

101.566-12/04 – including *Taq* polymerase, IFU-01
101.566-12u/04u – without *Taq* polymerase, IFU-02

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

Lot No.: **2H5**

Lot-specific information

Olerup SSP® HLA-B*39

Product number:	101.566-12/04 – including <i>Taq</i> pol. 101.566-12u/04u – without <i>Taq</i> pol.
Lot number:	2H5
Expiry date:	2021-06-01
Number of tests:	12 tests – Product No. 101.566-12/12u 4 tests – Product No. 101.566-04/04u
Number of wells per test:	44+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. 2H5.

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-B*39 LOT (9F5)

The HLA-B*39 kit is updated for new alleles to enable separation of:

- Null and Alternatively expressed alleles
- The product documentation has been updated for new alleles of IMGT 3.34.0

The format of the Worksheet has been changed.

One well has been added to HLA-B*39, well **45**.

The HLA-B*39 primer set, specificity and interpretation tables have been updated for the HLA-B alleles described since the previous *Olerup SSP®* HLA-B*39 lot was made (**Lot No. 9F5**).

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

Well	5'-primer	3'-primer	rationale
30	-	Added	3'-primer added for the B*39:133N allele.
33	-	Added	3'-primer added for the B*39:133N allele.
44	Added	Added	Negative control moved to well 45, primer pair added for the B*39:139N allele.
45	-	-	Negative control added from well 44.

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Well **45** 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-B*39 SSP subtyping

CONTENT

The primer set contains 5'- and 3'-primers for identifying the B*39:01 to B*39:141 alleles.

PLATE LAYOUT

Each test consists of 45 PCR reactions in a 48 well cut PCR plate. Wells 46 to 48 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	NC	empty	empty	empty

The 48 well cut PCR plate is marked with 'HLA-B*39' in silver/gray ink.

Well No. 1 is marked with the Lot Number '2H5'.

Wells 1 to 44 – HLA-B*39 high resolution primers.

Well 45 – 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 48 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-B alleles, non-HLA-B*39 alleles will be amplified by some primer mixes. For further details see Specificity Table.

UNIQUELY IDENTIFIED ALLELES

All the HLA-B*39 alleles, i.e. **B*39:01 to B*39:141**, recognized by the HLA Nomenclature Committee in October 2018^{1,2} will be amplified by the primers in the HLA-B*39 subtyping kit³.

The HLA-B*39 kit enables separation of the confirmed HLA-B*39 alleles as listed in the IMGT/HLA database 3.29.0. An HLA allele is listed as confirmed by IMGT/HLA if it has been sequenced by more than a single laboratory or from multiple sources. Current allele confirmation status for HLA-B*39 alleles is listed below.

The HLA-B*39 kit also enables identification of null and alternatively expressed alleles.

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Lot-specific information

The following HLA-B*39 alleles can be distinguished by the different sizes of the HLA-specific PCR product:

Alleles	Primer mix	Alleles	Primer mix
B*39:01:05, 39:59	9	B*39:41, 39:77	13
B*39:19:02, 39:134	10	B*39:62, 39:64	30
B*39:25N, 39:44	17	B*39:87N, 39:93	33
B*39:26, 39:51	4		

¹HLA-B alleles listed on the IMGT/HLA web page 2018-October-18, release 3.34.0, 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 B*39:82, 39:107, 39:136 and the B*14:53 alleles will give rise to identical amplification patterns with the HLA-B*39 subtyping kit. These alleles can be distinguished by the HLA-B low resolution and/or HLA-B*14 kits.

The B*39:104 and the B*38:41 alleles will give rise to identical amplification patterns with the HLA-B*39 subtyping kit. These two alleles can be distinguished by the HLA-B low resolution and/or HLA-B*38 kits.

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ALLELE CONFIRMATION STATUS

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

¹Allele status “confirmed” or “unconfirmed” as listed on the IMGT/HLA web page 2017-August-10, release 3.29.0, www.ebi.ac.uk/imgt/hla.

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RESOLUTION IN HOMO- AND HETEROZYGOTES

Results file with resolution in HLA-B*39 homo- and heterozygotes is available upon request.

