

101.612-12 – including *Taq* pol., IFU-01
101.612-12u– without *Taq* pol., IFU-02

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

Lot No.: **67X**

Lot-specific information
Olerup SSP® HLA-C*04

Product number:	101.612-12 – including <i>Taq</i> polymerase 101.612-12u – without <i>Taq</i> polymerase
Lot number:	67X
Expiry date:	2017-May-01
Number of tests:	12
Number of wells per test:	52+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. 67X.

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*04 LOT (86S)**

The HLA-C*04 kit is updated for new alleles to enable separation of:

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

A well containing Negative Control primer pairs has been added.

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

Five wells have been added to HLA-C*04, wells **49 to 53**.

¹As described in section Uniquely Identified Alleles.

The HLA-C*04 primer set, specificity and interpretation tables have been updated for the HLA-C alleles described since the previous *Olerup SSP®* HLA-C*04 lot was made (**Lot No. 86S**). The kit design is based on IMGT/HLA database 3.17.0.

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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.

Well	5'-primer	3'-primer	rationale
2	Added	-	5'-primer added for the C*04:01:61 allele.
3	Added	-	5'-primer added for the C*04:01:61 allele.
10	-	Added	3'-primer added for the C*04:91 allele.
13	-	Added	3'-primer added for the C*04:132 allele.
14	-	Added	5'-primers added for the C*04:163 allele.
20	-	Added	3'-primer added for the C*04:170N allele.
21	-	Added	3'-primer added for the C*04:121 allele.
25	-	Added	3'-primer added for the C*04:163 allele.
26	-	Added	3'-primer added for the C*04:86 allele.
29	-	Added	3'-primer added for the C*04:132 and C*04:170N alleles.
32	-	Added	3'-primer added for the C*04:121 allele.
35	-	Added	3'-primer added for the C*04:137 allele.
36	Added	-	5'-primer added for the C*04:117 allele.
37	Added	-	5'-primer added for the C*04:125 allele.
38	Added	-	5'-primer added for the C*04:117 allele.
39	-	Added	3'-primer added for the C*04:113 allele.
40	-	Added	3'-primer added for the C*04:86 allele.
41	Added	-	5'-primer added for the C*04:131 allele.
43	-	Added	3'-primer added for the C*04:137 allele, 3'-primer added for the allelic resolution of the C*04:88N allele.
44	Added	-	5'-primer added for the C*04:125 allele.
46	Added	-	5'-primer added for the C*04:131 allele.
47	-	Added	3'-primer added for the C*04:161 allele.
49	New	New	New primer pairs for the C*04:91 and C*04:173N alleles.
50	New	New	New primer pairs for the C*04:161 and C*04:162 alleles.
51	New	New	New primer pair for the C*04:165 allele.
52	New	New	New primer pairs for the C*04:150 and C*04:155 alleles.
53	-	-	Negative Control.

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Change in revision R01 compared to R00:

1. The HLA-C*04:15:02 and 04:17 and the C*03:13:01, 03:35, 08:01:07, 08:02:07 and 08:33 alleles are amplified by primer mix 16. This has been corrected in the Specificity and Interpretation Tables.

Change in revision R02 compared to R01:

1. Primer mixes 5 and 8 do not amplify the B*58:02 allele. This has been corrected in the Specificity and Interpretation Tables.

Change in revision R03 compared to R02:

1. Primer mixes 47 and 50 do not amplify the C*04:161 allele. This has been corrected in the Interpretation and Specificity Tables.

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Lot-specific information

Well **53** 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*04 SSP subtyping

CONTENT

The primer set contains 5'- and 3'-primers for identifying the HLA-C*04:01 to HLA-C*04:177 alleles.

PLATE LAYOUT

Each test consists of 53 PCR reactions in a 64 well PCR plate. Wells 54 to 64 are empty.

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48
49	50	51	52	NC	empty	empty	empty
empty	empty	empty	empty	empty	empty	empty	empty

The 64 well cut PCR plate is marked with 'HLA-C*04' in silver/gray ink.

Well No. 1 is marked with the Lot No. '67X'.

Wells 1 to 52 – HLA-C*04 high resolution primers.

Well 53 – 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.

INTERPRETATION

Due to the sharing of sequence motifs between HLA-C alleles non-HLA-C*04 alleles will be amplified by primer mixes 1 to 8, 10 to 20, 22 to 25, 27, 30, 33, 34, 38, 39, 41, 42, 44, 45, 47, 48 and 50. In addition, a few HLA-A and HLA-B alleles will be amplified by primer mixes 14 to 16, 18, 20, 25, 30, 32, 33, 34, 44 and 47. For further details see Specificity Table.

UNIQUELY IDENTIFIED ALLELES

All the HLA-C*04 alleles, i.e. **C*04:01 to C*04:177**, recognized by the HLA Nomenclature Committee in July 2014^{1,2} will be amplified by the primers in the HLA-C*04 kit³.

The HLA-C*04 kit enables separation of the confirmed HLA-C*04 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*04 alleles is listed below.

