

101.603-24/12 – including *Taq* pol., IFU-01
 101.603-24u/12u – without *Taq* pol., IFU-02

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

Lot No.: **27Y**

Lot-specific information

Olerup SSP® HLA-C low resolution screening

Product number: 101.603-24/12 – including *Taq* pol.
 101.603-24u/12u – without *Taq* pol.

Lot number: 27Y

Expiry date: 2017-October-01

Number of tests: 24 tests – Product No. 101.603-24/24u
 12 tests – Product No. 101.603-12/12u

Number of wells per test: 23 + 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. 27Y.

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 LOW RESOLUTION SCREENING LOT (34V)**

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

The **HLA-C low resolution Screening** specificity and interpretation tables have been updated for the HLA-C alleles described since the previous *Olerup SSP®* HLA-C low resolution Screening lot was made (**Lot No. 34V**). 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.

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

Well	5'-primer	3'-primer	rationale
1	Added	-	5'-primer added for the C*01:02:28 allele.
18	-	Added	3'-primer added for the C*16:68 allele.
23	Added	-	5'-primer added for the C*16:67 allele.
24	-	-	Updated negative control.

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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'-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-low resolution screening SSP subtyping

CONTENT

The primer set contains 5'- and 3'-primers for grouping the HLA-C*01:02 to C*18:09 alleles into the groups C*01:xx to C*18:xx.

PLATE LAYOUT

Each 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 cut PCR plate is marked with ‘HLA-C low screening’ in silver/gray ink. Well No. 1 is marked with the Lot No. ‘27Y’.

Wells 1 to 23 – HLA-C low resolution screening primers.

Well 24 – Negative Control.

A faint row of numbers is seen between wells 1 and 2 or wells 7 and 8 of the PCR trays. These stem from the manufacture of the trays, and should be disregarded.

The PCR plates are covered with a PCR-compatible foil.

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

Only HLA-C alleles will be amplified by the HLA-C low resolution screening typing kit, except that a few HLA-A and HLA-B alleles will be amplified by primer mixes 1, 13, 15, 16, 20 and 23.

For further details see Specificity Table.

UNIQUELY IDENTIFIED ALLELES

All the HLA-C alleles, i.e. **C*01:02 to C*18:09**, recognized by the HLA Nomenclature Committee in January 2015¹ will be amplified by the primers in the HLA-C low resolution screening SSP kit². The HLA-C alleles will be grouped into the C*01:xx to C*18:xx groups.

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>.

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³The following alleles give rise to identical amplification patterns with the HLA-C low screening resolution primer set. These alleles can be separated by the respective high resolution primer sets.

Alleles	Alleles
C*01:05, 01:07:02, 01:22, 01:35-01:36 01:79:01-01:79:02, B*39:76, B*54:18	C*12:18:02, B*67:02
C*01:67, C*14:58	C*14:06, 14:08-14:09, 14:28:01-14:28:02, 14:53, 14:63, A*30:62, B*35:252
C*04:169, C*15:36	

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Lot-specific information
SPECIFICITY TABLE