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SPECIFICITY TABLE

HLA-B*39 SSP subtyping

Specificities and sizes of the PCR products of the 44+1 primer mixes used for HLA-B*39 SSP subtyping

Primer Mix	Size of spec. PCR product ¹	Size of control band ²	Amplified HLA-B*39 alleles ³	Other amplified HLA-Class I alleles
1	230 bp	800 bp	*39:01:01:01-39:01:01:09, 39:01:03:01-39:05:03, 39:07-39:20, 39:22-39:29, 39:31:01:01-39:31:01:02, 39:35, 39:37-39:41, 39:44-39:46, 39:48-39:49, 39:51-39:56, 39:58-39:61, 39:63, 39:65-39:72, 39:75-39:81, 39:84-39:89, 39:91-39:101, 39:103- 39:105, 39:108, 39:110- 39:111, 39:113-39:126, 39:130-39:131, 39:133N- 39:135, 39:137-39:139N	*08:55, 15:69, 15:186, 15:449, 38:01:01:01- 38:07, 38:09, 38:11-38:14, 38:16-38:19, 38:21-38:22, 38:24-38:29, 38:31-38:35, 38:38-38:44, 38:46-38:49, 38:51, 38:53- 38:62, 38:64, 38:66-38:79, 40:184, 58:20, 67:01:01-67:07, C*04:188, C*05:70, C*06:40, C*07:137:01-07:137:02, C*14:63
2	170 bp	1070 bp	*39:01:01:01-39:01:01:09, 39:01:03:01-39:01:24, 39:03:01:01-39:07, 39:09:01:01-39:09:03, 39:11-39:12:01:02, 39:14:01:01-39:15, 39:18- 39:19:02, 39:22, 39:24:01-39:38Q, 39:40:01N-39:48, 39:50- 39:51, 39:53, 39:55- 39:57, 39:59-39:62, 39:64-39:82, 39:84- 39:87N, 39:90-39:95N, 39:97N-39:98, 39:100, 39:102-39:104, 39:106- 39:109, 39:111-39:125, 39:127-39:130, 39:132- 39:134, 39:136-39:141	*07:69, 07:85:01-07:85:02, 07:180, 07:306, 08:65, 14:01:01:01-14:01:07, 14:01:09- 14:20, 14:22-14:35, 14:37-14:41N, 14:43- 14:47, 14:50-14:53, 14:55-14:56, 14:58- 14:66, 15:09:01-15:10:04, 15:18:01:01- 15:18:07, 15:23, 15:37, 15:51-15:52, 15:72, 15:80, 15:90, 15:93, 15:99, 15:108, 15:114- 15:115, 15:119, 15:124, 15:133-15:134, 15:153, 15:161, 15:176, 15:186, 15:197:01- 15:198, 15:200, 15:221, 15:226N, 15:229, 15:238, 15:243, 15:252, 15:263, 15:275:01- 15:275:02, 15:290, 15:292-15:294N, 15:306- 15:307, 15:311-15:314, 15:323, 15:329, 15:335, 15:337-15:338, 15:351, 15:354, 15:376, 15:380N, 15:382, 15:388, 15:414, 15:426-15:427, 15:433-15:436, 15:439, 15:445, 15:447, 15:451, 15:455, 18:33, 37:57, 38:01:01:01-38:02:08, 38:04-38:05, 38:08-38:15, 38:17-38:25, 38:27, 38:29- 38:45, 38:47-38:53, 38:55Q-38:73, 38:75- 38:79
3^{5,6}	200 bp	800 bp	*39:05:01:01-39:05:03, 39:07-39:08, 39:11, 39:13:01-39:13:02, 39:20, 39:37, 39:43, 39:49, 39:55-39:56, 39:113, 39:118	*07:16, 07:27, 07:37:01-07:38, 07:50, 07:75:01:01-07:75:01:02, 07:91, 07:180, 07:207, 07:219, 07:228:01-07:228:02, 07:306, 08:03, 08:23, 08:54:01-08:54:02, 08:110, 08:133, 08:139, 14:14, 14:18, 14:56, 15:03:01:01-15:03:08, 15:09:01-15:10:04, 15:18:01:01-15:18:07, 15:23, 15:29, 15:37- 15:38:02, 15:47:01-15:47:02, 15:49, 15:51- 15:52, 15:54, 15:62, 15:64:01-15:64:02, 15:68-15:69, 15:72, 15:74, 15:80,