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The HLA-C*04 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 following HLA-C*04 alleles can be distinguished by the different sizes of the HLA-specific PCR product:

Alleles	Primer mix	Alleles	Primer mix
C*04:05, 04:112	6	C*04:61, 04:96	34
C*04:44, 04:47	20	C*04:62, 04:76	35
C*04:23, 04:38, 04:39	21	C*04:65, 04:72	33
C*04:25, 04:40, 04:41	23	C*04:67, 04:93N	46
C*04:46, 04:50	27	C*04:79, 04:113	39
C*04:48, 04:75	28	C*04:81, 04:88N	43
C*04:54, 04:105N	41	C*04:114, 04:146	47
C*04:56, 04:64:01-04:64:02	40	C*04:150, 04:155	52
C*04:59Q, 04:78	32		

The HLA-C*04 primer set cannot distinguish the following silent mutations: the C*04:01:01:01-04:01:09, 04:01:11-04:01:22, 04:01:24-04:01:27, 04:01:29-04:01:33 and 04:01:35-04:01:62 alleles, the C*04:01:10 and 04:01:23 alleles, the C*04:03:01-04:03:02 alleles, the C*04:04:01-04:04:02 alleles, the C*04:15:01 and 04:15:03 alleles, the C*04:42:01-04:42:02 alleles, the C*04:64:01-04:64:02 and the C*04:94:01-04:94:02 alleles.

¹HLA-C alleles listed on the IMGT/HLA web page 2014-July-25, release 3.17.0, www.ebi.ac.uk/imgt/hla.

²Alleles that have been deleted from or renamed in the official WHO HLA Nomenclature up to and including the last IMGT/HLA database release can be retrieved from web page <http://hla.alleles.org/alleles/deleted.html>.

³The HLA-C*04 primer set cannot separate the C*04:03:01-04:03:02 and 02:49 alleles or the C*04:107 and the C*02:12 and 02:55 alleles. These alleles can be distinguished by the HLA-C low resolution kit and/or the HLA-C*02 high resolution kit.

The C*04:115N and C*04:137 alleles cannot be separated by this lot of HLA-C*04 high resolution kit.

The C*04:106 and the C*04:01:01:01-04:01:09, 04:01:11-04:01:22, 04:01:24-04:01:27, 04:01:29-04:01:33, 04:01:35-04:01:62, 04:85, 04:90, 04:92, 04:97-04:99, 04:101-04:102, 04:104, 04:106, 04:109, 04:118-04:119, 04:124, 04:126-04:129, 04:133-04:136, 04:138, 04:141-04:143, 04:145, 04:148-04:149, 04:151-04:152, 04:154, 04:156, 04:158, 04:164, 04:167-04:168 and 04:174-04:177 alleles cannot be separated by this lot of HLA-C*04 high resolution kit.

