101.431-12 – including *Taq* polymerase, IFU-01
101.431-12u – without *Taq* polymerase, IFU-02

Visit www.olerup.com for
"Instructions for Use" (IFU)

Lot No.: 5E4

Lot-specific information

Olerup SSP® HLA-A*32

Product number:	**101.431-12 – including *Taq* polymerase** **101.431-12u – without *Taq* polymerase**
Lot number:	**5E4**
Expiry date:	**2019-05-01**
Number of tests:	**12**
Number of wells per test:	**29+1**
Storage - pre-aliquoted primers:	**dark at -20ºC**
- PCR Master Mix:	**-20ºC**
- Adhesive PCR seals	**RT**
- Product Insert	**RT**

This Product Description is only valid for Lot No. 5E4.

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-A*32 LOT (96X)

The HLA-A*32 kit is updated for new alleles to enable separation of:

- Confirmed[1] alleles as listed in the IMGT/HLA database
- Polymorphisms in exons outside of the region encoding the peptide binding domain
- Null and Alternatively expressed alleles

Two wells have been added to HLA-A*32, wells **29 to 30**.

[1]As described in section Uniquely Identified Alleles.

The HLA-A*32 primer set, specificity and interpretation tables have been updated for the HLA-A alleles described since the previous *Olerup* SSP® HLA-A*32 lot was made **(Lot No. 96X)**. The kit design is based on IMGT/HLA database 3.25.0.

As of lot series V, the Specificity Table is included in the lot-specific Product Insert, and the Interpretation Table is included in the Worksheet.

101.431-12 – including *Taq* polymerase, IFU-01
101.431-12u – without *Taq* polymerase, IFU-02

Visit www.olerup.com for **"Instructions for Use" (IFU)**

Lot No.: 5E4 **Lot-specific information**

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	Exchanged	Removed, Added	5'-primer exchanged and 3'-primer removed for improved HLA-specific amplification, 3'-primer added for the A*32:71 allele.
9	Added	-	5'-primer added for the A*32:72 allele.
28	Added	Added	Negative control moved to well 30, primer pair added for the A*32:69 allele.
29	New	New	New primer pair added for the A*32:74 allele.
30	-	-	Negative control added from well 28

Change in revision R01 compared to R00:

1. Primer mix 14 does not amplify the A*32:12 allele. This has been corrected in the Interpretation and Specificity Tables.

101.431-12 – including *Taq* polymerase, IFU-01
101.431-12u – without *Taq* polymerase, IFU-02

Visit www.olerup.com for **"Instructions for Use" (IFU)**

Lot No.: 5E4 **Lot-specific information**

Well **30** contains Negative Control primer pairs, that will amplify more than 95% of the *Olerup* SSP® HLA Class I, DRB, DQB1, DPB1 and DQA1 amplicons as well as all the amplicons generated by the control primer pairs matching the human growth hormone gene.

HLA-specific PCR product sizes range from 75 to 200 base pairs.
The PCR product generated by the positive control primer pair is 430 base pairs.

Length of PCR product	**105**	**200**	**105**	**80**	**75**	**80**	**85**
5'-primer[1]	**164**	**340**	**440**	**45**	**45**	**43**	**36**
	5'-CAC3'	**5'-Agg3'**	**5'-TTA3'**	**5'-Tgg3'**	**5'-Tgg3'**	**5'-Tgg3'**	**5'-TAC3'**
							36
							5'-TAT3'
3'-primer[2]	**231**	**2nd I**	**507**	**59**	**58**	**57**	**47**
	5'-TgC3'	**5'-AAA3'**	**5'-TTg3'**	**5'-CTC3'**	**5'-ggC3'**	**5'-CTC3'**	**5'-ACA3'**
							48
							5'-gCA3'
							48
							5'-gCC3'
							52
							5'-TgT3'
A*	+	+	+				
B*	+	+	+				
C*	+	+	+				
DRB1				+	+		
DRB3				+	+		
DRB5				+			
DQB1					+		
DPB1						+	
DQA1							+