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4⁴	65 bp 145 bp 385 bp	1070 bp	*39:58 *39:26 *39:51	*08:01:24, 35:03:17, 38:74
5^{4,6}	105 bp	800 bp	*39:01:01:01-39:01:01:09, 39:01:03:01-39:01:08, 39:01:10-39:02:01, 39:03:01:01-39:06:02:04, 39:06:04-39:09:03, 39:11-39:12:01:02, 39:14:01:01-39:15, 39:18, 39:19:02, 39:22, 39:24:01-39:39:01, 39:40:01N-39:48, 39:50-39:62, 39:64-39:82, 39:84-39:88, 39:90-39:95N, 39:97N-39:98, 39:100, 39:102-39:103, 39:106-39:109, 39:111-39:125, 39:127-39:130, 39:132-39:141	*07:02:32, 07:85:02, 08:01:24, 14:01:01:01-14:02:02, 14:02:04, 14:02:07-14:20, 14:22-14:41N, 14:43-14:66, 15:189, 35:03:17, 35:26, 67:01:01, 67:03-67:04, 67:06-67:07, C*07:01:59
6	170 bp	800 bp	*39:02:01-39:02:03, 39:08, 39:13:01-39:13:02, 39:23, 39:39:01-39:39:02, 39:49, 39:88, 39:101,	*07:27, 07:50, 08:04:01-08:04:02, 08:17, 08:54:01-08:54:02, 08:110, 15:03:01:01-15:03:08, 15:47:01-15:47:02, 15:54, 15:61-15:62, 15:64:01-15:64:02, 15:68-15:69,

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7⁴	120 bp	1070 bp	*39:68	*08:55, 67:03, A*02:403, A*24:327, A*30:63, A*68:108, C*05:70, C*06:40, C*07:137:01-07:137:02, C*15:51
	165 bp		*39:17	*50:49
	220 bp		*39:03:01:01-39:03:01:02, 39:14:01:01-39:14:01:02, 39:24:01-39:24:02, 39:29, 39:37, 39:76, 39:120	*08:55, 38:19
8⁶	180 bp	1070 bp	*39:04, 39:47, 39:50	*07:327, 08:01:24, 14:28, 14:46, 15:189, 35:03:17, 35:26, 38:33, 38:63, 40:36, 40:77, 40:86, 40:314, 40:330, 40:368, 48:07, 49:26, C*02:111
	405 bp		*39:46	
9⁴	100 bp	800 bp	*39:01:05, 39:18	*15:69, 15:186, 15:265, 15:449, 38:01:03, C*04:188, C*06:40, C*14:63, C*15:51
	230 bp		*39:06:01-39:06:06, 39:57, 39:62, 39:64, 39:83, 39:90, 39:109, 39:127, 39:129, 39:132, 39:140-39:141	*35:276, 50:49, 51:101, 52:71
	310 bp		*39:59	
10⁴	105 bp	800 bp	*39:19:01-39:19:02	*15:376, 18:33, 35:82, 35:85, 35:135, 35:294, 37:57, 51:22, 78:03
	165 bp		*39:07, 39:91, 39:134	*15:69, 15:186, 15:265, 15:449, 35:35, 58:84, C*06:40, C*07:137:01-07:137:02, C*14:63
	210 bp		*39:09:01:01-39:09:03, 39:43, 39:88	*14:56, 15:38:01-15:38:02, 15:185, 15:335, 15:364, 15:368, 18:01:01:01-18:09, 18:12:01-18:15, 18:17N-18:20, 18:22-18:25, 18:27-18:34, 18:36-18:40, 18:42-18:55, 18:57:01-18:57:02, 18:59-18:60, 18:62-18:100, 18:102-18:109, 18:111-18:121, 18:123-18:147, 18:149-18:158, 35:21, 35:24:01-35:24:02, 35:188, 35:190, 35:287, 51:37, 51:45, 51:63:01-51:63:02, 51:97, 51:216, 51:251, 52:39, 53:02, 53:06, 53:28, 56:31, 57:14:01-57:14:02, 58:09, 58:76,

