

101.625-06 – including *Taq* polymerase, IFU-01
101.625-06u – without *Taq* polymerase, IFU-02

Visit <https://labproducts.caredx.com> for
“Instructions for Use” (IFU)

Lot No.: **7K9**

Lot-specific information

Olerup SSP[®] HLA-C*14

Product number:	101.625-06 – including <i>Taq</i> polymerase 101.625-06u – without <i>Taq</i> polymerase
Lot number:	7K9
Expiry date:	2024-03-01
Number of tests:	6
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. 7K9.

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*14 LOT (8G2)

- The product documentation has been updated for new alleles of IMGT 3.38.0.
- The kit resolution focuses on common and well documented (CWD) alleles¹.

¹As described in section Uniquely Identified Alleles.

The HLA-C*14 specificity and interpretation tables have been updated for the HLA-C alleles described since the previous *Olerup SSP[®]* HLA-C*14 lot was made (**Lot No. 8G2**).

The HLA-C*14 primer set is unchanged compared to the previous *Olerup SSP[®]* HLA-C*14 lot (**Lot No. 8G2**).

¹S. J. Mack, P. Cano, J. A. Hollenbach et al.
Common and well-documented HLA alleles: 2012 update to
the CWD catalogue. *Tissue Antigens*, 2013, 81, 194–203

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Well **32** contains Negative Control primer pairs, that will amplify the majority 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 200 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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Lot-specific information
PRODUCT DESCRIPTION

HLA-C*14 SSP typing

CONTENT

The primer set contains 5'- and 3'-primers for identifying the C*14:02 to C*14:116 alleles.

PLATE LAYOUT

Each HLA-C*14 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 cut PCR plate is marked with ‘HLA-C*14’ in silver/gray ink.

Well No. 1 is marked with the Lot No. ‘7K9’.

Wells 1 to 31 – HLA-C*14 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*14 alleles will be amplified by some primer mixes. For further details see Specificity Table.

UNIQUELY IDENTIFIED ALLELES

All the HLA-C*14 alleles, i.e. **C*14:02 to C*14:116**, recognized by the HLA Nomenclature Committee in October 2019^{1,2} will be amplified by the primers in the HLA-C*14 SSP kit.

The HLA-C*14 kit enables separation of the confirmed HLA-C*14 alleles as listed in the IMGT/HLA database 3.27.0. 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*14 alleles is listed below.

The HLA-C*14 kit also enables identification of many null and alternatively expressed alleles.

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Lot-specific information

The following HLA-C*14 alleles can be distinguished by the different sizes of the HLA-specific PCR product:

Alleles	Primer mix
C*14:14, 14:46:01-14:46:02	13
C*14:24:01-14:24:02, 14:31	22
C*14:44, 14:55	25
C*14:66, 14:93N	30

¹HLA-C alleles listed on the IMGT/HLA web page 2019-October-17, release 3.38.0, 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>.

RESOLUTION IN HOMO- AND HETEROZYGOTES

Results file with resolution in HLA-C*14 homo- and heterozygotes is available upon request.

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Lot-specific information

ALLELE CONFIRMATION STATUS

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

¹Allele status “confirmed” or “unconfirmed” as listed on the IMGT/HLA web page 2017-January-20, release 3.27.0, www.ebi.ac.uk/imgt/hla.

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Lot-specific information
SPECIFICITY TABLE

HLA-C*14 SSP subtyping

Specificities and sizes of the PCR products of the 31+1 primer mixes used for
HLA-C*14 SSP subtyping