HLA-C low resolution screening SSP typing

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

Primer Mix	Size of spec. PCR product ¹	Size of control band ²	Amplified HLA class I alleles ^{3,4}
1¹⁰	90 bp, 155 bp	800 bp	*01:02:01-01:107, 04:71, 07:316, 07:338, 14:58, 15:104, B*39:76, B*54:18
2^{5,12}	130 bp, 200 bp, 270 bp, 300 bp	800 bp	*01:10, 01:43, 02:02:01-02:02:03, 02:02:05-02:40:02, 02:42-02:57, 02:59-02:95, 04:32, 04:77, 05:105, 06:08, 07:101, 07:148, 07:161, 08:31, 12:119, 14:25, 15:42, 16:29, 16:50, 17:01:01:01-17:06, 17:08-17:16, 17:18-17:22, 17:24-17:28, 18:03
3¹³	280 bp	800 bp	*02:02:01-02:02:03, 02:02:05-02:02:29, 02:03, 02:04 ^w , 02:05:01-02:13, 02:14 ^w , 02:15-02:25Q, 02:26:02-02:40:02, 02:42-02:86, 02:88-02:95, 03:02:01-03:02:09, 03:02:11-03:02:13, 03:04:01:01-03:04:25, 03:04:27-03:10, 03:14-03:17, 03:19, 03:23-03:29, 03:32-03:38:02, 03:40:01-03:42, 03:44-03:48, 03:51, 03:54, 03:57, 03:60, 03:63-03:64:01, 03:65, 03:70-03:74, 03:77-03:78, 03:80, 03:82, 03:84, 03:87:01-03:87:02, 03:89-03:95, 03:98, 03:100-03:101, 03:104-03:111, 03:113-03:115, 03:117-03:118, 03:121N, 03:123, 03:125, 03:128-03:131, 03:134-03:136, 03:138-03:140, 03:143, 03:145-03:149, 03:153-03:155, 03:157, 03:159, 03:162-03:164, 03:169Q, 03:172-03:174, 03:178-03:181, 03:183-03:184, 03:186:01-03:186:02, 03:190-03:191, 03:193-03:194, 03:197-03:201N, 03:208N-03:213, 03:215-03:216, 03:218-03:219, 03:221-03:222, 03:224N-03:226, 03:232-03:236, 03:238-03:240, 03:244Q-03:250, 03:252, 03:255-03:261, 03:263, 03:265N-03:266, 03:269-03:270, 03:277N, 04:03:01-04:03:02, 04:06, 04:16, 04:80, 04:107, 04:147, 04:160, 04:171, 05:58:01, 06:03:01, 06:132:01-06:132:02, 07:96:01-07:96:02, 12:03:23, 15:02:01:01-15:05:08, 15:05:10-15:09, 15:10:02-15:11, 15:13, 15:15-15:19, 15:21-15:22, 15:24-15:35, 15:37-15:60, 15:62, 15:64-15:106, 16:34, 16:70
4⁶	170 bp, 275 bp	1070 bp	*03:02:01-03:02:12, 03:03:01-03:04:06, 03:04:08-03:11:02, 03:13:01-03:15, 03:17-03:40:04, 03:42-03:57, 03:59-03:79, 03:81-03:85, 03:87:01-03:93, 03:95-03:98, 03:100-03:109, 03:111-03:112, 03:114-03:150, 03:152-03:164, 03:166-03:250, 03:252-03:259, 03:261-03:266, 03:268-03:277N, 07:242
5	280 bp	800 bp	*03:03:01-03:03:20, 03:03:22-03:03:28, 03:11:01-03:11:02, 03:13:01-03:13:02, 03:18:02, 03:20N-03:22Q, 03:30-03:31, 03:43:01-03:43:02, 03:49-03:50, 03:52-03:53, 03:55-03:56, 03:58-03:59, 03:61-03:62, 03:66, 03:67 ^w , 03:68-03:69, 03:75-03:76, 03:79, 03:81, 03:83, 03:85-03:86, 03:88, 03:96-03:97, 03:102-03:103, 03:112, 03:116:01-03:116:02, 03:119-03:120, 03:122, 03:124, 03:126-03:127, 03:132-03:133, 03:141-03:142, 03:150-03:152, 03:158, 03:160-03:161, 03:165, 03:167-03:168, 03:171, 03:175-03:177, 03:185, 03:187-03:189N, 03:192, 03:196, 03:202-03:207, 03:214, 03:217, 03:220, 03:223, 03:227-03:230, 03:237, 03:241-03:243, 03:251, 03:253-03:254, 03:262, 03:267-03:268, 03:271-03:276, 15:12
6¹³	135 bp, 330 bp	800 bp	*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, 03:231,

