

101.432-12 – including *Taq* polymerase, IFU-01  
101.432-12u – without *Taq* polymerase, IFU-02

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“Instructions for Use” (IFU)

Lot No.: **5D2**

Lot-specific information  
**Olerup SSP® HLA-A\*33**

Product number:	101.432-12 – including <i>Taq</i> polymerase 101.432-12u – without <i>Taq</i> polymerase
Lot number:	5D2
Expiry date:	2018-07-01
Number of tests:	12
Number of wells per test:	31+1
Storage - pre-aliquoted primers:	dark at -20°C
- PCR Master Mix:	-20°C
- Adhesive PCR seals	RT
- Product Insert	RT

**This Product Description is only valid for Lot No. 5D2.**

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\*33 LOT (39X)**

The HLA-A\*33 kit is updated for new alleles to enable separation of:

- Confirmed<sup>1</sup> 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.

One well have been added to HLA-A\*33, well **32**.

<sup>1</sup>As described in section Uniquely Identified Alleles.

The HLA-A\*33 specificity and interpretation tables have been updated for the HLA-A alleles described since the previous *Olerup SSP®* HLA-A\*33 lot was made (**Lot No. 39X**). The kit design is based on IMGT/HLA database 3.22.0.

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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
27	-	Added	3'-primer added for the A*33:74N allele.
28	Added	-	5'-primer added for the A*33:90 allele.
30	Added	Added	Primer pair added for the A*33:86 allele.
31	Added	Added	Negative Control moved to well 32. New primer pairs for the A*33:90 and A*33:96N alleles.
32	-	-	Negative Control added from well 31.

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Well **32** 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
<b>5'-primer<sup>1</sup></b>	<b>164</b>	<b>340</b>	<b>440</b>	<b>45</b>	<b>45</b>	<b>43</b>	<b>36</b>
	5'-CAC <sup>3'</sup>	5'-Agg <sup>3'</sup>	5'-TTA <sup>3'</sup>	5'-Tgg <sup>3'</sup>	5'-Tgg <sup>3'</sup>	5'-Tgg <sup>3'</sup>	5'-TAC <sup>3'</sup>
							<b>36</b>
							5'-TAT <sup>3'</sup>
<b>3'-primer<sup>2</sup></b>	<b>231</b>	<b>2<sup>nd</sup> I</b>	<b>507</b>	<b>59</b>	<b>58</b>	<b>57</b>	<b>47</b>
	5'-TgC <sup>3'</sup>	5'-AAA <sup>3'</sup>	5'-TTg <sup>3'</sup>	5'-CTC <sup>3'</sup>	5'-ggC <sup>3'</sup>	5'-CTC <sup>3'</sup>	5'-ACA <sup>3'</sup>
							<b>48</b>
							5'-gCA <sup>3'</sup>
							<b>48</b>
							5'-gCC <sup>3'</sup>
							<b>52</b>
							5'-TgT <sup>3'</sup>
<b>A*</b>	<b>+</b>	<b>+</b>	<b>+</b>				
<b>B*</b>	<b>+</b>	<b>+</b>	<b>+</b>				
<b>C*</b>	<b>+</b>	<b>+</b>	<b>+</b>				
<b>DRB1</b>				<b>+</b>	<b>+</b>		
<b>DRB3</b>				<b>+</b>	<b>+</b>		
<b>DRB5</b>				<b>+</b>			
<b>DQB1</b>					<b>+</b>		
<b>DPB1</b>						<b>+</b>	
<b>DQA1</b>							<b>+</b>

<sup>1</sup>The nucleotide position for HLA class I genes and the codon for HLA class II genes, in the 2<sup>nd</sup> or 3<sup>rd</sup> 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](http://www.ebi.ac.uk/imgt/hla) web site. The sequence of the 3 terminal nucleotides of the primer is given.

<sup>2</sup>The nucleotide position for HLA class I genes and the codon for HLA class II genes, in the 2<sup>nd</sup> or 3<sup>rd</sup> exon or the 2<sup>nd</sup> 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](http://www.ebi.ac.uk/imgt/hla) web site. The sequence of the 3 terminal nucleotides of the primer is given.