Primer Mix	Size of spec. PCR product ¹	Size of control band ²	Amplified HLA-C*14 alleles ³	Other amplified HLA Class I alleles
1	150 bp	800 bp	*14:02:01:01-14:02:02, 14:02:04-14:02:34, 14:03:02, 14:04-14:07N, 14:09, 14:11-14:33, 14:36-14:37, 14:39-14:40, 14:42-14:52, 14:55-14:57, 14:59-14:60, 14:62-14:69, 14:71-14:73, 14:75-14:77, 14:80-14:85, 14:87-14:89, 14:91-14:109, 14:111, 14:114-14:115	*01:177, 04:07:02, 07:64, 07:402
2 ⁵	145 bp	1070 bp	*14:02:03, 14:03:01:01-14:03:01:02, 14:03:03, 14:08, 14:10, 14:35N, 14:38, 14:41, 14:53-14:54, 14:61, 14:70, 14:79, 14:86, 14:90, 14:112-14:113, 14:116	*04:01:01:01-04:01:01:29, 04:01:01:31-04:01:22, 04:01:24-04:01:120, 04:04:01:01-04:05, 04:07:01, 04:08-04:15:03, 04:17-04:20, 04:23-04:25, 04:26 ^w , 04:27-04:41, 04:43-04:55, 04:57-04:70, 04:72-04:79, 04:81-04:89, 04:90 ^w , 04:91-04:102, 04:104-04:106, 04:108-04:144, 04:145 ^w , 04:146, 04:148-04:159, 04:161-04:166:01, 04:167-04:170N, 04:172-04:189, 04:191N-04:205N, 04:207-04:216, 04:218-04:219, 04:221-04:235, 04:237-04:238, 04:239 ^w , 04:240-04:247, 04:249-04:255N, 04:257-04:285, 04:287-04:293, 04:295-04:298, 04:300N-04:334, 04:336, 04:338-04:350N, 04:352-04:356, 04:358-04:362N, 04:364N-04:380, 04:382, 04:384-04:392, 04:394-04:399, 04:401, 04:403-04:405, 05:78:01-05:78:02, 05:156, 08:163, 08:183, 12:55, 12:269, 15:36, 16:150
3	245 bp	800 bp	*14:04, 14:12, 14:49, 14:64, 14:77, 14:108	*04:01:01:01-04:01:01:29, 04:01:01:31-04:01:28, 04:01:30-04:01:76, 04:01:78-04:01:120, 04:04:01:01-04:05, 04:07:01-04:10, 04:12-04:15:03, 04:17-04:20, 04:23-04:25, 04:26 ^w , 04:27-04:28,

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				04:30-04:35:02, 04:37-04:41, 04:43-04:54:02, 04:56-04:70, 04:72-04:79, 04:81-04:89, 04:90 ^w , 04:91-04:102, 04:104-04:106, 04:108-04:144, 04:145 ^w , 04:146, 04:148-04:159, 04:161-04:170N, 04:173N-04:189, 04:191N-04:197, 04:199-04:205N, 04:207-04:213, 04:215N-04:219, 04:221-04:248, 04:249 ^w , 04:250-04:255N, 04:257-04:285, 04:287-04:293, 04:295-04:298, 04:300N-04:334, 04:336, 04:338-04:350N, 04:352-04:356, 04:358-04:362N, 04:364N-04:380, 04:382, 04:384-04:392, 04:394-04:399, 04:401, 04:403-04:405, 05:78:01-05:78:02, 05:156, 15:36
4	140 bp	1070 bp	*14:02:03, 14:03:01:01-14:03:01:02, 14:03:03, 14:08, 14:10, 14:22, 14:35N, 14:38, 14:41, 14:53-14:54, 14:61, 14:70, 14:79, 14:86, 14:90, 14:112-14:113, 14:116	*01:02:34, 01:21, 02:12 ^w , 02:27:01-02:27:02, 02:87, 02:115, 02:126 ^w , 02:131, 03:04:25, 04:11, 04:29, 04:36, 04:55, 04:172, 04:214 ^w , 07:01:74, 07:02:09, 07:583, 07:723, 08:01:01:01-08:02:10, 08:02:12-08:09, 08:11-08:63, 08:65-08:94, 08:95 ^w , 08:96-08:203, 08:205-08:206, 12:02:01-12:02:10, 12:02:12-12:02:22, 12:02:23 ^w , 12:02:24-12:02:27, 12:02:28 ^w , 12:02:30-12:03:03, 12:03:05-12:03:08, 12:03:10-12:03:23, 12:03:24 ^w , 12:03:25-12:03:33, 12:03:35-12:03:61, 12:06-12:08, 12:10:01-12:16:01, 12:17-12:20, 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-12:187, 12:189-12:194, 12:195:02, 12:196-12:304, 15:07:01:01-15:07:01:02, 15:21 ^w , 15:25, 15:116 ^w , 15:144, 16:01:01:01-16:01:01:15, 16:01:03-16:01:15, 16:01:17-16:01:25, 16:01:27-16:01:36, 16:04:01:01-16:04:01:03, 16:04:03-16:04:05, 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, 16:100, 16:105, 16:109-16:114, 16:116-16:119, 16:122, 16:124-16:125, 16:127-16:131, 16:134-16:135, 16:137-16:139, 16:141-16:142, 16:146-16:152, 16:154, 16:157-16:162,

