 27:78-27:91, 27:93-27:117, 35:76, 35:186, 35:229, 44:90, 44:97, 47:01:01:01-47:03, 47:06-47:09, 54:01:01-54:29, 54:31-54:32, 55:01:01-55:05, 55:07-55:17, 55:19-55:63, 56:01:01-56:16, 56:18-56:22, 56:24-56:32, 56:34-56:41, 56:43, 81:01, 82:01-82:03, 83:01
57[6]	90 bp, 175 bp	1070 bp	15, 27, 35, 48, 60, 62, 75, 77, 81	*07:174, 07:202, 13:36, 15:02:01-15:02:08, 15:08:01, 15:11:01-15:11:06, 15:13:01-15:13:02, 15:15, 15:21, 15:31, 15:44, 15:55, 15:76[w], 15:88-15:89, 15:112, 15:121, 15:139, 15:144, 15:148, 15:170, 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, 27:24, 35:46, 40:31, 40:45, 40:80, 48:01:01-48:01:06, 48:04, 48:06-48:07, 48:09, 48:11, 48:15-48:16, 48:18-48:20, 48:22, 48:24, 48:27-48:34, 56:39[w], 81:01-81:06
58	145 bp, 430 bp	1070 bp	44, 49, 59, 61	*40:13, 40:19, 40:109, 40:117, 44:18, 44:25, 44:50:01, 44:95, 49:01:01-49:01:04, 49:04-49:25, 49:27-49:28, 51:112, 53:30, 54:12, 56:21, 57:45, 57:51, 57:69, 59:01:01:01-59:06
59[6]	120 bp, 210 bp	**800 bp**	5, 13, 15, 17, 22, 35, 45, 49, 50, 51, 5102, 5103, 52, 55, 56, 62, 63, 78	*07:78, 07:84, 13:16, 13:31[w], 13:48, 13:62, 14:37, 15:04:01[w], 15:16:01-15:16:03, 15:42, 15:67, 15:95, 15:137[w], 15:254, 15:293, 15:303[w], 40:95, 40:148, 40:161, 46:32[w], 49:01:01, 49:01:03-49:10, 49:12-49:28, 50:01:01-50:02, 50:04-50:11, 50:13-50:16, 50:18-50:20, 50:31-50:37, 51:01:01-51:03, 51:05, 51:07:01-51:09:02, 51:11N-51:14, 51:16-51:24:05, 51:26-51:41N, 51:43-51:44N, 51:48-51:55, 51:57-51:58, 51:60-51:61:02, 51:63, 51:65-51:80, 51:82-51:134, 51:136-51:138, 51:140-51:147, 51:149N-51:156, 51:158:01-51:166, 52:01:01:01-52:36, 54:20, 55:01:01-55:01:06, 55:01:08-55:01:11, 55:03, 55:05, 55:09, 55:11, 55:15, 55:17, 55:21[w], 55:24-55:25, 55:28-55:29, 55:31, 55:33, 55:36, 55:38, 55:40, 55:44-55:45, 55:52-55:55N, 55:58-55:60, 56:05:01-56:06, 56:21, 56:25, 56:37, 58:08:01-58:08:02, 78:01:01-78:07

60	430 bp	1070 bp	5, 17, 27, 44, 51, 5102, 5103, 52, 53, 57, 58, 61	*18:67, 27:02:01-27:02:02, 27:30, 27:53, 27:57, 27:62, 27:65N, 27:75, 27:77, 27:83, 27:95, 27:102, 37:34, 40:13, 40:19, 40:109, 40:117, 44:06, 44:25, 44:50:01, 44:95, 51:01:01-51:01:39, 51:01:41-51:24:05, 51:26-51:46, 51:48-51:53, 51:55-51:77, 51:79-51:166, 52:01:01:01-52:19, 52:21-52:36, 53:01:01-53:02, 53:04-53:08:02, 53:10, 53:14-53:30, 57:01:01-57:11, 57:13-57:69, 58:01:01-58:02, 58:04-58:16:02, 58:18-58:29, 58:31N-58:58
61	145 bp	1070 bp	12, 21, 35, 40, 4005, 41, 45, 47, 50, 60, 61	*07:133, 15:46, 15:53, 15:106, 15:143, 15:212, 18:48, 35:19, 35:47, 35:63, 35:154, 35:217, 39:69, 40:01:01-40:11:02, 40:14:01-40:16, 40:18, 40:20, 40:22N-40:40, 40:42-40:45, 40:48-40:75, 40:77-40:92, 40:94-40:95, 40:97-40:108, 40:111-40:116, 40:118N-40:136, 40:138-40:156, 40:158-40:184, 40:186-40:187, 40:189-40:200, 40:202-40:207, 40:210-40:264, 40:266-40:270, 41:01:01-41:04, 41:05[?], 41:06-41:25, 41:27-41:31, 44:09, 44:46, 44:75, 44:90, 44:129, 44:131, 45:01:01-45:14, 47:02, 47:03[w], 50:01:01-50:02, 50:04-50:05, 50:07-50:20, 50:31-50:37
62[9]	300 bp	1070 bp	7, 12, 13, 15, 17, 18, 21, 27, 2708, 35, 37, 38, 39, 3902, 40, 4005, 41, 44, 45, 47, 48, 49, 50, 52, 60, 61, 62, 70, 72, 76	*07:54, 07:123, 08:17, 08:38, 08:54, 08:101, 13:01:01-13:04, 13:06, 13:08-13:23, 13:25-13:35, 13:37-13:73, 15:01:01:01-15:01:04, 15:01:06-15:01:18, 15:01:20-15:01:34, 15:03:01-15:07:03, 15:12, 15:14, 15:19-15:20, 15:24:01-15:27:03, 15:30, 15:32:01-15:36, 15:38:01-15:40, 15:42-15:43, 15:45-15:50, 15:53-15:54, 15:56-15:58, 15:60-15:63, 15:65-15:66, 15:68-15:71, 15:73-15:75, 15:77-15:79N, 15:81-15:87, 15:91-15:92, 15:94N, 15:96-15:98, 15:101-15:107, 15:109-15:111N, 15:113, 15:116-15:118, 15:122-15:123, 15:125-15:129, 15:131-15:132, 15:135-15:138, 15:140-15:142, 15:145-15:147, 15:150-15:152, 15:154-15:160, 15:163-15:167, 15:169, 15:171-15:175, 15:178-15:179:01, 15:181N-15:185, 15:187-15:188, 15:190N, 15:192-15:193, 15:195, 15:199, 15:201-15:207, 15:210-15:212, 15:217-15:220, 15:224-15:225, 15:227-15:228, 15:231-15:237, 15:239-15:245Q, 15:247-15:251, 15:253, 15:255-15:262N, 15:264, 15:266-15:267, 15:269-15:272N, 15:274, 15:276-15:282, 15:286-15:289, 15:295-15:296, 15:298-15:300, 15:304N, 18:12, 27:01-27:21, 27:24-27:91, 27:93-27:108, 27:110-27:117, 35:10, 35:13, 35:16, 35:28, 35:63, 35:69, 35:80, 35:207, 35:226, 37:01:01-37:07, 37:09-37:47, 38:03-38:04, 38:25, 39:02:01-39:02:02, 39:08, 39:13:01-39:13:02, 39:22-39:23, 39:49, 40:01:01-40:07, 40:09-40:16, 40:18-40:24, 40:26-40:40, 40:42-40:67, 40:70:01-40:105, 40:107-40:165, 40:167-40:231, 40:233-40:270, 41:01:01-41:31, 42:11, 44:02:01:01-44:02:21, 44:02:23-44:05:04, 44:07-44:11, 44:13-44:170, 44:172-44:183, 44:185-44:187, 45:01:01-45:14, 47:01:01:01-47:09, 48:01:01-48:05, 48:07-48:15, 48:17-48:34, 49:01:01-49:25, 49:27-49:28, 50:01:01-50:02, 50:04-50:14, 50:16-50:20, 50:31-50:37, 52:01:01:01-52:36, 53:17:01-53:17:02, 53:28, 55:18, 55:34, 55:40, 78:05-78:06
63[8,14]	160 bp, 370 bp	1070 bp	44, 45, 47, 54	*08:87, 44:02:01:01-44:02:29, 44:06, 44:08-44:09, 44:11-44:12, 44:16, 44:19N-44:24, 44:27:01-44:27:02, 44:33-44:34:02, 44:41:01-44:41:02, 44:44, 44:48-44:49, 44:52N-44:53, 44:55, 44:59:01-44:59:02, 44:63, 44:66-44:68, 44:71-44:74, 44:80, 44:83-44:84:02, 44:86-44:87, 44:89-44:91, 44:93, 44:95, 44:97, 44:99-44:102, 44:104, 44:106, 44:112-44:113, 44:116, 44:118-44:119, 44:121, 44:126:01-44:127, 44:131-44:132, 44:137-44:138Q, 44:142, 44:145, 44:148-44:149N, 44:151-44:152,

				44:162, 44:168-44:173, 44:176-44:177, 44:179, 44:185, 44:187, 54:01:01-54:32, 83:01
64	180 bp, 210 bp	1070 bp	13, 15, 18, 35, 39, 40, 54, 55, 56, 59, 78	*07:65, 07:206, 13:06, 13:53, 14:37, 15:32:02, 15:42, 15:86, 15:224, 18:04, 35:08:05, 35:42:02, 35:60, 35:185, 39:17, 39:63, 40:01:11, 40:58, 45:08, 46:18, 46:40, 51:157, 54:01:01-54:02, 54:05N, 54:07-54:08N, 54:10, 54:12-54:13, 54:16-54:25, 54:27-54:32, 55:01:01-55:03, 55:05, 55:07, 55:10-55:12, 55:15-55:16, 55:18-55:19, 55:21, 55:25-55:26, 55:29-55:31, 55:33-55:45, 55:47-55:48, 55:50, 55:52-55:57, 55:59-55:63, 56:05:01, 56:06, 56:10, 56:23, 59:01:01:01-59:01:01:02, 59:05-59:06, 78:01:01-78:01:02, 78:02:02-78:03, 78:07, **C*01:90, C*15:02:04**
65	180 bp, 205 bp	1070 bp	12, 15, 21, 22, 44, 45, 49, 50, 51, 56, 61, 62, 82	*07:29, 07:186, 13:03, 13:48, 15:73, 15:303, 40:71, 44:10, 44:15, 44:18, 44:140, 45:01:01, 45:04-45:07, 45:11-45:14, 46:11, 49:01:01-49:03, 49:06, 49:08-49:17, 49:19N-49:28, 50:01:01-50:02, 50:04-50:08, 50:10-50:13, 50:15-50:19, 50:32, 50:34-50:37, 51:15, 51:62, 51:106, 52:25, 54:03, 56:01:01-56:01:04, 56:01:06-56:02, 56:04, 56:07-56:08, 56:13-56:14, 56:16-56:17, 56:20:01-56:20:02, 56:24-56:30, 56:33-56:43, 59:04, 82:01-82:03, **C*03:19, C*03:102, C*15:15**
66[6]	90 bp, 240 bp	**800 bp**	57	*55:14, 57:01:01-57:44, 57:46-57:50, 57:52-57:68, 58:36, **C*06:72**
67[6,13]	90 bp	1070 bp	5, 13, 15, 17, 39, 55, 56, 58, 60, 61, 62, 71	*07:182N, 13:11, 15:18:03, 15:73, 15:224, 39:17, 40:48, 40:71, 51:62, 56:02, 56:04, 56:10, 58:01:01-58:01:13, 58:01:15-58:02, 58:04-58:29, 58:31N-58:35, 58:37-58:43, 58:45:01-58:58, **C*02:06[w], C*02:47[w]**
68[6]	95 bp	1070 bp	8, 18, 22, 35, 37, 38, 39, 44, 51, 5102, 5103, 53, 78	*07:65[w], 07:134[w], 08:32, 18:01:01:01-18:11, 18:13-18:15, 18:17N-18:36, 18:38-18:47, 18:49-18:65, 18:67-18:96, 35:01:01:01-35:08:04, 35:08:06-35:09:03, 35:11:01-35:12:03, 35:14:01-35:15, 35:17:01-35:18, 35:20:01-35:24:02, 35:27, 35:29:01-35:45, 35:48, 35:50-35:62, 35:64:01-35:68:02, 35:70-35:72, 35:74-35:75, 35:76[w], 35:77-35:79, 35:81-35:153, 35:155-35:185, 35:187-35:190, 35:192-35:197, 35:199-35:206, 35:208-35:209, 35:211-35:216N, 35:218-35:225, 35:227-35:248, 37:08, 38:06-38:07, 39:19:01-39:19:02, 44:06, 51:01:01-51:24:05, 51:26-51:46, 51:48-51:103, 51:105-51:111, 51:113-51:117, 51:119-51:146, 51:148-51:166, 53:01:01-53:16, 53:18-53:27, 53:29, 53:31, 56:06[w], 78:01:01-78:04, 78:07
69[6,10]	115 bp, 150 bp	1070 bp	15, 18,22, 27, 35, 39, 46, 55, 62, 72, 73, 75, 76	*07:100, 13:31, 13:41, 15:01:01:01-15:01:04, 15:01:06-15:01:16, 15:01:18-15:01:30, 15:01:32-15:01:34, 15:04:01, 15:07:01-15:08:01, 15:11:01-15:12, 15:14-15:15, 15:19, 15:24:01-15:24:02, 15:26N-15:28, 15:30, 15:32:01-15:32:02, 15:34-15:35, 15:38:01-15:38:02, 15:43, 15:45-15:46, 15:50, 15:53-15:54, 15:56-15:58, 15:60, 15:63, 15:66, 15:68, 15:70-15:71, 15:73, 15:75-15:77, 15:79N, 15:81-15:82, 15:85, 15:87, 15:92, 15:94N, 15:96-15:97, 15:101-15:102, 15:104-15:105, 15:109-15:111N, 15:113, 15:117-15:118, 15:120, 15:122, 15:125-15:126, 15:128-15:129, 15:135, 15:137, 15:140, 15:142-15:149N, 15:152, 15:154, 15:157, 15:159-15:160, 15:163-15:167, 15:169, 15:171-15:172, 15:174-15:175, 15:178, 15:180-15:184, 15:187, 15:189-15:193, 15:201-15:203, 15:205-15:207, 15:209N, 15:211-15:212, 15:215, 15:217, 15:225, 15:227-15:228, 15:231-15:234, 15:236, 15:239, 15:241, 15:244-15:247, 15:251, 15:256-15:262N, 15:264, 15:267, 15:269-15:270, 15:272N, 15:276-15:280, 15:284-15:286, 15:296, 15:298-15:299, 15:303-15:304N, 18:19, 27:25, 27:75,

