Lot No.: 7E1 **Lot-specific information**

Olerup SSP® HLA-C*16

Product number:	**101.627-12 – including *Taq* polymerase** **101.627-12u – without *Taq* polymerase**
Lot number:	**7E1**
Expiry date:	**2019-06-01**
Number of tests:	**12**
Number of wells per test:	**23+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. 7E1.

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*16 LOT (60Y)

The HLA-C*16 kit is updated for new alleles to enable separation of:

- Confirmed[1] 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

[1]As described in section Uniquely Identified Alleles.

The HLA-C*16 specificity and interpretation tables have been updated for the HLA-C alleles described since the previous *Olerup* SSP® HLA-C*16 lot was made **(Lot No. 60Y)**. The kit design is based on IMGT/HLA database 3.25.0.

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.

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

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Well	5'-primer	3'-primer	rationale
1	-	Modified	3'-primer modified for improved HLA-specific amplification.
8	-	Added	3'-primer added for the C*16:89N allele.
15	Added	-	5'-primer added for the C*16:04:03 allele.
16	Added	Added	Primer pair added for the C*16:90 allele.
17	Added	Added	Primer pair added for the C*16:97 allele.

Change in revision R01 compared to R00:
1. Primer mix 21 does not amplify the C*16:63 allele. Thus, this lot of the C*16 subtyping kit cannot distinguish the C*16:63 and C*16:02:01-16:02:13, 16:47, 16:57, 16:60, 16:69, 16:74 and 16:84 alleles. This has been corrected in the Specificity and Interpretation Tables.

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Well **24** 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.

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PRODUCT DESCRIPTION

HLA-C*16 SSP typing

CONTENT

The primer set contains 5'- and 3'-primers for identifying the C*16:01 to C*16:98 alleles.

PLATE LAYOUT

Each HLA-C*16 test consists of 24 PCR reactions in a 24 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**	**NC**

The 24 well PCR plate is marked with 'HLA-C*16' in silver/gray ink.
Well No. 1 is marked with the Lot No. '7E1'.
Wells 1 to 23 – HLA-C*16 high resolution primers.
Well 24 – 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 24 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*16 alleles will be amplified by primer mixes 1 to 13, 15 to 20, and 22 to 23. In addition, a few HLA-A and HLA-B alleles will be amplified by primer mixes 4 to 7, 11 and 19. For further details see Specificity Table.

UNIQUELY IDENTIFIED ALLELES

All the HLA-C*16 alleles, i.e. **C*16:01 to C*16:98**, recognized by the HLA Nomenclature Committee in July 2016[1,2] will be amplified by the primers in the HLA-C*16 SSP kit[3].

The HLA-C*16 kit enables separation of the confirmed HLA-C*16 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*16 alleles is listed below.

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The HLA-C*16 kit also enables identification of polymorphisms in exons outside of the region encoding the peptide binding domain and of null and alternatively expressed alleles.

The HLA-C*16 subtyping kit cannot distinguish the following silent mutations: the C*16:01:01:01-16:01:01:02, 16:01:03-16:01:15 and 16:01:17-16:01:22 alleles, the C*16:01:02 and 16:01:16 alleles, the C*16:02:01-16:02:13 alleles, the C*16:15:01-16:15:02 alleles or the C*16:39:01 and 16:39:02 alleles.

The following HLA-C*16 alleles can be distinguished by the different sizes of the HLA-specific PCR product:

Alleles	Primer mix	Alleles	Primer mix
C*16:15:01-16:15:02, C*16:20	11	C*16:27, C*16:32	20
C*16:16Q, C*16:17	12	C*16:28, C*16:31, C*16:50	19
C*16:24, C*16:58	22	C*16:30N, C*16:56	23

[1]HLA-C alleles listed on the IMGT/HLA web page 2016-July-14, 3.25.0, 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]This lot of the C*16 subtyping kit cannot distinguish the C*16:63 and C*16:02:01-16:02:13, 16:47, 16:57, 16:60, 16:69, 16:74 and 16:84 alleles.