[1]The nucleotide position for HLA class I genes and the codon for HLA class II genes, in the 2nd or 3rd exon, matching the specificity-determining 3'-end of the primer is given. Nucleotide and codonnumbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

[2]The nucleotide position for HLA class I genes and the codon for HLA class II genes, in the 2nd or 3rd exon or the 2nd intron, matching the specificity-determining 3'-end of the primer is given in the anti-sense direction. Nucleotide and codon numbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

101.431-12 – including *Taq* polymerase, IFU-01
101.431-12u – without *Taq* polymerase, IFU-02

Visit www.olerup.com for
"Instructions for Use" (IFU)

Lot No.: 5E4 **Lot-specific information**

PRODUCT DESCRIPTION

HLA-A*32 SSP subtyping

CONTENT

The primer set contains 5'- and 3'-primers for identifying the A*32:01 to A*32:86 alleles.

PLATE LAYOUT

Each test consists of 30 PCR reactions in a 32 well cut PCR plate. Wells 31 and 32 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	NC	empty	empty

The 32 well cut PCR plate is marked with 'HLA-A*32' in silver/gray ink.
Well No. 1 is marked with the Lot No. '5E4'.
Wells 1 to 29– HLA-A*32 high resolution primers.
Well 30 – 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 covered with a PCR-compatible foil.
Please note: When removing each 32 well PCR plate, make sure that the remaining plates stay covered. 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-A alleles non-HLA-A*32 alleles will be amplified by primer mixes 1 to 4, 6 to 10, 12 to 15, 17, 20, 21, 23, 24 and 26. In addition, a few HLA-B and HLA-C alleles will be amplified by primer mixes 12 and 14.
For further details see Specificity Table.

UNIQUELY IDENTIFIED ALLELES

All the HLA-A*32 alleles, i.e. **A*32:01 to A*32:86 alleles**, recognized by the HLA Nomenclature Committee in July 2016[1,2] will be amplified by the primers in the HLA-A*32 subtyping kit.

The HLA-A*32 kit enables separation of the confirmed HLA-A*32 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-A*32 alleles is listed below.
The HLA-A*32 kit also enables identification of polymorphisms in exons outside of the region encoding the peptide binding domain and of null and alternatively expressed alleles.

101.431-12 – including *Taq* polymerase, IFU-01
101.431-12u – without *Taq* polymerase, IFU-02

Visit www.olerup.com for **"Instructions for Use" (IFU)**

Lot No.: 5E4 **Lot-specific information**

The following HLA-A*32 alleles can be distinguished by the different sizes of the HLA-specific PCR product:

Alleles	Primer mix
A*32:10, 32:16	12
A*32:21, 32:44	17
A*32:23, 32:54	20
A*32:28, 32:53	23

The HLA-A*32 subtyping kit cannot distinguish the following silent mutations: the A*32:01:01-32:01:17, 32:01:19-32:01:23 and the 32:55:01-32:55:02 alleles.

[1]HLA-A alleles listed on the IMGT/HLA web page 2016-July-14, release 3.25.0, www.ebi.ac.uk/imgt/hla.
[2]Alleles that have been deleted from or renamed in the official WHO HLA Nomenclature up to and including the last IMGT/HLA database release can be retrieved from web page http://hla.alleles.org/alleles/deleted.html.

ALLELE CONFIRMATION STATUS

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

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

101.431-12 – including *Taq* polymerase, IFU-01
101.431-12u – without *Taq* polymerase, IFU-02

Visit www.olerup.com for **"Instructions for Use" (IFU)**

Lot No.: 5E4 **Lot-specific information**

RESOLUTION IN HOMO- AND HETEROZYGOTES

Results file with resolution in HLA-A*32 homo- and heterozygotes is available upon request.