				27:115, 35:14:01-35:14:02, 35:43:01-35:44, 35:62, 35:67, 35:79, 35:86, 35:102, 35:117, 35:135, 35:163, 35:185, 35:213, 39:18, 39:36, 44:146, 46:01:01-46:02, 46:04-46:05, 46:07N, 46:09-46:10, 46:12, 46:14-46:17, 46:20, 46:22-46:24, 46:26-46:32, 46:34-46:42, 46:44, 46:46-46:53, 46:55N-46:57, 51:61:01-51:61:02, 52:21, 54:06, 55:21, 56:03, 56:43, 73:01-73:02, **A*26:68, A*68:56, C*02:56, C*06:20, C*12:50**
70[15]	360 bp	1070 bp	Bw4	
71	350 bp	1070 bp	Bw6	
72	285 bp	**800 bp**	7, 703, 8, 35, 40, 41, 42, 48, 53, 60, 61, 81	*07:02:01-07:02:38, 07:02:40-07:06, 07:08-07:18:02, 07:20-07:32, 07:34-07:39, 07:41-07:52, 07:54-07:59, 07:61-07:76, 07:79-07:83, 07:85-07:99, 07:101-07:121, 07:123-07:138, 07:140-07:164, 07:166-07:192, 07:194-07:195, 07:199-07:210, 08:01:01-08:01:20, 08:01:22-08:05, 08:07-08:08N, 08:10-08:11, 08:13-08:15, 08:17-08:83, 08:85-08:88, 08:90-08:102, 08:104-08:106, 08:108-08:112, 08:114-08:115, 15:297, 35:66, 35:87, 37:07, 40:15-40:16, 40:30-40:32, 40:34, 40:45, 40:59, 40:80, 40:98, 40:137, 40:160:01-40:160:02, 41:02:01-41:02:05, 41:04, 41:10-41:11, 41:13, 41:18-41:19, 41:23-41:24, 41:27, 41:31, 42:01:01-42:02, 42:05:01-42:07, 42:09-42:13, 42:15-42:20, 44:150, 44:166, 48:01:01-48:01:06, 48:05-48:12, 48:14-48:20, 48:22, 48:27-48:34, 53:15, 81:01-81:06

[1]Alleles are assigned by the presence of specific PCR product(s). However, the sizes of the specific PCR products may be helpful in the interpretation of HLA-B low resolution SSP typings.
When the primers in a primer mix can give rise to HLA-specific PCR products of more than one length this is indicated if the size difference is more than 20 base pairs. Size differences of 20 base pairs or less are not given. For high resolution SSP kits, the alleles listed are specified according to amplicon length.
Nonspecific amplifications, i.e. a ladder or a smear of bands, may sometimes be seen. GC-rich primers have a higher tendency of giving rise to nonspecific amplifications than other primers.
PCR fragments longer than the control bands may sometimes be observed. Such bands should be disregarded and do not influence the interpretation of the SSP typings.
PCR fragments migrating faster than the control bands, but slower than a 400 bp fragment may be seen in some gel read-outs. Such bands can be disregarded and do not influence the interpretation of the SSP typings.
Some primers may give rise to primer oligomer artifacts. Sometimes this phenomenon is an inherit feature of the primer pair(s) of a primer mix. More often it is due to other factors such as too low amount of DNA in the PCR reactions, taking too long time in setting up the PCR reactions, working at elevated room temperature or using thermal cyclers that are not pre-heated.

[2]The internal positive control primer pairs amplify segments of the human growth hormone gene. The internal positive control bands are 1070 or 800 base pairs respectively, well distribution as outlined in the table. Well number 25 contains the shorter, 800 bp, internal positive control band. The well distribution of the internal controls can help in orientation of the kit on gel photo, as well as allow for kit identification. In the presence of a specific amplification the intensity of the control band often decreases.

[3]The serological reactivity of all HLA-B alleles is not known. In this table we use the expert-assigned serological grouping in Tissue Antigens (2009) 73:95-170 and the serological grouping of the sequence-defined allele.

[4]For several HLA Class I alleles 1st and/or 4th exon(s) and beyond, as well as intron nucleotide sequences, are not available. In these instances it is not known whether some of the primers of the SSP sets are completely matched with the target sequences or not. Assumption is made that unknown sequences in these regions are conserved within allelic groups.

[5]Only HLA-B alleles will be amplified by the 48 wells of the HLA-B low resolution, primer set, except that a few HLA-A and HLA-C alleles will be amplified by primer mixes 25, 27, 28, 30 to 32, 37, 38, 41, 43 to 45, 49, 50, 53, 55, 64 to 67 and 69.

[6]HLA-specific PCR products shorter than 125 base pairs have a lower intensity and are less sharp than longer PCR products.

[7]Primer mix 28 may give rise to a lower yield of HLA-specific PCR product than the other HLA-B low resolution primer mixes in B*40, B*41, B*45, B*49 and B*50 alleles.
[8]Primer mixes 29, 33 and 63 may give rise to a lower yield of HLA-specific PCR product than the other HLA-B low resolution primer mixes.
[9]Primer mixes 33, 52 and 62 may have tendencies of unspecific amplifications, most pronounced in primer mix 33.
[10]Primer mixes 25, 43, 44, 50 and 69 have a tendency to giving rise to primer oligomer formation.
[11]The B*57 and B*58 alleles might be faintly amplified by primer mix 33.
[12]The C*17:01 to C*17:04 alleles might be faintly amplified by primer mix 49.
[13]Primer mixes 56 and 67 may generate a false positive band of about 800 base pairs. This band should be disregarded when interpreting HLA-B low resolution typings.
[14]Primer mix 63 may give rise to a lower yield of B*54 alleles than the other B low primer mixes.
[15]The Bw4-associated HLA-A specificities A9, A23, A24, A2403, A25 and A32 are not amplified by the primer pair in primer mix 70.
[16]Primer mix 28 amplifies the B*15:143, 35:19, 40:170, 44:07 and 50:07 alleles in addition to the alleles specified in the table.
[17]Primer mix 50 amplifies the B*37:06:01-37:06:02 alleles in addition to the alleles specified in the table.
'w', might be weakly amplified.
'?', nucleotide sequence information not available for the primer matching sequence.

101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

Visit www.olerup-ssp.com for **"Instructions for Use" (IFU)**

Lot No.: 33X **Lot-specific information**

SPECIFICITY TABLE

HLA-C low resolution SSP typing

Specificities and sizes of the PCR products of the 23+1 primer mixes used for HLA-C low resolution SSP typing

Primer Mix	Size of spec. PCR product[1]	Size of control band[2]	Amplified HLA class I [3, 4] alleles
73[5]	90 bp, 150 bp	**800 bp**	*01:02:01-01:90, 04:71, 07:316, 07:338, 14:58, **B*39:76, B*54:18**
74[6]	130 bp, 200 bp, 270 bp, 300 bp	**800 bp**	*01:10, 01:43, 02:02:01-02:02:03, 02:02:05-02:40:01, 02:42-02:57, 02:59-02:74, 04:32, 04:77, 06:08, 07:101, 07:148, 07:161, 08:31, 14:25, 15:42, 16:29, 16:50, 17:01:01:01-17:06, 17:08-17:16, 17:18-17:22, 18:03
75[13]	280 bp	**800 bp**	*02:02:01-02:02:03, 02:02:05-02:03, 02:04[w], 02:05:01-02:13, 02:14[w], 02:15-02:25Q, 02:26:02-02:40:01, 02:42-02:74, 03:02:01-03:02:09, 03:02:11-03:02:12, 03:04:01:01-03:04:25, 03:04:27-03:10, 03:14-03:17, 03:19, 03:23-03:29, 03:32-03:38:02, 03:40:01-03:42, 03:44-03:48, 03:51, 03:54, 03:57, 03:60, 03:63-03:64:01, 03:65, 03:70-03:74, 03:77-03:78, 03:80, 03:82, 03:84, 03:87, 03:89-03:95, 03:98, 03:100-03:101, 03:104-03:111, 03:113-03:115, 03:117-03:118, 03:121N, 03:123, 03:125, 03:128-03:131, 03:134-03:136, 03:138-03:140, 03:143, 03:145-03:149, 03:153-03:155, 03:157, 03:159, 03:162-03:164, 03:169Q, 03:172-03:174, 03:178-03:181, 03:183-03:184, 03:186:01, 03:190-03:191, 03:193-03:194, 03:197-03:201N, 03:208N-03:213, 03:215-03:216, 03:218-03:219, 03:221-03:222, 03:224N-03:226, 03:232-03:236, 04:03:01-04:03:02, 04:06, 04:16, 04:80, 04:107, 04:147, 04:160, 05:58:01, 06:03:01, 07:96:01-07:96:02, 12:03:23, 15:02:01-15:05:08, 15:05:10-15:09, 15:10:02-15:11, 15:13, 15:15-15:19, 15:21-15:22, 15:24-15:35, 15:37-15:60, 15:62, 15:64-15:84Q, 16:34
76[7]	170 bp, 275 bp	1070 bp	*03:02:01-03:04:06, 03:04:08-03:11:02, 03:13:01-03:15, 03:17-03:40:03, 03:42-03:57, 03:59-03:79, 03:81-03:85, 03:87-03:93, 03:95-03:98, 03:100-03:109, 03:111-03:112, 03:114-03:150, 03:152-03:164, 03:166-03:236, 07:242
77	280 bp	**800 bp**	*03:03:01-03:03:20, 03:03:22-03:03:24, 03:11:01-03:11:02, 03:13:01-03:13:02, 03:20N-03:22Q, 03:30-03:31, 03:43:01-03:43:02, 03:49-03:50, 03:52-03:53, 03:55-03:56, 03:58-03:59, 03:61-03:62, 03:66, 03:67[w], 03:68-03:69, 03:75-03:76, 03:79, 03:81, 03:83, 03:85-03:86, 03:88, 03:96-03:97, 03:102-03:103, 03:112, 03:116:01-03:116:02, 03:119-03:120, 03:122, 03:124, 03:126-03:127, 03:132-03:133, 03:141-03:142, 03:150-03:152, 03:158, 03:160-03:161, 03:165, 03:167-03:168, 03:171, 03:175-03:177, 03:185, 03:187-03:189N, 03:192, 03:196, 03:202-03:207, 03:214, 03:217, 03:220, 03:223, 03:227-03:230, 15:12
78[13]	140 bp, 330 bp	**800 bp**	*02:02:01-02:02:03, 02:02:05-02:02:12, 02:02:14-02:02:25, 02:03-02:20, 02:22-02:25Q, 02:27:01-02:38N, 02:40:01, 02:42-02:44, 02:46-02:74, 03:231, 04:01:01:01-04:01:27, 04:01:29-04:01:57, 04:03:01-04:15:03, 04:17-04:20, 04:23-04:41, 04:43-04:102, 04:104-04:139, 04:141-04:165, 05:26, 05:78, 07:02:09, 07:125, 15:11, 15:36, 16:34