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ALLELE CONFIRMATION STATUS

Allele	Status[1]	Allele	Status[1]	Allele	Status[1]	Allele	Status[1]
C*16:01:01:01	**Confirmed**	**C*16:07:02**	**Confirmed**	**C*16:45**	**Confirmed**	C*16:85	Unconfirmed
C*16:01:01:02	Unconfirmed	**C*16:08**	**Confirmed**	**C*16:46**	**Confirmed**	C*16:86	Unconfirmed
C*16:01:02	Unconfirmed	C*16:09	Unconfirmed	C*16:47	Unconfirmed	C*16:87	Unconfirmed
C*16:01:03	**Confirmed**	C*16:10	Unconfirmed	C*16:48	Unconfirmed	C*16:88	Unconfirmed
C*16:01:04	**Confirmed**	C*16:11	Unconfirmed	**C*16:49**	**Confirmed**	C*16:89N	Unconfirmed
C*16:01:05	**Confirmed**	C*16:12	Unconfirmed	**C*16:50**	**Confirmed**	C*16:90	Unconfirmed
C*16:01:06	Unconfirmed	**C*16:13**	**Confirmed**	C*16:51	Unconfirmed	C*16:91	Unconfirmed
C*16:01:07	Unconfirmed	**C*16:14**	**Confirmed**	**C*16:52**	**Confirmed**	C*16:92	Unconfirmed
C*16:01:08	Unconfirmed	**C*16:15:01**	**Confirmed**	C*16:53	Unconfirmed	C*16:93	Unconfirmed
C*16:01:09	**Confirmed**	C*16:15:02	Unconfirmed	C*16:54	Unconfirmed	C*16:94	Unconfirmed
C*16:01:10	Unconfirmed	**C*16:16Q**	**Confirmed**	C*16:55	Unconfirmed	C*16:95	Unconfirmed
C*16:01:11	Unconfirmed	C*16:17	Unconfirmed	C*16:56	Unconfirmed	C*16:96	Unconfirmed
C*16:01:12	Unconfirmed	**C*16:18**	**Confirmed**	C*16:57	Unconfirmed	C*16:97	Unconfirmed
C*16:01:13	Unconfirmed	**C*16:19**	**Confirmed**	C*16:58	Unconfirmed	C*16:98	Unconfirmed
C*16:01:14	Unconfirmed	C*16:20	Unconfirmed	C*16:59	Unconfirmed		
C*16:01:15	**Confirmed**	C*16:21	Unconfirmed	C*16:60	Unconfirmed		
C*16:01:16	Unconfirmed	**C*16:22**	**Confirmed**	C*16:61	Unconfirmed		
C*16:01:17	Unconfirmed	C*16:23	Unconfirmed	C*16:62	Unconfirmed		
C*16:01:18	**Confirmed**	**C*16:24**	**Confirmed**	C*16:63	Unconfirmed		
C*16:01:19	Unconfirmed	**C*16:25**	**Confirmed**	C*16:64	Unconfirmed		
C*16:01:20	**Confirmed**	**C*16:26**	**Confirmed**	C*16:65	Unconfirmed		
C*16:01:21	Unconfirmed	**C*16:27**	**Confirmed**	C*16:66	Unconfirmed		
C*16:01:22	Unconfirmed	C*16:28	Unconfirmed	**C*16:67**	**Confirmed**		
C*16:02:01	**Confirmed**	C*16:29	Unconfirmed	C*16:68	Unconfirmed		
C*16:02:02	**Confirmed**	**C*16:30N**	**Confirmed**	C*16:69	Unconfirmed		
C*16:02:03	**Confirmed**	C*16:31	Unconfirmed	C*16:70	Unconfirmed		
C*16:02:04	Unconfirmed	C*16:32	Unconfirmed	C*16:71	Unconfirmed		
C*16:02:05	Unconfirmed	C*16:33	Unconfirmed	C*16:72	Unconfirmed		
C*16:02:06	Unconfirmed	C*16:34	Unconfirmed	C*16:73	Unconfirmed		
C*16:02:07	Unconfirmed	**C*16:35**	**Confirmed**	C*16:74	Unconfirmed		
C*16:02:08	Unconfirmed	C*16:36	Unconfirmed	C*16:75	Unconfirmed		
C*16:02:09	Unconfirmed	C*16:37	Unconfirmed	C*16:76	Unconfirmed		
C*16:02:10	Unconfirmed	**C*16:38**	**Confirmed**	**C*16:77N**	**Confirmed**		
C*16:02:11	Unconfirmed	**C*16:39:01**	**Confirmed**	C*16:78	Unconfirmed		
C*16:02:12	Unconfirmed	C*16:39:02	Unconfirmed	C*16:79	Unconfirmed		
C*16:02:13	Unconfirmed	**C*16:40**	**Confirmed**	C*16:80	Unconfirmed		
C*16:04:01	**Confirmed**	C*16:41	Unconfirmed	C*16:81	Unconfirmed		
C*16:04:03	**Confirmed**	**C*16:42**	**Confirmed**	C*16:82	Unconfirmed		
C*16:06	Unconfirmed	C*16:43	Unconfirmed	C*16:83	Unconfirmed		
C*16:07:01	Unconfirmed	C*16:44	Unconfirmed	C*16:84	Unconfirmed		