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7	165 bp, 390 bp, 445 bp	1070 bp	*02:94, 04:129, 05:01:01:01-05:01:31, 05:03-05:114, 06:05, 06:67, 08:10, 12:21, 12:33, 16:40, 16:53, 17:05
8	130 bp, 355 bp	800 bp	*01:90, 02:06, 02:47, 04:178, 06:02:01:01-06:02:01:03, 06:02:03-06:02:38, 06:02:40-06:16N, 06:18-06:31, 06:33-06:76:01, 06:77-06:93, 06:96-06:98, 06:100-06:132:01, 06:133-06:149, 12:02:11, 12:03:09, 12:03:26, 12:15, 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, 15:62-15:64, 15:67-15:68, 15:71-15:75, 15:78-15:89, 15:91-15:101, 15:103, 15:106, 16:01:16
9⁷	245 bp, 425 bp	800 bp	*07:01:01:01-07:33N, 07:35-07:294, 07:296-07:409
10^{8,10,13}	110 bp, 165 bp, 390 bp	800 bp	*01:43, 02:87, 07:101, 07:148, 07:161, 08:01:01-08:63, 08:65-08:115, 12:127
11	340 bp	1070 bp	*01:14, 01:59, 02:02:01-02:02:03, 02:02:05-02:11, 02:13-02:26:03, 02:28-02:40:02, 02:42-02:86, 02:88-02:95, 03:07, 03:15, 03:45, 03:130, 03:140, 03:163, 03:243, 03:268, 04:01:01:01-04:01:66, 04:03:01-04:10, 04:12-04:20, 04:23-04:28, 04:30-04:35, 04:37-04:54, 04:56-04:171, 04:173N-04:194, 05:01:01:01-05:01:31, 05:03-05:114, 06:02:01:01-06:02:01:03, 06:02:03-06:02:11, 06:02:13-06:10, 06:12-06:51, 06:53:01-06:121, 06:123, 06:125-06:146, 06:148-06:149, 07:07, 07:09, 07:49, 07:76:01-07:76:02, 07:210, 07:238, 07:247, 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, 15:02:01:01-15:05:10, 15:06:01-15:06:03, 15:08-15:13, 15:15-15:19, 15:22-15:24, 15:26-15:42, 15:44-15:70, 15:72-15:106, 16:02:01-16:02:13, 16:09, 16:12, 16:19, 16:25, 16:46-16:48, 16:57, 16:60, 16:63, 16:69-16:70, 16:74, 16:77N, 17:01:01:01-17:21, 17:23-17:28, 18:01-18:09
12^{10,11}	100 bp, 155 bp, 220 bp	800 bp	*01:02:18, 01:04, 01:21, 06:02:38, 06:76:02, 12:02:01-12:03:01:02, 12:03:03-12:03:07, 12:03:09-12:03:15, 12:03:17-12:03:19, 12:03:21-12:03:29, 12:03:31-12:03:33, 12:04:02-12:08, 12:10:01-12:13, 12:14:02-12:18:01, 12:19-12:25, 12:27-12:32, 12:34-12:58, 12:60-12:143, 12:145-12:148N, 14:02:08, 16:01:17, 16:02:13, 16:15:02
13¹⁰	120 bp, 250 bp	800 bp	*01:21, 02:12, 02:49, 02:55, 04:01:01:01-04:01:66, 04:03:01-04:09N, 04:12-04:20, 04:23-04:35, 04:37-04:54, 04:56-04:152, 04:154-04:168, 04:170N-04:191N, 04:193, 05:42, 05:46, 05:112, 06:76:02, 07:02:09, 07:125, 07:356, 08:05, 08:21, 08:25, 12:02:01-12:02:10, 12:02:12-12:03:03, 12:03:05-12:03:08, 12:03:10-12:03:12, 12:03:13 ^w , 12:03:14-12:03:23, 12:03:24 ^w , 12:03:25-12:03:33, 12:04:02, 12:06-12:08, 12:10:01-12:20, 12:22-12:32, 12:34-12:48, 12:50-12:97, 12:99-12:122, 12:124-12:148N, 15:03, 15:16, 15:25, 15:75, 16:01:01-16:02:13, 16:06-16:28, 16:30N-16:32, 16:34, 16:36-16:39:02, 16:41, 16:43-16:47, 16:49-16:52, 16:54, 16:56-16:60, 16:62-16:65, 16:67, 16:69-16:77N, 16:79, 17:01:04, B*67:02
14¹⁴	160 bp, 210 bp	800 bp	*01:04, 01:09, 02:05:01-02:05:03, 02:17, 04:42:01-04:42:02, 06:02:01:01-06:02:01:03, 06:02:03-06:02:15, 06:02:17-06:02:42, 06:03:01-06:03:02, 06:07-06:13, 06:15-06:34, 06:36-06:39, 06:41-06:71, 06:73-06:78, 06:80, 06:82-06:100, 06:102-06:122, 06:124-06:126, 06:128N-06:135, 06:137-06:142, 06:145-06:149, 07:31:01-07:31:02, 07:125, 07:177, 07:356, 12:03:01:01-12:07, 12:11-12:13,