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ALLELE CONFIRMATION STATUS

Allele	Status ¹	Allele	Status ¹	Allele	Status ¹	Allele	Status ¹
C*04:01:01:01	Confirmed	C*04:01:47	Unconfirmed	C*04:35	Unconfirmed	C*04:83	Confirmed
C*04:01:01:02	Unconfirmed	C*04:01:48	Unconfirmed	C*04:36	Confirmed	C*04:84	Unconfirmed
C*04:01:01:03	Unconfirmed	C*04:01:49	Unconfirmed	C*04:37	Confirmed	C*04:85	Unconfirmed
C*04:01:01:04	Unconfirmed	C*04:01:50	Unconfirmed	C*04:38	Confirmed	C*04:86	Confirmed
C*04:01:01:05	Unconfirmed	C*04:01:51	Unconfirmed	C*04:39	Confirmed	C*04:87	Unconfirmed
C*04:01:02	Unconfirmed	C*04:01:52	Unconfirmed	C*04:40	Confirmed	C*04:88N	Unconfirmed
C*04:01:03	Unconfirmed	C*04:01:53	Unconfirmed	C*04:41	Unconfirmed	C*04:89	Unconfirmed
C*04:01:04	Confirmed	C*04:01:54	Unconfirmed	C*04:42:01	Confirmed	C*04:90	Unconfirmed
C*04:01:05	Unconfirmed	C*04:01:55	Unconfirmed	C*04:42:02	Unconfirmed	C*04:91	Confirmed
C*04:01:06	Unconfirmed	C*04:01:56	Unconfirmed	C*04:43	Confirmed	C*04:92	Unconfirmed
C*04:01:07	Unconfirmed	C*04:01:57	Unconfirmed	C*04:44	Unconfirmed	C*04:93N	Confirmed
C*04:01:08	Confirmed	C*04:01:58	Unconfirmed	C*04:45	Confirmed	C*04:94:01	Confirmed
C*04:01:09	Confirmed	C*04:01:59	Unconfirmed	C*04:46	Confirmed	C*04:94:02	Unconfirmed
C*04:01:10	Confirmed	C*04:01:60	Unconfirmed	C*04:47	Confirmed	C*04:95N	Unconfirmed
C*04:01:11	Confirmed	C*04:01:61	Unconfirmed	C*04:48	Confirmed	C*04:96	Confirmed
C*04:01:12	Confirmed	C*04:01:62	Unconfirmed	C*04:49	Confirmed	C*04:97	Unconfirmed
C*04:01:13	Confirmed	C*04:03:01	Confirmed	C*04:50	Unconfirmed	C*04:98:01	Unconfirmed
C*04:01:14	Confirmed	C*04:03:02	Unconfirmed	C*04:51	Unconfirmed	C*04:98:02	Unconfirmed
C*04:01:15	Confirmed	C*04:04:01	Confirmed	C*04:52	Confirmed	C*04:99	Unconfirmed
C*04:01:16	Confirmed	C*04:04:02	Unconfirmed	C*04:53	Unconfirmed	C*04:100	Unconfirmed
C*04:01:17	Unconfirmed	C*04:05	Unconfirmed	C*04:54	Confirmed	C*04:101	Unconfirmed
C*04:01:18	Unconfirmed	C*04:06	Confirmed	C*04:55	Unconfirmed	C*04:102	Unconfirmed
C*04:01:19	Unconfirmed	C*04:07	Confirmed	C*04:56	Confirmed	C*04:103	Confirmed
C*04:01:20	Unconfirmed	C*04:08	Confirmed	C*04:57	Unconfirmed	C*04:104	Unconfirmed
C*04:01:21	Confirmed	C*04:09N	Confirmed	C*04:58	Confirmed	C*04:105N	Unconfirmed
C*04:01:22	Unconfirmed	C*04:10	Confirmed	C*04:59Q	Confirmed	C*04:106	Unconfirmed
C*04:01:23	Unconfirmed	C*04:11	Unconfirmed	C*04:60	Unconfirmed	C*04:107	Unconfirmed
C*04:01:24	Unconfirmed	C*04:12	Unconfirmed	C*04:61	Confirmed	C*04:108	Confirmed
C*04:01:25	Unconfirmed	C*04:13	Confirmed	C*04:62	Confirmed	C*04:109	Unconfirmed
C*04:01:26	Unconfirmed	C*04:14	Confirmed	C*04:63	Confirmed	C*04:110	Unconfirmed
C*04:01:27	Unconfirmed	C*04:15:01	Unconfirmed	C*04:64:01	Unconfirmed	C*04:111	Unconfirmed
C*04:01:28	Confirmed	C*04:15:02	Confirmed	C*04:64:02	Unconfirmed	C*04:112	Confirmed
C*04:01:29	Unconfirmed	C*04:15:03	Unconfirmed	C*04:65	Confirmed	C*04:113	Confirmed
C*04:01:30	Confirmed	C*04:16	Confirmed	C*04:66	Unconfirmed	C*04:114	Confirmed
C*04:01:31	Unconfirmed	C*04:17	Unconfirmed	C*04:67	Unconfirmed	C*04:115N	Unconfirmed
C*04:01:32	Unconfirmed	C*04:18	Unconfirmed	C*04:68	Confirmed	C*04:116	Unconfirmed
C*04:01:33	Confirmed	C*04:19	Confirmed	C*04:69	Confirmed	C*04:117	Confirmed
C*04:01:34	Unconfirmed	C*04:20	Unconfirmed	C*04:70	Unconfirmed	C*04:118	Unconfirmed
C*04:01:35	Unconfirmed	C*04:23	Confirmed	C*04:71	Unconfirmed	C*04:119	Unconfirmed
C*04:01:36	Unconfirmed	C*04:24	Unconfirmed	C*04:72	Confirmed	C*04:120	Confirmed
C*04:01:37	Unconfirmed	C*04:25	Unconfirmed	C*04:73	Unconfirmed	C*04:121	Confirmed
C*04:01:38	Unconfirmed	C*04:26	Confirmed	C*04:74	Confirmed	C*04:122	Unconfirmed
C*04:01:39	Unconfirmed	C*04:27	Confirmed	C*04:75	Confirmed	C*04:123N	Unconfirmed
C*04:01:40	Unconfirmed	C*04:28	Unconfirmed	C*04:76	Unconfirmed	C*04:124	Unconfirmed
C*04:01:41	Unconfirmed	C*04:29	Confirmed	C*04:77	Confirmed	C*04:125	Confirmed
C*04:01:42	Unconfirmed	C*04:30	Unconfirmed	C*04:78	Unconfirmed	C*04:126	Unconfirmed
C*04:01:43	Unconfirmed	C*04:31	Unconfirmed	C*04:79	Unconfirmed	C*04:127	Unconfirmed
C*04:01:44	Confirmed	C*04:32	Confirmed	C*04:80	Unconfirmed	C*04:128	Unconfirmed
C*04:01:45	Unconfirmed	C*04:33	Confirmed	C*04:81	Confirmed	C*04:129	Unconfirmed
C*04:01:46	Confirmed	C*04:34	Unconfirmed	C*04:82	Confirmed	C*04:130	Unconfirmed

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C*04:131	Confirmed	C*04:151	Unconfirmed	C*04:171	Unconfirmed
C*04:132	Confirmed	C*04:152	Unconfirmed	C*04:172	Unconfirmed
C*04:133	Unconfirmed	C*04:153	Confirmed	C*04:173N	Unconfirmed
C*04:134	Unconfirmed	C*04:154	Unconfirmed	C*04:174	Unconfirmed
C*04:135	Unconfirmed	C*04:155	Confirmed	C*04:175	Unconfirmed
C*04:136	Unconfirmed	C*04:156	Unconfirmed	C*04:176	Unconfirmed
C*04:137	Confirmed	C*04:157	Unconfirmed	C*04:177	Unconfirmed
C*04:138	Unconfirmed	C*04:158	Unconfirmed		
C*04:139	Confirmed	C*04:159	Unconfirmed		
C*04:140	Confirmed	C*04:160	Unconfirmed		
C*04:141	Unconfirmed	C*04:161	Unconfirmed		
C*04:142	Unconfirmed	C*04:162	Unconfirmed		
C*04:143	Unconfirmed	C*04:163	Confirmed		
C*04:144	Confirmed	C*04:164	Unconfirmed		
C*04:145	Unconfirmed	C*04:165	Unconfirmed		
C*04:146	Unconfirmed	C*04:166	Unconfirmed		
C*04:147	Unconfirmed	C*04:167	Unconfirmed		
C*04:148	Unconfirmed	C*04:168	Unconfirmed		
C*04:149	Unconfirmed	C*04:169	Unconfirmed		
C*04:150	Confirmed	C*04:170N	Unconfirmed		

¹Allele status “confirmed” or “unconfirmed” as listed on the IMGT/HLA web page 2014-July-25, release 3.17.0, www.ebi.ac.uk/imgt/hla.