[1]Allele status "confirmed" or "unconfirmed" as listed on the IMGT/HLA web page 2016-July-14, release 3.25.0, www.ebi.ac.uk/imgt/hla.

RESOLUTION IN HOMO- AND HETEROZYGOTES

Results file with resolution in HLA-C*16 homo- and heterozygotes is available upon request.

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SPECIFICITY TABLE

HLA-C*16 SSP subtyping

Specificities and sizes of the PCR products of the 23+1 primer mixes used for HLA-C*16 SSP subtyping

Primer Mix	Size of spec. PCR product[1]	Size of control band[2]	Amplified HLA-C*16 alleles[3]	Other amplified HLA Class I alleles[4]
1	210 bp	**800 bp**	*16:01:01:01-16:02:13, 16:04:01, 16:04:03, 16:08-16:21, 16:23-16:34, 16:36-16:39:02, 16:41-16:42, 16:44-16:47, 16:49-16:52, 16:54-16:98	*06:31, 12:176
2[5,6]	75 bp	1070 bp	*16:02:01-16:02:13, 16:09, 16:12, 16:19, 16:25, 16:46-16:48, 16:57, 16:60, 16:63, 16:69, 16:74, 16:77N, 16:84, 16:88-16:91	*01:14, 01:59, 02:02:01-02:02:03, 02:02:05-02:02:11, 02:02:13-02:11, 02:13-02:26:03, 02:28-02:40:02, 02:42-02:65, 02:67Q-02:86, 02:88-02:114, 02:116-02:120, 03:07, 03:15, 03:45, 03:130, 03:140, 03:163, 03:243, 03:268, 03:297, 04:01:01:01-04:01:28, 04:01:30-04:01:75, 04:03:01-04:10, 04:12-04:20, 04:23-04:28, 04:30-04:35, 04:37-04:54, 04:56-04:91, 04:93N-04:111, 04:113-04:168, 04:170N-04:171, 04:174-04:213, 04:215N-04:224, 04:226-04:244, 05:01:01:01-05:01:32, 05:03-05:35, 05:37-05:128N, 05:130-05:135, 06:02:01:01-06:02:01:03, 06:02:03-06:02:11, 06:02:14-06:10, 06:12-06:43:02, 06:45-06:51, 06:53:01-06:121, 06:123, 06:125-06:133, 06:135-06:146, 06:148-06:163, 06:165-06:187, 07:49, 07:76:01-07:76:02, 07:238, 07:315, 07:328, 07:403, 07:406, 08:10, 12:04:01-12:05, 12:09, 12:21, 12:33, 12:41, 12:54, 12:60, 12:146, 14:04, 14:12, 14:49, 14:64, 15:11, 15:16-15:17, 17:01:01:01-17:21, 17:23-17:24, 17:26-17:33, 18:01-18:04, 18:06-18:10
3[6]	220 bp	**800 bp**	*16:04:01, 16:04:03, 16:29, 16:33, 16:42, 16:55, 16:61, 16:66, 16:78, 16:82, 16:91	*01:04, 01:09, 02:05:01-02:05:03, 02:17, 06:02:01:01-06:02:01:03, 06:02:03-06:02:15, 06:02:17-06:02:42, 06:02:44-06:03:02, 06:07-06:13, 06:15-06:34:02, 06:36-06:39, 06:41-06:71, 06:73-06:78, 06:80, 06:82-06:100, 06:102-06:117, 06:119-06:122, 06:124-06:126, 06:128N-06:135, 06:137-06:142, 06:145-06:152N, 06:154-06:187, 12:03:01:01-12:07, 12:11-12:13, 12:15, 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,

