

Lot No.: 20Y

Lot-specific information
Olerup SSP® HLA-C*15

Product number:	101.626-12 – including <i>Taq</i> polymerase 101.626-12u – without <i>Taq</i> polymerase
Lot number:	20Y
Expiry date:	2017-September-01
Number of tests:	12
Number of wells per test:	31+1
Storage - pre-aliquoted primers:	dark at -20°C
- PCR Master Mix:	-20°C
- Adhesive PCR seals	RT
- Product Insert	RT

This Product Description is only valid for Lot No. 20Y.

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-C*15 LOT (23V)**

The HLA-C*15 kit is updated for new alleles to enable separation of:

- Confirmed¹ alleles as listed in the IMGT/HLA database
- Polymorphisms in exons outside of the region encoding the peptide binding domain
- Null and Alternatively expressed alleles

A well containing Negative Control primer pairs has been added.

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

One well has been added to HLA-C*15, well **32**.

¹As described in section Uniquely Identified Alleles.

The HLA-C*15 primer set, specificity and interpretation tables have been updated for the HLA-C alleles described since the previous *Olerup SSP®* HLA-C*15 lot was made (**Lot No. 23V**). The kit design is based on IMGT/HLA database 3.19.0.

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.



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

Well	5'-primer	3'-primer	rationale
1	Added	-	5'-primer added for the C*15:02:18 allele.
5	Added	-	5'-primer added for the C*15:92N allele.
12	-	Added	3'-primer added for the C*15:95 allele.
20	Added	Added	Primer pair added for the C*15:97, 3'-primer added for the C*15:95 allele.
21	Added	-	5'-primer added for the C*15:92N allele.
22	Added	Added	Primer pair added for the C*15:97 allele.
24	Added	-	5'-primer added for the C*15:105Q allele.
26	-	Added	3'-primer added for the C*15:103 allele.
27	Added	-	5'-primer added for the C*15:105Q allele.
28	-	Added	3'-primer added for the C*15:84Q allele.
29	Added	Added	Primer pair added for the C*15:96Q allele.
31	Added	Added	Updated negative control moved to well 32, primer pair added for the C*15:85 allele.
32	-	-	Updated negative control added from well 31.

Change in revision R01 compared to R00:

1. Primer mix 27 may have a tendency of giving rise to nonspecific amplifications. A footnote has been added in the Specificity Table. Primer specification of the Negative Control primer pairs has been added.

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Well **32** 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'-primer¹	164	340	440	45	45	43	36
	5'-CAC ^{3'}	5'-Agg ^{3'}	5'-TTA ^{3'}	5'-Tgg ^{3'}	5'-Tgg ^{3'}	5'-Tgg ^{3'}	5'-TAC ^{3'}
							36
							5'-TAT ^{3'}
3'-primer²	231	2nd I	507	59	58	57	47
	5'-TgC ^{3'}	5'-AAA ^{3'}	5'-TTg ^{3'}	5'-CTC ^{3'}	5'-ggC ^{3'}	5'-CTC ^{3'}	5'-ACA ^{3'}
							48
							5'-gCA ^{3'}
							48
							5'-gCC ^{3'}
							52
							5'-TgT ^{3'}
A*	+	+	+				
B*	+	+	+				
C*	+	+	+				
DRB1				+	+		
DRB3				+	+		
DRB5				+			
DQB1					+		
DPB1						+	
DQA1							+

¹The 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 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.

²The 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.

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PRODUCT DESCRIPTION

HLA-C*15 SSP typing

CONTENT

The primer set contains 5'- and 3'-primers for identifying the C*15:02 to C*15:106 alleles.

PLATE LAYOUT

Each HLA-C*15 test consists of 32 PCR reactions in a 32 well cut 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	NC

The 32 well PCR plate is marked with 'HLA-C*15' in silver/gray ink.

Well No. 1 is marked with the Lot No. '20Y'.

Wells 1 to 31 – HLA-C*15 high resolution primers.

Well 32 – Negative Control (NC).

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 heat-sealed with a PCR-compatible foil.

Please note: When removing each 32 well PCR plate, make sure that the remaining plates stay sealed. Use a scalpel or a similar instrument to carefully cut the foil between the plates.