101.431-12 – including *Taq* polymerase, IFU-01
101.431-12u – without *Taq* polymerase, IFU-02

Visit www.olerup.com for
"Instructions for Use" (IFU)

Lot No.: 5E4

Lot-specific information

SPECIFICITY TABLE

HLA-A*32 SSP subtyping

Specificities and sizes of the PCR products of the 29+1 primer mixes used for HLA-A*32 SSP subtyping

Primer Mix	Size of spec. PCR product[1]	Size of control band[2]	Amplified HLA-A*32 alleles[3]	Other amplified HLA-A alleles[4]
1	200 bp	**800 bp**	*32:01:01-32:06, 32:08-32:14, 32:16-32:24, 32:26-32:38, 32:40-32:41, 32:43-32:63, 32:65-32:78, 32:80-32:86	*01:01:01:01-01:01:75, 01:03-01:04N, 01:06-01:19, 01:21-01:33, 01:35-01:42, 01:44-01:46, 01:48-01:50, 01:52:01N-01:59, 01:61-01:70, 01:72-01:82, 01:84-01:104, 01:106-01:142, 01:144-01:187, 01:189, 01:191-01:208Q, 02:45, 02:56:01-02:56:02, 02:103, 02:195, 03:01:01:01-03:01:03, 03:01:05-03:11N, 03:13-03:22:02, 03:25-03:29, 03:31-03:35, 03:37-03:58, 03:60-03:69N, 03:71, 03:73-03:87, 03:90-03:112, 03:114-03:151, 03:153-03:157:01, 03:158-03:193, 03:195-03:197N, 03:199-03:204, 03:206-03:249, 11:199:01-11:199:02, 11:222, 30:55, 31:21, 36:01-36:05, 74:01:01-74:03, 74:05-74:18, 74:22-74:27
2[6]	430 bp	1070 bp	*32:01:01-32:01:06, 32:01:08-32:01:11, 32:01:13-32:02, 32:05-32:27N, 32:29-32:33:01, 32:34-32:65, 32:67-32:77, 32:79-32:83, 32:85-32:86	*29:13
	520 bp		*32:01:01-32:01:05, 32:01:07-32:01:23, 32:04-32:09, 32:11Q-32:21, 32:23-32:77, 32:79-32:83, 32:85-32:86	*02:81, 02:124, 23:36, 25:19:01-25:19:02, 25:30, 29:13
3	130 bp	1070 bp	*32:02, 32:22	*11:01:28, 24:21:03, 24:208, 29:05, 29:33, 29:77, 29:87, 31:24, 33:59, 33:102
4[5,6]	115 bp	**800 bp**	*32:02, 32:06	*02:24:02, 02:507, 24:21:03, 24:208, 29:33, 29:51, 29:80, 31:41, 33:94
5	165 bp	**800 bp**	*32:03	
6[5]	120 bp	1070 bp	*32:20	
	520 bp		*32:04, 32:52	*03:152, 24:18, 24:204, 24:213
7	135 bp	**800 bp**	*32:05, 32:17, 32:79	*29:13
8[7]	165 bp	1070 bp	*32:19N	
	215 bp		*32:07	*01:02[w], 01:20[w], 03:72, 11:88, 23:09[w], 23:51, 24:24, 24:67, 24:145, 24:156, 24:191, 24:290, 26:16, 29:37, 29:56,