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				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, 12:115-12:116, 12:119-12:122, 12:125, 12:129, 12:131, 12:133, 12:135, 12:138-12:141, 12:143-12:144, 12:147, 12:149-12:150, 12:152, 12:154, 12:156-12:160, 12:163, 12:165, 12:167, 12:170-12:174, 12:176, 12:178, 12:180, 12:182, 12:184-12:186, 14:16
4	140 bp	**800 bp**	*16:01:01:01-16:01:01:02, 16:01:03-16:01:15, 16:01:17-16:01:22, 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, 16:37^{w}, 16:38-16:45, 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, 16:78-16:83, 16:86-16:87, 16:92-16:93, 16:95-16:98	*01:02:34, 01:21, 02:12^{w}, 02:27:01-02:27:02, 02:87, 02:115, 03:04:25, 04:11, 04:29, 04:36, 04:55, 04:172, 04:214^{w}, 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}, 08:96-08:136, 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, 12:03:35-12:03:38, 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, 12:61-12:71, 12:72^{w}, 12:73-12:122, 12:124-12:134, 12:135^{w}, 12:136-12:145, 12:147-12:153, 12:154^{w}, 12:155Q-12:186, 14:02:03, 14:03, 14:08, 14:10, 14:22, 14:35N, 14:38, 14:41, 14:53-14:54, 14:61, 14:70, 15:07, 15:21^{w}, 15:25, 15:116^{w}, **B*35:08:02, B*35:08:05, B*67:02**
5	160 bp	**800 bp**	*16:01:01:01-16:02:13, 16:06-16:09, 16:11-16:28, 16:30N-16:32, 16:34, 16:36-16:39:02, 16:41, 16:43-16:44, 16:46-16:47, 16:49-16:52, 16:54, 16:56-16:60, 16:62-16:65, 16:69-16:77N, 16:79-16:81, 16:83-16:87, 16:89N-16:90, 16:92-16:98	*07:53, 07:216, **A*24:174**
6[5]	125 bp	**800 bp**	*16:11, 16:39:01-16:39:02	***02:21**
	160 bp		*16:10	**A*24:106**
	210 bp		*16:06	*07:216
7[5]	100 bp	1070 bp	*16:09	***02:34**

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	170 bp 210 bp		*16:45 *16:07:01	*04:14, 04:68, 05:112, **A*24:96, A*24:146**
8	130 bp 160 bp 435 bp	1070 bp	*16:08, 16:38 *16:89N *16:53, 16:68, 16:88	*08:96, 15:114
9[5,7]	85 bp 140 bp 205 bp	1070 bp	*16:12 *16:52 *16:35, 16:48	*02:79, 04:69 *06:133 *06:118, 07:31:01-07:31:02, 07:177, 07:514, 14:15
10	215 bp 350 bp	**800 bp**	*16:19 *16:13, 16:61	*04:101, 05:117, 07:114, 08:135 *05:81, 06:87, 07:24, 07:218, 12:45, 12:166, 14:65
11	170 bp 540 bp	1070 bp	*16:20 *16:15:01-16:15:02, 16:25, 16:64	*15:75, **A*24:73, A*24:157, B*07:66, B*51:55** ***04:14, 04:68, 07:53, 07:216
12[5]	100 bp 210 bp 245 bp	1070 bp	*16:17, 16:67 *16:22 *16:16Q	*01:27
13	130 bp 240 bp	1070 bp	*16:14 *16:77N	*06:32, 12:40 *06:171N, 07:164N, 07:451N
14[7]	210 bp	1070 bp	*16:18, 16:23	
15[5]	85 bp 120 bp 145 bp	1070 bp	*16:04:03 *16:39:01-16:39:02 *16:21, 16:80	 *02:14:01-02:14:02, 02:107, 04:42:01-04:42:02, 04:220, 05:43, 06:05, 07:02:09, 08:37, 12:16, 12:147, 15:23, 15:63