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				C*02:142, C*06:207, C*07:137:01-07:137:02, C*07:516, C*07:521:01-07:521:02, C*12:87, C*14:76
	255 bp			*18:18:01:01-18:18:01:02, C*07:516
11⁶	170 bp	1070 bp	*39:08, 39:11, 39:18, 39:33, 39:36, 39:40:01N- 39:40:02N, 39:53, 39:57	*07:78, 07:214, 07:246, 07:327, 13:18, 13:31, 13:41, 13:73, 15:58, 15:73, 15:303, 35:156, 35:163, 35:213, 46:61, 54:10, 54:20, 54:33, 55:09, 55:21, 55:37, 55:52, 56:19N, 56:43, 56:51, C*01:90, C*01:136^w, C*01:146:01^w-01:146:02^w, C*02:06:01-02:06:02, C*02:47^w, C*02:111^w, C*04:23^w, C*04:100^w, C*04:108, C*04:221, C*05:22:01^w-05:22:02^w, C*05:132, C*06:34:01^w-06:34:02^w, C*06:168^w, C*06:224, C*07:447^w, C*07:664^w, C*08:48^w, C*08:108^w, C*12:15, C*12:208, C*14:26^w, C*15:08, C*15:74, C*15:103, C*15:127, C*15:148
12	175 bp	800 bp	*39:07, 39:15, 39:29, 39:49, 39:55, 39:91	*15:69, 15:186, 15:449, 35:35, 38:29, 58:84, C*15:51
	205 bp		*39:61, 39:99	*40:283 [?]
13⁴	80 bp	800 bp	*39:77	*13:96
	230 bp		*39:24:01-39:24:02, 39:28, 39:41-39:42, 39:76, 39:120	*15:265, 35:35, 37:40, 38:20:01-38:20:02, 58:84, C*15:51
14⁴	85 bp	1070 bp	*39:10:01-39:10:02, 39:16-39:17, 39:20, 39:63, 39:89, 39:96, 39:99, 39:126, 39:131	*07:02:01:01-07:07, 07:09:01-07:09:02, 07:11-07:12, 07:14-07:26, 07:28-07:31, 07:33:01-07:35, 07:37:01-07:37:02, 07:39-07:49N, 07:51-07:68:03, 07:70-07:80, 07:82, 07:84, 07:86-07:131, 07:133-07:148, 07:150-07:179, 07:181N-07:182N, 07:184-07:191, 07:193-07:206, 07:208-07:218, 07:220-07:227, 07:229-07:235, 07:237-07:272N, 07:274-07:305, 07:307-07:335, 08:123, 08:132, 08:146, 14:21, 15:11:01-15:11:07, 15:76, 15:101, 15:143, 15:148, 15:152, 15:209N, 15:215, 15:255, 15:284, 15:303, 15:305, 15:350, 15:367, 35:02:06, 35:76, 40:61, 40:166, 42:01:01-42:02:01:02, 42:04-42:10, 42:12-42:21, 42:23-42:25, 44:90, 45:06, 54:01:01-54:11, 54:13-54:23, 54:25-54:38, 55:01:01:01-55:05, 55:07-55:17, 55:19-55:33, 55:35-55:46, 55:48-55:89N, 55:91-55:95, 56:01:01:01-56:06, 56:09-56:13, 56:15-56:20:02, 56:22-56:32, 56:34-56:43, 56:45, 56:47-56:62, 67:01:01-67:01:03, 67:03-67:07, 81:01:01-81:04N, 81:06-81:08, 82:01:01:01-82:03, 83:01
15⁶	145 bp	800 bp	*39:54	*08:01:24, 14:28, 49:26, C*07:01:59
	190 bp		*39:12:01:01-39:12:01:02, 39:31:01:01-39:31:01:02, 39:38Q, 39:128	
16⁶	165 bp	800 bp	*39:14:01:01-39:14:01:02, 39:29, 39:70, 39:126	*08:55, 38:73, 51:101, 52:71
	220 bp		*39:09:01:01-39:09:03, 39:16, 39:88	C*07:137:01-07:137:02