INTERPRETATION

Due to the sharing of sequence motifs between HLA-C alleles, non-HLA-C*15 alleles will be amplified by primer mixes 1 to 5, 7 to 15, 17, 18, 20 to 24, 27, 29 and 31. In addition, a few HLA-B alleles will be amplified by primer mixes 5, 7, 8, 12, 14, 16, 18, 25, 26, 29 and 31.

For further details see Specificity Table.

UNIQUELY IDENTIFIED ALLELES

All the HLA-C*15 alleles, i.e. **C*15:02 to C*15:106**, recognized by the HLA Nomenclature Committee in January 2015^{1,2} will be amplified by the primers in the HLA-C*15 SSP kit³.

The HLA-C*15 kit enables separation of the confirmed HLA-C*15 alleles as listed in the IMGT/HLA database. An HLA allele is listed as confirmed by IMGT/HLA if it has been sequenced by more than a single laboratory or from multiple sources. Current allele confirmation status for HLA-C*15 alleles is listed below.

The HLA-C*15 kit also enables identification of polymorphisms in exons outside of the region encoding the peptide binding domain and of null and alternatively expressed alleles.

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The following HLA-C*15 alleles can be distinguished by the different sizes of the HLA-specific PCR product:

Alleles	Primer mix	Alleles	Primer mix
C*15:32Q, 15:41	24	C*15:35, 15:47	21
C*15:33, 15:84Q	28	C*15:44, 15:45	20
C*15:34, 15:39	17	C*15:81, 15:96Q	29

The HLA-C*15 subtyping kit cannot distinguish the following silent mutations: C*15:02:01:01 to C*15:02:20 alleles, the C*15:05:01 to C*15:05:11 alleles, the C*15:06:01 to C*15:06:03 alleles or the C*15:10:01 to C*15:10:03 alleles.

¹HLA-C alleles listed on the IMGT/HLA web page 2015-January-19, release 3.19.0, www.ebi.ac.uk/imgt/hla.

²Alleles 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>.

³The HLA-C*15 primer set cannot separate the C*15:04 and the C*16:70 alleles. These alleles can be distinguished by the HLA-C low resolution kit and/or HLA-C*16 high resolution kit.