				30:01:01-30:04:02, 30:06, 30:09-30:20, 30:23-30:30, 30:32-30:54, 30:56-30:59N, 30:61-30:78N, 30:80-30:99, 30:102, 68:45, 68:117
9	180 bp	1070 bp	*32:01:01-32:01:17, 32:01:19-32:03, 32:05-32:86	*29:13
10[7]	150 bp	**800 bp**	*32:08, 32:17	*29:13
11[5]	120 bp 165 bp	1070 bp	*32:20 *32:09	
12	130 bp 195 bp	1070 bp	*32:10 *32:16	*02:507, 29:28, 29:79, 31:30, 31:97, 33:94, **B*07:02:40, C*02:02:15, C*04:175**
13	155 bp 200 bp	1070 bp	*32:11Q *32:15	 *01:51, 02:55, 03:24, 25:03, 25:30, 26:20, 34:08, 68:71
14	215 bp	1070 bp	*32:18	*29:06, 31:51, 74:26, **B*15:02:07, B*15:17:03, B*27:07:05, B*55:02:10, C*04:175, C*08:01:15**
15	165 bp 220 bp	1070 bp	*32:13 *32:18	*23:03:01, 24:21:03, 24:208, 29:03, 29:33, 31:05, 33:10
16	220 bp	1070 bp	*32:14	
17[5]	75 bp 200 bp	1070 bp	*32:21 *32:44	*29:62, 31:45, 33:16 *33:75
18	130 bp 185 bp	1070 bp	*32:24 *32:60	
19[5]	110 bp 185 bp	1070 bp	*32:25, 32:45N *32:60	
20[5,6]	125 bp 220 bp	1070 bp	*32:23 *32:54	*33:46 *02:294, 34:01:01[?]-34:01:02[?], 34:05[?], 66:08
21	150 bp	**800 bp**	*32:26	*31:25
22	175 bp 230 bp	1070 bp	*32:56N *32:27N	
23[5]	80 bp 225 bp	1070 bp	*32:28, 32:66 *32:53	*02:41, 02:80, 02:117, 02:289:01, 02:304, 02:454, 23:45, 24:62, 26:10, 31:67-31:68, 33:32:01 *02:480, 33:39
24	175 bp	**800 bp**	*32:48N, 32:56N	*02:314N, 03:197N
25	205 bp	1070 bp	*32:61	
26	135 bp	1070 bp	*32:68	*68:144
27	180 bp	1070 bp	*32:47	
28[5]	95 bp	1070 bp	*32:69	
29	170 bp	1070 bp	*32:74	
30[8]	-	**-**	**Negative Control**	

101.431-12 – including *Taq* polymerase, IFU-01
101.431-12u – without *Taq* polymerase, IFU-02

Visit www.olerup.com for **"Instructions for Use" (IFU)**

Lot No.: 5E4 **Lot-specific information**

[1]Alleles are assigned by the presence of specific PCR product(s). However, the sizes of the specific PCR products may be helpful in the interpretation of HLA-A*32 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 inherit feature of the primer pair(s) of a primer mix. More often it is due to other factors such as too low amount of DNA in the PCR reactions, taking too long time in setting up the PCR reactions, working at elevated room temperature or using thermal cyclers that are not pre-heated.

[2]The internal positive control primer pairs amplify segments of the human growth hormone gene. The internal positive control bands are 1070 or 800 base pairs respectively, well distribution as outlined in the table. Well number 1 contains the shorter, 800 bp, internal positive control band. The well distribution of the internal controls can help in orientation of the kit on gel photo, as well as allow for kit identification. In the presence of a specific amplification the intensity of the control band often decreases.

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

[4]Due to the sharing of sequence motifs between HLA-A alleles non-HLA-A*32 alleles will be amplified by primer mixes 1 to 4, 6 to 10, 12 to 15, 17, 20, 21, 23, 24 and 26. In addition, a few HLA-B and HLA-C alleles will be amplified by primer mixes 12 and 14.

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

[6]Primer mixes 2, 4 and 20 may have tendencies of unspecific amplifications.

[7]Primer mixes 8 and 10 may give rise to a lower yield of HLA-specific PCR product than the other A*32 primer mixes.

[8]Primer mix 30 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.