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17⁴	80 bp 180 bp 205 bp	800 bp	*39:23, 39:44 *39:25N *39:61	*38:72
18	155 bp	800 bp	*39:02:01-39:02:03, 39:08, 39:13:01-39:13:02, 39:22-39:23, 39:45, 39:49, 39:101, 39:105, 39:110	*08:17, 08:38:01-08:38:02, 08:54:01- 08:54:02, 08:101, 14:66, 15:03:01:01- 15:03:04, 15:03:06-15:03:08, 15:47:01- 15:47:02, 15:49, 15:54, 15:61-15:62, 15:68- 15:69, 15:74, 15:91, 15:98, 15:103, 15:123, 15:127, 15:131-15:132, 15:151, 15:156, 15:158, 15:173, 15:210, 15:220, 15:235, 15:242:01-15:243, 15:251:01-15:251:02, 15:253, 15:266, 15:274, 15:281-15:282, 15:369, 15:376, 15:379, 15:389, 15:397, 15:429, 15:444, 15:448, 15:475, 18:12:01- 18:12:02, 37:01:01:01-37:01:11, 37:01:13- 37:07, 37:09-37:21, 37:23-37:59, 37:61- 37:66, 37:68-37:76, 38:03-38:04, 38:25, 40:12, 40:149, 41:22, 42:11, 44:130, 44:156, 44:221, 44:224, 44:258, 48:01:01:01- 48:02:01, 48:02:03-48:05, 48:07-48:15, 48:17-48:38, 48:40-48:47, 49:25, 52:16, 52:27, 52:77
19	385 bp	1070 bp	*39:01:01:01-39:01:01:09, 39:01:03:01-39:01:24, 39:03:01:01-39:07, 39:09:01:01-39:10:01, 39:11-39:12:01:02, 39:14:01:01-39:20, 39:24:01-39:48, 39:50- 39:77, 39:79-39:100, 39:102-39:104, 39:106- 39:109, 39:111-39:141	*07:02:01:01-07:12, 07:14-07:53, 07:55- 07:64, 07:66-07:122, 07:124-07:131, 07:133- 07:180, 07:182N, 07:183 ^w , 07:184-07:218, 07:220-07:258, 07:260-07:270, 07:272N- 07:289, 07:291-07:335, 08:01:01:01-08:05, 08:07-08:09, 08:11-08:16, 08:18-08:37, 08:39-08:53:02, 08:55-08:100, 08:102- 08:146, 08:149-08:208, 14:01:01:01-14:03, 14:05-14:48, 14:50-14:56, 14:57 ^w , 14:58- 14:66, 38:01:01:01-38:02:08, 38:05-38:24, 38:26-38:55Q, 38:57-38:79, 40:25 [?] , 40:68 [?] , 40:106 [?] , 40:166 [?] , 40:232 [?] , 40:313 [?] , 42:01:01-42:02:01:02, 42:04-42:10, 42:12- 42:25, 45:22, 48:06, 49:26, 50:15, 67:01:01- 67:01:03, 67:03-67:07, 73:01-73:02, 81:02
20^{4,6}	95 bp	800 bp	*39:27	*14:63, C*07:01:59
21	220 bp	800 bp	*39:01:01:01-39:01:01:09, 39:01:03:01-39:02:03, 39:04-39:05:03, 39:07- 39:13:02, 39:15, 39:17- 39:20, 39:22-39:23, 39:25N-39:27, 39:31:01:01-39:31:01:02, 39:35, 39:38Q-39:41, 39:42 ^w , 39:44-39:46, 39:48-39:49, 39:51-39:56, 39:58-39:61, 39:63, 39:65-39:72, 39:75, 39:77-39:78, 39:80-39:81, 39:84-39:89, 39:91- 39:101, 39:103-39:105, 39:108, 39:110-39:111, 39:113-39:119, 39:121- 39:126, 39:130-39:131,	*15:69, 15:186, 15:449, 38:01:01:01-38:07, 38:08 ^w , 38:09, 38:11-38:18, 38:21, 38:24- 38:29, 38:31-38:35, 38:38-38:44, 38:46- 38:49, 38:51, 38:53-38:62, 38:64, 38:66- 38:79, 40:184, 58:20, 67:01:01-67:07, C*04:188, C*05:70, C*07:137:01-07:137:02