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ALLELE CONFIRMATION STATUS

Allele	Status¹	Allele	Status¹	Allele	Status¹	Allele	Status¹
C*15:02:01:01	Confirmed	C*15:10:01	Unconfirmed	C*15:50	Unconfirmed	C*15:90	Unconfirmed
C*15:02:01:02	Unconfirmed	C*15:10:02	Confirmed	C*15:51	Unconfirmed	C*15:91	Unconfirmed
C*15:02:02	Unconfirmed	C*15:10:03	Unconfirmed	C*15:52	Confirmed	C*15:92N	Unconfirmed
C*15:02:03	Confirmed	C*15:11	Confirmed	C*15:53	Unconfirmed	C*15:93	Unconfirmed
C*15:02:04	Confirmed	C*15:12	Unconfirmed	C*15:54	Unconfirmed	C*15:94	Unconfirmed
C*15:02:05	Confirmed	C*15:13	Confirmed	C*15:55	Unconfirmed	C*15:95N	Unconfirmed
C*15:02:06	Unconfirmed	C*15:15	Unconfirmed	C*15:56	Confirmed	C*15:96Q	Unconfirmed
C*15:02:07	Confirmed	C*15:16	Unconfirmed	C*15:57	Unconfirmed	C*15:97	Unconfirmed
C*15:02:08	Confirmed	C*15:17	Confirmed	C*15:58	Confirmed	C*15:98	Unconfirmed
C*15:02:09	Unconfirmed	C*15:18	Confirmed	C*15:59	Unconfirmed	C*15:99	Unconfirmed
C*15:02:10	Unconfirmed	C*15:19	Confirmed	C*15:60	Unconfirmed	C*15:100	Unconfirmed
C*15:02:11	Confirmed	C*15:21	Unconfirmed	C*15:61	Unconfirmed	C*15:101	Unconfirmed
C*15:02:12	Unconfirmed	C*15:22	Confirmed	C*15:62	Unconfirmed	C*15:102	Unconfirmed
C*15:02:13	Unconfirmed	C*15:23	Confirmed	C*15:63	Unconfirmed	C*15:103	Unconfirmed
C*15:02:14	Confirmed	C*15:24	Confirmed	C*15:64	Unconfirmed	C*15:104	Unconfirmed
C*15:02:15	Confirmed	C*15:25	Unconfirmed	C*15:65	Unconfirmed	C*15:105Q	Unconfirmed
C*15:02:16	Unconfirmed	C*15:26	Confirmed	C*15:66	Unconfirmed	C*15:106	Unconfirmed
C*15:02:17	Unconfirmed	C*15:27	Confirmed	C*15:67	Unconfirmed		
C*15:02:18	Unconfirmed	C*15:28	Confirmed	C*15:68	Unconfirmed		
C*15:02:19	Unconfirmed	C*15:29	Unconfirmed	C*15:69	Unconfirmed		
C*15:02:20	Confirmed	C*15:30	Confirmed	C*15:70	Unconfirmed		
C*15:03	Unconfirmed	C*15:31	Confirmed	C*15:71	Unconfirmed		
C*15:04	Confirmed	C*15:32Q	Confirmed	C*15:72	Unconfirmed		
C*15:05:01	Confirmed	C*15:33	Confirmed	C*15:73	Unconfirmed		
C*15:05:02	Confirmed	C*15:34	Confirmed	C*15:74	Unconfirmed		
C*15:05:03	Unconfirmed	C*15:35	Unconfirmed	C*15:75	Unconfirmed		
C*15:05:04	Unconfirmed	C*15:36	Confirmed	C*15:76	Unconfirmed		
C*15:05:05	Unconfirmed	C*15:37	Unconfirmed	C*15:77	Unconfirmed		
C*15:05:06	Confirmed	C*15:38	Unconfirmed	C*15:78	Unconfirmed		
C*15:05:07	Confirmed	C*15:39	Confirmed	C*15:79	Unconfirmed		
C*15:05:08	Unconfirmed	C*15:40	Confirmed	C*15:80	Unconfirmed		
C*15:05:09	Unconfirmed	C*15:41	Unconfirmed	C*15:81	Unconfirmed		
C*15:05:10	Unconfirmed	C*15:42	Confirmed	C*15:82	Confirmed		
C*15:05:11	Unconfirmed	C*15:43	Unconfirmed	C*15:83	Unconfirmed		
C*15:06:01	Confirmed	C*15:44	Confirmed	C*15:84Q	Unconfirmed		
C*15:06:02	Confirmed	C*15:45	Unconfirmed	C*15:85	Confirmed		
C*15:06:03	Confirmed	C*15:46	Unconfirmed	C*15:86	Unconfirmed		
C*15:07	Confirmed	C*15:47	Unconfirmed	C*15:87	Unconfirmed		
C*15:08	Unconfirmed	C*15:48	Unconfirmed	C*15:88	Unconfirmed		
C*15:09	Confirmed	C*15:49	Unconfirmed	C*15:89	Unconfirmed		

¹Allele status “confirmed” or “unconfirmed” as listed on the IMGT/HLA web page 2015-January-19, release 3.19.0, www.ebi.ac.uk/imgt/hla.

RESOLUTION IN HOMO- AND HETEROZYGOTES

Results file with resolution in HLA-C*15 homo- and heterozygotes is available upon request.



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SPECIFICITY TABLE

HLA-C*15 SSP subtyping

Specificities and sizes of the PCR products of the 31+1 primer mixes used for HLA-C*15 SSP subtyping