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

101.431-12 – including *Taq* polymerase, IFU-01
101.431-12u – without *Taq* polymerase, IFU-02

Visit www.olerup.com for
"Instructions for Use" (IFU)

Lot No.: 5E4

Lot-specific information

PRIMER SPECIFICATION

Well No.	1	2	3	4	5	6	7	8	9	10	11	12
Length of spec.	200	430	130	115	165	120	135	165	180	150	120	130
PCR product		520				520		215			165	195
Length of int. pos. control[1]	800	1070	1070	800	800	1070	800	1070	1070	800	1070	1070
5'-primer(s)[2]	98	302	448	448	180	101	180	98	180	180	101	448
	5' -CTT 3'	5' -gAg 3'	5' -CCT 3'	5' -CCT 3'	5' -TTT 3'	5' -CAT 3'	5' -TTT 3'	5' -CTC 3'	5' -TTT 3'	5' -TTT 3'	5' -CAT 3'	5' -CCT 3'
	98					317		448	180		448	
	5' -CTT 3'					5' -gCT 3'		5' -CCT 3'	5' -TTT 3'		5' -CCT 3'	
3'-primer(s)[3]	256	448	539	524	302	180	265	270	317	282	180	539
	5' -CTg 3'	5' -CAA 3'	5' -TCT 3'	5' -CAT 3'	5' -ggT 3'	5' -TCA 3'	5' -CCC 3'	5' -ACA 3'	5' -ggA 3'	5' -gAC 3'	5' -TCA 3'	5' -TCC 3'
	256	538				555	282	573		292	571	602
	5' -CTg 3'	5' -CAA 3'				5' -CCA 3'	5' -gAC 3'	5' -AgT 3'		5' -gTg 3'	5' -CCg 3'	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.	155	215	165	220	75	130	110	125	150	175	80	175
PCR product	200		220		200	185	185	220		230	225	
Length of int. pos. control[1]	1070	1070	1070	1070	1070	1070	1070	1070	800	1070	1070	800
5'-primer(s)[2]	102	139	139	124	448	180	180	448	448	98	414	98
	5' -ACA 3'	5' -TCg 3'	5' -TCg 3'	5' -gCC 3'	5' -CCT 3'	5' -TTT 3'	5' -TTT 3'	5' -CCT 3'	5' -CCT 3'	5' -CTT 3'	5' -CAg 3'	5' -CTT 3'
	448	448	448				448	652			649	411
	5' -CCT 3'	5' -CCT 3'	5' -CCT 3'				5' -CCT 3'	5' -CTg 3'			5' -ACA 3'	5' -TAg 3'
3'-primer(s)[3]	259	317	317	302	482	271	258	532	559	232	453	232
	5' -gTT 3'	5' -ggA 3'	5' -ggA 3'	5' -ggC 3'	5' -Tgg 3'	5' -CAT 3'	5' -TCg 3'	5' -CTT 3'	5' -CCT 3'	5' -C.g 3'	5' -TCT 3'	5' -C.g 3'
	563	616	570		608	323	323	829		286	831	538
	5' -CgA 3'	5' -CgC 3'	5' -CCg 3'		5' -gCg 3'	5' -AgC 3'	5' -AgC 3'	5' -CTC 3'		5' -CTA 3'	5' -TCC 3'	5' -CAA 3'
							508					
							5' -CTA 3'					
Well No.	13	14	15	16	17	18	19	20	21	22	23	24

Well No.	25	26	27	28	29
Length of spec.	205	135	180	95	170
PCR product					
Length of int. pos. control[1]	1070	1070	1070	1070	1070
5'-primer(s)[2]	668	736	401	98	704
	5' -ggg 3'	5' -ggA 3'	5' -CCA 3'	5' -CTT 3'	5' -TgA 3'
3'-primer(s)[3]	831	831	538	154	831
	5' -TCC 3'	5' -TCC 3'	5' -CAA 3'	5' -CAT 3'	5' -TCC 3'
Well No.	25	26	27	28	29

101.431-12 – including *Taq* polymerase, IFU-01
101.431-12u – without *Taq* polymerase, IFU-02

Visit www.olerup.com for **"Instructions for Use" (IFU)**

Lot No.: 5E4 **Lot-specific information**

[1]The internal positive control primer pairs amplify segments of the human growth hormone gene. The internal positive control bands are 1070 or 800 base pairs respectively, well distribution as outlined in the table. Well number 1 contains the shorter, 800 bp, internal positive control band. The well distribution of the internal controls can help in orientation of the kit on gel photo, as well as allow for kit identification. In the presence of a specific amplification the intensity of the control band often decreases.