RESOLUTION IN HOMO- AND HETEROZYGOTES

Results file with resolution in HLA-C*04 homo- and heterozygotes is available upon request.

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SPECIFICITY TABLE

HLA-C*04 SSP subtyping

Specificities and sizes of the PCR products of the 52+1 primer mixes used for HLA-C*04 SSP subtyping

Primer Mix	Size of spec. PCR product ¹	Size of control band ²	Amplified HLA-C*04 alleles ³	Other amplified HLA Class I alleles ⁴
1 ⁷	250 bp	800 bp	*04:01:01:01-04:01:33, 04:01:34 ^w , 04:01:35-04:01:62, 04:03:01-04:03:02, 04:05, 04:07-04:12, 04:15:01-04:18, 04:19 ^w , 04:20, 04:23-04:33, 04:35-04:57, 04:59Q-04:67, 04:69-04:94:02, 04:95N ^w , 04:96-04:109, 04:110 [?] , 04:112-04:121, 04:123N-04:159, 04:161-04:177	*01:02:01-01:02:24, 01:02:26-01:21, 01:23-01:34, 01:36-01:90, 01:92-01:100, 02:02:01-02:02:03, 02:02:05-02:02:27, 02:04-02:15, 02:17, 02:19-02:40:02, 02:42-02:71, 02:73-02:86, 03:99, 05:01:01:01-05:01:27, 05:03-05:10, 05:12-05:16, 05:18:01-05:26, 05:28-05:50, 05:52-05:61, 05:63-05:67, 05:69, 05:71-05:78, 05:80-05:103, 06:02:01:01-06:02:01:03, 06:02:03-06:03:02, 06:05-06:39, 06:41-06:78, 06:80-06:117, 06:119-06:137, 08:02:01:01-08:02:11, 08:05, 08:07, 08:12, 08:15:01-08:15:02, 08:17-08:19, 08:23, 08:25, 08:27-08:35, 08:37, 08:43, 08:45, 08:47-08:49, 08:51-08:53, 08:55N, 08:62-08:63, 08:67-08:71, 08:73-08:77, 08:90, 08:92, 08:94, 08:100, 08:103, 08:107-08:108, 08:110-08:112, 12:02:01-12:13, 12:15-12:17, 12:21-12:82, 12:84N-12:129, 14:02:01-14:05, 14:07N-14:14, 14:16-14:52, 14:54-14:62, 14:64-14:67, 15:08, 15:74, 16:04:01, 16:29, 16:33, 16:42, 16:53, 16:55, 16:61, 16:66, 16:68, 17:17, 18:01-18:07N
2	220 bp	1070 bp	*04:01:01:01-04:01:27, 04:01:29-04:01:62, 04:04:01-04:05, 04:07-04:09N, 04:13-04:15:03, 04:17-04:20, 04:23-04:35, 04:37-04:41, 04:43-04:54, 04:56-04:70, 04:72-04:79, 04:81-04:102, 04:104-04:106, 04:108-04:139, 04:141-04:146, 04:148-04:152, 04:154-04:159, 04:161-04:168, 04:170N, 04:172-04:177	*07:64
3	145 bp	1070 bp	*04:01:01:01-04:01:62, 04:04:01-04:05, 04:08-04:15:03, 04:17-04:20, 04:23-04:26, 04:28-04:41, 04:43-04:79, 04:81-04:86, 04:88N, 04:90-04:102, 04:104-04:106, 04:108-04:139, 04:141-04:146,	*03:231

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			04:148-04:152, 04:154-04:156, 04:158, 04:161-04:170N, 04:172-04:177	
4⁷	210 bp	1070 bp	*04:03:01-04:03:02, 04:06, 04:80, 04:107, 04:147, 04:160, 04:171	*02:12, 02:49, 02:55
5⁷	250 bp	1070 bp	*04:04:01-04:04:02, 04:06, 04:13, 04:34, 04:58, 04:122, 04:160	*01:22, 01:35, 02:03, 02:16:01-02:16:02, 02:18, 05:11, 05:17, 05:27, 05:68, 05:79, 06:04, 06:118, 08:01:01-08:01:17, 08:03:01-08:04:03, 08:06, 08:08:01-08:11, 08:13-08:14, 08:16:01-08:16:02, 08:20-08:22, 08:24, 08:26N, 08:36N, 08:38-08:42, 08:44, 08:46, 08:50, 08:54, 08:56-08:61, 08:65-08:66, 08:72:01-08:72:02, 08:78-08:89N, 08:91, 08:93, 08:95-08:99, 08:101-08:102, 08:104-08:106, 08:109, 12:14:01-12:14:02, 12:18:01-12:18:02, 12:20, 12:83, 14:06, 14:15, 14:53, 15:02:01-15:07, 15:09-15:13, 15:15-15:19, 15:21-15:24, 15:26-15:50, 15:52-15:73, 15:76-15:83, 15:85-15:96Q, 16:35, 16:40, 16:48, 17:01:01:01-17:16, 17:18-17:25
6⁵	95 bp 215 bp	1070 bp	*04:05 *04:112, 04:169	*15:36
7⁶	145 bp	1070 bp	*04:07, 04:27, 04:32, 04:77, 04:89, 04:153	*03:34, 03:142, 03:261, 05:78, 07:64, 14:25, 15:36, 18:03
8	270 bp	1070 bp	*04:08, 04:34, 04:147	*01:35, 02:58, 05:27, 05:39, 06:96, 08:41, 12:83, 12:106, 12:122, 14:20, 15:15, 15:77, 17:07
9⁵	110 bp 180 bp 220 bp	800 bp	*04:35 *04:30 *04:09N	
10	190 bp 220 bp	1070 bp	*04:31, 04:91 *04:10, 04:11, 04:36, 04:55, 04:153, 04:169	*03:231, 05:78, 15:36
11⁷	180 bp	1070 bp	*04:01:01:01-04:01:09, 04:01:11-04:01:22, 04:01:24-04:01:62, 04:03:01-04:10, 04:12-04:20, 04:23-04:26, 04:28-04:32, 04:34-04:51, 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-04:177	*02:49, 02:75, 05:25, 05:42, 06:05, 06:76:02, 07:02:09, 08:28, 12:28, 15:25, 15:62, 16:26, 16:46, 16:55, 16:64
12⁵	125 bp 165 bp	1070 bp	*04:11, 04:29, 04:36, 04:55, 04:172 *04:11, 04:33, 04:169, 04:172	*03:231, 03:248, 07:125, 07:356, 16:62 *03:248, 16:62
13	215 bp 270 bp	1070 bp	*04:12, 04:132 *04:52, 04:55	*03:231
14	155 bp 185 bp	1070 bp	*04:16, 04:163 *04:18	*03:248, A*24:52