Primer Mix	Size of spec. PCR product ¹	Size of control band ²	Amplified HLA-C*15 alleles ³	Other amplified HLA Class I alleles ⁴
1	330 bp	800 bp	*15:02:01:01-15:03, 15:05:01-15:13, 15:15-15:19, 15:21-15:24, 15:26-15:29, 15:31-15:39, 15:41-15:63, 15:67-15:75, 15:78-15:101, 15:103-15:104, 15:106	*01:90, 01:101-01:102, 02:06, 02:23, 02:36, 02:68, 03:04:33, 03:81, 03:175, 03:199, 03:245, 04:108, 04:178, 06:89, 07:47, 07:123, 07:173, 07:294, 08:113, 12:15, 12:113, 16:20
2	175 bp	1070 bp	*15:02:01:01-15:09, 15:12-15:13, 15:15, 15:18-15:19, 15:21-15:24, 15:26, 15:28-15:42, 15:44-15:62, 15:64-15:106	*03:08, 03:29, 03:31, 03:246, 07:20, 07:96:01-07:96:02, 07:263, 16:70
3 ⁵	85 bp 210 bp	1070 bp	*15:28 *15:03, 15:16, 15:25 ^w	*03:15, 03:27 ^w , 03:38:01 ^w -03:38:02 ^w , 03:69 ^w , 03:130, 03:136 ^w , 03:163, 03:246 ^w , 04:16, 06:03:01, 06:132:01-06:132:02, 07:02:10 ^w , 07:96:01 ^w -07:96:02 ^w , 07:127 ^w , 07:246 ^w , 07:263 ^w , 12:03:23 ^w
4	315 bp	1070 bp	*15:04, 15:09, 15:19, 15:27, 15:30, 15:61, 15:65, 15:77	*01:04, 01:21, 01:54, 01:97, 01:102, 02:02:01-02:02:03, 02:02:05-02:05:03, 02:08-02:18, 02:20-02:21, 02:24-02:40:02, 02:42-02:46, 02:48-02:67Q, 02:69-02:95, 03:02:01-03:02:13, 03:14-03:16, 03:33, 03:36, 03:40:01-03:40:04, 03:42-03:43:02, 03:60, 03:71, 03:84, 03:89, 03:95, 03:108, 03:110, 03:119, 03:121N, 03:132, 03:139, 03:146, 03:169Q, 03:175, 03:190, 03:194, 03:197-03:201N, 03:216, 03:221-03:222, 03:224N-03:226, 03:240, 03:245, 03:248, 03:258, 03:264, 03:271, 04:54, 05:04:01-05:04:02, 05:103, 06:02:01:01-06:02:01:03, 06:02:03-06:08, 06:10-06:33, 06:35-06:37, 06:39-06:102, 06:104-06:106:02, 06:108-06:143, 06:145-06:149, 07:01:01:01-07:02:62, 07:02:64-07:03, 07:05-07:10, 07:14-07:27:02, 07:30-07:33N, 07:35-07:40, 07:42-07:44, 07:46-07:62, 07:64-07:100, 07:102-07:138, 07:140-07:141:02, 07:143-07:176, 07:178-07:180,

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				07:182-07:183, 07:185-07:198N, 07:200-07:218, 07:220-07:230, 07:232-07:247, 07:249-07:271, 07:273-07:288, 07:291-07:294, 07:296-07:322, 07:325-07:327, 07:330-07:335, 07:337, 07:339- 07:353, 07:356, 07:359-07:360, 07:362-07:363, 07:366-07:377, 07:379-07:393N, 07:396-07:402, 07:404-07:405, 07:407-07:409, 08:09, 08:11, 08:59, 08:113, 12:02:01- 12:14:02, 12:16-12:30, 12:32-12:140, 12:142-12:143, 12:145-12:148N, 14:02:01-14:25, 14:27-14:53, 14:56- 14:69, 16:01:01-16:02:13, 16:04:01, 16:04:03, 16:06-16:09, 16:11-16:44, 16:46-16:66, 16:68-16:79
5^{5,6}	100 bp	1070 bp	*15:05:01-15:05:11, 15:22-15:23, 15:29, 15:36, 15:46, 15:54, 15:59, 15:69-15:70, 15:90, 15:104 *15:92N	*04:108, B*35:03:11, B*35:205
6	160 bp 305 bp 345 bp 370 bp	1070 bp	*15:06:01-15:06:03, 15:40, 15:55, 15:102 *15:26, 15:69 *15:22, 15:37, 15:55, 15:58, 15:65, 15:72, 15:102	
7	140 bp	800 bp	*15:07, 15:21, 15:25	*01:02:34, 01:21, 02:12, 02:27:01- 02:27:02, 02:87, 03:04:25, 04:11, 04:29, 04:36, 04:55, 04:172, 07:02:09, 08:01:01-08:02:10, 08:02:12-08:09, 08:11-08:63, 08:65-08:94, 08:95 ^w , 08:96-08:115, 12:02:01-12:02:10, 12:02:12-12:03:03, 12:03:05-12:03:08, 12:03:10-12:03:23, 12:03:24 ^w , 12:03:25-12:03:33, 12:06-12:08, 12:10:01-12:20, 12:22-12:26, 12:28- 12:32, 12:34-12:40, 12:42Q-12:53, 12:55-12:59, 12:61-12:122, 12:124- 12:145, 12:147-12:148N, 14:02:03, 14:03, 14:08, 14:10, 14:22, 14:35N, 14:38, 14:41, 14:53-14:54, 14:61, 16:01:01, 16:01:03-16:01:15, 16:01:17-16:01:19, 16:04:01, 16:04:03, 16:06-16:08, 16:10-16:11, 16:13-16:18, 16:20-16:24, 16:26- 16:45, 16:49-16:56, 16:58-16:59, 16:61-16:62, 16:64-16:68, 16:71 ^w , 16:72-16:73, 16:75-16:76, 16:78- 16:79, B*35:08:02, B*35:08:05, B*67:02
8	160 bp	1070 bp	*15:08, 15:74	*01:90 ^w , 02:06, 02:47, 12:15, B*07:78^w, B*13:18^w, B*13:31^w, B*13:41^w, B*13:73^w, B*15:73^w, B*15:303^w, B*54:10^w, B*54:20^w,