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22⁵	300 bp	1070 bp	*39:73	*38:23, 40:233, A*02:84, C*02:57, C*03:97, C*05:104, C*07:181, C*07:328, C*15:149
23⁴	85 bp	800 bp	*39:01:01:01-39:01:01:09, 39:01:03:01-39:01:03:02, 39:01:05-39:01:08, 39:01:10-39:02:01, 39:03:01:01-39:04, 39:06:01-39:06:02:04, 39:06:04-39:06:06, 39:09:01:01-39:09:03, 39:12:01:01-39:12:01:02, 39:14:01:01-39:15, 39:18, 39:19:02, 39:22, 39:24:01-39:36, 39:38Q-39:39:01, 39:40:01N-39:48, 39:50-39:54, 39:57-39:62, 39:64-39:82, 39:84-39:88, 39:90-39:95N, 39:97N-39:98, 39:100, 39:102-39:104, 39:106-39:109, 39:111-39:112, 39:114-39:117, 39:119-39:123, 39:124 ^w , 39:125, 39:127-39:130, 39:132-39:141	*07:02:32, 07:85:02, 08:01:24, 14:01:01:01-14:02:02, 14:02:04-14:02:05, 14:02:07-14:13, 14:15-14:17, 14:19-14:20, 14:22-14:41N, 14:43-14:59, 14:61-14:62, 14:63 ^w , 14:64-14:66, 15:189, 38:14 ^w , 38:26 ^w , 38:41, 67:01:01, 67:03-67:04, 67:06-67:07, A*23:01:18^w, A*25:01:08, C*07:01:59^w
24^{6,8}	185 bp	1070 bp	*39:01:01:01-39:01:01:09, 39:01:03:01-39:01:08, 39:01:10-39:02:01, 39:03:01:01-39:03:01:02, 39:05:01:01-39:06:02:04, 39:06:04-39:09:03, 39:11, 39:14:01:01-39:15, 39:18, 39:19:02, 39:22, 39:24:01-39:39:01, 39:40:01N-39:44, 39:46-39:48, 39:50-39:62, 39:64-39:71, 39:73-39:75, 39:77, 39:79-39:82, 39:84-39:88, 39:90-39:91, 39:93-39:95N, 39:97N-39:98, 39:100, 39:102-39:104, 39:106-39:109, 39:111-39:125, 39:127-39:128, 39:130, 39:132, 39:134-39:141	*07:02:32, 07:85:02, 14:01:01:01-14:01:05, 14:01:07-14:01:09, 14:07N-14:08:02, 14:10, 14:12, 14:14, 14:19, 14:26, 14:32, 14:40, 14:46-14:47, 14:49, 14:53-14:55, 14:65, 27:07:04, 38:01:01:01-38:01:07, 38:01:09-38:02:02, 38:02:04-38:03, 38:07-38:24, 38:26-38:32, 38:34N-38:79, 67:01:01, 67:03-67:04, 67:06-67:07
25⁷	150 bp 235 bp	1070 bp	*39:01:01:02L	C*15:31
26	265 bp	800 bp		*14:01:01:01-14:02:08, 14:02:10-14:04, 14:07N, 14:09, 14:11-14:12, 14:14-14:36, 14:38-14:45, 14:47-14:52, 14:54, 14:57-14:61, 14:63-14:66, 18:44:01-18:44:02, C*01:30, C*06:207, C*12:87, C*14:76
27	180 bp 205 bp	800 bp	*39:38Q, 39:63 *39:32, 39:48	*13:15, 18:148, 35:96, 35:109,