[2]The nucleotide position matching the specificity-determining 3'-end of the primer is given. Nucleotide numbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

[3]The nucleotide position matching the specificity-determining 3'-end of the primer is given in the anti-sense direction. Nucleotide numbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

101.431-12 – including *Taq* polymerase, IFU-01
101.431-12u – without *Taq* polymerase, IFU-02

Visit www.olerup.com for
"Instructions for Use" (IFU)

Lot No.: 5E4 **Lot-specific information**

CELL LINE VALIDATION SHEET

HLA-A*32 SSP subtyping kit[2]

					Well													
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
				Prod. No.:	201324501	201673902	201324503	201324504	201324505	201324506	201324507	201324508	201673909	201324510	201324511	201324512	201324513	201324514	201324515	201324516
	IHWC cell line[1]		A*	A*																
1	9001	SA	*24:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	9280	LK707	*02:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	9011	E4181324	*01:01		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	9275	GU373	*30:01		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
5	9009	KAS011	*01:01		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	9353	SM	*02:01	*26:03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	9020	QBL	*26:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	9025	DEU	*31:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	9026	YAR	*26:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	9107	LKT3	*24:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	9051	PITOUT	*29:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	9052	DBB	*02:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	9004	JESTHOM	*02:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	9071	OLGA	*31:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	9075	DKB	*24:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	9037	SWEIG007	*29:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	9282	CTM3953540	*03:01	*80:01	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	9257	32367	*33:03	*74:01	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	9038	BM16	*02:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	9059	SLE005	*02:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	9064	AMALA	*02:17		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	9056	KOSE	*02:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	9124	IHL	*02:01	*34:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	9035	JBUSH	*32:01		+	+	-	-	-	-	-	-	+	-	-	-	-	-	-	-
25	9049	IBW9	*33:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	9285	WT49	*02:05		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	9191	CH1007	*24:10	*29:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	9320	BEL5GB	*02:01	*29:02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	9050	MOU	*29:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	9021	RSH	*30:01	*68:02	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
31	9019	DUCAF	*30:02		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
32	9297	HAG	*02:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	9098	MT14B	*31:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34	9104	DHIF	*31:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35	9302	SSTO	*32:01		+	+	-	-	-	-	-	-	+	-	-	-	-	-	-	-
36	9024	KT17	*02:06	*11:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
37	9065	HHKB	*03:01		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38	9099	LZL	*02:17		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39	9315	CML	*01:01	*03:01	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40	9134	WHONP199	*02:07	*30:01	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
41	9055	H0301	*03:01		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
42	9066	TAB089	*02:07		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43	9076	T7526	*02:06	*02:07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44	9057	TEM	*66:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45	9239	SHJO	*23:01	*24:02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
46	9013	SCHU	*03:01		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
47	9045	TUBO	*02:16	*03:01	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
48	9303	TER-ND	*02:01	*11:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

101.431-12 – including *Taq* polymerase, IFU-01
101.431-12u – without *Taq* polymerase, IFU-02

Visit www.olerup.com for **"Instructions for Use" (IFU)**

Lot No.: 5E4 **Lot-specific information**

CELL LINE VALIDATION SHEET

HLA-A*32 SSP subtyping kit[2]