Lot No.: 33X **Lot-specific information**

79	165 bp, 390 bp, 445 bp	1070 bp	*04:129, 05:01:01:01-05:01:27, 05:03-05:99N, 06:05, 06:67, 08:10, 12:21, 12:33, 16:40, 16:53, 17:05
80	130 bp, 355 bp	**800 bp**	*01:90, 02:06, 02:47, 06:02:01:01-06:02:01:03, 06:02:03-06:16N, 06:18-06:31, 06:33-06:76:01, 06:77-06:93, 06:96-06:98, 06:100-06:123, 12:02:11, 12:03:09, 12:03:26, 12:15, 15:02:01-15:03, 15:07-15:08, 15:10:01-15:13, 15:15-15:18, 15:21, 15:26, 15:28, 15:31-15:35, 15:37-15:39, 15:41-15:45, 15:47-15:53, 15:56-15:58, 15:60, 15:62-15:64, 15:67-15:68, 15:71-15:75, 15:78-15:84Q
81[8]	245 bp, 425 bp	**800 bp**	*07:01:01:01-07:33N, 07:35-07:294, 07:296-07:348
82[5,9,13]	110 bp, 165 bp, 390 bp	**800 bp**	*01:43, 07:101, 07:148, 07:161, 08:01:01-08:63, 08:65-08:102
83	340 bp	1070 bp	*01:14, 01:59, 02:02:01-02:02:03, 02:02:05-02:11, 02:13-02:26:03, 02:28-02:40:01, 02:42-02:74, 03:07, 03:15, 03:45, 03:130, 03:140, 03:163, 04:01:01:01-04:01:57, 04:03:01-04:10, 04:12-04:20, 04:23-04:28, 04:30-04:35, 04:37-04:54, 04:56-04:165, 05:01:01:01-05:01:27, 05:03-05:99N, 06:02:01:01-06:02:01:03, 06:02:03-06:02:11, 06:02:13-06:10, 06:12-06:51, 06:53:01-06:121, 06:123, 07:07, 07:09, 07:49, 07:76:01, 07:210, 07:238, 07:247, 07:315, 07:328, 08:10, 12:04:01-12:05, 12:09, 12:21, 12:33, 12:41, 12:54, 12:60, 14:04, 14:12, 14:49, 15:02:01-15:06:03, 15:08-15:13, 15:15-15:19, 15:22-15:24, 15:26-15:42, 15:44-15:70, 15:72-15:84Q, 16:02:01-16:02:11, 16:09, 16:12, 16:19, 16:25, 16:46-16:48, 16:57, 16:60, 16:63, 17:01:01:01-17:21, 17:23, 18:01-18:07N
84[5,11]	100 bp, 160 bp, 220 bp	**800 bp**	*01:02:18, 01:04, 01:21, 06:76:02, 12:02:01-12:03:01:02, 12:03:03-12:03:07, 12:03:09-12:03:15, 12:03:17-12:03:19, 12:03:21-12:03:29, 12:04:02-12:08, 12:10:01-12:13, 12:14:02-12:18:01, 12:19-12:25, 12:27-12:32, 12:34-12:58, 12:60-12:115, 14:02:08, 16:15:02
85[5,11]	120 bp, 250 bp	**800 bp**	*01:21, 02:12, 02:49, 02:55, 04:01:01:01-04:01:57, 04:03:01-04:09N, 04:12-04:20, 04:23-04:35, 04:37-04:54, 04:56-04:152, 04:154-04:165, 05:42, 05:46, 06:76:02, 07:02:09, 07:125, 08:05, 08:21, 08:25, 12:02:01-12:02:10, 12:03:01:01-12:03:03, 12:03:05-12:03:08, 12:03:10-12:03:12, 12:03:13[w], 12:03:14-12:03:23, 12:03:24[w], 12:03:25-12:03:29, 12:04:02, 12:06-12:08, 12:10:01-12:20, 12:22-12:32, 12:34-12:48, 12:50-12:97, 12:99-12:115, 15:03, 15:16, 15:25, 15:75, 16:01:01-16:02:11, 16:06-16:28, 16:30N-16:32, 16:34, 16:36-16:39:02, 16:41, 16:43-16:47, 16:49-16:52, 16:54, 16:56-16:60, 16:62-16:63, 17:01:04, **B*67:02**
86[14]	160 bp, 215 bp	**800 bp**	*01:04, 01:09, 02:05:01-02:05:03, 02:17, 04:42:01, 06:02:01:01-06:02:01:03, 06:02:03-06:02:15, 06:02:17-06:03:02, 06:07-06:13, 06:15-06:34, 06:36-06:39, 06:41-06:71, 06:73-06:78, 06:80, 06:82-06:100, 06:102-06:122, 07:31:01-07:31:02, 07:125, 07:177, 12:03:01:01-12:07, 12:11-12:13, 12:15, 12:19, 12:23, 12:25-12:26, 12:28-12:29, 12:31-12:35, 12:37-12:39N, 12:42Q-12:43, 12:45-12:48, 12:50-12:55, 12:57-12:63, 12:65-12:66, 12:70-12:71, 12:75-12:79, 12:81-12:82, 12:87-12:95, 12:97-12:102, 12:107-12:111, 12:113, 12:115, 14:15-14:16, 16:04:01, 16:29, 16:33, 16:35, 16:42, 16:48, 16:55, 16:61
87[13]	130 bp, 255 bp	1070 bp	*02:02:01[w], 02:02:02:01-02:02:03, 02:02:05-02:13, 02:15-02:26:03, 02:28-02:40:01, 02:42-02:64, 02:66-02:74, 03:07,

			03:10, 03:15, 03:29, 03:45, 03:58, 03:86, 03:94, 03:99, 03:163, 03:209, 04:03:01-04:03:02, 04:06, 04:16, 04:37, 04:80, 04:103, 04:107, 04:147, 04:160, 05:01:01:01-05:01:27, 05:03-05:19, 05:21-05:42, 05:44:01-05:77, 05:79-05:99N, 06:03:01-06:03:02, 06:76:01-06:76:02, 08:10, 12:04:01-12:05, 12:09, 12:21, 12:33, 12:41, 12:60, 12:72, 14:45, 15:02:01-15:06:03, 15:08-15:13, 15:15-15:19, 15:21-15:22, 15:24, 15:26-15:35, 15:37-15:42, 15:44-15:62, 15:64-15:84Q, 16:02:01-16:02:11, 16:09, 16:12, 16:18-16:19, 16:25, 16:37, 16:46-16:48, 16:60, 16:63, 17:01:01:01-17:19, 17:21, 17:23, **B*15:277, B*35:222**
88[12]	160 bp, 260 bp, 445 bp	1070 bp	*01:67, 03:155, 03:231, 04:11, 04:29, 04:36, 04:55, 04:114, 07:64, 08:95, 12:55, 14:02:01-14:11, 14:13-14:48, 14:50-14:61, 16:40, 16:53, **A*30:62**
89[5,10]	110 bp, 325 bp	**800 bp**	*01:90, 02:06, 02:23, 02:36, 02:68, 03:81, 03:175, 03:199, 04:108, 04:112, 05:36, 06:89, 07:123, 07:173, 07:294, 12:08, 12:15, 12:81, 12:113, 15:02:01-15:13, 15:15-15:19, 15:21-15:24, 15:26-15:84Q, 16:20
90[12]	180 bp, 210 bp, 240 bp	1070 bp	*02:13, 02:18, 02:33, 02:49, 04:01:01:01-04:01:22, 04:01:24-04:01:57, 04:03:01-04:10, 04:12-04:20, 04:23-04:32, 04:34-04:106, 04:108-04:115N, 04:117-04:129, 04:131-04:165, 05:17, 05:25, 05:42, 05:55, 05:68, 05:79, 06:05, 06:31, 06:76:02, 06:118, 07:02:09, 07:31:01-07:31:02, 07:154, 07:177, 08:01:01-08:01:13, 08:03:01-08:03:03, 08:06, 08:08:01-08:11, 08:14, 08:16:01-08:16:02, 08:20-08:22, 08:24, 08:26N, 08:28, 08:36N, 08:38, 08:40-08:42, 08:44, 08:46, 08:50, 08:56-08:61, 08:65, 08:72:01-08:72:02, 08:78-08:89N, 08:91, 08:95-08:99, 08:101-08:102, 12:14:01-12:14:02, 12:28, 12:58, 14:10, 14:15, 15:12, 15:25, 15:62, 15:65, 15:75, 16:01:01-16:02:11, 16:04:01, 16:06-16:39:02, 16:41-16:42, 16:44-16:52, 16:54-16:63
91[11,15]	225 bp, 250 bp	**800 bp**	*01:60, 04:58, 04:160, 05:23, 05:62, 06:118, 08:07, 08:47, 12:14:01-12:14:02, 14:17, 15:25, 15:65, 17:01:01:01-17:23
92	215 bp, 425 bp	**800 bp**	*01:02:01-01:03, 01:06-01:08, 01:10-01:20, 01:23-01:34, 01:37N-01:48, 01:51-01:54, 01:56N-01:78, 01:80-01:90, 03:58, 03:86, 03:94, 03:99, 04:37, 05:16, 05:85, 06:05-06:06, 06:17, 06:31, 07:07, 07:09, 07:49, 07:76:01, 07:210, 07:238, 07:247, 07:315, 07:328, 08:12, 12:09, 12:24, 14:02:01-14:05, 14:07N, 14:10-14:14, 14:17-14:27, 14:29-14:52, 14:55-14:61, 16:04:01, 16:29, 16:33, 16:42, 16:53, 16:55, 16:61, 18:01-18:07N, **B*14:03**
93	325 bp, 380 bp	1070 bp	*01:03, 01:24, 01:34, 01:49-01:50, 01:55, 01:78, 02:22, 02:62, 03:03:01-03:04:44, 03:06-03:11:02, 03:14, 03:18:01-03:24, 03:26, 03:28-03:32, 03:34, 03:37:01-03:59, 03:61-03:70, 03:72-03:83, 03:85, 03:87-03:88, 03:90-03:93, 03:96, 03:98, 03:100-03:107, 03:109, 03:111-03:120, 03:122-03:131, 03:133-03:134, 03:136-03:138, 03:140-03:145, 03:147-03:153, 03:155-03:166, 03:168, 03:170-03:176, 03:179-03:189N, 03:191-03:193, 03:195-03:196, 03:202-03:215, 03:217-03:220, 03:223, 03:227-03:236, 04:01:01:01-04:01:15, 04:01:17-04:01:57, 04:03:01-04:20, 04:24-04:53, 04:55-04:71, 04:73-04:107, 04:109-04:165, 05:01:01:01-05:01:27, 05:03, 05:05-05:21, 05:23-05:99N, 06:09, 06:14, 06:35, 06:72, 07:10, 07:28, 07:41, 07:43, 07:184, 07:196, 08:01:01-08:08:02, 08:10, 08:12-08:47, 08:49-08:63, 08:65-08:82, 08:84-08:102, 12:31, 12:44, 14:54, 15:02:01-15:13, 15:15-15:19, 15:21, 15:23-15:36, 15:38-15:54, 15:56-15:57, 15:59-15:64, 15:66-15:71, 15:73-15:84Q, 16:45, 17:01:01:01-17:23, 18:01-18:07N