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28^{6,7}	140 bp 180 bp	1070 bp	*39:56 *39:32-39:33, 39:40:01N-39:40:02N, 39:74	*13:03, 13:48, 13:120, 15:58, 15:73, 15:133, 15:229, 15:253, 15:303, 15:460, 35:03:01:01-35:03:05, 35:03:07-35:03:25, 35:06, 35:13, 35:36, 35:38, 35:55-35:56, 35:59:01-35:59:02, 35:70, 35:74-35:75, 35:84-35:85, 35:98, 35:106, 35:109, 35:127-35:128, 35:136, 35:150:01-35:153, 35:155-35:156, 35:160, 35:163, 35:167, 35:169, 35:179, 35:181, 35:193, 35:195, 35:198, 35:204-35:205, 35:221, 35:223, 35:231, 35:235-35:237, 35:242-35:243, 35:246, 35:256-35:257, 35:267, 35:274, 35:278-35:279, 35:281-35:282, 35:290-35:291, 35:296, 35:298, 35:312, 35:320, 35:326, 35:329, 35:344, 35:349, 35:354-35:355, 35:358, 35:360, 35:362, 35:364, 35:371, 35:375, 35:381N, 35:394-35:395, 38:30, 38:65, 40:71, 44:10, 45:14, 46:11, 46:61, 50:39 ^w , 50:40, 51:13:01-51:13:02, 51:15, 51:62, 51:92:01-51:92:02, 51:106:01-51:106:02, 51:225, 52:14, 52:25:01-52:25:02, 52:75, 53:04, 53:31, 53:33, 54:03, 54:33, 56:01:01:01-56:01:04, 56:01:06-56:01:12, 56:01:14-56:02:02, 56:04:01-56:04:02, 56:07-56:08, 56:11, 56:13-56:14, 56:16-56:17, 56:19N-56:20:02, 56:22, 56:24-56:30, 56:33-56:49, 56:51-56:53, 56:55:01:02-56:59, 56:61-56:62, 57:76, 58:34, 58:73, 59:04, 82:01:01:01-82:03, C*03:307^w, C*15:15
29	245 bp	800 bp	*39:06:01-39:06:06, 39:34, 39:50, 39:57, 39:62, 39:64, 39:83, 39:90, 39:109, 39:127, 39:129, 39:132, 39:140-39:141	*07:78, 07:84, 08:09, 08:84, 13:02:01:01-13:02:24, 13:08-13:09, 13:14-13:16, 13:18-13:19, 13:27, 13:30-13:35, 13:37-13:38, 13:40-13:42, 13:44-13:47, 13:49N, 13:53-13:56:02N, 13:58-13:59, 13:65-13:70, 13:72, 13:74-13:75, 13:81-13:82, 13:84-13:85, 13:88-13:89, 13:91, 13:93-13:94, 13:96-13:105, 13:111-13:119, 13:121, 13:123Q, 14:37, 15:42, 15:83, 27:14, 27:81, 27:130, 35:60, 35:276, 40:06:01:01-40:06:16, 40:44, 40:53, 40:70:01-40:70:02, 40:75, 40:83, 40:86, 40:93, 40:95-40:96, 40:103, 40:109-40:110, 40:127, 40:131, 40:148, 40:159, 40:161-40:162, 40:165, 40:167, 40:177, 40:190, 40:230, 40:244, 40:256N, 40:268-40:270, 40:275, 40:294-40:295, 40:298:01-40:298:02, 40:306-40:307, 40:311, 40:313, 40:317-40:318, 40:330, 40:340-40:342, 40:348-40:350, 40:354, 40:361N-40:364, 40:366, 40:373-40:374, 40:376, 40:387-40:389, 41:01:01:01-41:01:05, 41:05-41:07, 41:09, 41:12, 41:14, 41:16, 41:20-41:22,

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30^{4,6}	65 bp	800 bp	*39:18, 39:35, 39:64	*15:69, 15:265, 38:32, 51:101, C*04:188, C*05:70, C*06:40, C*14:63, C*15:51 C*07:175
	140 bp		*39:75, 39:133N	
	190 bp		*39:52, 39:62	*38:54, A*02:403, A*24:327, A*30:63, A*68:108
31	175 bp	800 bp	*39:30, 39:33-39:34, 39:36, 39:82, 39:107, 39:112, 39:128, 39:136	*07:05:01:01-07:06:03, 07:32, 07:34, 07:40, 07:53, 07:69, 07:78, 07:80, 07:90, 07:97, 07:105, 07:112, 07:123, 07:137-07:138, 07:140, 07:176, 07:182N, 07:201N, 07:206-07:207, 07:209-07:210, 07:213-07:214, 07:222, 07:249, 07:258, 07:262, 07:264, 07:270, 07:278, 07:283, 07:287, 07:293, 07:304, 07:317, 07:324, 07:327, 07:332-07:333, 08:01:01:01-08:01:22, 08:01:24-08:05, 08:08N-08:13, 08:15-08:27, 08:29-08:36, 08:38:01-08:48, 08:50-08:54:02, 08:56:01-08:73, 08:75-08:86N, 08:88, 08:90-08:106, 08:108^w, 08:109-08:110, 08:112-08:155, 08:157-08:199, 08:201-08:208, 13:01:01:01-13:01:02, 13:01:04-13:02:16, 13:02:18-13:02:22, 13:02:24-13:03, 13:06-13:07N, 13:09, 13:11-13:23, 13:25, 13:27-13:33, 13:36-13:45, 13:47-13:50, 13:52-13:71, 13:73-13:78, 13:80-13:85, 13:86^w, 13:87-13:88, 13:90-13:120, 13:123Q, 14:13, 14:53, 15:09:01-15:09:02, 15:30:01:01-15:30:01:02, 15:42, 15:58, 15:73, 15:83, 15:86, 15:150, 15:188, 15:224, 15:229, 15:243, 15:252, 15:303, 15:324, 15:329, 15:361, 15:435, 15:453, 15:460, 18:26, 18:61, 18:97, 27:07:01-27:07:06, 27:11, 27:20, 27:24, 27:27, 27:33, 27:43, 27:125, 27:130, 27:153, 27:164, 27:168, 27:180, 35:02:01:01^w-35:02:11^w, 35:04:01-35:04:03, 35:06, 35:09:01-35:09:03, 35:12:01-35:12:04, 35:18, 35:22, 35:31, 35:44, 35:59:01-35:60, 35:81^w, 35:83^w, 35:87-35:88, 35:95^w, 35:129N^w, 35:149, 35:154^w, 35:157^w, 35:162^w, 35:172^w, 35:182^w-35:184^w, 35:201, 35:211^w, 35:220^w, 35:230, 35:233, 35:251, 35:258^w, 35:266, 35:270^w, 35:273^w, 35:285^w, 35:292, 35:309^w, 35:311^w, 35:316, 35:321, 35:323^w, 35:335^w, 35:339^w, 35:357^w,