					Well												
					17	18	19	20	21	22	23	24	25	26	27	28	29
				Prod. No.:	201324517	201448118	201448119	201324520	201324521	201324522	201324523	201324524	201448125	201448126	201448127	201673928	201673929
	IHWC cell line[1]		A*	A*													
1	9001	SA	*24:02		-	-	-	-	-	-	-	-	-	-	-	-	-
2	9280	LK707	*02:01		-	-	-	-	-	-	-	-	-	-	-	-	-
3	9011	E4181324	*01:01		-	-	-	-	-	-	-	-	-	-	-	-	-
4	9275	GU373	*30:01		-	-	-	-	-	-	-	-	-	-	-	-	-
5	9009	KAS011	*01:01		-	-	-	-	-	-	-	-	-	-	-	-	-
6	9353	SM	*02:01	*26:03	-	-	-	-	-	-	-	-	-	-	-	-	-
7	9020	QBL	*26:01		-	-	-	-	-	-	-	-	-	-	-	-	-
8	9025	DEU	*31:01		-	-	-	-	-	-	-	-	-	-	-	-	-
9	9026	YAR	*26:01		-	-	-	-	-	-	-	-	-	-	-	-	-
10	9107	LKT3	*24:02		-	-	-	-	-	-	-	-	-	-	-	-	-
11	9051	PITOUT	*29:02		-	-	-	-	-	-	-	-	-	-	-	-	-
12	9052	DBB	*02:01		-	-	-	-	-	-	-	-	-	-	-	-	-
13	9004	JESTHOM	*02:01		-	-	-	-	-	-	-	-	-	-	-	-	-
14	9071	OLGA	*31:01		-	-	-	-	-	-	-	-	-	-	-	-	-
15	9075	DKB	*24:02		-	-	-	-	-	-	-	-	-	-	-	-	-
16	9037	SWEIG007	*29:02		-	-	-	-	-	-	-	-	-	-	-	-	-
17	9282	CTM3953540	*03:01	*80:01	-	-	-	-	-	-	-	-	-	-	-	-	-
18	9257	32367	*33:03	*74:01	-	-	-	-	-	-	-	-	-	-	-	-	-
19	9038	BM16	*02:01		-	-	-	-	-	-	-	-	-	-	-	-	-
20	9059	SLE005	*02:01		-	-	-	-	-	-	-	-	-	-	-	-	-
21	9064	AMALA	*02:17		-	-	-	-	-	-	-	-	-	-	-	-	-
22	9056	KOSE	*02:01		-	-	-	-	-	-	-	-	-	-	-	-	-
23	9124	IHL	*02:01	*34:01	-	-	-	?	-	-	-	-	-	-	-	-	-
24	9035	JBUSH	*32:01		-	-	-	-	-	-	-	-	-	-	-	-	-
25	9049	IBW9	*33:01		-	-	-	-	-	-	-	-	-	-	-	-	-
26	9285	WT49	*02:05		-	-	-	-	-	-	-	-	-	-	-	-	-
27	9191	CH1007	*24:10	*29:01	-	-	-	-	-	-	-	-	-	-	-	-	-
28	9320	BEL5GB	*02:01	*29:02	-	-	-	-	-	-	-	-	-	-	-	-	-
29	9050	MOU	*29:02		-	-	-	-	-	-	-	-	-	-	-	-	-
30	9021	RSH	*30:01	*68:02	-	-	-	-	-	-	-	-	-	-	-	-	-
31	9019	DUCAF	*30:02		-	-	-	-	-	-	-	-	-	-	-	-	-
32	9297	HAG	*02:01		-	-	-	-	-	-	-	-	-	-	-	-	-
33	9098	MT14B	*31:01		-	-	-	-	-	-	-	-	-	-	-	-	-
34	9104	DHIF	*31:01		-	-	-	-	-	-	-	-	-	-	-	-	-
35	9302	SSTO	*32:01		-	-	-	-	-	-	-	-	-	-	-	-	-
36	9024	KT17	*02:06	*11:01	-	-	-	-	-	-	-	-	-	-	-	-	-
37	9065	HHKB	*03:01		-	-	-	-	-	-	-	-	-	-	-	-	-
38	9099	LZL	*02:17		-	-	-	-	-	-	-	-	-	-	-	-	-
39	9315	CML	*01:01	*03:01	-	-	-	-	-	-	-	-	-	-	-	-	-
40	9134	WHONP199	*02:07	*30:01	-	-	-	-	-	-	-	-	-	-	-	-	-
41	9055	H0301	*03:01		-	-	-	-	-	-	-	-	-	-	-	-	-
42	9066	TAB089	*02:07		-	-	-	-	-	-	-	-	-	-	-	-	-
43	9076	T7526	*02:06	*02:07	-	-	-	-	-	-	-	-	-	-	-	-	-
44	9057	TEM	*66:01		-	-	-	-	-	-	-	-	-	-	-	-	-
45	9239	SHJO	*23:01	*24:02	-	-	-	-	-	-	-	-	-	-	-	-	-
46	9013	SCHU	*03:01		-	-	-	-	-	-	-	-	-	-	-	-	-
47	9045	TUBO	*02:16	*03:01	-	-	-	-	-	-	-	-	-	-	-	-	-
48	9303	TER-ND	*02:01	*11:01	-	-	-	-	-	-	-	-	-	-	-	-	-