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15¹³	130 bp, 255 bp, 555 bp	1070 bp	*02:02:01 ^w , 02:02:02:01-02:02:03, 02:02:05-02:13, 02:15-02:26:03, 02:28-02:40:02, 02:42-02:64, 02:66-02:86, 02:88-02:95, 03:07, 03:10, 03:15, 03:29, 03:45, 03:58, 03:86, 03:94, 03:99, 03:163, 03:209, 03:268, 04:03:01-04:03:02, 04:06, 04:16, 04:37, 04:80, 04:103, 04:107, 04:147, 04:160, 04:171, 04:190, 05:01:01:01-05:01:31, 05:03-05:19, 05:21-05:42, 05:44:01-05:77, 05:79-05:112, 05:114, 06:03:01-06:03:02, 06:76:01-06:76:02, 06:132:01-06:132:02, 08:10, 12:04:01-12:05, 12:09, 12:21, 12:33, 12:41, 12:60, 12:72, 12:135, 12:146, 14:45, 15:02:01:01-15:06:03, 15:08-15:13, 15:15-15:19, 15:21-15:22, 15:24, 15:26-15:35, 15:37-15:42, 15:44-15:62, 15:64-15:84Q, 15:86-15:106, 16:02:01-16:02:13, 16:09, 16:12, 16:18-16:19, 16:25, 16:37, 16:46-16:48, 16:60, 16:63, 16:69-16:70, 16:74, 16:77N, 17:01:01:01-17:19, 17:21, 17:23-17:28, 18:09, B*15:277, B*35:222
16¹²	160 bp 260 bp, 445 bp	1070 bp	*01:67, 03:155, 03:231, 04:11, 04:29, 04:36, 04:55, 04:114, 04:172, 07:64, 07:402, 08:95, 12:55, 14:02:01-14:11, 14:13-14:48, 14:50-14:69, 16:40, 16:53, A*30:62, B*35:252
17^{9,10}	110 bp, 325 bp	800 bp	*01:90, 01:101-01:102, 02:06, 02:23, 02:36, 02:68, 03:81, 03:175, 03:199, 03:245, 04:108, 04:112, 04:169, 04:178, 05:36, 06:89, 07:123, 07:173, 07:294, 08:113, 12:08, 12:15, 12:81, 12:113, 15:02:01:01-15:13, 15:15-15:19, 15:21-15:24, 15:26-15:106, 16:20, 16:64, 16:70
18¹²	180 bp, 210 bp, 240 bp	1070 bp	*02:13, 02:18, 02:33, 02:49, 02:75, 04:01:01:01-04:01:22, 04:01:24-04:01:66, 04:03:01-04:10, 04:12-04:20, 04:23-04:32, 04:34-04:106, 04:108-04:115N, 04:117-04:129, 04:131-04:168, 04:170N-04:171, 04:173N-04:194, 05:17, 05:25, 05:42, 05:55, 05:68, 05:76, 05:79, 06:05, 06:31, 06:76:02, 06:118, 07:02:09, 07:31:01-07:31:02, 07:154, 07:177, 08:01:01-08:01:17, 08:03:01-08:03:03, 08:06, 08:08:01-08:11, 08:14, 08:16:01-08:16:02, 08:20-08:22, 08:24, 08:26N, 08:28, 08:36N, 08:38, 08:40-08:42, 08:44, 08:46-08:47, 08:50, 08:56-08:61, 08:65, 08:72:01-08:72:02, 08:78-08:89N, 08:91, 08:95-08:99, 08:101-08:102, 08:105-08:106, 08:109, 12:14:01-12:14:02, 12:28, 12:58, 12:132, 12:135, 12:146, 14:10, 14:15, 14:17, 15:12, 15:25, 15:31, 15:62, 15:65, 15:75, 16:01:01-16:02:13, 16:04:01, 16:04:03, 16:06-16:39:02, 16:41-16:42, 16:44-16:52, 16:54-16:79
19^{11,15}	225 bp, 250 bp	800 bp	*01:60, 04:58, 04:160, 05:23, 05:62, 06:118, 08:07, 08:47, 08:104, 12:14:01-12:14:02, 14:17, 15:25, 15:65, 17:01:01:01-17:28
20	210 bp, 425 bp	800 bp	*01:02:01-01:03, 01:06-01:07:01, 01:08, 01:10-01:20, 01:23-01:34, 01:37N-01:48, 01:51-01:54, 01:56N-01:78, 01:80-01:107, 03:58, 03:86, 03:94, 03:99, 04:37, 05:16, 05:85, 05:107, 06:05-06:06, 06:17, 06:31, 07:07, 07:09, 07:49, 07:76:01-07:76:02, 07:210, 07:238, 07:247, 07:315, 07:328, 07:403, 07:406, 08:12, 12:09, 12:24, 14:02:01-14:05, 14:07N, 14:10-14:14, 14:17-14:27, 14:29-14:52, 14:55-14:62, 14:64-14:69, 15:102, 16:04:01, 16:04:03, 16:29, 16:33, 16:42, 16:53, 16:55, 16:61, 16:66, 16:68, 16:78, 18:01-18:09, B*07:239, B*14:03
21	325 bp, 380 bp	1070 bp	*01:03, 01:24, 01:34, 01:49-01:50, 01:55, 01:78, 02:22, 02:62, 03:03:01-03:04:46, 03:06:01-03:11:02, 03:14, 03:18:01-03:24, 03:26, 03:28-03:32, 03:34, 03:37:01-03:59, 03:61-03:70, 03:72-03:83, 03:85, 03:87:01-03:88, 03:90-03:93, 03:96, 03:98, 03:100-03:107, 03:109, 03:111-03:120, 03:122-03:131, 03:133-03:134, 03:136-03:138,