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## PRODUCT DESCRIPTION

### HLA-A\*33 SSP subtyping

#### CONTENT

The primer set contains 5'- and 3'-primers for identifying the A\*33:01 to A\*33:104 alleles.

#### PLATE LAYOUT

Each test consists of 32 PCR reactions in a 32 well cut PCR plate.

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	NC

The 32 well cut PCR plate is marked with 'HLA-A\*33' in silver/gray ink.

Well No. 1 is marked with the Lot No. '5D2'.

Wells 1 to 31 – HLA-A\*33 high resolution primers.

Well 32 – Negative Control (NC).

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

The PCR plates are 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\*33 alleles will be amplified by primer mixes 1 to 12, 14, 17, 19 to 24 and 28 to 31. In addition, a few HLA-B and HLA-C alleles will be amplified by primer mixes 9, 10, 19 and 23.

For further details see Specificity Table.

#### UNIQUELY IDENTIFIED ALLELES

All the HLA-A\*33 alleles, i.e. **A\*33:01 to A\*33:104 alleles**, recognized by the HLA Nomenclature Committee in October 2015<sup>1,2</sup> will be amplified by the primers in the HLA-A\*33 SSP kit<sup>3</sup>.

The HLA-A\*33 kit enables separation of the confirmed HLA-A\*33 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\*33 alleles is listed below.

The HLA-A\*33 kit also enables identification of polymorphisms in exons outside of the region encoding the peptide binding domain and of null and alternatively expressed alleles.

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The following HLA-A\*33 alleles can be distinguished by the different sizes of the HLA-specific PCR product:

Alleles	Primer mix	Alleles	Primer mix
A*33:03:03Q, 33:86	30	A*33:29, 33:39	20
A*33:08, 31:99	10	A*33:30, 33:73N	21
A*33:11, 33:80N	12	A*33:31, 33:44	22
A*33:16, 33:64	15		

The HLA-A\*33 subtyping kit cannot distinguish the following silent mutations: the A\*33:01:01-33:01:08 alleles, the A\*33:03:01-33:03:02 and 33:03:04-33:03:30 alleles, the 33:18:01-33:18:02 alleles or the A\*33:32:01-33:32:02 alleles.

<sup>1</sup>HLA-A alleles listed on the IMGT/HLA web page 2015-October-10, release 3.22.0, [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla).

<sup>2</sup>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>.

<sup>3</sup>The A\*33:09 and the A\*02:309, 26:22 and 66:09 alleles, the A\*33:51 and A\*66:15 alleles give rise to identical amplification patterns with the HLA-A\*33 subtyping kit. These alleles can be distinguished by e.g. the HLA-A low resolution kit and/or the HLA-A\*02, HLA-A\*26 and HLA-A\*66 subtyping kits.

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**ALLELE CONFIRMATION STATUS**