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				B*54:33^W, B*55:09^W, B*55:21^W, B*55:37^W, B*55:52^W, B*56:43^W
	185 bp		*15:19	
9	135 bp	1070 bp	*15:11, 15:23, 15:63	*02:02:01-02:02:03, 02:02:05-02:02:12, 02:02:14-02:02:25, 02:02:27-02:02:28, 02:02:30-02:20, 02:22-02:25Q, 02:27:01-02:38N, 02:40:01-02:40:02, 02:42-02:44, 02:46-02:86, 02:88-02:95, 04:03:01-04:03:02, 04:06, 04:42:01-04:42:02, 04:80, 04:107, 04:147, 04:160, 04:171, 04:190, 05:26, 05:43, 06:05, 07:02:09, 08:37, 12:16, 12:147, 16:21, 16:34
	305 bp		*15:18	
10	170 bp	1070 bp	*15:10:01-15:10:03	*01:64, 02:08, 02:87, 03:18:01-03:18:02, 03:64:01-03:64:02, 03:231, 04:01:01:01-04:01:02, 04:01:04-04:01:66, 04:04:01-04:05, 04:07-04:15:03, 04:17-04:20, 04:23-04:79, 04:81-04:106, 04:108-04:132, 04:134-04:139, 04:141-04:146, 04:148-04:159, 04:161-04:165, 04:167-04:170N, 04:172-04:189, 04:191N-04:194, 05:01:01:01-05:01:21, 05:01:23-05:01:31, 05:03-05:57, 05:59-05:97, 05:99N-05:114, 06:28, 06:76:01-06:76:02, 07:64, 07:73, 07:92, 07:172:01-07:172:02, 08:01:01-08:13, 08:15:01-08:57, 08:59-08:63, 08:65-08:79, 08:81-08:102, 08:104, 08:106-08:115, 12:02:01-12:15, 12:17-12:70, 12:72-12:139, 12:141-12:146, 12:148N, 14:02:01-14:02:09, 14:02:11-14:02:18, 14:04-14:09, 14:11-14:17, 14:19-14:21N, 14:23-14:34, 14:36-14:37, 14:39-14:40, 14:42-14:52, 14:55-14:60, 14:62-14:69, 16:01:01-16:02:13, 16:04:01, 16:04:03, 16:06-16:33, 16:35-16:69, 16:71-16:79, 17:01:01:01-17:01:07, 17:01:09-17:28, 18:04
11	315 bp	800 bp	*15:02:01:01-15:03, 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, 15:62-15:63, 15:67-15:68, 15:71-15:75, 15:78-15:89, 15:91-15:101, 15:103, 15:106	*02:06, 02:47, 03:19, 03:102, 04:178, 07:289, 12:15
12⁵	100 bp 200 bp	1070 bp	*15:28 *15:95N	