101.612-12 – including *Taq* pol., IFU-01
101.612-12u– without *Taq* pol., IFU-02

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Lot No.: **67X**

Lot-specific information

15 ⁷	180 bp 235 bp	1070 bp	*04:14, 04:28, 04:68 *04:144	*16:45, A*24:96, A*24:146 *03:171, 03:211:01, 05:93, 06:73, 08:20, 08:40, 12:109
16 ⁵	85 bp 130 bp	1070 bp	*04:123N *04:15:01-04:15:03, 04:17, 04:37	*18:07N *03:05, 03:13:01-03:13:02, 03:25, 03:27, 03:35, 03:135, 03:167, 08:012:07, 08:02:07, 08:33:02, 14:09, 14:45, B*15:78:03
17	320 bp	1070 bp	*04:17, 04:80, 04:100	*01:50, 14:54
18 ⁵	125 bp 220 bp	1070 bp	*04:70 *04:19, 04:94:01-04:94:02	*06:101, 12:10:01-12:10:02, 18:03, B*15:27:01-15:27:03, B*15:109, B*15:327
19 ⁵	120 bp 155 bp	1070 bp	*04:35, 04:37 *04:20	*14:45 *03:135
20	165 bp 250 bp 545 bp	1070 bp	*04:44 *04:47, 04:170N *04:15:02, 04:17, 04:100	*03:231, 05:78, 15:36, A*01:118, A*02:109, A*33:52
21 ⁵	85 bp 145 bp 240 bp	1070 bp	*04:23, 04:108 *04:38 *04:39, 04:121	
22 ⁵	120 bp 170 bp	1070 bp	*04:24, 04:139, 04:140, 04:166 *04:26	*07:125, 07:356
23 ^{5,7}	85 bp 145 bp 225 bp	1070 bp	*04:25 *04:40 *04:41, 04:144	*03:171, 03:211:01, 05:93, 06:73, 08:20, 08:40, 12:109
24 ⁶	170 bp	1070 bp	*04:30, 04:42:01-04:42:02	*07:125, 07:356
25	160 bp 200 bp	1070 bp	*04:163 *04:43, 04:94:01- 04:94:02, 04:171	A*24:52 *06:101, 12:10:01-12:10:02, 18:03, B*15:27:01-15:27:03, B*15:109, B*15:327
26 ⁷	210 bp	800 bp	*04:45, 04:86	
27 ⁵	125 bp 280 bp	800 bp	*04:50 *04:46, 04:120	*05:64:01-05:64:02, 08:19, 08:101
28 ^{5,8}	120 bp 215 bp	1070 bp	*04:75 *04:48	
29 ⁵	105 bp 195 bp 255 bp	1070 bp	*04:82, 04:159 *04:49, 04:132 *04:170N	
30 ⁵	75 bp	1070 bp	*04:53	*05:49, B*07:90
31 ^{5,6}	125 bp 180 bp	1070 bp	*04:95N, 04:139 *04:51	
32 ⁵	105 bp 240 bp 275 bp	1070 bp	*04:78 *04:59Q, 04:121 *04:77	B*40:100
33 ⁵	80 bp 180 bp	1070 bp	*04:72 *04:58, 04:65, 04:160	*07:08, 07:108:01-07:108:02, B*40:100
34 ⁵	75 bp 200 bp 275 bp	1070 bp	*04:96 *04:13, 04:58, 04:61, 04:68, 04:160 *04:120	*07:08, 07:108:01-07:108:02, 08:101, B*47:09 *05:64:01-05:64:02, 08:19, 08:101

101.612-12 – including *Taq* pol., IFU-01
101.612-12u– without *Taq* pol., IFU-02