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			16:164, B*07:02:77, B*08:01:36, B*15:01:50, B*15:436, B*18:03:02, B*35:08:02, B*35:08:05, B*67:02:01:01-67:02:01:02
5	210 bp	1070 bp	*14:02:01:01-14:02:31, 14:02:33-14:04, 14:07N, 14:10-14:14, 14:17-14:27, 14:29-14:34, 14:36-14:44, 14:46:01-14:52, 14:55-14:62, 14:64-14:76, 14:78-14:86, 14:88-14:89, 14:91, 14:93N-14:104, 14:106-14:116
6	130 bp	1070 bp	*14:05, 14:09, 14:54 *01:131, 02:02:38, 02:02:53, 03:02:01-03:02:07, 03:02:09-03:03:31, 03:03:33-03:04:26, 03:04:28-03:04:29, 03:04:31-03:04:58, 03:04:60-03:04:63, 03:04:65-03:04:79, 03:06:01-03:11:02, 03:13:01:01-03:13:02, 03:15-03:24, 03:26:01-03:26:02, 03:28-03:40:01, 03:40:03-03:43:01, 03:44-03:57:02, 03:59-03:85, 03:87:02-03:88, 03:91:01-03:93, 03:95-03:98, 03:100-03:101, 03:104-03:118, 03:119:02-03:121N, 03:123-03:127, 03:129-03:134, 03:136-03:142, 03:144-03:152, 03:154-03:166, 03:168-03:177, 03:179-03:189N, 03:191-03:201N, 03:203-03:208N, 03:210-03:219, 03:221-03:239, 03:241-03:261, 03:264-03:266, 03:268-03:270, 03:272-03:275, 03:277N-03:295, 03:297-03:299, 03:301, 03:303-03:329, 03:332-03:334, 03:336-03:337, 03:339-03:345, 03:347-03:352, 03:354, 03:356-03:360, 03:362-03:385, 03:387-03:390, 03:392N-03:401, 03:403-03:406, 03:408-03:411, 03:413-03:438, 03:440-03:446N, 03:448Q-03:463N, 03:465-03:473, 03:476-03:481, 03:483-03:492, 03:495-03:504, 04:15:01-04:15:03, 04:17, 04:80, 04:100, 04:224, 04:230, 04:242, 04:294, 04:367, 04:370, 05:18:05, 05:148, 05:215, 06:02:08, 06:34:02, 08:01:07, 08:02:07, 08:33:02, 12:02:19, 12:03:20, 15:77, 16:01:06, B*15:78:03, B*40:01:49-40:01:50
7	130 bp	1070 bp	*14:04, 14:49, 14:64, 14:73, 14:77 *01:17, 01:23, 01:128, 01:152, 01:157, 03:15, 03:27, 03:38:01-03:38:02, 03:69, 03:130, 03:136, 03:163, 03:246,