101.431-12 – including *Taq* polymerase, IFU-01 Visit www.olerup.com for
101.431-12u – without *Taq* polymerase, IFU-02 **"Instructions for Use" (IFU)**

Lot No.: 5E4 **Lot-specific information**

[1]The provided cell line HLA specificities are retrieved from the http://www.ihwg.org/hla web site. The specificity of an individual cell line may thus be subject to change.

[2]The specificity of each primer solution in the kit has been tested against 48 well characterized cell line DNAs and where applicable, additional cell line DNAs.

No DNAs carrying the alleles to be amplified by primer solutions 3 to 5, 7, 10 to 19 and 21 to 29 were available. The specificities of the primers in primer solutions 3 to 5, 7, 10 to 15, 18, 23 and 24 were tested by separately adding one or two additional 5'-primers, respectively one or two additional 3'-primers.

In primer solutions 16, 25 to 27 and 29 it was only possible to test the 3'-primers, the 5'-primer was not possible to test.

In primer solutions 17, 19, 21, 22 and 28 it was only possible to test the 5'-primers, the 3'-primers were not possible to test.

In primer solution 1, 8, 10 to 14, 18, 20 and 24 one of the 3'-primers was not possible to test. In primer solutions 1, 6, 9, 11, 14, 15, 23 and 24 one of the 5'-primers was not possible to test.

Additional primers in primer solutions 6, 8 and 20 were tested by separately adding 5'–primers respectively 3'-primers.

101.431-12 – including *Taq* polymerase, IFU-01
101.431-12u – without *Taq* polymerase, IFU-02

Visit www.olerup.com for **"Instructions for Use" (IFU)**

Lot No.: 5E4 **Lot-specific information**

101.431-12 – including *Taq* polymerase, IFU-01
101.431-12u – without *Taq* polymerase, IFU-02

Visit www.olerup.com for **"Instructions for Use" (IFU)**

Lot No.: 5E4 **Lot-specific information**

ADDRESSES:

Manufacturer:
***Olerup* SSP AB**, Franzengatan 5, SE-112 51 Stockholm, Sweden.
Tel: +46-8-717 88 27
Fax: +46-8-717 88 18
E-mail: olerup-se@caredx.com
Web page: http://www.olerup.com

Distributed by:
Olerup GmbH, Löwengasse 47 / 6, AT-1030 Vienna, Austria.
Tel: +43-1-710 15 00
Fax: +43-1-710 15 00 10
E-mail: olerup-at@caredx.com
Web page: http://www.olerup.com

Olerup Inc., 901 S. Bolmar St., Suite R, West Chester, PA 19382
Tel: 1-877-OLERUP1
Fax: 610-344-7989
E-mail: olerup-us@caredx.com
Web page: http://www.olerup.com

For information on *Olerup* distributors worldwide, contact **Olerup GmbH**.