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16	165 bp 375 bp	1070 bp	*16:90 *16:06-16:07:02	*02:83, 08:24 *01:05, 01:21, 01:36, 01:55, 01:79:01-01:79:02, 01:120, 02:02:01-02:02:03, 02:02:05-02:02:08, 02:02:10-02:04, 02:06:01-02:16:02, 02:18-02:36, 02:38N-02:40:02, 02:42-02:56, 02:58-02:61, 02:63-02:73, 02:75-02:80, 02:82-02:120, 03:05, 03:13:01-03:13:02, 03:25, 03:27, 03:35, 03:135, 03:167, 03:178, 03:198, 03:267, 03:292, 03:296, 04:01:01:01-04:01:23, 04:01:25-04:01:75, 04:03:01-04:20, 04:23-04:36, 04:38-04:39, 04:41-04:79, 04:81-04:99, 04:101-04:109, 04:111-04:116, 04:118-04:177, 04:179-04:223, 04:225N-04:229, 04:231, 04:233N-04:241, 04:243-04:244, 05:01:01:01-05:01:20, 05:01:22-05:01:32, 05:03-05:06, 05:08-05:09:03, 05:11-05:15, 05:17-05:30, 05:32-05:84, 05:86-05:95, 05:97-05:103:02, 05:105-05:106:02, 05:108-05:135, 06:101, 06:127:01:01-06:127:02, 06:136, 06:144, 07:01:01:01-07:01:10, 07:01:12-07:01:27, 07:01:29-07:03, 07:05-07:09, 07:13-07:30, 07:32N-07:33N, 07:35-07:42, 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, 07:182-07:183, 07:185-07:194, 07:197-07:271, 07:273-07:294, 07:296-07:301, 07:303-07:322, 07:325-07:327, 07:330:01-07:331, 07:333-07:335, 07:337, 07:339-07:345, 07:347N-07:353, 07:356, 07:359-07:360, 07:362-07:363, 07:368:01-07:377, 07:379-07:393N, 07:396-07:402, 07:404-07:405, 07:407-07:419, 07:421-07:425, 07:427, 07:429-07:443, 07:445-07:446, 07:448-07:458, 07:460-07:462, 07:464-07:465, 07:468-07:479, 07:481-07:484N, 07:486, 07:488-07:500, 07:502-07:510, 07:512-07:513Q, 07:515-07:522, 07:524-07:530, 08:01:01-08:01:10, 08:01:12-08:11, 08:13-08:33:03, 08:35-08:43, 08:45-08:60, 08:62-08:63, 08:65-08:81, 08:83-08:125, 08:127N-08:136, 12:02:01-12:02:11, 12:02:13-12:02:14, 12:08, 12:10:01-12:10:02, 12:14:01-12:14:02, 12:16-12:18:02, 12:21-12:22, 12:27, 12:30, 12:36, 12:40-12:41, 12:49, 12:56, 12:64, 12:67-12:69, 12:72-12:74, 12:80N, 12:83-12:86, 12:96, 12:103-12:106, 12:112, 12:114, 12:117-12:118, 12:123-12:124, 12:126-12:128, 12:130, 12:132, 12:136-12:137, 12:142, 12:145-12:146, 12:148N, 12:151, 12:155Q, 12:161-12:162, 12:164, 12:166, 12:168-12:169, 12:177, 12:179, 12:181, 14:09, 14:28:02, 15:22, 15:65, 15:72, 17:16, 18:01-18:10
17	180 bp	1070 bp	*16:26, 16:46, 16:55, 16:64	*02:49, 02:75, 02:115, 04:01:01:01-04:01:09, 04:01:11-04:01:22, 04:01:24-04:01:73, 04:01:74^{W}, 04:01:75, 04:03:01-04:10, 04:12-04:20, 04:23-04:26, 04:28-04:32, 04:34-04:51,