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Lot No.: **67X**

Lot-specific information

35⁵	85 bp 145 bp 175 bp	1070 bp	*04:62 *04:115N *04:76, 04:137	
36⁵	115 bp 150 bp	1070 bp	*04:57, 04:63 *04:117	
37⁵	110 bp 135 bp	1070 bp	*04:63, 04:73 *04:74, 04:125	
38⁵	95 bp 140 bp	1070 bp	*04:83, 04:123N, *04:74, 04:117	*03:232, 18:07N
39⁵	110 bp 145 bp 330 bp	1070 bp	*04:113 *04:71, 04:95N *04:79	*01:21
40	140 bp 205 bp 270 bp	800 bp	*04:56 *04:86 *04:64:01-04:64:02	
41⁶	135 bp 165 bp 280 bp	1070 bp	*04:105N *04:131 *04:54	*01:04, 01:54, 01:97, 14:02:01-14:24:01, 14:25, 14:27-14:53, 14:56-14:67
42⁵	95 bp	1070 bp	*04:69, 04:82, 04:159	*02:79, 16:12
43⁷	145 bp 170 bp 260 bp	1070 bp	*04:115N *04:81, 04:137 *04:88N	
44⁵	90 bp 135 bp	1070 bp	*04:108 *04:60, 04:125	*03:81, 03:175, 03:199, 03:245, B*15:78:03
45	135 bp 165 bp	1070 bp	*04:66 *04:16, 04:26, 04:103	*03:248, 16:62
46⁵	125 bp 165 bp 300 bp	1070 bp	*04:93N *04:131 *04:67	
47^{5,7}	50 bp	800 bp	*04:114	*01:59, 02:65, 03:130, 03:140, 03:243, 05:20, 06:82, 07:49, 07:210, 07:238, 07:247, 12:54, 14:04, 14:64, 15:85, 16:57, A*68:46
	295 bp		*04:146	*03:205 ^w
48⁷	185 bp	1070 bp	*04:84	*03:206, 03:212
49	190 bp	1070 bp	*04:91, 04:173N	
50	295 bp 335 bp	1070 bp	*04:162	*03:205 ^w
51	260 bp	1070 bp	*04:165	
52⁵	110 bp 240 bp	1070 bp	*04:150 *04:155	
53⁹			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*04 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.

101.612-12 – including **Taq pol.**, IFU-01
101.612-12u– without **Taq pol.**, IFU-02

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Lot-specific information

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.

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

⁴Due to the sharing of sequence motifs between HLA-C alleles non-HLA-C*04 alleles will be amplified by primer mixes 1 to 8, 10 to 20, 22 to 25, 27, 30, 33, 34, 38, 39, 41, 42, 44, 45, 47, 48 and 50. In addition, a few HLA-A and HLA-B alleles will be amplified by primer mixes 14 to 16, 18, 20, 25, 30, 32, 33, 34, 44 and 47.

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

⁶Primer mixes 7, 24, 31 and 41 have a tendency to giving rise to primer oligomer formation.

⁷Primer mixes 1, 4, 5, 11, 15, 23, 26, 43, 47 and 48 may have tendencies of unspecific amplification, most pronounced in primer mix 15.

⁸Primer mix, 28 may give rise to a long unspecific amplification product of approximately 500 bp. This should be disregarded when interpreting the C*04 typings.

⁹Primer mix 53 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', may be weakly amplified.

'?', nucleotide sequence information not available for the primer matching sequence.

101.612-12 – including *Taq* pol., IFU-01
101.612-12u– without *Taq* pol., IFU-02

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“Instructions for Use” (IFU)

Lot No.: **67X**

Lot-specific information
PRIMER SPECIFICATION

Well No.	1	2	3	4	5	6	7	8	9	10	11	12
Length of spec.	250	220	145	210	250	95	145	270	110	190	180	125
PCR product						215			180	220		165
									220			
Length of int. pos. control ¹	800	1070	1070	1070	1070	1070	1070	1070	800	1070	1070	1070
5'-primer(s) ²	2 nd I	112	112	118	2 nd I	98	112	2 nd I	391	112	201	218
	5'-CCA 3'	5'-CCT 3'	5'-CCT 3'	5'-CCA 3'	5'-CCA 3'	5'-CTC 3'	5'-CCT 3'	5'-CCA 3'	5'-ACC 3'	5'-CCT 3'	5'-CCA 3'	5'-ggA 3'
		112	112				459		1018	368		
		5'-CTT 3'	5'-CTT 3'				5'-gAT 3'		5'-gTg 3'	5'-gTT 3'		
3'-primer(s) ³	539	289	218	289	539	154	218	559	459	262	341	302
	5'-TCC 3'	5'-AgC 3'	5'-gCT 3'	5'-AgC 3'	5'-TCA 3'	5'-CAg 3'	5'-gCg 3'	5'-CAg 3'	5'-AgA 3'	5'-Tgg 3'	5'-CgT 3'	5'-ggC 3'
		289	218	289		270	559		1052	289		341
		5'-AgC 3'	5'-gTT 3'	5'-AgC 3'		5'-TAg 3'	5'-CTC 3'		5'-Tgg 3'	5'-AgT 3'		5'-Cgg 3'
			291						1092	289		
			5'-TCg 3'						5'-TTA 3'	5'-AgT 3'		
									521			
									5'-ggA 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.	215	155	180	85	320	125	120	165	85	120	85	170
PCR product	270	185	235	130		220	155	250	145	170	145	
								545	240		225	
Length of int. pos. control ¹	1070	1070	1070	1070	1070	1070	1070	1070	1070	1070	1070	1070
5'-primer(s) ²	112	105	412	368	379	228	347	112	368	89	172	97
	5'-CCT 3'	5'-gCT 3'	5'-ATA 3'	5'-gTg 3'	5'-ACg 3'	5'-ATg 3'	5'-gTA 3'	5'-CCT 3'	5'-gTT 3'	5'-gAT 3'	5'-TCC 3'	5'-TCg 3'
		368	652	369		368	368			127	355	1018
		5'-gTT 3'	5'-CCA 3'	5'-TAC 3'		5'-gTT 3'	5'-gTg 3'			5'-ggA 3'	5'-CCT 3'	5'-gTg 3'
			697	415			391			133	652	
			5'-TCC 3'	5'-ACT 3'			5'-ACC 3'			5'-CCT 3'	5'-CCA 3'	
										142	670	
										5'-TCT 3'	5'-CCg 3'	
3'-primer(s) ³	278	218	539	459	3 rd I	312	459	238	412	218	218	218
	5'-ggA 3'	5'-gCT 3'	5'-TCT 3'	5'-AgA 3'	5'-ACg 3'	5'-AgT 3'	5'-AgA 3'	5'-CCA 3'	5'-gTC 3'	5'-gCT 3'	5'-gCT 3'	5'-gCT 3'
	295	485	846			538		319	472		459	1052
	5'-TCC 3'	5'-CCA 3'	5'-CAC 3'			5'-CCA 3'		5'-gCT 3'	5'-ggC 3'		5'-AgA 3'	5'-Tgg 3'
	343	514				550		327	568		846	
	5'-T 3'	5'-CTT 3'				5'-CAT 3'		5'-TTT 3'	5'-CTg 3'		5'-CAC 3'	
								368	569			
								5'-CAT 3'	5'-ACA 3'			
Well No.	13	14	15	16	17	18	19	20	21	22	23	24