Allele	Status <sup>1</sup>	Allele	Status <sup>1</sup>	Allele	Status <sup>1</sup>	Allele	Status <sup>1</sup>
A*33:01:01	Confirmed	A*33:03:28	Unconfirmed	A*33:34	Confirmed	A*33:70	Confirmed
A*33:01:02	Confirmed	A*33:03:29	Unconfirmed	A*33:35	Unconfirmed	A*33:71	Unconfirmed
A*33:01:03	Confirmed	A*33:03:30	Unconfirmed	A*33:36	Confirmed	A*33:72	Unconfirmed
A*33:01:04	Unconfirmed	A*33:04	Confirmed	A*33:37	Unconfirmed	A*33:73N	Confirmed
A*33:01:05	Unconfirmed	A*33:05	Confirmed	A*33:39	Unconfirmed	A*33:74N	Unconfirmed
A*33:01:06	Unconfirmed	A*33:06	Unconfirmed	A*33:40	Unconfirmed	A*33:75	Unconfirmed
A*33:01:07	Unconfirmed	A*33:07	Confirmed	A*33:41	Unconfirmed	A*33:76	Unconfirmed
A*33:01:08	Unconfirmed	A*33:08	Confirmed	A*33:42	Confirmed	A*33:77	Confirmed
A*33:03:01	Confirmed	A*33:09	Confirmed	A*33:43	Unconfirmed	A*33:78	Unconfirmed
A*33:03:02	Unconfirmed	A*33:10	Unconfirmed	A*33:44	Confirmed	A*33:79	Unconfirmed
A*33:03:03Q	Unconfirmed	A*33:11	Confirmed	A*33:45	Unconfirmed	A*33:80N	Unconfirmed
A*33:03:04	Unconfirmed	A*33:12	Unconfirmed	A*33:46	Unconfirmed	A*33:81	Unconfirmed
A*33:03:05	Unconfirmed	A*33:13	Unconfirmed	A*33:47	Unconfirmed	A*33:82	Unconfirmed
A*33:03:06	Unconfirmed	A*33:14	Unconfirmed	A*33:48	Unconfirmed	A*33:83	Unconfirmed
A*33:03:07	Confirmed	A*33:15	Unconfirmed	A*33:49	Unconfirmed	A*33:84	Unconfirmed
A*33:03:08	Unconfirmed	A*33:16	Confirmed	A*33:50	Unconfirmed	A*33:85	Unconfirmed
A*33:03:09	Unconfirmed	A*33:17	Unconfirmed	A*33:51	Unconfirmed	A*33:86	Confirmed
A*33:03:10	Unconfirmed	A*33:18:01	Unconfirmed	A*33:52	Confirmed	A*33:87	Unconfirmed
A*33:03:11	Unconfirmed	A*33:18:02	Unconfirmed	A*33:53	Unconfirmed	A*33:88	Unconfirmed
A*33:03:12	Unconfirmed	A*33:19	Unconfirmed	A*33:54	Confirmed	A*33:89	Unconfirmed
A*33:03:13	Unconfirmed	A*33:20	Unconfirmed	A*33:55	Unconfirmed	A*33:90	Confirmed
A*33:03:14	Unconfirmed	A*33:21	Unconfirmed	A*33:56	Unconfirmed	A*33:91	Unconfirmed
A*33:03:15	Unconfirmed	A*33:22	Unconfirmed	A*33:57	Confirmed	A*33:92	Unconfirmed
A*33:03:16	Confirmed	A*33:23	Confirmed	A*33:58	Confirmed	A*33:93	Unconfirmed
A*33:03:17	Unconfirmed	A*33:24	Unconfirmed	A*33:59	Unconfirmed	A*33:94	Unconfirmed
A*33:03:18	Unconfirmed	A*33:25	Confirmed	A*33:60	Unconfirmed	A*33:95	Unconfirmed
A*33:03:19	Unconfirmed	A*33:26	Confirmed	A*33:61	Unconfirmed	A*33:96N	Unconfirmed
A*33:03:20	Unconfirmed	A*33:27	Confirmed	A*33:62	Unconfirmed	A*33:97	Unconfirmed
A*33:03:21	Unconfirmed	A*33:28	Unconfirmed	A*33:63	Unconfirmed	A*33:98	Unconfirmed
A*33:03:22	Unconfirmed	A*33:29	Unconfirmed	A*33:64	Confirmed	A*33:99	Unconfirmed
A*33:03:23	Confirmed	A*33:30	Unconfirmed	A*33:65	Confirmed	A*33:100	Unconfirmed
A*33:03:24	Unconfirmed	A*33:31	Unconfirmed	A*33:66	Unconfirmed	A*33:101	Unconfirmed
A*33:03:25	Confirmed	A*33:32:01	Unconfirmed	A*33:67	Unconfirmed	A*33:102	Unconfirmed
A*33:03:26	Unconfirmed	A*33:32:02	Unconfirmed	A*33:68	Unconfirmed	A*33:103	Unconfirmed
A*33:03:27	Unconfirmed	A*33:33	Confirmed	A*33:69	Unconfirmed	A*33:104	Unconfirmed

<sup>1</sup>Allele status “confirmed” or “unconfirmed” as listed on the IMGT/HLA web page 2015-October-10, release 3.22.0, [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla).

**RESOLUTION IN HOMO- AND HETEROZYGOTES**

Results file with resolution in HLA-A\*33 homo- and heterozygotes is available upon request.