Lot No.: 33X **Lot-specific information**

94[13]	135 bp	1070 bp	*03:02:01-03:02:09, 03:02:11-03:03:20, 03:03:22-03:04:24, 03:04:27-03:11:02, 03:13:01-03:17, 03:19-03:38:02, 03:40:01-03:64:01, 03:65-03:66, 03:67[w], 03:68-03:98, 03:100-03:136, 03:138-03:143, 03:146-03:155, 03:157-03:165, 03:167-03:169Q, 03:171, 03:173-03:181, 03:183-03:194, 03:196-03:230, 03:232-03:236, 04:32, 04:77, 06:03:01, 07:96:01-07:96:02, 14:25, 15:02:10, 15:02:17, 15:43, 18:03
95[13]	155 bp, 235 bp	1070 bp	*04:14, 04:42:01, 04:68, 06:02:01:01-06:02:01:03, 06:02:03-06:02:36, 06:04-06:75, 06:78-06:123, 07:01:01:01-07:02:07, 07:02:09-07:02:28, 07:02:30-07:02:40, 07:02:41[w], 07:02:42-07:25, 07:27:01-07:32N, 07:35-07:38:02, 07:41-07:63, 07:65-07:91, 07:93-07:95, 07:97-07:138, 07:140-07:151, 07:153-07:155, 07:157-07:176, 07:178-07:209, 07:211-07:222, 07:223[w], 07:224-07:237, 07:239-07:245, 07:247-07:266, 07:268-07:294, 07:297-07:313, 07:315-07:316, 07:318-07:321, 07:323-07:334, 07:336-07:348, 12:16, 15:75, 16:01:01-16:02:11, 16:06-16:28, 16:30N-16:32, 16:34, 16:36-16:39:02, 16:41, 16:43-16:47, 16:49-16:52, 16:54, 16:56-16:60, 16:62-16:63, 17:20, 18:01-18:07N, **A*24:96, A*24:106, A*24:174, B*08:16, B*46:25**
96[16]	**Negative control**	-	

[1]Alleles are assigned by the presence of specific PCR product(s). However, the sizes of the specific PCR products may be helpful in the interpretation of HLA-C low resolution SSP typings.
When the primers in a primer mix can give rise to HLA-specific PCR products of more than one length this is indicated if the size difference is more than 20 base pairs. Size differences of 20 base pairs or less are not given. For high resolution SSP kits, the alleles listed are specified according to amplicon length.
Nonspecific amplifications, i.e. a ladder or a smear of bands, may sometimes be seen. GC-rich primers have a higher tendency of giving rise to nonspecific amplifications than other primers.
PCR fragments longer than the control bands may sometimes be observed. Such bands should be disregarded and do not influence the interpretation of the SSP typings.
PCR fragments migrating faster than the control bands, but slower than a 400 bp fragment may be seen in some gel read-outs. Such bands can be disregarded and do not influence the interpretation of the SSP typings.
Some primers may give rise to primer oligomer artifacts. Sometimes this phenomenon is an inherit feature of the primer pair(s) of a primer mix. More often it is due to other factors such as too low amount of DNA in the PCR reactions, taking too long time in setting up the PCR reactions, working at elevated room temperature or using thermal cyclers that are not pre-heated.

[2]The internal positive control primer pairs amplify segments of the human growth hormone gene. The internal positive control bands are 1070 or 800 base pairs respectively, well distribution as outlined in the table. Well number 73 contains the shorter, 800 bp, internal positive control band. The well distribution of the internal controls can help in orientation of the kit on gel photo, as well as allow for kit identification. In the presence of a specific amplification the intensity of the control band often decreases.

[3]For several HLA Class I alleles 1st and/or 4th exon(s) and beyond, as well as intron nucleotide sequences, are not available. In these instances it is not known whether some of the primers of the SSP sets are completely matched with the target sequences or not. Assumption is made that unknown sequences in these regions are conserved within allelic groups.

[4]Only HLA-C alleles will be amplified by the 23 wells of the HLA-C low resolution primer set, except that a few HLA-A and HLA-B alleles will be amplified by primer mixes 73, 85, 87, 88, 92 and 95.

[5]HLA-specific PCR products shorter than 125 base pairs have a lower intensity and are less sharp than longer PCR products.

[6]Primer mix 74 will for most C*02 alleles give rise to two specific PCR fragments.

[7]Primer mix 76 will for most C*03 alleles give rise to two specific PCR fragments.

[8]Primer mix 81 will for most C*07 alleles give rise to two specific PCR fragments.

[9]Primer mix 82 will for most C*08 alleles give rise to multiple specific PCR fragments.

101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

Visit www.olerup-ssp.com for **"Instructions for Use" (IFU)**

Lot No.: 33X **Lot-specific information**

[10]Primer mix 89 will for most C*15 alleles give rise to two specific PCR fragments.
[11]Primer mixes 84, 85 and 91 may have tendencies of unspecific amplifications.
[12]Primer mixes 88 and 90 have a tendency to giving rise to primer oligomer formation.
[13]Primer mixes 75, 78, 82, 87, 94 and 95 may yield less HLA-specific PCR fragments than the other HLA-C low resolution primer mixes.
[14]Primer mix 86 might faintly amplify most C*01 and the C*14 alleles.
[15]Primer mix 91 might generate a false band of about 500 base pairs. This band should be disregarded when interpreting HLA-C low resolution typings.
[16]Primer mix 96 contains a negative control, which will amplify more than 95% of HLA amplicons as well as the amplicons generated by the control primer pairs matching the human growth hormone gene. HLA-specific PCR product sizes range from 75 to 200 base pairs and the PCR product generated by the HGH positive control primer pair is 430 base pairs.
'w', might be weakly amplified.

101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

Visit www.olerup-ssp.com for **"Instructions for Use" (IFU)**

Lot No.: 33X **Lot-specific information**

HLA-A LOW PRIMER SPECIFICATION

Well No.	1	2	3	4	5	6	7	8	9	10	11	12
Length of spec. PCR product	120 145 225	175 215 255 365 415	205 235	190	160 335 505	135 200	175 205	165 200	75	80 240	80 175 500	125 190
Length of int. pos. control[1]	800	800	1070	800	1070	800	1070	800	800	800	1070	800
5'-primer(s)[2]	98 5' -CTT 3' 103 5' -CCT 3' 123 5' -AgT 3' 363 5' -ATA 3'	48 5' -gCT 3' 78 5' -TCT 3' 106 5' -CCA 3'	363 5' -ATA 3'	98 5' -CTA 3' 413 5' -CCg 3'	144 5' -gCC 3' 317 5' -gCT 3'	176 5' -gCA 3' 368 5' -gTT 3'	98 5' -CTC 3' 368 5' -gTT 3'	98 5' -CTA 3' 102 5' -ACA 3' 413 5' -CCg 3'	261 5' -AAC 3' 266 5' -ACg 3'	98 5' -CTA 3' 261 5' -AAC 3'	301 5' -Cgg 3' 302 5' -ggA 3' 385 5' -ggC 3'	103 5' -CCT 3' 415 5' -ggT 3' 423 5' -gCT 3'
3'-primer(s)[3]	203 5' -TCT 3' 545 5' -AgA 3'	240 5' -ggA 3' 292 5' -gTg 3'	527 5' -CCA 3' 527 5' -CCT 3' 555 5' -CCA 3' 555 5' -gCA 3'	256 5' -CTg 3' 559 5' -CCg 3'	265 5' -CCC 3' 368 5' -CAA 3'	270 5' -ACA 3' 521 5' -ggg 3' 534 5' -CgT 3'	259 5' -gTT 3' 502 5' -CTT 3' 539 5' -TCT 3'	259 5' -gTT 3' 259 5' -gTT 3' 538 5' -CCA 3'	302 5' -ggC 3'	299 5' -TCg 3'	341 5' -CgT 3' 521 5' -ggg 3'	257 5' -gCA 3' 506 5' -TgT 3' 559 5' -CTC 3' 559 5' -CgT 3' 559 5' -CgC 3'
Well No.	1	2	3	4	5	6	7	8	9	10	11	12

Well No.	13	14	15	16	17	18	19	20	21	22	23	24
Length of spec. PCR product	175 225	80 115 200 240 470	90 135 205	240 380	140 180	200 390	340 375	210 240	65 240 375	85 240	75 155 240 495	360
Length of int. pos. control[1]	1070	1070	1070	1070	1070	1070	800	800	800	800	800	1070
5'-primer(s)[2]	98 5' -CTT 3' 423 5' -gCT 3'	98 5' -CAC 3' 219 5' -gCA 3' 238 5' -AgA 3' 355 5' -CCg 3'	203 5' -gAA 3' 362 5' -ggT 3' 363 5' -ATA 3' 363 5' -ATA 3' 369 5' -TAC 3'	41 5' -CTT 3' 355 5' -CCg 3'	180 5' -TTT 3' 203 5' -gAA 3' 418 5' -AgC 3'	41 5' -CTT 3' 98 5' -CAC 3'	302 5' -ggA 3' 302 5' -ggA 3' 341 5' -ggA 3'	78 5' -TCT 3' 106 5' -CCA 3' 2nd I 5' -CCT 3'	28 5' -TCg 3' 261 5' -AAC 3' 502 5' -CCC 3'	78 5' -TCT 3' 527 5' -TgC 3'	176 5' -gCA 3' 261 5' -AAC 3' 341 5' -ggA 3' 355 5' -CCC 3' 362 5' -gAg 3' 362 5' -gAg 3'	341 5' -ggC 3'
3'-primer(s)[3]	282 5' -gAC 3' 282 5' -gAC 3' 559 5' -CCC 3' 559 5' -CCg 3'	180 5' -TCA 3' 257 5' -gCA 3' 418 5' -gTC 3' 555 5' -CCA 3'	299 5' -CCA 3' 411 5' -TCA 3' 526 5' -CCA 3'	238 5' -CCT 3' 238 5' -CCT 3' 243 5' -TCA 3' 265 5' -CCC 3' 555 5' -CCA 3'	290 5' -CAA 3' 317 5' -ggA 3' 555 5' -CCA 3'	256 5' -CCC 3' 256 5' -CTC 3' 259 5' -gTT 3'	397 5' -gAg 3'	265 5' -CCC 3' 282 5' -gAC 3' 282 5' -gAC 3' 502 5' -CTT 3' 506 5' -TgT 3'	97 5' -ggT 3' 355 5' -gAC 3' 524 5' -CAT 3'	265 5' -CCC 3' 282 5' -gAC 3' 282 5' -gAC 3' 570 5' -CAC 3'	292 5' -gTg 3' 292 5' -gTT 3' 299 5' -TCT 3' 555 5' -CCA 3'	418 5' -gTC 3'
Well No.	13	14	15	16	17	18	19	20	21	22	23	24

101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

Visit www.olerup-ssp.com for
"Instructions for Use" (IFU)

Lot No.: 33X **Lot-specific information**

[1]The internal positive control primer pairs amplify segments of the human growth hormone gene. The internal positive control bands are 1070 or 800 base pairs respectively, well distribution as outlined in the table. Well number 1 contains the shorter, 800 bp, internal positive control band. The well distribution of the internal controls can help in orientation of the kit on gel photo, as well as allow for kit identification. In the presence of a specific amplification the intensity of the control band often decreases.