Lot No.: 7E1 **Lot-specific information**

				04:53-04:54, 04:56-04:106, 04:108-04:115N, 04:117-04:129, 04:131-04:168, 04:170N-04:171, 04:173N-04:230, 04:232-04:244, 05:25, 05:42, 06:05, 06:76:02, 07:02:09, 08:28, 12:28, 12:132, 12:135, 12:146, 15:25, 15:62
	235 bp		*16:97	
18[5]	120 bp 255 bp	1070 bp	*16:38 *16:26, 16:46, 16:55, 16:64	*08:96, 15:114 *01:23, 01:58, 02:49, 02:75, 02:115, 04:01:72, 04:03:01-04:03:03, 04:06, 04:42:02, 04:80, 04:140, 04:147, 04:160, 04:171, 04:220, 05:25, 05:42, 06:02:01:01-06:02:01:03, 06:02:03-06:02:09, 06:02:11-06:25, 06:27-06:29, 06:31-06:52, 06:54-06:124, 06:126-06:131, 06:133-06:168, 06:170-06:187, 07:01:01:01-07:01:22, 07:01:24-07:02:10, 07:02:12-07:02:76, 07:04:01:01-07:04:04, 07:04:06-07:06, 07:08-07:15, 07:17:01-07:19, 07:21-07:33N, 07:35, 07:37-07:50, 07:52-07:55N, 07:57-07:58, 07:61N-07:63, 07:65-07:78:02, 07:80-07:87, 07:89-07:95, 07:96:02-07:108:02, 07:110-07:126, 07:128-07:172:01, 07:173-07:176, 07:178-07:180, 07:182-07:226, 07:228-07:262, 07:264N-07:294, 07:296-07:326, 07:329N-07:354, 07:356-07:366, 07:368:01-07:377, 07:379-07:389, 07:391-07:401, 07:403-07:437N, 07:439-07:530, 08:28, 12:28, 12:132, 12:135, 12:146, 15:25, 15:62, 17:11, 18:01-18:10
19[5]	100 bp 240 bp	**800 bp**	*16:28, 16:67 *16:29, 16:31, 16:50	*01:108, 06:90 *01:10, 02:05:01-02:05:03, 02:17, 06:08, 06:22, 12:119, 14:25, 17:21**, B*07:239, B*14:46, B*14:52, B*40:243**
20[5]	95 bp 145 bp 210 bp	1070 bp	*16:27 *16:32 *16:23	*05:112
21	445 bp 595 bp	1070 bp	*16:40, 16:53 *16:49	
22[5,8]	85 bp 210 bp	**800 bp**	*16:58 *16:24	 *03:108, 03:150, 07:25, 07:404
23[5,7]	95 bp 170 bp	1070 bp	*16:42, 16:56 *16:30N	*05:56, 08:69, 12:131
24[9]	-	-	**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*16 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.

Lot No.: 7E1 **Lot-specific information**

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]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]Due to the sharing of sequence motifs between HLA-C alleles, non-HLA-C*16 alleles will be amplified by primer mixes 1 to 13, 15 to 20, and 22 to 23. In addition, a few HLA-A and HLA-B alleles will be amplified by primer mixes 4 to 7, 11 and 19.

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

[6]Primer mixes 2 and 3 may give rise to a lower yield of HLA-specific PCR product than the other C*16 primer mixes.

[7]Primer mixes 9, 14 and 23 may have tendencies of unspecific amplifications.

[8]Primer mix 22 has a tendency to giving rise to primer oligomer formation.

[9]Primer mix 24 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.: 7E1 **Lot-specific information**