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8	210 bp	1070 bp	*14:03:01:01- 14:03:03, 14:10, 14:22, 14:35N, 14:38, 14:41, 14:53- 14:54, 14:61, 14:70, 14:79, 14:86, 14:90, 14:112-14:113, 14:116	*01:48, 02:12 ^w , 02:27:01-02:27:02, 02:115, 02:126 ^w , 02:131, 03:02:01- 03:03:14, 03:03:15 ^w , 03:03:16- 03:03:54, 03:03:55 ^w , 03:03:56- 03:04:16, 03:04:18-03:04:68, 03:04:70- 03:04:76, 03:04:77 ^w , 03:04:78- 03:06:02, 03:08-03:09, 03:10 ^w , 03:13:01:01-03:14, 03:16-03:17:02, 03:19-03:28, 03:29 ^w , 03:30-03:36, 03:38:01-03:38:02, 03:40:01-03:44, 03:46-03:49, 03:51-03:63, 03:65- 03:98, 03:100-03:106, 03:108-03:114, 03:116:01-03:129, 03:131-03:133, 03:135-03:139, 03:141-03:162, 03:164-03:216, 03:218-03:230, 03:232-03:242, 03:244Q-03:267, 03:269-03:274, 03:276-03:296:02, 03:298-03:300, 03:302-03:305,

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				03:307-03:343, 03:345-03:376, 03:378-03:449N, 03:450 ^w , 03:451-03:452, 03:454-03:456, 03:458-03:460, 03:462N-03:503, 07:20:01-07:20:02, 07:96:01-07:96:02, 07:127:01-07:127:02, 07:263, 07:390, 07:562, 07:578, 08:105, 12:140:01-12:140:02, 12:239, 15:07:01:01-15:07:01:02, 15:21 ^w , 15:25, 15:43, 15:116 ^w , 15:144, 16:34, B*07:234, B*15:315, B*18:126, B*39:138, B*46:77, B*50:56, B*55:30
9	140 bp	1070 bp	*14:02:01:01-14:02:01:17, 14:02:03-14:02:20, 14:02:22-14:08, 14:10-14:16, 14:18-14:27, 14:29-14:53, 14:55-14:81, 14:83-14:91, 14:93N-14:116	*01:97, 03:17:01-03:17:02, 03:71, 03:249, 03:271, 03:302, 04:37, 04:230, 04:263, 06:02:08, 06:34:02, 12:03:20, 16:01:06
10⁴	100 bp 145 bp 210 bp	1070 bp	*14:21N *14:47:01N *14:06, 14:15, 14:53, 14:77, 14:87	*03:271
11	205 bp	1070 bp	*14:07N	B*15:258N
12	225 bp 320 bp	1070 bp	*14:08 *14:23, 14:86	*04:386, B*07:380 *02:106, 03:378, 03:441, 04:295, 15:163
13⁴	125 bp 285 bp	1070 bp	*14:14 *14:10, 14:46:01-14:46:02	*04:302, A*24:225:02 *03:231, 04:27, 04:52, 04:55, 04:405, A*23:101, A*24:248, A*24:252N
14	200 bp 290 bp	1070 bp	*14:15, 14:87 *14:11	
15⁵	150 bp	800 bp	*14:12, 14:49, 14:108	*01:14, 01:154, 02:02:13, 02:02:29, 03:07:01:01-03:07:02, 03:10, 03:15, 03:29, 03:45, 03:163, 03:268, 03:297, 03:450, 03:461, 04:01:23, 04:07:02, 04:166:02, 05:01:12, 05:29:02, 06:02:01:01-06:02:01:43, 06:02:03-06:02:71, 06:02:73-06:04:02, 06:06-06:10, 06:12-06:76:01, 06:77-06:81, 06:83-06:146, 06:148-06:209, 06:211:01:01N-06:216, 06:218-06:247, 06:249-06:251, 06:253-06:292, 07:07, 07:09, 07:76:01-07:76:02, 07:315, 07:328, 07:406, 07:559, 07:598, 07:656, 12:04:01, 15:02:10, 15:02:17, 15:99, 16:02:17, 17:01:01:02-17:01:03, 17:01:05-17:21, 17:23-17:51:01:02, 18:01:01:01-18:14, B*15:277, B*15:430, B*35:222, B*42:22
16	410 bp	1070 bp	*14:13, 14:49, 14:64, 14:116	*03:15, 03:32, 03:45, 03:60, 03:136, 03:297, 04:01:01:01-04:01:01:29, 04:01:01:31-04:01:04, 04:01:06,