[2]The nucleotide position matching the specificity-determining 3'-end of the primer is given. Nucleotide numbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

[3]The nucleotide position matching the specificity-determining 3'-end of the primer is given in the anti-sense direction. Nucleotide numbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

HLA-B LOW PRIMER SPECIFICATION

Well No.	25	26	27	28	29	30	31	32	33	34	35	36
Length of spec.	110	215	140	130	185	190	290	165	165	180	100	280
PCR product			235	265	235			225	190		195	
								285	390			
								330				
Length of int. pos. control[1]	800	1070	1070	800	800	800	1070	1070	1070	800	1070	1070
5'-primer(s)[2]	527	97	209	103	103	103	45	45	45	420	206	419
	5' -TgA 3'	5' -TCg 3'	5' -ggC 3'	5' -CCg 3'	5' -CCT 3'	5' -CCg 3'	5' -ggA 3'	5' -ggA 3'	5' -ggA 3'	5' -TTA 3'	5' -AgA 3'	5' -gTC 3'
	540		363	103	103	418		357	435		420	
	5' -gAC 3'		5' -AgC 3'	5' -CCg 3'	5' -CCT 3'	5' -Agg 3'		5' -Tgg 3'	5' -AAA 3'		5' -TTA 3'	
			363	361	363			412				
			5' -AgC 3'	5' -AgT 3'	5' -AAT 3'			5' -ATA 3'				
3'-primer(s)[3]	605	272	309	193	246	246	165	206	266	559	256	3rd I
	5' -gCT 3'	5' -Tgg 3'	5' -gTg 3'	5' -CgT 3'	5' -TAT 3'	5' -TAT 3'	5' -Tgg 3'	5' -CCT 3'	5' -TCC 3'	5' -CTC 3'	5' -CCC 3'	5' -TAT 3'
		272	312	193	246	572		538	559		272	
		5' -TgA 3'	5' -gCC 3'	5' -CgT 3'	5' -TAT 3'	5' -gCC 3'		5' -gTC 3'	5' -CAg 3'		5' -Tgg 3'	
			559	583	559			603	583		572	
			5' -CAg 3'	5' -gTg 3'	5' -CTC 3'			5' -gTg 3'	5' -gTg 3'		5' -gCg 3'	
Well No.	25	26	27	28	29	30	31	32	33	34	35	36

101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

Visit www.olerup-ssp.com for
"Instructions for Use" (IFU)

Lot No.: 33X **Lot-specific information**

Well No.	37	38	39	40	41	42	43	44	45	46	47	48
Length of spec.	195	105	115	80	150	140	55	210	170	110	395	160
PCR product		395	150				245					425
		435					390					
							415					
Length of int.	1070	1070	1070	1070	800	1070	1070	800	800	1070	1070	1070
pos. control[1]												
5'-primer(s)[2]	142	45	161	167	355	206	45	142	409	246	44	44
	5' -TCT 3'	5' -ggA 3'	5' -Cgg 3'	5' -gCT 3'	5' -TCA 3'	5' -gAC 3'	5' -ggA 3'	5' -TCT 3'	5' -ggC 3'	5' -gAA 3'	5' -ggC 3'	5' -ggC 3'
	419	540					368	368	420			357
	5' -gTC 3'	5' -gAC 3'					5' -gTT 3'	5' -gTC 3'	5' -TTA 3'			5' -Tgg 3'
							557					
							5' -ggA 3'					
3'-primer(s)[3]	301	272	234	204	463	302	259	311	544	317	272	302
	5' -gTC 3'	5' -TgC 3'	5' -TCT 3'	5' -TCT 3'	5' -gCT 3'	5' -ggC 3'	5' -gTT 3'	5' -ggg 3'	5' -ggT 3'	5' -ggA 3'	5' -TgC 3'	5' -ggC 3'
	301	272	272			312	259	311				302
	5' -gTC 3'	5' -TgT 3'	5' -TgA 3'			5' -AgT 3'	5' -gTT 3'	5' -ggg 3'				5' -ggT 3'
	570	309	272				266	538				477
	5' -CCg 3'	5' -ATC 3'	5' -Tgg 3'				5' -TCC 3'	5' -gTC 3'				5' -gCg 3'
	572	605					272					
	5' -gCg 3'	5' -gCT 3'					5' -Tgg 3'					
							292					
							5' -gTA 3'					
							572					
							5' -gCg 3'					
Well No.	37	38	39	40	41	42	43	44	45	46	47	48

Well No.	49	50	51	52	53	54	55	56	57	58	59	60
Length of spec.	180	290	105	325	80	215	130	90	90	145	120	430
PCR product		465			115		270	410	175	430	210	
					160							
					195							
					225							
					260							
Length of int.	1070	1070	1070	800	1070	800	800	1070	1070	1070	800	1070
pos. control[1]												
5'-primer(s)[2]	355	72	540	1st I	355	141	209	41	209	48	357	49
	5' -TCA 3'	5' -gCT 3'	5' -gAC 3'	5' -CAg 3'	5' -TCA 3'	5' -ATT 3'	5' -ggC 3'	5' -CTg 3'	5' -ggC 3'	5' -gCC 3'	5' -Tgg 3'	5' -CAg 3'
	363	209			418	357	209	368	363	206		
	5' -Agg 3'	5' -ggC 3'			5' -Agg 3'	5' -Tgg 3'	5' -ggg 3'	5' -gTT 3'	5' -AgC 3'	5' -gAA 3'		
					499		355					
					5' -TCT 3'		5' -TCA 3'					
3'-primer(s)[3]	499	193	603	282	538	309	299	282	259	309	435	309
	5' -ggA 3'	5' -CgT 3'	5' -gTg 3'	5' -gCC 3'	5' -gTC 3'	5' -ATC 3'	5' -TCA 3'	5' -gCC 3'	5' -gTT 3'	5' -ATC 3'	5' -TCT 3'	5' -ATC 3'
		193	605		572	538	583	418	499		527	
		5' -TgT 3'	5' -gCT 3'		5' -gCg 3'	5' -gTC 3'	5' -gTg 3'	5' -gTC 3'	5' -ggA 3'		5' -CCT 3'	
		387			573							
		5' -TCg 3'			5' -AgT 3'							
Well No.	49	50	51	52	53	54	55	56	57	58	59	60

101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

Visit www.olerup-ssp.com for
"Instructions for Use" (IFU)

Lot No.: 33X **Lot-specific information**

Well No.	61	62	63	64	65	66	67	68	69	70	71	72
Length of spec.	145	300	160	180	180	90	90	95	115	360	350	285
PCR product			370	210	205	240			150			
Length of int.	1070	1070	1070	1070	1070	800	1070	1070	1070	1070	1070	800
pos. control[1]												
5'-primer(s)[2]	206	1st I	15	141	97	209	208	206	165	1st I	1st I	355
	5' -gAA 3'	5' -CAg 3'	5' -gCA 3'	5' -ATT 3'	5' -TCg 3'	5' -ggC 3'	5' -CgT 3'	5' -gAC 3'	5' -ACC 3'	5' -CAg 3'	5' -CAg 3'	5' -TCA 3'
			418	420	420	209	209		463			363
			5' -Agg 3'	5' -TTA 3'	5' -TTA 3'	5' -ggA 3'	5' -ggA 3'		5' -TgA 3'			5' -AgC 3'
						362	369					
						5' -ggT 3'	5' -TAC 3'					
3'-primer(s)[3]	311	259	207	311	259	256	256	259	272	317	311	603
	5' -ggT 3'	5' -CTC 3'	5' -TCC 3'	5' -ggT 3'	5' -gTT 3'	5' -CCC 3'	5' -CTC 3'	5' -gTT 3'	5' -TgC 3'	5' -ggA 3'	5' -ggT 3'	5' -gTg 3'
		259	226	559	559	259	256		538			605
		5' -CTC 3'	5' -CAC 3'	5' -CgT 3'	5' -CAg 3'	5' -CTT 3'	5' -CCC 3'		5' -CCA 3'			5' -gCT 3'
		262	538			263	420					
		5' -TgC 3'	5' -gTC 3'			5' -gTT 3'	5' -gCT 3'					
						559						
						5' -CgT 3'						
Well No.	61	62	63	64	65	66	67	68	69	70	71	72

[1]The internal positive control primer pairs amplify segments of the human growth hormone gene. The internal positive control bands are 1070 or 800 base pairs respectively, well distribution as outlined in the table. Well number 25 contains the shorter, 800 bp, internal positive control band. The well distribution of the internal controls can help in orientation of the kit on gel photo, as well as allow for kit identification. In the presence of a specific amplification the intensity of the control band often decreases.

[2]The nucleotide position matching the specificity-determining 3'-end of the primer is given. Nucleotide numbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

[3]The nucleotide position matching the specificity-determining 3'-end of the primer is given in the anti-sense direction. Nucleotide numbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

Visit www.olerup-ssp.com for **"Instructions for Use" (IFU)**

Lot No.: 33X **Lot-specific information**

HLA-C LOW PRIMER SPECIFICATION

Well No.	73	74	75	76	77	78	79	80	81	82	83	84
Length of spec.	90	130	280	170	280	140	165	130	245	110	340	100
PCR product	150	200		275		330	390	355	425	165		160
		270					445			390		220
		300										
Length of int. pos. control[1]	800	800	800	1070	800	800	1070	800	800	800	1070	800
5'-primer(s)[2]	89	47	105	355	105	47	1st I	28	47	1st I	1st I	361
	5' -gAA 3'	5' -Agg 3'	5' -gCT 3'	5' -TCA 3'	5' -gCT 3'	5' -Agg 3'	5' -CgA 3'	5' -TCA 3'	5' -Agg 3'	5' -CgA 3'	5' -CgA 3'	5' -AgT 3'
	98	89		459		112	176	2nd I	648	176		419
	5' -CTT 3'	5' -gAA 3'		5' -gAT 3'		5' -CCT 3'	5' -gCA 3'	5' -CCA 3'	5' -CAC 3'	5' -gCA 3'		5' -gTC 3'
		2nd I				118	527			527		
		5' -CCA 3'				5' -CCA 3'	5' -TgA 3'			5' -TAC 3'		
		703										
		5' -CTA 3'										
3'-primer(s)[3]	142	176	343	589	343	201	302	213	302	302	302	474
	5' -TgA 3'	5' -ACT 3'	5' -C 3'	5' -CTT 3'	5' -T 3'	5' -CTT 3'	5' -ggT 3'	5' -Cgg 3'	5' -ggC 3'	5' -ggC 3'	5' -ggT 3'	5' -gCA 3'
	201	559	343			218	3rd I	420	853	595	304	477
	5' -CTT 3'	5' -CTC 3'	5' -g 3'			5' -gCT 3'	5' -gCA 3'	5' -gCT 3'	5' -CAT 3'	5' -CCC 3'	5' -CAA 3'	5' -gCA 3'
	201	861										538
	5' -CTC 3'	5' -TCg 3'										5' -gCA 3'
Well No.	73	74	75	76	77	78	79	80	81	82	83	84