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Lot-specific information

			03:140-03:145, 03:147-03:153, 03:155-03:166, 03:168, 03:170-03:176, 03:179-03:189N, 03:191-03:193, 03:195-03:196, 03:202-03:215, 03:217-03:220, 03:223, 03:227-03:237, 03:239-03:244Q, 03:246-03:247, 03:250-03:257, 03:259-03:261, 03:262 ² , 03:263, 03:265N-03:270, 03:272-03:277N, 04:01:01:01-04:01:15, 04:01:17-04:01:66, 04:03:01-04:20, 04:24-04:53, 04:55-04:71, 04:73-04:107, 04:109-04:194, 05:01:01:01-05:01:31, 05:03, 05:05-05:21, 05:23-05:102, 05:104-05:106, 05:108-05:114, 06:09, 06:14, 06:35, 06:72, 06:143-06:144, 07:10, 07:28, 07:41, 07:43, 07:184, 07:196, 07:367, 08:01:01-08:08:02, 08:10, 08:12-08:47, 08:49-08:63, 08:65-08:82, 08:84-08:107, 08:109-08:112, 08:114-08:115, 12:31, 12:44, 12:144, 14:54, 15:02:01:01-15:13, 15:15-15:19, 15:21, 15:23-15:36, 15:38-15:54, 15:56-15:57, 15:59-15:64, 15:66-15:71, 15:73-15:101, 15:103-15:106, 16:45, 17:01:01:01-17:28, 18:01-18:09
22¹²	135 bp	1070 bp	*02:02:29, 03:02:01-03:02:09, 03:02:11-03:03:20, 03:03:22-03:04:24, 03:04:27-03:11:02, 03:13:01-03:17, 03:18:02-03:38:02, 03:40:01-03:64:01, 03:65-03:66, 03:67 ^w , 03:68-03:98, 03:100-03:136, 03:138-03:143, 03:146-03:155, 03:157-03:165, 03:167-03:169Q, 03:171, 03:173-03:181, 03:183-03:194, 03:196-03:230, 03:232-03:247, 03:249-03:263, 03:265N-03:277N, 04:32, 04:77, 06:03:01, 06:132:01-06:132:02, 07:96:01-07:96:02, 14:25, 15:02:10, 15:02:17, 15:43, 18:03
23¹¹	160 bp, 230 bp	1070 bp	*04:14, 04:42:01-04:42:02, 04:68, 05:112, 06:02:01:01-06:02:01:03, 06:02:03-06:02:43, 06:04-06:75, 06:78-06:131, 06:133-06:149, 07:01:01:01-07:01:40, 07:01:41 ^w , 07:01:42-07:02:07, 07:02:09-07:02:28, 07:02:30-07:02:40, 07:02:41 ^w , 07:02:42-07:25, 07:27:01-07:32N, 07:35-07:38:02, 07:41-07:63, 07:65-07:91, 07:93-07:95, 07:97-07:138, 07:140-07:151, 07:153-07:155, 07:157-07:176, 07:178-07:209, 07:211-07:222, 07:223 ^w , 07:224-07:237, 07:239-07:245, 07:247-07:266, 07:268-07:294, 07:297-07:313, 07:315-07:316, 07:318-07:321, 07:323-07:334, 07:336-07:350N, 07:352-07:401, 07:403-07:404, 07:406-07:409, 12:16, 12:147, 15:75, 16:01:01-16:02:13, 16:06-16:28, 16:30N-16:32, 16:34, 16:36-16:39:02, 16:41, 16:43-16:47, 16:49-16:52, 16:54, 16:56-16:60, 16:62-16:65, 16:67, 16:69-16:77N, 16:79, 17:20, 18:01-18:08, A*24:64, A*24:96, A*24:106, A*24:174, B*08:16, B*08:123
24¹⁶	-	-	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 low resolution SSP typings.