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**SPECIFICITY TABLE**

**HLA-A\*33 SSP subtyping**

Specificities and sizes of the PCR products of the 31+1 primer mixes used for HLA-A\*33 SSP subtyping

Primer Mix	Size of spec. PCR product <sup>1</sup>	Size of control band <sup>2</sup>	Amplified HLA-A*33 alleles <sup>3</sup>	Other amplified HLA-A alleles <sup>4</sup>
1	205 bp	800 bp	*33:01:01-33:01:08, 33:03:01-33:07, 33:10-33:20, 33:22-33:37, 33:39-33:50, 33:52, 33:54-33:68, 33:70-33:91, 33:93-33:104	*68:29
2	205 bp	800 bp	*33:01:01-33:01:08, 33:04-33:05, 33:07, 33:16, 33:27, 33:32:01-33:32:02, 33:34, 33:40, 33:49-33:50, 33:64, 33:67-33:69, 33:89, 33:91-33:92	*03:104, 31:88, 66:04
3 <sup>9</sup>	155 bp	1070 bp	*33:01:01-33:01:08, 33:05, 33:07, 33:16, 33:27, 33:32:01-33:32:02, 33:34, 33:40, 33:49-33:50, 33:64, 33:67-33:69, 33:89, 33:91-33:92	*02:332, 03:104, 24:220, 31:88, 66:04
4	210 bp	1070 bp	*33:03:01-33:03:30, 33:06, 33:08-33:15, 33:17, 33:20-33:26, 33:28-33:31, 33:33, 33:35-33:37, 33:39-33:48, 33:51-33:63, 33:65-33:66, 33:70-33:88, 33:90, 33:93-33:104	*01:145, 02:41, 02:65, 02:80, 02:117, 02:135, 02:152, 02:289:01, 02:304, 02:309, 02:454, 03:103, 11:116, 11:140, 23:45, 24:62, 25:01:01-25:33, 26:01:01:01-26:39, 26:41-26:43:02, 26:45-26:117, 29:32, 31:01:02:01-31:02, 31:05, 31:07-31:68, 31:70-31:87, 31:89-31:103, 32:01:01-32:03, 32:05-32:29, 32:31, 32:33:01-32:40, 32:42-32:47, 32:49-32:79, 34:01:01-34:01:02, 34:05-34:06, 34:11-34:12, 34:14, 43:01, 66:01:01-66:03, 66:05-66:24, 74:01:01-74:26
5 <sup>5</sup>	90 bp	800 bp	*33:04, 33:33	*26:68
6 <sup>5,6</sup>	105 bp 170 bp	1070 bp	*33:20 *33:05, 33:58	*31:94 *29:12
7 <sup>5</sup>	75 bp 105 bp 230 bp	1070 bp	*33:21, 33:53 *33:06 *33:51	*11:98, 66:15, 68:04
8	160 bp 235 bp	1070 bp	*33:07 *33:24	*02:444, 31:54 *02:243:01-02:243:02, 29:19, 29:48
9 <sup>8</sup>	150 bp	800 bp	*33:14, 33:22, 33:58	01:20, 01:66, 01:130, 02:24:01-02:24:02, 02:137, 02:309, 02:503, 03:95, 26:22, 29:12, 29:22, 30:47, 31:99, 66:09, <b>C*02:74</b>