Well No.	85	86	87	88	89	90	91	92	93	94	95
Length of spec.	120	160	130	160	110	180	225	215	325	135	155
PCR product	250	215	255	260	325	210	250	425	380		235
				445		240					
Length of int. pos. control[1]	800	800	1070	1070	800	1070	800	800	1070	1070	1070
5'-primer(s)[2]	201	97	98	98	201	201	2nd I	47	355	105	97
	5' -CCA 3'	5' -TCg 3'	5' -CTA 3'	5' -CTC 3'	5' -CCA 3'	5' -CCA 3'	5' -CCA 3'	5' -Agg 3'	5' -TCA 3'	5' -gCT 3'	5' -TCg 3'
	218	361	368	98	409	2nd I		361	412	459	97
	5' -ggA 3'	5' -AgT 3'	5' -gTg 3'	5' -CTT 3'	5' -ggC 3'	5' -CCA 3'		5' -AgT 3'	5' -ATA 3'	5' -gAT 3'	5' -TTg 3'
	2nd I			194		361					418
	5' -CCA 3'			5' -CgT 3'		5' -AgT 3'					5' -Agg 3'
				527							419
				5' -TgA 3'							5' -gTC 3'
											419
											5' -gTT 3'
3'-primer(s)[3]	289	218	312	311	270	341	512	302	3rd I	201	213
	5' -AgC 3'	5' -gCT 3'	5' -AgT 3'	5' -ggT 3'	5' -TAg 3'	5' -CgT 3'	5' -CCA 3'	5' -ggT 3'	5' -CTC 3'	5' -CTC 3'	5' -Cgg 3'
	289	527	361	317	3rd I	343	538	527		559	289
	5' -AgC 3'	5' -CCg 3'	5' -CCA 3'	5' -CgT 3'	5' -CTC 3'	5' -T 3'	5' -gTC 3'	5' -CCg 3'		5' -CTC 3'	5' -AgC 3'
	291	538	459	3rd I		343		538			289
	5' -TCg 3'	5' -CCA 3'	5' -AgA 3'	5' -gCA 3'		5' -g 3'		5' -CCg 3'			5' -AgC 3'
	539	538				527					539
	5' -TCT 3'	5' -gCA 3'				5' -CCg 3'					5' -TCT 3'
						527					
						5' -CCg 3'					
						527					
						5' -CCg 3'					
						530					
						5' -CCA 3'					
Well No.	85	86	87	88	89	90	91	92	93	94	95

CE 0088

101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

Visit www.olerup-ssp.com for
"Instructions for Use" (IFU)

Lot No.: 33X **Lot-specific information**

[1]The internal positive control primer pairs amplify segments of the human growth hormone gene. The internal positive control bands are 1070 or 800 base pairs respectively, well distribution as outlined in the table. Well number 73 contains the shorter, 800 bp, internal positive control band. The well distribution of the internal controls can help in orientation of the kit on gel photo, as well as allow for kit identification. In the presence of a specific amplification the intensity of the control band often decreases.

[2]The nucleotide position matching the specificity-determining 3'-end of the primer is given. Nucleotide numbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

[3]The nucleotide position matching the specificity-determining 3'-end of the primer is given in the anti-sense direction. Nucleotide numbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

Visit www.olerup-ssp.com for
"Instructions for Use" (IFU)

Lot No.: 33X **Lot-specific information**

CELL LINE VALIDATION SHEET

HLA-A low resolution primer set[2]

					Well														
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
				Lot No.:	201329701	201329702	201329703	201329704	201329705	201329706	201329707	201329708	201329709	201329710	201329711	201329712	201329713	201329714	201329715	201329716
	IHWC cell line[1]		A*	A*																
1	9001	SA	*24:02		-	-	-	-	+	-	+	-	-	-	-	-	-	-	-	-
2	9280	LK707	*02:01		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	9011	E4181324	*01:01		+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
4	9275	GU373	*30:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
5	9009	KAS011	*01:01		+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
6	9353	SM	*02:01	*26:03	-	+	-	-	-	-	-	+	-	-	+	-	+	-	-	-
7	9020	QBL	*26:01		-	-	-	-	-	-	-	+	-	+	-	-	+	-	-	-
8	9025	DEU	*31:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
9	9026	YAR	*26:01		-	-	-	-	-	-	-	+	-	+	-	-	+	-	-	-
10	9107	LKT3	*24:02		-	-	-	-	+	-	+	-	-	-	-	-	-	-	-	-
11	9051	PITOUT	*29:02		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
12	9052	DBB	*02:01		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	9004	JESTHOM	*02:01		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	9071	OLGA	*31:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
15	9075	DKB	*24:02		-	-	-	-	+	-	+	-	-	-	-	-	-	-	-	-
16	9037	SWEIG007	*29:02		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
17	9282	CTM3953540	*03:01	*80:01	-	-	+	-	-	+	-	-	-	-	-	-	+	-	-	-
18	9257	32367	*33:03	*74:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	9038	BM16	*02:01		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	9059	SLE005	*02:01		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	9064	AMALA	*02:17		-	+	-	-	-	-	W	-	-	-	-	-	-	-	-	-
22	9056	KOSE	*02:01		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	9124	IHL	*02:01	*34:01	-	+	-	-	-	-	-	+	-	-	+	+	-	-	-	-
24	9035	JBUSH	*32:01		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
25	9049	IBW9	*33:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	9285	WT49	*02:05		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	9191	CH1007	*24:10	*29:01	-	-	-	-	+	-	+	-	-	-	-	-	-	+	-	-
28	9320	BEL5GB	*02:01	*29:02	-	+	-	-	-	-	-	-	-	-	-	-	-	+	-	-
29	9050	MOU	*29:02		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
30	9021	RSH	*30:01	*68:02	-	-	-	-	-	-	-	+	-	-	-	-	-	-	+	-
31	9019	DUCAF	*30:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
32	9297	HAG	*02:01		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	9098	MT14B	*31:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
34	9104	DHIF	*31:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
35	9302	SSTO	*32:01		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
36	9024	KT17	*02:06	*11:01	-	+	-	+	-	-	-	-	-	-	+	-	-	-	-	-
37	9065	HHKB	*03:01		-	-	+	-	-	-	-	-	-	-	-	-	+	-	-	-
38	9099	LZL	*02:17		-	+	-	-	-	-	W	-	-	-	-	-	-	-	-	-
39	9315	CML	*01:01	*03:01	+	-	+	+	-	-	-	-	-	-	-	-	+	-	-	-
40	9134	WHONP199	*02:07	*30:01	-	+	-	-	-	-	-	-	-	-	-	-	-	-	+	-
41	9055	H0301	*03:01		-	-	+	-	-	-	-	-	-	-	-	-	+	-	-	-
42	9066	TAB089	*02:07		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43	9076	T7526	*02:06	*02:07	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44	9057	TEM	*66:01		-	-	-	-	-	-	-	+	-	-	+	-	+	-	-	-
45	9239	SHJO	*23:01	*24:02	-	-	-	-	+	+	+	-	-	-	-	-	-	-	-	-
46	9013	SCHU	*03:01		-	-	+	-	-	-	-	-	-	-	-	-	+	-	-	-
47	9045	TUBO	*02:16	*03:01	-	+	+	-	-	-	-	-	-	-	-	-	+	-	-	-
48	9303	TER-ND	*02:01	*11:01	-	+	-	+	-	-	-	-	-	-	+	-	-	-	-	-

101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

Visit www.olerup-ssp.com for **"Instructions for Use" (IFU)**

Lot No.: 33X **Lot-specific information**

CELL LINE VALIDATION SHEET

HLA-A low resolution primer set[2]

					Well							
					17	18	19	20	21	22	23	24
				Lot No.:	201329717	201329718	201439919	201329720	201329721	201329722	201439923	201329724
	IHWC cell line[1]		A*	A*								
1	9001	SA	*24:02		-	-	-	-	-	-	-	-
2	9280	LK707	*02:01		-	-	-	-	-	-	-	-
3	9011	E4181324	*01:01		-	-	-	-	-	-	-	-
4	9275	GU373	*30:01		-	-	-	-	-	-	-	-
5	9009	KAS011	*01:01		-	-	-	-	-	-	-	-
6	9353	SM	*02:01	*26:03	-	-	-	-	-	-	+	-
7	9020	QBL	*26:01		-	-	-	-	-	-	-	-
8	9025	DEU	*31:01		-	-	-	-	-	-	-	-
9	9026	YAR	*26:01		-	-	-	-	-	-	-	-
10	9107	LKT3	*24:02		-	-	-	-	-	-	-	-
11	9051	PITOUT	*29:02		-	-	-	-	-	-	-	-
12	9052	DBB	*02:01		-	-	-	-	-	-	-	-
13	9004	JESTHOM	*02:01		-	-	-	-	-	-	-	-
14	9071	OLGA	*31:01		-	-	-	-	-	-	-	-
15	9075	DKB	*24:02		-	-	-	-	-	-	-	-
16	9037	SWEIG007	*29:02		-	-	-	-	-	-	-	-
17	9282	CTM3953540	*03:01	*80:01	-	-	-	-	-	-	+	-
18	9257	32367	*33:03	*74:01	-	+	+	-	-	-	-	-
19	9038	BM16	*02:01		-	-	-	-	-	-	-	-
20	9059	SLE005	*02:01		-	-	-	-	-	-	-	-
21	9064	AMALA	*02:17		-	-	-	-	-	-	-	-
22	9056	KOSE	*02:01		-	-	-	-	-	-	-	-
23	9124	IHL	*02:01	*34:01	-	-	-	-	-	-	-	-
24	9035	JBUSH	*32:01		+	-	-	-	-	-	-	-
25	9049	IBW9	*33:01		-	+	-	-	-	-	-	-
26	9285	WT49	*02:05		-	-	-	-	-	-	-	-
27	9191	CH1007	*24:10	*29:01	-	-	-	-	-	-	-	-
28	9320	BEL5GB	*02:01	*29:02	-	-	-	-	-	-	-	-
29	9050	MOU	*29:02		-	-	-	-	-	-	-	-
30	9021	RSH	*30:01	*68:02	-	-	-	+	-	-	-	-
31	9019	DUCAF	*30:02		-	-	-	-	-	-	-	-
32	9297	HAG	*02:01		-	-	-	-	-	-	-	-
33	9098	MT14B	*31:01		-	-	-	-	-	-	-	-
34	9104	DHIF	*31:01		-	-	-	-	-	-	-	-
35	9302	SSTO	*32:01		+	-	-	-	-	-	-	-
36	9024	KT17	*02:06	*11:01	-	-	-	-	-	-	-	-
37	9065	HHKB	*03:01		-	-	-	-	-	-	-	-
38	9099	LZL	*02:17		-	-	-	-	-	-	-	-
39	9315	CML	*01:01	*03:01	-	-	-	-	-	-	-	-
40	9134	WHONP199	*02:07	*30:01	-	-	-	-	-	-	-	-
41	9055	H0301	*03:01		-	-	-	-	-	-	-	-
42	9066	TAB089	*02:07		-	-	-	-	-	-	-	-
43	9076	T7526	*02:06	*02:07	-	-	-	-	-	-	-	-
44	9057	TEM	*66:01		-	-	-	-	-	-	-	-
45	9239	SHJO	*23:01	*24:02	-	-	-	-	-	-	-	-
46	9013	SCHU	*03:01		-	-	-	-	-	-	-	-
47	9045	TUBO	*02:16	*03:01	-	-	-	-	-	-	-	-
48	9303	TER-ND	*02:01	*11:01	-	-	-	-	-	-	-	-

101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

Visit www.olerup-ssp.com for **"Instructions for Use" (IFU)**

Lot No.: 33X **Lot-specific information**

[1]The provided cell line HLA specificities are retrieved from the http://www.ihwg.org/hla web site. The specificity of an individual cell line may thus be subject to change.

[2]The specificity of each primer solution in the kit has been tested against 48 well characterized cell line DNAs and where applicable, additional cell line DNAs.

Additional 5'- and 3'-primers in primer solutions 4, 5, 7, 8, 12, 14 to 17 and 20 to 23 were tested by separately adding one 3'-primer, respectively one 5'-primer. Additional 5'-primers in primer solution 1 and 19 were tested by separately adding one 3'-primer. Additional 3'-primers in primer solutions 3 and 18 were tested by separately adding one 5'-primer.

In primer solutions 2, 11, 12 and 15 one or two 5'-primers were not possible to test, and in primer solutions 3, 6, 8, 12, 13, 16 and 18 one 3'-primer was not possible to test.