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	240 bp		*15:07, 15:21 ^w , 15:25, 15:43	*02:12 ^w , 02:27:01-02:27:02, 03:02:01-03:02:09, 03:02:11-03:03:14, 03:03:15 ^w , 03:03:16-03:03:20, 03:03:22-03:04:16, 03:04:18-03:04:25, 03:04:27-03:06:02, 03:08-03:09, 03:10 ^w , 03:11:01-03:11:02, 03:13:01-03:14, 03:16-03:17, 03:18:02-03:28, 03:29 ^w , 03:30-03:38:02, 03:40:01-03:44, 03:46-03:64:01, 03:65-03:66, 03:68-03:98, 03:100-03:114, 03:116:01-03:129, 03:131-03:133, 03:135-03:136, 03:138-03:139, 03:141-03:143, 03:145-03:155, 03:157-03:162, 03:164-03:165, 03:167-03:169Q, 03:171-03:181, 03:183-03:194, 03:196-03:230, 03:232-03:242, 03:244Q-03:263, 03:265N-03:267, 03:269-03:277N, 07:96:01-07:96:02, 12:03:23, 16:34, B*40:164
13⁵	125 bp 185 bp	1070 bp	*15:24 *15:12	*04:89, 04:135, 05:47 *04:52, 04:55, 05:55, 12:58, 14:10
14	130 bp 440 bp	800 bp	*15:13, 15:103 *15:11, 15:16-15:17, 15:43	*01:90, 02:06, 02:47, 03:19, 03:102, 04:178, 07:289, 12:15, B*46:11, B*46:18, B*56:08, B*56:14
15⁵	85 bp	1070 bp	*15:02:01:01-15:06:03, 15:08-15:10:03, 15:12-15:13, 15:15, 15:18-15:19, 15:21-15:24, 15:26, 15:28-15:42, 15:44-15:47, 15:49-15:84Q, 15:86-15:94, 15:96Q-15:106	*03:29, 04:112, 04:169, 05:36, 06:44, 07:07, 07:09, 16:70, 18:05
16⁵	90 bp 165 bp 345 bp	1070 bp	*15:27 *15:15, 15:77 *15:26, 15:69	B*35:222
17⁷	140 bp 215 bp 295 bp	1070 bp	*15:34 *15:36 *15:39	*04:112, 04:169 *01:30, 08:51, 08:114, 12:87
18⁷	160 bp	1070 bp	*15:31	*07:123, 07:173, 07:294, B*07:226, B*15:200, B*39:82, B*51:115, B*51:181, B*58:05
19	165 bp 355 bp	1070 bp	*15:42 *15:46	
20⁵	120 bp 200 bp 235 bp 295 bp	1070 bp	*15:44 *15:95N *15:45 *15:97	*04:146
21	165 bp 445 bp	800 bp	*15:47, 15:92N *15:35	*02:35, 05:21
22	225 bp 295 bp	800 bp	*15:38 *15:97	*04:146
23⁶	175 bp 545 bp	1070 bp	*15:48 *15:29, 15:87	*01:85, 08:22, 08:56

Lot No.: 20Y		Lot-specific information		
24	175 bp 330 bp 380 bp	1070 bp	*15:32Q *15:105Q *15:41	*06:74Q
25	225 bp	1070 bp	*15:52	B*18:91, B*35:247, B*58:45:02
26	200 bp	1070 bp	*15:56, 15:103	B*15:193, B*35:132, B*35:246, B*39:53, B*39:57, B*40:171, B*51:95
27⁷	330 bp	1070 bp	*15:30, 15:105Q	*07:174, 07:298, 08:112
28⁵	85 bp 180 bp	1070 bp	*15:33, *15:84Q	
29⁵	120 bp 255 bp	1070 bp	*15:96Q *15:81	*04:59Q, 16:16Q, B*15:218Q
30⁵	90 bp	1070 bp	*15:82	
31	150 bp	1070 bp	*15:07, 15:25, 15:85	*01:02:34, 01:21, 02:27:01-02:27:02, 02:65, 02:87, 03:04:25, 04:11, 04:29, 04:36, 04:55, 04:114, 04:172, 05:20, 07:02:09, 08:01:01-08:02:10, 08:02:12-08:09, 08:11-08:63, 08:65- 08:94, 08:95 ^w , 08:96-08:115, 12:02:01-12:02:10, 12:02:12-12:03:03, 12:03:05-12:03:08, 12:03:10-12:03:23, 12:03:24 ^w , 12:03:25-12:03:33, 12:06- 12:08, 12:10:01-12:20, 12:22-12:32, 12:34-12:40, 12:42Q-12:59, 12:61- 12:68, 12:70-12:71, 12:73-12:122, 12:124-12:134, 12:136-12:145, 12:147-12:148N, 14:02:03, 14:03, 14:08, 14:10, 14:22, 14:35N, 14:38, 14:41, 14:53-14:54, 14:61, 16:01:01, 16:01:03-16:01:15, 16:01:17-16:01:19, 16:04:01, 16:04:03, 16:06-16:08, 16:10-16:11, 16:13-16:18, 16:20- 16:24, 16:26-16:36, 16:38-16:45, 16:49-16:59, 16:61-16:62, 16:64- 16:68, 16:71 ^w , 16:72-16:73, 16:75- 16:76, 16:78-16:79, B*35:08:02, B*35:08:05, B*67:02
32⁸	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 C*15 high 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 inherent 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.