When the primers in a primer mix can give rise to HLA-specific PCR products of more than one length this is indicated if the size difference is more than 20 base pairs. Size differences of 20 base pairs or less are not given. For high resolution SSP kits, the alleles listed are specified according to amplicon length.

Nonspecific amplifications, i.e. a ladder or a smear of bands, may sometimes be seen. GC-rich primers have a higher tendency of giving rise to nonspecific amplifications than other primers.

PCR fragments longer than the control bands may sometimes be observed. Such bands should be disregarded and do not influence the interpretation of the SSP typings.

PCR fragments migrating faster than the control bands, but slower than a 400 bp fragment may be seen in some gel read-outs. Such bands can be disregarded and do not influence the interpretation of the SSP typings.

Some primers may give rise to primer oligomer artifacts. Sometimes this phenomenon is an 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.

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.

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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.

⁴Only HLA-C alleles will be amplified by the HLA-C low resolution screening typing kit, except that that a few HLA-A and HLA-B alleles will be amplified by primer mixes 1, 13, 15, 16, 20 and 23.

⁵Primer mix 2 will for most C*02 alleles give rise to two specific PCR fragments.

⁶Primer mix 4 will for most C*03 alleles give rise to two specific PCR fragments.

⁷Primer mix 9 will for most C*07 alleles give rise to two specific PCR fragments.

⁸Primer mix 10 will for most C*08 alleles give rise to multiple specific PCR fragments.

⁹Primer mix 17 will for most C*15 alleles give rise to two specific PCR fragments.

¹⁰HLA-specific PCR products shorter than 125 base pairs have a lower intensity and are less sharp than longer PCR products.

¹¹Primer mixes 12, 19 and 23 may have tendencies of unspecific amplifications.

¹²Primer mixes 2, 16, 18 and 22 have a tendency to giving rise to primer oligomer formation.

¹³Primer mixes 3, 6, 10 and 15 may give rise to a lower yield of HLA-specific PCR product than the other HLA-C low Screening primer mixes.

¹⁴Primer mix 14 might faintly amplify most C*01 and the C*14 alleles.

¹⁵Primer mix 19 might generate a false band of about 500 base pairs. This band should be disregarded when interpreting HLA-C low resolution typings.

¹⁶Primer 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.