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				04:01:08, 04:01:10-04:01:32, 04:01:34-04:01:61, 04:01:63-04:01:74, 04:01:76-04:01:120, 04:03:01:01-04:04:01:02, 04:05-04:10, 04:12-04:20, 04:23-04:32, 04:34-04:54:01, 04:56-04:94:01, 04:95N-04:97, 04:99-04:106, 04:108-04:159, 04:161-04:168, 04:170N-04:171, 04:173N-04:177, 04:179, 04:181-04:221, 04:223:02-04:230, 04:232-04:353, 04:355-04:359, 04:361-04:386, 04:388-04:404, 06:02:08, 06:34:02, 07:02:32, 07:17:03, 07:242, 18:01:01:01-18:14
17	150 bp	1070 bp	*14:22, 14:27, 14:47:01N	
	210 bp		*14:16	*02:17, 06:142, 12:156
18 ⁴	95 bp	1070 bp	*14:26, 14:81	*04:263
	180 bp		*14:17, 14:48	
19 ⁴	85 bp	1070 bp	*14:18	*01:177, 04:140, 04:166:01-04:166:02, 07:402, A*30:96, A*30:124
	180 bp		*14:29, 14:48	
20 ⁴	105 bp	1070 bp	*14:19	*03:88, 03:410, 04:261
	140 bp		*14:28:01, 14:35N	
21 ⁴	125 bp	1070 bp	*14:32	
	230 bp		*14:20	*03:271
22 ^{4,5}	95 bp	1070 bp	*14:24:01-14:24:02	*03:23, 04:202
	250 bp		*14:31	*12:209
23 ⁴	125 bp	1070 bp	*14:32	
	230 bp		*14:25	*02:17
24 ⁵	145 bp	1070 bp	*14:33-14:34, 14:41	*02:04, 04:198, 04:243, 07:267, 07:322, 08:119, 12:115
25 ⁴	95 bp	1070 bp	*14:55, 14:79, 14:81	*01:114:01-01:114:02
	270 bp		*14:44	
26 ^{6,7}	250 bp	1070 bp	*14:57, 14:70	*03:247, 05:30, 06:125, 16:85-16:86, 16:144, 16:147
27 ⁴	80 bp	1070 bp	*14:43	
28 ⁵	245 bp	1070 bp	*14:60	
29 ^{4,5}	90 bp	1070 bp	*14:28:02	*02:182, 04:54:01-04:54:02, 04:313:01:01-04:313:01:02, 04:381, 06:101, 07:08, 07:108:01-07:108:02, 12:10:01-12:10:02, 16:117, B*15:06, B*15:27:01-15:27:04, B*15:84, B*15:109, B*15:195, B*15:327, B*15:344, B*15:398
30 ⁴	95 bp	1070 bp	*14:66	*12:70
	215 bp		*14:93N	*12:104N
31	170 bp	1070 bp	*14:02:01:01-14:02:09, 14:02:11-14:02:34, 14:04-14:09, 14:11-14:17, 14:19-14:21N, 14:23-14:34, 14:36-14:37, 14:39-14:40,	*01:64, 01:168, 02:08, 02:87, 02:134, 03:18:01-03:18:03, 03:64:01-03:64:02, 03:231, 03:301, 04:01:01:01-04:01:01:29, 04:01:01:31-04:01:02, 04:01:04-04:01:120, 04:04:01:01-04:05, 04:07:01-04:15:03, 04:17-04:20, 04:23-04:79, 04:81-04:106,