Lot No.: 20Y

Lot-specific information

²The 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.

³For 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.

⁴Due to the sharing of sequence motifs between HLA-C alleles, non-HLA-C*15 alleles will be amplified by primer mixes 1 to 5, 7 to 15, 17, 18, 20 to 24, 27, 29 and 31. In addition, a few HLA-B alleles will be amplified by primer mixes 5, 7, 8, 12, 14, 16, 18, 25, 26, 29 and 31.

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

⁶Primer mixes 5 and 23 may give rise to a lower yield of HLA-specific PCR product than the other C*15 primer mixes.

⁷Primer mixes 17,18 and 27 may have tendencies of unspecific amplifications.

⁸Primer mix 32 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.

Lot No.: 20Y

Lot-specific information

PRIMER SPECIFICATION

Well No.	1	2	3	4	5	6	7	8	9	10	11	12
Length of spec. PCR product	330	175	85	315	100	305	140	160	135	170	315	100
			210		160	345		185	305			200
						370						240
Length of int. pos. control ¹	800	1070	1070	1070	1070	1070	800	1070	1070	1070	800	1070
5'-primer(s) ²	408 5'-ggA 3'	134 5'-CCA 3'	118 5'-CCg 3'	419 5'-gTC 3'	358 5'-TCT 3'	355 5'-CCC 3'	201 5'-CCA 3'	125 5'-CgA 3'	97 5'-TCg 3'	1 st I 5'-CgA 3'	420 5'-TTA 3'	105 5'-gCT 3'
	409 5'-ggC 3'				420 5'-TTC 3'	379 5'-ACg 3'		420 5'-TTA 3'	118 5'-CCA 3'		420 5'-TTA 3'	
						419 5'-gTA 3'			430 5'-ACC 3'			
3'-primer(s) ³	3 rd I 5'-CTC 3'	270 5'-TAG 3'	164 5'-gCA 3'	3 rd I 5'-CTC 3'	477 5'-gCg 3'	3 rd I 5'-ggA 3'	302 5'-ggC 3'	270 5'-TAG 3'	201 5'-CTT 3'	134 5'-AgC 3'	3 rd I 5'-CTC 3'	164 5'-gCA 3'
			289 5'-AgC 3'				302 5'-ggC 3'	539 5'-TCC 3'	3 rd I 5'-CTC 3'			265 5'-CTA 3'
												302 5'-ggC 3'
												302 5'-ggC 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	125	130	85	90	140	160	165	120	165	225	175	175
	185	440		165	215		355	200	445	295	545	330
				345	295			235				380
								295				
Length of int. pos. control ¹	1070	800	1070	1070	1070	1070	1070	1070	800	800	1070	1070
5'-primer(s) ²	201 5'-CCA 3'	270 5'-AAg 3'	270 5'-AAC 3'	261 5'-AAC 3'	98 5'-CTC 3'	409 5'-ggC 3'	368 5'-gTC 3'	105 5'-gCT 3'	322 5'-gCC 3'	128 5'-AgT 3'	134 5'-CCA 3'	356 5'-CAA 3'
	2 nd I 5'-CCA 3'	757 5'-CCC 3'		379 5'-ACg 3'	2 nd I 5'-CCA 3'		560 5'-CgA 3'	3 rd I 5'-Cgg 3'	358 5'-TCT 3'	3 rd I 5'-Cgg 3'	972 5'-CTA 3'	404 5'-CCg 3'
				560 5'-CCT 3'					715 5'-CAg 3'			562 5'-Cgg 3'
3'-primer(s) ³	343 5'-T 3'	420 5'-gCT 3'	312 5'-AgT 3'	312 5'-AgT 3'	270 5'-TAG 3'	527 5'-CCg 3'	3 rd I 5'-ggA 3'	186 5'-TCC 3'	477 5'-gCg 3'	312 5'-AgT 3'	266 5'-TCA 3'	3 rd I 5'-CTC 3'
	412 5'-gTT 3'	846 5'-CAC 3'		3 rd I 5'-ggA 3'	427 5'-gTT 3'			265 5'-CTA 3'	846 5'-CAC 3'	845 5'-ACA 3'	1034 5'-AgT 3'	
					583 5'-gTg 3'			299 5'-TCT 3'				
								845 5'-ACA 3'				
Well No.	13	14	15	16	17	18	19	20	21	22	23	24