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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.	90	130	280	170	280	135	165	130	245	110	340	100
PCR product	150	200		275		330	390	355	425	165		155
		270					445			390		220
		300										
Length of int. pos. control ¹	800	800	800	1070	800	800	1070	800	800	800	1070	800
5'-primer(s) ²	89 5'-gAA 3'	47 5'-Agg 3'	105 5'-gCT 3'	355 5'-TCA 3'	105 5'-gCT 3'	47 5'-Agg 3'	1 st I 5'-CgA 3'	28 5'-TCA 3'	47 5'-Agg 3'	1 st I 5'-CgA 3'	1 st I 5'-CgA 3'	361 5'-AgT 3'
	89 5'-gAA 3'	89 5'-gAA 3'		459 5'-gAT 3'		112 5'-CCT 3'	176 5'-gCA 3'	2 nd I 5'-CCA 3'	648 5'-CAC 3'	176 5'-gCA 3'		419 5'-gTC 3'
	98 5'-CTT 3'	2 nd I 5'-CCA 3'				118 5'-CCA 3'	527 5'-TgA 3'			527 5'-TAC 3'		
		703 5'-CTA 3'										
3'-primer(s) ³	142 5'-TgA 3'	176 5'-ACT 3'	343 5'-C 3'	589 5'-CTT 3'	343 5'-T 3'	201 5'-CTT 3'	302 5'-ggT 3'	213 5'-Cgg 3'	302 5'-ggC 3'	302 5'-ggC 3'	302 5'-ggT 3'	474 5'-gCA 3'
	201 5'-CTT 3'	559 5'-CTC 3'	343 5'-g 3'			218 5'-gCT 3'	3 rd I 5'-gCA 3'	420 5'-gCT 3'	853 5'-CAT 3'	595 5'-CCC 3'	304 5'-CAA 3'	477 5'-gCA 3'
	201 5'-CTC 3'	861 5'-TCg 3'										538 5'-gCA 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.	120	160	130	160	110	180	225	210	325	135	160
PCR product	250	210	255	260	325	210	250	425	380		230
			555	445		240					
Length of int. pos. control ¹	800	800	1070	1070	800	1070	800	800	1070	1070	1070
5'-primer(s) ²	201 5'-CCA 3'	97 5'-TCg 3'	98 5'-CTA 3'	98 5'-CTC 3'	201 5'-CCA 3'	201 5'-CCA 3'	2 nd I 5'-CCA 3'	47 5'-Agg 3'	355 5'-TCA 3'	105 5'-gCT 3'	97 5'-TCg 3'
	218 5'-ggA 3'	361 5'-AgT 3'	368 5'-gTg 3'	98 5'-CTT 3'	409 5'-ggC 3'	2 nd I 5'-CCA 3'		361 5'-AgT 3'	412 5'-ATA 3'	459 5'-gAT 3'	97 5'-TTg 3'
	2 nd I 5'-CCA 3'			194 5'-CgT 3'		361 5'-AgT 3'					361 5'-AgT 3'
				527 5'-TgA 3'							418 5'-Agg 3'
											419 5'-gTC 3'
											419 5'-gTT 3'
3'-primer(s) ³	289 5'-AgC 3'	218 5'-gCT 3'	312 5'-AgT 3'	311 5'-ggT 3'	270 5'-TAG 3'	341 5'-CgT 3'	512 5'-CCA 3'	302 5'-ggT 3'	3 rd I 5'-CTC 3'	201 5'-CTC 3'	213 5'-Cgg 3'
	289 5'-AgC 3'	527 5'-CCg 3'	361 5'-CCA 3'	317 5'-CgT 3'	3 rd I 5'-CTC 3'	343 5'-T 3'	538 5'-gTC 3'	527 5'-CCg 3'		559 5'-CTC 3'	289 5'-AgC 3'
	291 5'-TCg 3'	538 5'-CCA 3'	459 5'-AgA 3'	3 rd I 5'-gCA 3'		343 5'-g 3'		538 5'-CCg 3'			289 5'-AgC 3'
	539 5'-TCT 3'	538 5'-gCA 3'				527 5'-CCg 3'					539 5'-TCT 3'
						527 5'-CCg 3'					
						527 5'-CCg 3'					
						527 5'-CCg 3'					
						530 5'-CCA 3'					
Well No.	13	14	15	16	17	18	19	20	21	22	23