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	14:42-14:52, 14:55-14:60, 14:62-14:69, 14:71-14:78, 14:80-14:84, 14:87, 14:89, 14:91-14:111, 14:114-14:115	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-04:219, 04:221-04:255N, 04:257-04:285, 04:287-04:293, 04:295-04:298, 04:300N-04:334, 04:336, 04:338-04:350N, 04:352-04:356, 04:358-04:362N, 04:364N-04:380, 04:382, 04:384-04:392, 04:394-04:399, 04:401, 04:403-04:405, 05:01:01:01-05:01:21, 05:01:23-05:01:49, 05:03-05:57, 05:59-05:97, 05:99N-05:126, 05:128N-05:196, 05:198-05:204, 05:206-05:227, 06:28, 06:76:01-06:76:02, 07:64, 07:73:01-07:73:02, 07:92, 07:172:01-07:172:02, 07:583, 07:723, 08:01:01:01-08:13, 08:15:01-08:57, 08:59-08:63, 08:65-08:79, 08:81-08:102, 08:104, 08:106-08:133, 08:135-08:154, 08:156-08:203, 08:205-08:206, 12:02:01-12:03:49, 12:03:51-12:15, 12:17-12:70, 12:72-12:139, 12:141-12:146, 12:148N-12:226, 12:228-12:238, 12:240-12:278, 12:280-12:304, 15:10:01-15:10:04, 15:107, 16:01:01:01-16:02:17, 16:04:01:01-16:04:01:03, 16:04:03-16:04:05, 16:06-16:33, 16:35-16:69, 16:71-16:79, 16:81-16:84, 16:86-16:120, 16:122-16:133, 16:135-16:164, 17:01:01:02-17:01:07, 17:01:09-17:03:02, 17:04-17:40, 17:42-17:51:01:02, 18:04
32⁸	-	-
Negative Control		

¹Alleles 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*14 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.

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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.

⁴HLA-specific PCR products shorter than 125 base pairs have a lower intensity and are less sharp than longer PCR products.

⁵Primer mixes 2, 15, 22, 24, 28 and 29 may have tendencies of unspecific amplification.

⁶Primer mix 26 may have a tendency of primer oligomer formation.

⁷Primer mix 26 may give rise to a lower yield of HLA-specific PCR product than the other HLA-C*14 primer mixes.

⁸Primer mix 32 contains a negative control, which will amplify the majority 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 200 base pairs.

Abbreviations

w: may be weakly amplified.

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Lot-specific information
PRIMER SPECIFICATION

Well No.	1	2	3	4	5	6	7	8	9	10	11	12
Length of spec. PCR product	150	145	245	140	210	130	130	210	140	100	205	225
										145		320
										210		
Length of int. pos. control ¹	800	1070	800	1070	1070	1070	1070	1070	1070	1070	1070	1070
5'-primer(s) ²	98 5'-CTC 3'	98 5'-CTC 3'	98 5'-CTC 3'	201 5'-CCA 3'	368 5'-gTT 3'	368 5'-gTA 3'	201 5'-CCg 3'	134 5'-CCA 3'	361 5'-AgT 3'	368 5'-gTT 3'	419 5'-gTC 3'	356 5'-CCC 3'
												3 ^d I 5'-Cgg 3'
3'-primer(s) ³	201 5'-CTC 3'	201 5'-CTT 3'	302 5'-ggT 3'	302 5'-ggC 3'	538 5'-CCg 3'	459 5'-AgA 3'	289 5'-AgC 3'	302 5'-ggC 3'	459 5'-AgA 3'	426 5'-TCT 3'	585 5'-AgT 3'	538 5'-CCg 3'
	205 5'-CCT 3'						289 5'-AgC 3'			471 5'-gTT 3'		872 5'-CCA 3'
										539 5'-TCA 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	200	150	410	150	95	85	105	125	95	125	145
	285	290			210	180	180	140	230	250	230	
Length of int. pos. control ¹	1070	1070	800	1070	1070	1070	1070	1070	1070	1070	1070	1070
5'-primer(s) ²	98 5'-CTC 3'	368 5'-gTT 3'	201 5'-CCg 3'	341 5'-ggA 3'	98 5'-CTC 3'	368 5'-gTT 3'	98 5'-CTC 3'	361 5'-AgC 3'	368 5'-gTT 3'	406 5'-gCC 3'	368 5'-gTT 3'	92 5'-gTg 3'
					368 5'-gTT 3'		368 5'-gTT 3'	363 5'-TgA 3'		406 5'-gCA 3'		101 5'-CAT 3'
								395 5'-gCA 3'		637 5'-ACC 3'		
3'-primer(s) ³	180 5'-TCC 3'	527 5'-CCg 3'	312 5'-AgT 3'	459 5'-AgA 3'	205 5'-CCT 3'	419 5'-CgA 3'	142 5'-TgA 3'	459 5'-AgA 3'	454 5'-CTg 3'	459 5'-AgA 3'	454 5'-CTg 3'	201 5'-CTC 3'
	343 5'-T 3'	619 5'-TTT 3'			471 5'-gTT 3'	427 5'-gTT 3'	506 5'-TgT 3'		559 5'-CAg 3'	846 5'-CAC 3'	559 5'-CTC 3'	201 5'-CTT 3'
	343 5'-g 3'				538 5'-CCA 3'	506 5'-TgT 3'	511 5'-CCg 3'					
						512 5'-CCA 3'						
Well No.	13	14	15	16	17	18	19	20	21	22	23	24