101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

Visit www.olerup-ssp.com for **"Instructions for Use" (IFU)**

Lot No.: 33X **Lot-specific information**

CELL LINE VALIDATION SHEET

HLA-B low resolution SSP kit[2]

					Well															
					25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
				Prod. No.:	201329801	201329802	201329803	201329804	201434905	201329806	201329807	201329808	201329809	201329810	201329811	201329812	201329813	201441514	201329815	201329816
	IHWC cell line[1]		B*																	
1	9001	SA	*07:02		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	9280	LK707	*52:01	*73:01	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
3	9011	E4181324	*52:01		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
4	9275	GU373	*15:10	*53:01	-	-	-	-	-	-	-	+	-	-	-	+	-	+	-	-
5	9009	KAS011	*37:01		-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
6	9353	SM	*39:01	*51:01	-	-	-	-	+	-	-	-	+	-	-	-	-	-	-	-
7	9020	QBL	*18:01		-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
8	9025	DEU	*35:01		-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-
9	9026	YAR	*38:01		-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
10	9107	LKT3	*54:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	9051	PITOUT	*44:03		-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
12	9052	DBB	*57:01		-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-
13	9004	JESTHOM	*27:05		-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	+
14	9071	OLGA	*15:01	*15:20	-	-	-	-	-	-	+	-	-	-	-	+	-	-	-	-
15	9075	DKB	*40:01		-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
16	9037	SWEIG007	*40:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	9282	CTM3953540	*08:01	*55:01	-	+	-	-	-	-	-	+	-	-	-	-	-	-	-	-
18	9257	32367	*14:01	*56:01	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-
19	9038	BM16	*18:01		-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
20	9059	SLE005	*40:01		-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
21	9064	AMALA	*15:01		-	-	-	-	-	-	+	-	-	-	-	+	-	-	-	-
22	9056	KOSE	*35:03		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	9124	IHL	*40:02	*56:02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	9035	JBUSH	*38:01		-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
25	9049	IBW9	*14:02		-	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-
26	9285	WT49	*58:01		-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-
27	9191	CH1007	*07:05	*51:01	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
28	9320	BEL5GB	*44:02	*44:03	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
29	9050	MOU	*44:03		-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
30	9021	RSH	*42:01		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
31	9019	DUCAF	*18:01		-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
32	9297	HAG	*41:02		-	-	-	+	-	-	-	+	-	-	-	-	-	-	-	-
33	9098	MT14B	*40:01		-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
34	9104	DHIF	*38:01		-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
35	9302	SSTO	*44:02		-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
36	9024	KT17	*15:01	*35:01	-	-	-	-	-	-	+	-	-	-	-	+	-	-	-	-
37	9065	HHKB	*07:02		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38	9099	LZL	*15:01		-	-	-	-	-	-	+	-	-	-	-	+	-	-	-	-
39	9315	CML	*08:01	*27:05	-	+	-	-	+	-	-	+	-	-	-	-	-	-	-	+
40	9134	WHONP199	*13:02	*46:01	-	-	+	+	-	-	+	-	-	+	-	+	-	-	-	-
41	9055	H0301	*14:02		-	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-
42	9066	TAB089	*46:01		-	-	-	-	-	-	+	-	-	-	-	+	-	-	-	-
43	9076	T7526	*46:01		-	-	-	-	-	-	+	-	-	-	-	+	-	-	-	-
44	9057	TEM	*38:01		-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
45	9239	SHJO	*42:01	*50:01	-	-	-	+	-	-	-	+	-	-	-	-	-	-	-	-
46	9013	SCHU	*07:02		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
47	9045	TUBO	*51:01		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
48	9303	TER-ND	*35:01	*44:03	-	-	-	+	-	-	-	-	-	-	-	+	-	-	-	-

101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

Visit www.olerup-ssp.com for **"Instructions for Use" (IFU)**

Lot No.: 33X **Lot-specific information**

CELL LINE VALIDATION SHEET

HLA-B low resolution SSP kit[2]

					Well														
					41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
				Prod. No.:	201329817	201329818	201329819	201329820	201329821	201329822	201329823	201329824	201329825	201329826	201329827	201329828	201329829	201329830	201329831	201329832
	IHWC cell line[1]		B*																	
1	9001	SA	*07:02		-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-
2	9280	LK707	*52:01	*73:01	-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-
3	9011	E4181324	*52:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	9275	GU373	*15:10	*53:01	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
5	9009	KAS011	*37:01		+	-	-	+	-	-	-	-	-	-	-	-	+	-	-	-
6	9353	SM	*39:01	*51:01	-	-	-	-	+	-	+	+	-	-	-	-	-	+	-	-
7	9020	QBL	*18:01		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	9025	DEU	*35:01		+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	9026	YAR	*38:01		-	-	-	-	+	+	+	-	-	-	-	-	-	-	-	-
10	9107	LKT3	*54:01		-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	+
11	9051	PITOUT	*44:03		+	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
12	9052	DBB	*57:01		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	9004	JESTHOM	*27:05		-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	+
14	9071	OLGA	*15:01	*15:20	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
15	9075	DKB	*40:01		-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-
16	9037	SWEIG007	*40:02		-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
17	9282	CTM3953540	*08:01	*55:01	-	-	-	-	-	-	-	+	-	-	+	+	-	-	-	+
18	9257	32367	*14:01	*56:01	-	-	-	-	-	-	+	+	-	-	-	+	-	-	-	+
19	9038	BM16	*18:01		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	9059	SLE005	*40:01		-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-
21	9064	AMALA	*15:01		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
22	9056	KOSE	*35:03		+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	9124	IHL	*40:02	*56:02	-	-	-	-	-	-	-	-	-	+	-	+	-	-	-	+
24	9035	JBUSH	*38:01		-	-	-	-	+	+	+	-	-	-	-	-	-	-	-	-
25	9049	IBW9	*14:02		-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-
26	9285	WT49	*58:01		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	9191	CH1007	*07:05	*51:01	-	-	-	-	-	-	-	+	-	-	-	+	-	+	-	-
28	9320	BEL5GB	*44:02	*44:03	+	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
29	9050	MOU	*44:03		+	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
30	9021	RSH	*42:01		-	-	-	-	-	-	-	+	-	-	+	+	-	-	-	-
31	9019	DUCAF	*18:01		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	9297	HAG	*41:02		-	-	-	-	-	-	-	+	-	-	+	-	-	-	-	-
33	9098	MT14B	*40:01		-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-
34	9104	DHIF	*38:01		-	-	-	-	+	+	+	-	-	-	-	-	-	-	-	-
35	9302	SSTO	*44:02		+	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
36	9024	KT17	*15:01	*35:01	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-
37	9065	HHKB	*07:02		-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-
38	9099	LZL	*15:01		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
39	9315	CML	*08:01	*27:05	-	-	-	-	-	-	-	+	-	-	+	+	-	-	-	+
40	9134	WHONP199	*13:02	*46:01	-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
41	9055	H0301	*14:02		-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-
42	9066	TAB089	*46:01		-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
43	9076	T7526	*46:01		-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
44	9057	TEM	*38:01		-	-	-	-	+	+	+	-	-	-	-	-	-	-	-	-
45	9239	SHJO	*42:01	*50:01	-	-	-	-	-	-	-	+	-	-	+	+	-	-	-	-
46	9013	SCHU	*07:02		-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-
47	9045	TUBO	*51:01		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
48	9303	TER-ND	*35:01	*44:03	+	+	-	-	-	-	-	-	-	-	-	-	+	-	-	-

101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

Visit www.olerup-ssp.com for **"Instructions for Use" (IFU)**

Lot No.: 33X **Lot-specific information**

CELL LINE VALIDATION SHEET

HLA-B low resolution SSP kit[2]

					Well															
					57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72
				Prod. No.:	201329833	201329834	201329835	201329836	201329837	201329838	201440039	201329840	201441541	201329842	201329843	201329844	201329845	201329846	201329847	201329848
	IHWC cell line[1]		B*																	
1	9001	SA	*07:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+
2	9280	LK707	*52:01	*73:01	-	-	+	+	-	+	-	-	-	-	-	-	+	+	+	-
3	9011	E4181324	*52:01		-	-	+	+	-	+	-	-	-	-	-	-	-	+	-	-
4	9275	GU373	*15:10	*53:01	-	-	-	+	-	-	-	-	-	-	-	+	-	+	+	-
5	9009	KAS011	*37:01		-	-	-	-	-	+	-	-	-	-	-	-	-	+	-	-
6	9353	SM	*39:01	*51:01	-	-	+	+	-	-	-	-	-	-	-	+	-	+	+	-
7	9020	QBL	*18:01		-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
8	9025	DEU	*35:01		-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
9	9026	YAR	*38:01		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
10	9107	LKT3	*54:01		-	-	-	-	-	-	+	+	-	-	-	-	-	-	+	-
11	9051	PITOUT	*44:03		-	-	-	-	-	+	-	-	-	-	-	-	-	+	-	-
12	9052	DBB	*57:01		-	-	-	+	-	-	-	-	-	+	-	-	-	+	-	-
13	9004	JESTHOM	*27:05		-	-	-	-	-	+	-	-	-	-	-	-	-	+	-	-
14	9071	OLGA	*15:01	*15:20	-	-	-	-	-	+	-	-	-	-	-	-	+	-	+	-
15	9075	DKB	*40:01		-	-	-	-	+	+	-	-	-	-	-	-	-	-	+	-
16	9037	SWEIG007	*40:02		-	-	-	-	+	+	-	-	-	-	-	-	-	-	+	-
17	9282	CTM3953540	*08:01	*55:01	-	-	+	-	-	-	-	+	-	-	-	-	-	-	+	+
18	9257	32367	*14:01	*56:01	-	-	-	-	-	-	-	-	+	-	-	-	-	-	+	-
19	9038	BM16	*18:01		-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
20	9059	SLE005	*40:01		-	-	-	-	+	+	-	-	-	-	-	-	-	-	+	-
21	9064	AMALA	*15:01		-	-	-	-	-	+	-	-	-	-	-	-	+	-	+	-
22	9056	KOSE	*35:03		-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
23	9124	IHL	*40:02	*56:02	-	-	-	-	+	+	-	-	+	-	+	-	-	-	+	-
24	9035	JBUSH	*38:01		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
25	9049	IBW9	*14:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
26	9285	WT49	*58:01		-	-	-	+	-	-	-	-	-	-	+	-	-	+	-	-
27	9191	CH1007	*07:05	*51:01	-	-	+	+	-	-	-	-	-	-	-	+	-	+	+	+
28	9320	BEL5GB	*44:02	*44:03	-	-	-	-	-	+	+	-	-	-	-	-	-	+	-	-
29	9050	MOU	*44:03		-	-	-	-	-	+	-	-	-	-	-	-	-	+	-	-
30	9021	RSH	*42:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+
31	9019	DUCAF	*18:01		-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
32	9297	HAG	*41:02		-	-	-	-	+	+	-	-	-	-	-	-	-	-	+	+
33	9098	MT14B	*40:01		-	-	-	-	+	+	-	-	-	-	-	-	-	-	+	-
34	9104	DHIF	*38:01		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
35	9302	SSTO	*44:02		-	-	-	-	-	+	+	-	-	-	-	-	-	+	-	-
36	9024	KT17	*15:01	*35:01	-	-	-	-	-	+	-	-	-	-	-	+	+	-	+	-
37	9065	HHKB	*07:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+
38	9099	LZL	*15:01		-	-	-	-	-	+	-	-	-	-	-	-	+	-	+	-
39	9315	CML	*08:01	*27:05	-	-	-	-	-	+	-	-	-	-	-	-	-	+	+	+
40	9134	WHONP199	*13:02	*46:01	-	-	-	-	-	+	-	-	-	-	-	-	+	+	+	-
41	9055	H0301	*14:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
42	9066	TAB089	*46:01		-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	-
43	9076	T7526	*46:01		-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	-
44	9057	TEM	*38:01		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
45	9239	SHJO	*42:01	*50:01	-	-	+	-	+	+	-	-	+	-	-	-	-	-	+	+
46	9013	SCHU	*07:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+
47	9045	TUBO	*51:01		-	-	+	+	-	-	-	-	-	-	-	+	-	+	-	-
48	9303	TER-ND	*35:01	*44:03	-	-	-	-	-	+	-	-	-	-	-	+	-	+	+	-

101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

Visit www.olerup-ssp.com for
"Instructions for Use" (IFU)

Lot No.: 33X **Lot-specific information**

[1]The provided cell line HLA specificities are retrieved from the http://www.ihwg.org/hla web site. The specificity of an individual cell line may thus be subject to change.