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<b>10<sup>7,8</sup></b>	185 bp	<b>800 bp</b>	*33:08-33:09	*02:243:01-02:243:02, 29:48
	135 bp		*33:22	*02:24:02, 29:22, 31:99
	215 bp		*33:08, 33:53	*02:243:01-02:243:02, 24:82, 29:48, 31:02, 31:07-31:08, 31:91
	285 bp		*33:13	*01:143, 11:43, 29:66, 31:03, <b>C*07:449</b>
<b>11<sup>6</sup></b>	165 bp	1070 bp	*33:10, 33:25	*23:03:01, 24:21:03, 24:208, 29:03, 29:33, 31:05, 32:13
<b>12<sup>5</sup></b>	105 bp	1070 bp	*33:36, 33:80N	*11:137N, 26:60N
	235 bp		*33:11	*03:205, 11:43, 31:66, 31:89, 68:29
<b>13<sup>5,6</sup></b>	95 bp	1070 bp	*33:12	
	165 bp		*33:25	
<b>14<sup>5</sup></b>	120 bp	1070 bp	*33:15, 33:84	*02:140, 26:99, 31:48
	335 bp		*33:19	*02:10, 02:17:01-02:17:03, 02:39, 02:108, 02:110, 02:148, 02:242, 02:244, 02:268, 02:300, 02:303, 02:398, 02:453, 03:15, 03:19, 11:139, 24:04, 24:19, 24:28, 24:44, 24:89, 24:109, 24:129, 24:290, 29:07, 29:49, 31:29
<b>15<sup>7</sup></b>	140 bp	1070 bp	*33:16, 33:23	
	215 bp		*33:65	
	255 bp		*33:64	
<b>16<sup>5</sup></b>	95 bp	1070 bp	*33:36	
	210 bp		*33:21	
	245 bp		*33:17	
<b>17</b>	145 bp	1070 bp	*33:18:01-33:18:02, 33:26	*03:42, 03:133, 23:53, 29:01:01:01- 29:04, 29:06-29:31, 29:34, 29:36- 29:50, 29:52-29:70, 29:72-29:76, 29:78N, 29:81, 31:03-31:04, 31:06, 32:30, 32:32
	215 bp		*33:65	
<b>18<sup>5</sup></b>	100 bp	1070 bp	*33:27	
	145 bp		*33:57	
	240 bp		*33:82	
	240 bp		*33:28	
<b>19<sup>5</sup></b>	120 bp	1070 bp	*33:28	*03:01:18, 03:22:02, 32:10, 32:63, <b>B*15:02:07, B*15:17:03, C*02:02:15, C*03:03:20</b>
<b>20<sup>5</sup></b>	90 bp	1070 bp	*33:29	
	225 bp		*33:39	*02:480, 32:53
<b>21<sup>5</sup></b>	115 bp	1070 bp	*33:30	*02:342
	245 bp		*33:73N, 33:82	
<b>22<sup>5</sup></b>	120 bp	1070 bp	*33:31, 33:84	*02:241, 26:24
	255 bp		*33:44	
<b>23</b>	180 bp	1070 bp	*33:32:01-33:32:02, 33:52	*02:332, 24:220, <b>B*51:136</b>
<b>24<sup>5</sup></b>	95 bp	1070 bp	*33:34	*03:01:18, 11:01:28, 24:21:03, 24:208, 29:09, 29:33, 31:24, 32:33:01
	205 bp		*33:54	*29:59
<b>25<sup>6</sup></b>	215 bp	1070 bp	*33:69, 33:83	
<b>26</b>	150 bp	1070 bp	*33:77	
	190 bp		*33:74N	
<b>27<sup>6</sup></b>	190 bp	1070 bp	*33:74N	
	205 bp		*33:85	



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<b>28</b>	230 bp	1070 bp	*33:70, 33:90	*01:84, 02:214, 11:54
<b>29<sup>5</sup></b>	105 bp	1070 bp	*33:42	*02:292
<b>30<sup>5</sup></b>	120 bp 260 bp	1070 bp	*33:03:03Q *33:86	*01:01:38L, 24:02:03Q *32:51
<b>31</b>	155 bp 220 bp	1070 bp	*33:96N *33:90	*01:52:01N, 26:107N *01:84, 02:214
<b>32<sup>10</sup></b>	<b>Negative Control</b>			

<sup>1</sup> 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\*33 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.

<sup>2</sup> 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.

<sup>3</sup> For several HLA Class I alleles 1<sup>st</sup> and/or 4<sup>th</sup> 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.

<sup>4</sup> Due to the sharing of sequence motifs between HLA-A alleles non-HLA-A\*33 alleles will be amplified by primer mixes 1 to 12, 14, 17, 19 to 24 and 28 to 31. In addition, a few HLA-B and HLA-C alleles will be amplified by primer mixes 9, 10, 19 and 23.

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

<sup>6</sup> Primer mixes 6, 11, 13, 25 and 27 may have tendencies of unspecific amplifications.

<sup>7</sup> Primer mixes 10 and 15 have a tendency to giving rise to primer oligomer formation.

<sup>8</sup> Primer mixes 9 and 10 may give rise to a long unspecific amplification product of approximately 640 bp. This should be disregarded when interpreting the HLA-A\*33 typings.

<sup>9</sup> Primer mix 3 may give rise to a lower yield of HLA-specific PCR product than the other A\*33 primer mixes.