101.612-12 – including *Taq* pol., IFU-01
101.612-12u– without *Taq* pol., IFU-02

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Lot No.: **67X**

Lot-specific information

Well No.	25	26	27	28	29	30	31	32	33	34	35	36
Length of spec.	160	210	125	120	105	75	125	105	80	75	85	115
PCR product	200		280	215	195		180	240	180	200	145	150
					255			275		275	175	
Length of int. pos. control ¹	1070	800	800	1070	1070	1070	1070	1070	1070	1070	1070	1070
5'-primer(s) ²	368 5'-gTT 3'	112 5'-CCT 3'	368 5'-gTT 3'	232 5'-Agg 3'	112 5'-CCT 3'	503 5'-CCg 3'	81 5'-CAg 3'	368 5'-gTT 3'	368 5'-gTT 3'	368 5'-gTT 3'	112 5'-CCT 3'	350 5'-TCT 3'
				368 5'-gTT 3'	900 5'-CCg 3'		133 5'-CCT 3'					383 5'-ggC 3'
							459 5'-gAT 3'					386 5'-gCA 3'
3'-primer(s) ³	485 5'-CCA 3'	277 5'-gCT 3'	454 5'-CTg 3'	312 5'-AgT 3'	256 5'-CCA 3'	539 5'-TCC 3'	218 5'-gCT 3'	430 5'-gCA 3'	407 5'-ACg 3'	403 5'-gCA 3'	154 5'-CAT 3'	459 5'-AgA 3'
	518 5'-CCA 3'	284 5'-gTA 3'	601 5'-CTT 3'	544 5'-ggg 3'	278 5'-ggA 3'		549 5'-AgT 3'	563 5'-CgT 3'	505 5'-gCT 3'	527 5'-CCg 3'	217 5'-CTA 3'	
	538 5'-CCA 3'		613 5'-gCA 3'		327 5'-TTT 3'			569 5'-ACA 3'	512 5'-CCA 3'	601 5'-CTT 3'	242 5'-CCC 3'	
					963 5'-gCT 3'			603 5'-TTg 3'			247 5'-ATT 3'	
Well No.	25	26	27	28	29	30	31	32	33	34	35	36

Well No.	37	38	39	40	41	42	43	44	45	46	47	48
Length of spec.	110	95	110	140	135	95	145	90	135	125	50	185
PCR product	135	140	145	205	165		170	135	165	165	295	
			330	270	280		260			300		
Length of int. pos. control ¹	1070	1070	1070	800	1070	1070	1070	1070	1070	1070	800	1070
5'-primer(s) ²	364 5'-ggT 3'	350 5'-TCT 3'	98 5'-CTT 3'	112 5'-CCT 3'	215 5'-gCA 3'	256 5'-ACg 3'	112 5'-CCT 3'	364 5'-ggg 3'	89 5'-gAT 3'	83 5'-CTA 3'	302 5'-gAA 3'	704 5'-TgT 3'
	371 5'-TgA 3'	364 5'-ggT 3'	459 5'-gAT 3'	368 5'-gTT 3'	249 5'-TAg 3'	900 5'-CCg 3'		371 5'-TgA 3'	98 5'-CTA 3'	215 5'-gCA 3'	3 rd I 5'-Cgg 3'	
	386 5'-gCA 3'	395 5'-gCT 3'	3 rd I 5'-Cgg 3'		419 5'-gTC 3'			409 5'-ggC 3'	124 5'-gCT 3'	375 5'-TgA 3'		
	392 5'-CgC 3'	415 5'-ACT 3'										
3'-primer(s) ³	459 5'-AgA 3'	459 5'-AgA 3'	201 5'-CTT 3'	212 5'-gCC 3'	341 5'-CgT 3'	302 5'-ggT 3'	217 5'-CTA 3'	459 5'-AgA 3'	218 5'-gCT 3'	341 5'-CgT 3'	312 5'-Agg 3'	846 5'-CAC 3'
			527 5'-CCA 3'	277 5'-gCT 3'	3 rd I 5'-ACg 3'	963 5'-gCT 3'	239 5'-gCT 3'			459 5'-AgA 3'	845 5'-ACA 3'	
			549 5'-AgT 3'	595 5'-CCT 3'			242 5'-CCC 3'				845 5'-ACT 3'	
			878 5'-ggA 3'	595 5'-CCg 3'			331 5'-CTA 3'					
Well No.	37	38	39	40	41	42	43	44	45	46	47	48