[2]The specificity of each primer solution in the kit has been tested against 48 well characterized cell line DNAs and where applicable, additional cell line DNAs.

Additional 5'-primers and 3'-primers in primer solutions 27, 30, 38, 43, 53, 55, 64 and 65 were tested by separately adding one additional 3'-primer, respectively one additional 5'-primer. Additional 3'-primers in primer solutions 26, 32, 35, 37, 39 and 42 were tested by separately adding one additional 5'-primer. Additional 5'-primers in primer solutions 25, 45, 49 and 72 were tested by separately adding one additional 3'-primer.

In primer mixes 55, 66 and 67 one 5'-primer was not possible to test, and in primer mixes 27, 53, 62, 63 and 66 one or two 3'-primer was not possible to test.

101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

Visit www.olerup-ssp.com for **"Instructions for Use" (IFU)**

Lot No.: 33X **Lot-specific information**

CELL LINE VALIDATION SHEET

HLA-C low resolution SSP primer set[2]

					Well															
					73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88
				Prod. No.:	201322201	201322202	201322203	201322204	201322205	201322206	201322207	201322208	201322209	201322210	201322211	201322212	201330513	201330514	201441815	201435816
	IHWC cell line[1]		C*																	
1	9001	SA	*07:02		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
2	9280	LK707	*07:01	*15:05	-	-	+	-	-	-	-	-	+	-	+	-	-	-	+	-
3	9011	E4181324	*12:02		-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-
4	9275	GU373	*03:04	*04:01	-	-	+	+	-	+	-	-	-	-	+	-	+	-	-	-
5	9009	KAS011	*06:02		-	-	-	-	-	-	-	+	-	-	+	-	-	+	-	-
6	9353	SM	*03:04	*07:02	-	-	+	+	-	-	-	-	+	-	-	-	-	-	-	-
7	9020	QBL	*05:01		-	-	-	-	-	-	+	-	-	-	+	-	-	-	+	-
8	9007	DEM	*04:01		-	-	-	-	-	+	-	-	-	-	+	-	+	-	-	-
9	9026	YAR	*12:03		-	-	-	-	-	-	-	-	-	-	-	+	+	+	-	-
10	9107	LKT3	*01:02		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	9051	PITOUT	*16:01		-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
12	9052	DBB	*06:02		-	-	-	-	-	-	-	+	-	-	+	-	-	+	-	-
13	9004	JESTHOM	*01:02		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	9071	OLGA	*01:02	*03:04	+	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-
15	9075	DKB	*03:04		-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-
16	9037	SWEIG007	*02:02		-	+	+	-	-	+	-	-	-	-	+	-	-	-	+	-
17	9282	CTM3953540	*03:03	*07:01	-	-	-	+	+	-	-	-	+	-	-	-	-	-	-	-
18	9257	32367	*01:02	*07:05	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
19	9038	BM16	*07:01		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
20	9059	SLE005	*03:04		-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-
21	9064	AMALA	*03:03		-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-
22	9056	KOSE	*12:03		-	-	-	-	-	-	-	-	-	-	-	+	+	+	-	-
23	9124	IHL	*01:02	*15:02	+	-	+	-	-	-	-	+	-	-	+	-	-	-	+	-
24	9035	JBUSH	*12:03		-	-	-	-	-	-	-	-	-	-	-	+	+	+	-	-
25	9049	IBW9	*08:02		-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
26	9285	WT49	*07:01		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
27	9191	CH1007	*07:04	*15:05	-	-	+	-	-	-	-	-	+	-	+	-	-	-	+	-
28	9320	BEL5GB	*05:01	*16:01	-	-	-	-	-	-	+	-	-	-	+	-	+	-	+	-
29	9050	MOU	*16:01		-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
30	9021	RSH	*17:01		-	+	-	-	-	-	-	-	-	-	+	-	-	-	+	-
31	9019	DUCAF	*05:01		-	-	-	-	-	-	+	-	-	-	+	-	-	-	+	-
32	9297	HAG	*17:01	*17:03	-	+	-	-	-	-	-	-	-	-	+	-	-	-	+	-
33	9098	MT14B	*03:04		-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-
34	9104	DHIF	*12:03		-	-	-	-	-	-	-	-	-	-	-	+	+	+	-	-
35	9302	SSTO	*05:01		-	-	-	-	-	-	+	-	-	-	+	-	-	-	+	-
36	9024	KT17	*03:03	*04:01	-	-	-	+	+	+	-	-	-	-	+	-	+	-	-	-
37	9065	HHKB	*07:02		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
38	9099	LZL	*03:03		-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-
39	9315	CML	*02:02	*07:01	-	+	+	-	-	+	-	-	+	-	+	-	-	-	+	-
40	9134	WHONP199	*01:02	*06:02	+	-	-	-	-	-	-	+	-	-	+	-	-	+	-	-
41	9055	H0301	*08:02		-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
42	9066	TAB089	*01:02		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43	9076	T7526	*01:02	*08:01	+	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
44	9057	TEM	*12:03		-	-	-	-	-	-	-	-	-	-	-	+	+	+	-	-
45	9239	SHJO	*06:02	*17:01	-	+	-	-	-	-	-	+	-	-	+	-	-	+	+	-
46	9013	SCHU	*07:02		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
47	9045	TUBO	*07:04	*15:02	-	-	+	-	-	-	-	+	+	-	+	-	-	-	+	-
48	9303	TER-ND	*04:01	*16:01	-	-	-	-	-	+	-	-	-	-	+	-	+	-	-	-

101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

Visit www.olerup-ssp.com for
"Instructions for Use" (IFU)

Lot No.: 33X **Lot-specific information**

CELL LINE VALIDATION SHEET

HLA-C low resolution SSP primer set[2]

					Well						
					89	90	91	92	93	94	95
				Prod. No.:	201322217	201322218	201433919	201322220	201322221	201322222	201322223
	IHWC cell line[1]		C*								
1	9001	SA	*07:02		-	-	-	-	-	-	+
2	9280	LK707	*07:01	*15:05	+	-	-	-	+	-	+
3	9011	E4181324	*12:02		-	-	-	-	-	-	-
4	9275	GU373	*03:04	*04:01	-	+	-	-	+	+	-
5	9009	KAS011	*06:02		-	-	-	-	-	-	+
6	9353	SM	*03:04	*07:02	-	-	-	-	+	+	+
7	9020	QBL	*05:01		-	-	-	-	+	-	-
8	9007	DEM	*04:01		-	+	-	-	+	-	-
9	9026	YAR	*12:03		-	-	-	-	-	-	-
10	9107	LKT3	*01:02		-	-	-	+	-	-	-
11	9051	PITOUT	*16:01		-	+	-	-	-	-	+
12	9052	DBB	*06:02		-	-	-	-	-	-	+
13	9004	JESTHOM	*01:02		-	-	-	+	-	-	-
14	9071	OLGA	*01:02	*03:04	-	-	-	+	+	+	-
15	9075	DKB	*03:04		-	-	-	-	+	+	-
16	9037	SWEIG007	*02:02		-	-	-	-	-	-	-
17	9282	CTM3953540	*03:03	*07:01	-	-	-	-	+	+	+
18	9257	32367	*01:02	*07:05	-	-	-	+	-	-	+
19	9038	BM16	*07:01		-	-	-	-	-	-	+
20	9059	SLE005	*03:04		-	-	-	-	+	+	-
21	9064	AMALA	*03:03		-	-	-	-	+	+	-
22	9056	KOSE	*12:03		-	-	-	-	-	-	-
23	9124	IHL	*01:02	*15:02	+	-	-	+	+	-	-
24	9035	JBUSH	*12:03		-	-	-	-	-	-	-
25	9049	IBW9	*08:02		-	-	-	-	+	-	-
26	9285	WT49	*07:01		-	-	-	-	-	-	+
27	9191	CH1007	*07:04	*15:05	+	-	-	-	+	-	+
28	9320	BEL5GB	*05:01	*16:01	-	+	-	-	+	-	+
29	9050	MOU	*16:01		-	+	-	-	-	-	+
30	9021	RSH	*17:01		-	-	+	-	+	-	-
31	9019	DUCAF	*05:01		-	-	-	-	+	-	-
32	9297	HAG	*17:01	*17:03	-	-	+	-	+	-	-
33	9098	MT14B	*03:04		-	-	-	-	+	+	-
34	9104	DHIF	*12:03		-	-	-	-	-	-	-
35	9302	SSTO	*05:01		-	-	-	-	+	-	-
36	9024	KT17	*03:03	*04:01	-	+	-	-	+	+	-
37	9065	HHKB	*07:02		-	-	-	-	-	-	+
38	9099	LZL	*03:03		-	-	-	-	+	+	-
39	9315	CML	*02:02	*07:01	-	-	-	-	-	-	+
40	9134	WHONP199	*01:02	*06:02	-	-	-	+	-	-	+
41	9055	H0301	*08:02		-	-	-	-	+	-	-
42	9066	TAB089	*01:02		-	-	-	+	-	-	-
43	9076	T7526	*01:02	*08:01	-	+	-	+	+	-	-
44	9057	TEM	*12:03		-	-	-	-	-	-	-
45	9239	SHJO	*06:02	*17:01	-	-	+	-	+	-	+
46	9013	SCHU	*07:02		-	-	-	-	-	-	+
47	9045	TUBO	*07:04	*15:02	+	-	-	-	+	-	+
48	9303	TER-ND	*04:01	*16:01	-	+	-	-	+	-	+

101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

Visit www.olerup-ssp.com for
"Instructions for Use" (IFU)

Lot No.: 33X **Lot-specific information**

[1]The provided cell line HLA specificities are retrieved from the http://www.ihwg.org/hla web site. The specificity of an individual cell line may thus be subject to change.

[2]The specificity of each primer solution in the kit has been tested against 48 well characterized cell line DNAs and where applicable, additional cell line DNAs.

Additional 5'-primers and 3'-primers in primer solutions 73, 74, 79, 86 to 88 and 94 were tested by separately adding one additional 3'-primer, respectively one additional 5'-primer. Additional 3'-primers in primer solution 90 and 91 were tested by separately adding one additional 5'-primer. Additional 5'-primers in primer solutions 78, 85 and 95 were tested by separately adding one additional 3'-primer.

In primer solutions 88 and 95 one 5'-primer was not possible to test, and in primer solutions 75, 83 to 86, 88 and 90 one or two 3'-primers were not possible to test.

101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

Visit www.olerup-ssp.com for
"Instructions for Use" (IFU)

Lot No.: 33X **Lot-specific information**

101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

Visit www.olerup-ssp.com for
"Instructions for Use" (IFU)

Lot No.: 33X **Lot-specific information**

101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

Visit www.olerup-ssp.com for
"Instructions for Use" (IFU)

Lot No.: 33X **Lot-specific information**

Lot No.: 33X **Lot-specific information**

ADDRESSES:

Manufacturer:
***Olerup* SSP AB**, Franzengatan 5, SE-112 51 Stockholm, Sweden.
Tel: +46-8-717 88 27
Fax: +46-8-717 88 18
E-mail: info-ssp@olerup.com
Web page: http://www.olerup-ssp.com

Distributed by:
Olerup GmbH, Löwengasse 47 , 6, AT-1030 Vienna, Austria.
Tel: +43-1-710 15 00
Fax: +43-1-710 15 00 10
E-mail: support-at@olerup.com
Web page: http: //www.olerup.com

Olerup Inc., 901 S. Bolmar St., Suite R, West Chester, PA 19382
Tel: 1-877-OLERUP1
Fax: 610-344-7989
E-mail: info.us@olerup.com
Web page: http: //www.olerup.com

For information on *Olerup* SSP distributors worldwide, contact **Olerup GmbH**.