Lot No.: **20Y**

Lot-specific information

Well No.	25	26	27	28	29	30	31
Length of spec.	225	200	330	85	120	90	150
PCR product				180	255		
Length of int. pos. control ¹	1070	1070	1070	1070	1070	1070	1070
5'-primer(s) ²	409	409	404	409	486	797	201
	5'-ggC 3'	5'-ggC 3'	5'-CCA 3'	5'-ggC 3'	5'-ACg 3'	5'-CCg 3'	5'-CCA 3'
			404		631		
			5'-CCg 3'		5'-Agg 3'		
3'-primer(s) ³	595	565	3 rd I	455	563	846	312
	5'-CCg 3'	5'-CAT 3'	5'-CTC 3'	5'-CCA 3'	5'-CgT 3'	5'-CAC 3'	5'-Agg 3'
		575		549	846		
		5'-ggg 3'		5'-...g 3'	5'-CAC 3'		
Well No.	25	26	27	28	29	30	31

¹The 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.

²The 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.

³The 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.

Lot No.: **20Y**

Lot-specific information

CELL LINE VALIDATION SHEET																			
HLA-C*15 SSP primer set²																			
			Prod. No.:	Well															
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	IHWC cell line ¹	C*		201550301	201329002	201329003	201329004	201550305	201329006	201329007	201329008	201329009	201329010	201329011	201550312	201329013	201329014	201329015	201329016
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	9025 DEU	*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	*15:29	+	+	-	-	+	-	-	-	-	-	-	-	-	-	+	-
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	-	-	-	+	-	-	+	-	-	+	-	-	-	-	-	-

Lot No.: **20Y**

Lot-specific information

CELL LINE VALIDATION SHEET																			
HLA-C*15 SSP primer set²																			
				Well															
				17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
			Prod. No.:	201329017	201329018	201329019	201550320	201550321	201550322	201329023	201550324	201329025	201550326	201550327	201550328	201550329	201329030	201550331	
	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	9025 DEU		*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	*15:29	-	-	-	-	-	+	-	-	-	-	-	-	-	-	+
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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+

¹The 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.



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Lot-specific information

²The 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.

No DNAs carrying the alleles to be amplified by primer solutions 3, 6, 8, 13, 14, 16 to 22 and 24 to 30 were available. The specificity of the primers in primer solutions 3, 6, 8, 13, 14, 16 to 19, 22 and 29 were tested by separately adding one 5'-primer, respectively one 3'-primer.

In primer solutions 20, 25, 26 and 28 it was only possible to test the 5'-primer, the 3'-primers were not possible to test.

In primer solutions 21, 24, 27 and 30 it was only possible to test the 3'-primers, the 5'-primers were not possible to test.

In primer mixes 1, 5, 8, 9, 11, 14, 22 and 29 one of the 5'-primers could not be tested, and in primer mixes 3, 7, 12, 17, 22, 23 and 29 one or two of the 3'-primers could not be tested. Additional primers in primer solutions 9 and 23 were tested by separately adding either one 5'-primer or one 3'-primer.

Lot No.: **20Y**

Lot-specific information

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Lot-specific information

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