<sup>10</sup> Primer mix 32 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.

101.432-12 – including *Taq* polymerase, IFU-01  
101.432-12u – without *Taq* polymerase, IFU-02

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Lot No.: 5D2

Lot-specific information  
**PRIMER SPECIFICATION**

Well No.	1	2	3	4	5	6	7	8	9	10	11	12
Length of spec.	205	205	155	210	90	105	75	160	150	135	165	105
PCR product						170	105	235	185	215		235
							230			285		
Length of int. pos. control <sup>1</sup>	800	800	1070	1070	800	1070	1070	1070	800	800	1070	1070
5'-primer(s) <sup>2</sup>	97	418	468	414	414	97	103	97	97	97	448	97
	5'-TCA 3'	5'-Agg 3'	5'-TCT 3'	5'-CAg 3'	5'-CAg 3'	5'-TCA 3'	5'-CCT 3'	5'-TCA 3'	5'-TCA 3'	5'-TCA 3'	5'-CCT 3'	5'-TCA 3'
				414		413	228	413	355	355	652	355
				5'-CAg 3'		5'-CCA 3'	5'-ATg 3'	5'-CCA 3'	5'-CCg 3'	5'-CCg 3'	5'-CTg 3'	5'-CCA 3'
							257					
							5'-CgA 3'					
3'-primer(s) <sup>3</sup>	259	583	583	583	463	221	290	292	218	270	570	290
	5'-gTT 3'	5'-gTg 3'	5'-gTg 3'	5'-gTA 3'	5'-gCT 3'	5'-ACA 3'	5'-CAA 3'	5'-gTg 3'	5'-gCC 3'	5'-ACT 3'	5'-CCg 3'	5'-CAg 3'
						233		530	221	341	778	407
						5'-CCC 3'		5'-CCT 3'	5'-ACA 3'	5'-CgT 3'	5'-TgT 3'	5'-ACT 3'
						475			240	448		426
						5'-Cgg 3'			5'-ggA 3'	5'-CAA 3'		5'-TCC 3'
									453			
									5'-TCg 3'			
Well No.												

Well No.	13	14	15	16	17	18	19	20	21	22	23	24
Length of spec.	95	120	140	95	145	100	120	90	115	120	180	95
PCR product	165	335	215	210	215	145		225	245	255		205
			255	245		240						
Length of int. pos. control <sup>1</sup>	1070	1070	1070	1070	1070	1070	1070	1070	1070	1070	1070	1070
5'-primer(s) <sup>2</sup>	395	317	85	97	85	345	448	397	463	652	112	448
	5'-gCC 3'	5'-gCg 3'	5'-CCg 3'	5'-TCA 3'	5'-CCg 3'	5'-TT 3'	5'-CCT 3'	5'-gCg 3'	5'-TgT 3'	5'-CTg 3'	5'-CCT 3'	5'-CCT 3'
	652	652	158	355	161	390		649	629		453	
	5'-CTg 3'	5'-CTg 3'	5'-ggg 3'	5'-CCA 3'	5'-CgC 3'	5'-gAg 3'		5'-ACA 3'	5'-CAA 3'		5'-AAA 3'	
			370		413	632			632		453	
			5'-ATC 3'		5'-CCg 3'	5'-gAT 3'			5'-gAT 3'		5'-AAg 3'	
			482									
			5'-ggC 3'									
3'-primer(s) <sup>3</sup>	448	368	259	265	259	448	527	448	538	728	259	502
	5'-CAA 3'	5'-CAA 3'	5'-gTT 3'	5'-CCC 3'	5'-gTT 3'	5'-CAA 3'	5'-CCT 3'	5'-CAA 3'	5'-CAA 3'	5'-CCT 3'	5'-gTT 3'	5'-CTT 3'
	778	727	583	299	524	831		831	831	742	583	614
	5'-TgT 3'	5'-CCA 3'	5'-gTg 3'	5'-CCg 3'	5'-CAC 3'	5'-TCC 3'		5'-TCC 3'	5'-TCC 3'	5'-CTC 3'	5'-gTg 3'	5'-TgA 3'
		742		407						866		
		5'-CTC 3'		5'-ACT 3'						5'-gAT 3'		
Well No.												