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Well No.	25	26	27	28	29	30	31
Length of spec. PCR product	95	250	80	245	90	95	170
Length of int. pos. control ¹	1070	1070	1070	1070	1070	1070	1070
5'-primer(s) ²	368	28	499	640	368	2 nd I	1 st I
	5' -gTT 3'	5' -TCA 3'	5' -TCC 3'	5' -TgT 3'	5' -gTT 3'	5' -CCA 3'	5' -CgA 3'
3'-primer(s) ³		640					
		5' -Tgg 3'					
	419	106	538	846	419	382	134
	5' -CgT 3'	5' -CAT 3'	5' -CCg 3'	5' -CAC 3'	5' -Cgg 3'	5' -CCT 3'	5' -AgC 3'
	427	846				502	
	5' -gTT 3'	5' -CAC 3'				5' -CTA 3'	
	595						
	5' -CCg 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.

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Lot-specific information

CELL LINE VALIDATION SHEET																			
HLA-C*14 SSP primer set²																			
			Prod. No.:	Well															
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
				202015601	202015602	202015603	202015604	202015605	202015606	202015607	202015608	202015609	202015610	202015611	202015612	202015613	202015614	202015615	202015616
	IHW C cell line¹	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	*07:18		-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
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	-	+	+	+	-	-	-	-	-	-	-	-	-	-	-	+

101.625-06 – including Taq polymerase, IFU-01
101.625-06u – without Taq polymerase, IFU-02

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Lot No.: 7K9

Lot-specific information

CELL LINE VALIDATION SHEET																			
HLA-C*14 SSP primer set ²																			
				Well															
				17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
				Prod. No.:	202015617	202015618	202015619	202015620	202015621	202015622	202015623	202015624	202015625	202015626	202015627	202015628	202015629	202015630	202015631
IHC 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	*07:18		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
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	-	-	-	-	-	-	-	-	-	-	-	-	-	+	

101.625-06 – including *Taq* polymerase, IFU-01
101.625-06u – without *Taq* polymerase, IFU-02

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Lot-specific information

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.

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 mixes 10 to 14, 17 to 28 and 30 were available. The specificities of the primers in primer solutions 10, 12 to 14, 17 to 19, 21, 23, 25 and 26 were tested by separately adding one, two or three additional 5'-primers, respectively one or two additional 3'-primers.

In primer solutions 11 and 30, it was only possible to test the 5'-primers, the 3'-primers were not possible to be tested. In primer solutions 20, 22, 24, 27 and 28 it was only possible to test the 3'-primers, the 5'-primers were not possible to be tested. In primer solutions 1, 10, 12 to 14, 17 to 19, 21, 23, 25 and 26 one or two of the 3'-primers were not possible to be tested, and in primer solutions 12 and 26 one of the 5'-primers was not possible to be tested. In addition, one 5'-primer in primer solution 6 was tested by separately adding one 3'-primer.

101.625-06 – including *Taq* polymerase, IFU-01
101.625-06u – without *Taq* polymerase, IFU-02

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Lot No.: **7K9**

Lot-specific information

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