101.612-12 – including *Taq* pol., IFU-01
101.612-12u– without *Taq* pol., IFU-02

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Lot No.: **67X**

Lot-specific information

Well No.	49	50	51	52
Length of spec.	190	295	260	110
PCR product		335		240
Length of int.	1070	1070	1070	1070
pos. control¹				
5'-primer(s)²	112	3rd I	862	368
	5' -CCT 3'	5' -Cgg 3'	5' -ACA 3'	5' -gTT 3'
3'-primer(s)³	262	845	956	435
	5' -Tgg 3'	5' -ACT 3'	5' -CAg 3'	5' -TCA 3'
	268	883		565
	5' -CTA 3'	5' -ggC 3'		5' -CAT 3'
Well No.	49	50	51	52

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.

101.612-12 – including *Taq* pol., IFU-01
101.612-12u– without *Taq* pol., IFU-02

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Lot No.: **67X**

Lot-specific information

CELL LINE VALIDATION SHEET																				
HLA-C*04 SSP subtyping kit ²																				
				Well																
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
				Prod. No.:	201324701	201440302	201440303	201324704	201324705	201324706	201324707	201324708	201324709	201440310	201324711	201324712	201440313	201440314	201324715	201324716
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	+	+	+	-	-	-	-	-	-	-	-	+	-	-	-	-	-

101.612-12 – including *Taq* pol., IFU-01
101.612-12u– without *Taq* pol., IFU-02

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

Lot No.: **67X**

Lot-specific information

CELL LINE VALIDATION SHEET																				
HLA-C*04 SSP subtyping kit ²																				
				Well																
				17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
				Prod. No.:	201324717	201324718	201324719	201440320	201440321	201440322	201324723	201440324	201440325	201440326	201324727	201324728	201440329	201324730	201324731	201440332
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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

101.612-12 – including *Taq* pol., IFU-01
101.612-12u– without *Taq* pol., IFU-02

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“Instructions for Use” (IFU)

Lot No.: **67X**

Lot-specific information

CELL LINE VALIDATION SHEET																				
HLA-C*04 SSP subtyping kit²																				
				Well																
				33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	
				Prod. No.:	201324733	201324734	201440335	201440336	201440337	201440338	201440339	201440340	201440341	201324742	201440343	201440344	201440345	201440346	201440347	201444848
IHWC 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	*07:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	9191 CH1007	*07:04	*15:05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	9320 BEL5GB	*05:01	*16:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	9050 MOU	*16:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	9021 RSH	*17:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31	9019 DUCAF	*05:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	9297 HAG	*17:01	*17:03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	9098 MT14B	*03:04		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34	9104 DHIF	*12:03		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35	9302 SSTO	*05:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
36	9024 KT17	*03:03	*04:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
37	9065 HHKB	*07:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38	9099 LZL	*03:03		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39	9315 CML	*02:02	*07:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40	9134 WHONP199	*01:02	*06:02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41	9055 H0301	*08:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
42	9066 TAB089	*01:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43	9076 T7526	*01:02	*08:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44	9057 TEM	*12:03		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45	9239 SHJO	*06:02	*17:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
46	9013 SCHU	*07:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
47	9045 TUBO	*07:04	*15:02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
48	9303 TER-ND	*04:01	*16:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



101.612-12 – including *Taq* pol., IFU-01
101.612-12u– without *Taq* pol., IFU-02

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“Instructions for Use” (IFU)

Lot No.: **67X**

Lot-specific information

CELL LINE VALIDATION SHEET									
HLA-C*04 SSP subtyping kit ²									
					Well				
					49	50	51	52	
					Prod. No.:	201440349	201440350	201440351	201440352
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	-	-	-	-	

101.612-12 – including *Taq* pol., IFU-01
101.612-12u– without *Taq* pol., 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 solutions 6, 8, 10, 12 to 15, 17, 19 to 24, 26 to 40 and 42 to 52 were available.

The specificity of the primers in primer solutions 6, 8, 10, 12 to 15, 17, 19 to 22, 24, 27, 28, 31 to 34, 39, 42, 44, 45 and 47 were tested by separately adding one additional 5'-primer, respectively one additional 3'-primer. In primer solutions 26, 29, 35, 40, 43, 49, 50 and 52 it was only possible to test the 5'-primers, the 3'-primers were not possible to test. In primer solutions 23, 30, 36 to 38, 46, 48 and 51 it was only possible to test the 3'-primers, the 5'-primers were not possible to test. In primer solutions 2, 3, 9, 15, 16, 18, 19, 22, 28, 31, 41, 44 and 45 one, two or three of the 5'-primers were not possible to test, and in primer solutions 3, 4, 6, 9, 10, 13, 14, 18, 20, 21, 24, 25, 27, 28, 31 to 34, 39, 42 and 47 one or two of the 3'-primers were not possible to test.

Additional primers in primer solutions 7, 9, 16, 18, 25 and 41 were tested by separately adding one 5'-primer and/or one 3'-primer.

101.612-12 – including *Taq* pol., IFU-01
101.612-12u– without *Taq* pol., IFU-02

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101.612-12 – including **Taq pol.**, IFU-01
101.612-12u– without **Taq pol.**, IFU-02

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Lot No.: **67X**

Lot-specific information

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