101.432-12 – including *Taq* polymerase, IFU-01  
101.432-12u – without *Taq* polymerase, IFU-02

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Lot No.: **5D2**

Lot-specific information

Well No.	25	26	27	28	29	30	31
Length of spec. PCR product	215	150	190	230	105	120	155
		190	205			260	220
Length of int. pos. control <sup>1</sup>	1070	1070	1070	1070	1070	1070	1070
5'-primer(s) <sup>2</sup>	94	652	97	391	277	28	404
	5'-ATC 3'	5'-CTg 3'	5'-TCg 3'	5'-ACA 3'	5'-AgT 3'	5'-TCC 3'	5'-CCC 3'
	646		652	404		627	470
	5'-ACA 3'		5'-CTg 3'	5'-CCC 3'		5'-CCC 3'	5'-TTA 3'
3'-primer(s) <sup>3</sup>	259	761	259	583	341	118	583
	5'-gTT 3'	5'-Cgg 3'	5'-gTT 3'	5'-gTA 3'	5'-Cgg 3'	5'-gCT 3'	5'-gTA 3'
	831	803	803			705	
	5'-TCC 3'	5'-CCT 3'	5'-CCT 3'			5'-TCT 3'	
			814				
			5'-CAA 3'				
Well No.							

<sup>1</sup>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.

<sup>2</sup>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](http://www.ebi.ac.uk/imgt/hla) web site. The sequence of the 3 terminal nucleotides of the primer is given.

<sup>3</sup>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](http://www.ebi.ac.uk/imgt/hla) web site. The sequence of the 3 terminal nucleotides of the primer is given.

101.432-12 – including *Taq* polymerase, IFU-01  
101.432-12u – without *Taq* polymerase, IFU-02

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Lot No.: **5D2**

Lot-specific information

<b>CELL LINE VALIDATION SHEET</b>																				
<b>HLA-A*33 SSP subtyping kit<sup>2</sup></b>																				
				<b>Well</b>																
				<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>	
				Lot No.:	201442301	201442302	201442303	201442304	201442305	201442306	201442307	201442308	201442309	201442310	201442311	201442312	201442313	201442314	201442315	201442316
	<b>IHWC cell line<sup>1</sup></b>	<b>A*</b>	<b>A*</b>																	
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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

101.432-12 – including *Taq* polymerase, IFU-01  
101.432-12u – without *Taq* polymerase, IFU-02

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Lot No.: **5D2**

Lot-specific information

<b>CELL LINE VALIDATION SHEET</b>																			
<b>HLA-A*33 SSP subtyping kit<sup>2</sup></b>																			
				<b>Well</b>															
				17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
				Lot No.:															
				201442317	201442318	201442319	201662820	201442321	201442322	201442323	201442324	201442325	201442326	201662827	201662828	201442329	201662830	201662831	
	<b>IHWC cell line<sup>1</sup></b>	<b>A*</b>	<b>A*</b>																
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 DHF	*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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

101.432-12 – including *Taq* polymerase, IFU-01  
101.432-12u – without *Taq* polymerase, IFU-02

Visit [www.olerup-ssp.com](http://www.olerup-ssp.com) for  
“Instructions for Use” (IFU)

Lot No.: **5D2**

**Lot-specific information**

<sup>1</sup>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.

<sup>2</sup>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 5, 7 to 13, 15, 16, 18 to 21 and 23 to 31 were available. The specificities of the primers in primer solutions 5, 7 to 13, 19, 23, 24 and 27, were tested by separately adding additional 5'-primers respectively 3'-primers. In primer solutions 16, 26 and 30 it was only possible to test the 5'-primer, the 3'-primer were not possible to test. In primer solution 15, 18, 20, 21, 25, 28, 29 and 31 it was only possible to test the 3'-primers, the 5'-primers were not possible to test. In primer solutions 7, 13, 17 and 23 one or two 5'-primers were not possible to test, and in primer solutions 6, 8, 9, 11 to 14, 22, 24 and 27 one or two 3'-primers were not possible to test. Additional primers in primer solutions 6, 14 and 17 were tested by separately adding one additional 5'-primer and/or one additional 3'-primer.

101.432-12 – including *Taq* polymerase, IFU-01  
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Lot-specific information

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