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Lot-specific information

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 low resolution screening SSP primer set ²																				
				Well																
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
				Prod. No.:	201550801	201322202	201322203	201322204	201322205	201322206	201322207	201322208	201322209	201322210	201322211	201322212	201550813	201330514	201441815	201435816
	IHCW 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	*15:05	-	-	+	-	-	-	-	-	+	-	+	-	-	-	+	-
28	9320	BEL5GB	*05:01	*16:01	-	-	-	-	-	-	+	-	-	-	+	-	+	-	+	-
29	9050	MOU	*16:01		-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
30	9021	RSH	*17:01		-	+	-	-	-	-	-	-	-	-	+	-	-	-	+	-
31	9019	DUCAF	*05:01		-	-	-	-	-	-	+	-	-	-	+	-	-	-	+	-
32	9297	HAG	*17:01	*17:03	-	+	-	-	-	-	-	-	-	-	+	-	-	-	+	-
33	9098	MT14B	*03:04		-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-
34	9104	DHIF	*12:03		-	-	-	-	-	-	-	-	-	-	-	+	+	+	-	-
35	9302	SSTO	*05:01		-	-	-	-	-	-	+	-	-	-	+	-	-	-	+	-
36	9024	KT17	*03:03	*04:01	-	-	-	+	+	+	-	-	-	-	+	-	+	-	-	-
37	9065	HHKB	*07:02		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
38	9099	LZL	*03:03		-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-
39	9315	CML	*02:02	*07:01	-	+	+	-	-	+	-	-	+	-	+	-	-	-	+	-
40	9134	WHONP199	*01:02	*06:02	+	-	-	-	-	-	-	+	-	-	+	-	-	+	-	-
41	9055	H0301	*08:02		-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
42	9066	TAB089	*01:02		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43	9076	T7526	*01:02	*08:01	+	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
44	9057	TEM	*12:03		-	-	-	-	-	-	-	-	-	-	-	+	+	+	-	-
45	9239	SHJO	*06:02	*17:01	-	+	-	-	-	-	-	+	-	-	+	-	-	+	+	-
46	9013	SCHU	*07:02		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
47	9045	TUBO	*07:04	*15:02	-	-	+	-	-	-	-	+	+	-	+	-	-	-	+	-
48	9303	TER-ND	*04:01	*16:01	-	-	-	-	-	+	-	-	-	-	+	-	+	-	-	-



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 101.603-24u/12u – without *Taq* pol., IFU-02

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Lot-specific information

CELL LINE VALIDATION SHEET											
HLA-C low resolution screening SSP primer set ²											
				Well							
				17	18	19	20	21	22	23	
				Prod. No.:	201322217	201550818	201433919	201322220	201322221	201322222	201550823
	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	*15:05	+	-	-	-	+	-	+	
28	9320 BEL5GB	*05:01	*16:01	-	+	-	-	+	-	+	
29	9050 MOU	*16:01		-	+	-	-	-	-	+	
30	9021 RSH	*17:01		-	-	+	-	+	-	-	
31	9019 DUCAF	*05:01		-	-	-	-	+	-	-	
32	9297 HAG	*17:01	*17:03	-	-	+	-	+	-	-	
33	9098 MT14B	*03:04		-	-	-	-	+	+	-	
34	9104 DHIF	*12:03		-	-	-	-	-	-	-	
35	9302 SSTO	*05:01		-	-	-	-	+	-	-	
36	9024 KT17	*03:03	*04:01	-	+	-	-	+	+	-	
37	9065 HHKB	*07:02		-	-	-	-	-	-	+	
38	9099 LZL	*03:03		-	-	-	-	+	+	-	
39	9315 CML	*02:02	*07:01	-	-	-	-	-	-	+	
40	9134 WHONP199	*01:02	*06:02	-	-	-	+	-	-	+	
41	9055 H0301	*08:02		-	-	-	-	+	-	-	
42	9066 TAB089	*01:02		-	-	-	+	-	-	-	
43	9076 T7526	*01:02	*08:01	-	+	-	+	+	-	-	
44	9057 TEM	*12:03		-	-	-	-	-	-	-	
45	9239 SHJO	*06:02	*17:01	-	-	+	-	+	-	+	
46	9013 SCHU	*07:02		-	-	-	-	-	-	+	
47	9045 TUBO	*07:04	*15:02	+	-	-	-	+	-	+	
48	9303 TER-ND	*04:01	*16:01	-	+	-	-	+	-	+	

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.



101.603-24/12 – including *Taq* pol., IFU-01
101.603-24u/12u – without *Taq* pol., IFU-02

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Lot No.: **27Y**

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.

Additional 5'-primers and 3'-primers in primer solutions 1, 2, 7, 14 to 16 and 22 were tested by separately adding one additional 3'-primer, respectively one additional 5'-primer.

Additional 3'-primers in primer solution 18 and 19 were tested by separately adding one additional 5'-primer.

Additional 5'-primers in primer solutions 6, 13 and 23 were tested by separately adding one additional 3'-primer.

In primer solutions 1, 16 and 23 one 5'-primer was not possible to test, and in primer solutions 3, 11 to 14, 16 and 18 one or two 3'-primers were not possible to test.

101.603-24/12 – including *Taq* pol., IFU-01
101.603-24u/12u – without *Taq* pol., IFU-02

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101.603-24/12 – including *Taq* pol., IFU-01
101.603-24u/12u – without *Taq* pol., IFU-02

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Lot No.: **27Y**

Lot-specific information

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