PRIMER SPECIFICATION

Well No.	1	2	3	4	5	6	7	8	9	10	11	12
Length of spec.	210	75	220	140	160	125	100	130	85	215	170	100
PCR product						160	170	160	140	350	540	210
						210	210	435	205			245
Length of int. pos. control[1]	800	1070	800	800	800	800	1070	1070	1070	800	1070	1070
5'-primer(s)[2]	360	270	361	201	419	113	244	126	256	385	289	361
	5' -CAg 3'	5' -AAg 3'	5' -AgT 3'	5' -CCA 3'	5' -gTC 3'	5' -CCA 3'	5' -CgC 3'	5' -ggA 3'	5' -ACg 3'	5' -ggT 3'	5' -Agg 3'	5' -AgT 3'
	361					124	369	539	361	523	409	
	5' -AgT 3'					5' -gCC 3'	5' -TAC 3'	5' -gCg 3'	5' -AgT 3'	5' -CCg 3'	5' -ggC 3'	
						124	412					
						5' -gCA 3'	5' -ATA 3'					
						368						
						5' -gTC 3'						
						418						
						5' -Agg 3'						
3'-primer(s)[3]	527	302	538	302	539	201	302	205	302	3rd I	539	413
	5' -CCg 3'	5' -ggT 3'	5' -CCA 3'	5' -ggC 3'	5' -TCT 3'	5' -CTT 3'	5' -ggT 3'	5' -CCT 3'	5' -ggT 3'	5' -CTC 3'	5' -TCT 3'	5' -gCC 3'
	527					539	539	220	461			427
	5' -CCg 3'					5' -TCT 3'	5' -TCT 3'	5' -CgA 3'	5' -gCT 3'			5' -gTA 3'
								244	527			530
								5' -CTA 3'	5' -CCg 3'			5' -CCA 3'
								3rd I				563
								5' -gCA 3'				5' -CgT 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
Length of spec.	130	210	85	165	180	120	100	95	215	85	95
PCR product	240		120	375	235	255	240	145	445	210	170
			145					210	595		
Length of int. pos. control[1]	1070	1070	1070	1070	1070	1070	800	1070	1070	800	1070
5'-primer(s)[2]	126	368	97	361	201	126	361	368	379	524	201
	5' -ggA 3'	5' -gTg 3'	5' -TCg 3'	5' -AgA 3'	5' -CCA 3'	5' -ggA 3'	5' -AgT 3'	5' -gTT 3'	5' -ACg 3'	5' -CCA 3'	5' -CCA 3'
		368	124	736	666			436	527	3rd I	
		5' -gTT 3'	5' -gCA 3'	5' -gCA 3'	5' -gAC 3'			5' -AgA 3'	5' -TgA 3'	5' -Cgg 3'	
			124					485	1019		
			5' -gCC 3'					5' -CAA 3'	5' -TgA 3'		
			156								
			5' -gTA 3'								
3'-primer(s)[3]	214	539	201	3rd I	341	205	413	539	3rd I	3rd I	257
	5' -CCA 3'	5' -TCT 3'	5' -CTT 3'	5' -CTC 3'	5' -CgT 3'	5' -CCT 3'	5' -gCC 3'	5' -TCT 3'	5' -gCA 3'	5' -CTC 3'	5' -CCT 3'
	327			861	861	341	430		1087	632	331
	5' -TTT 3'			5' -TCg 3'	5' -TCg 3'	5' -CgT 3'	5' -gCg 3'		5' -AgC 3'	5' -gTA 3'	5' -CTA 3'
							559				
							5' -CTC 3'				
							565				
							5' -CAT 3'				
Well No.	13	14	15	16	17	18	19	20	21	22	23

Lot No.: 7E1 **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.

Lot No.: 7E1 **Lot-specific information**

CELL LINE VALIDATION SHEET

HLA-C*16 SSP primer set[2]

					Well															
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
				Prod. No.:	201675401	201554202	201554203	201554204	201554205	201554206	201554207	201675408	201554209	201554210	201554211	201554212	201554213	201554214	201675415	201675416
	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	*07:18		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
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	*17:03		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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.: 7E1 **Lot-specific information**

CELL LINE VALIDATION SHEET

HLA-C*16 SSP primer set[2]

					Well						
					17	18	19	20	21	22	23
				Prod. No.:	201675417	201554218	201554219	201554220	201554221	201554222	201554223
	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	*07:18		-	+	-	-	-	-	-
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	*17:03		-	-	-	-	-	-	-
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	+	-	-	-	-	-	-

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[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.

No DNAs carrying the alleles to be amplified by primer solutions 6 to 15 and 19 to 23 were available. The specificity of the primers in primer solutions 6 to 9, 11, 12, 14, 15 and 19 to 22 were tested by separately adding one or two additional 5'-primers, respectively one or two additional 3'-primers. In primer solution 10 it was only possible to test the 3'-primer, the 5'-primers were not possible to test. In primer solutions 13 and 23 it was only possible to test the 5'-primer, the 3'-primers were not possible to test. In primer solutions 1, 6, 7, 15, 16, 17, 20 and 21 one to four of the 5'-primers were not possible to test, and in primer solutions 8, 9, 12, 18, 19 and 22 one to three of the 3'-primers were not possible to test. Additional primers in primer solutions 16 and 17 were tested by separately adding one additional 5'-primer.

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