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101.566-12u/04u – without *Taq* polymerase, IFU-02

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				C*02:68, C*03:317, C*14:92, C*15:24, C*15:128
32	190 bp 225 bp	1070 bp	*39:89 *39:79	C*06:40, C*14:63
33⁴	120 bp 150 bp 230 bp	1070 bp	*39:93 *39:133N *39:87N	*15:414, 38:58, 38:75 *15:226N, C*01:56N
34⁴	105 bp	1070 bp	*39:86	*15:320
35⁴	85 bp	1070 bp	*39:92	*08:119, 14:24, 35:226, 57:12, 58:64
36	245 bp	1070 bp	*39:102	
37⁴	90 bp	1070 bp	*39:95N	
38⁴	90 bp	1070 bp	*39:97N	
39	440 bp	1070 bp	*39:98	
40	465 bp	1070 bp	*39:116N	
41	200 bp	1070 bp	*39:108, 39:120	
42	135 bp	1070 bp	*39:09:01:01-39:09:03, 39:88, 39:112	*15:32:01-15:32:02, 15:299, 18:18:01:01- 18:18:01:02, 37:51, C*07:168
43	530 bp	1070 bp	*39:01:01:01-39:01:01:09, 39:01:03:01-39:17, 39:19:01-39:20, 39:22- 39:34, 39:37-39:51, 39:53-39:59, 39:61-39:81, 39:83-39:106, 39:108- 39:135, 39:137-39:141	*08:13, 08:25, 08:40, 08:55, 08:171, 08:205, 13:01:01:01-13:04, 13:06, 13:08-13:15, 13:17-13:18, 13:21-13:23, 13:25-13:30, 13:32-13:40, 13:42-13:45, 13:47, 13:49N- 13:53, 13:55-13:61, 13:63N-13:74, 13:76N- 13:84, 13:86-13:109, 13:111-13:114, 13:116N-13:123Q, 14:43, 14:56, 14:59, 15:05:01-15:05:03, 15:20, 15:31, 15:48, 15:52, 15:55, 15:84, 15:86, 15:91, 15:107, 15:114, 15:123-15:124, 15:136, 15:151, 15:155, 15:185-15:186, 15:188, 15:224, 15:235, 15:237, 15:275:01-15:275:02, 15:283, 15:332, 15:348, 15:383, 15:393, 15:407, 15:421, 15:449, 18:01:01:01-18:14, 18:17N-18:18:01:02, 18:20, 18:22-18:29, 18:31-18:55, 18:58-18:100, 18:102-18:112, 18:114-18:136, 18:138N-18:151, 18:153- 18:154N, 18:156-18:158, 27:12:01:01- 27:12:01:02, 27:16, 27:23, 27:29, 27:77, 27:119, 27:129, 35:01:01:01-35:01:08, 35:01:10-35:10, 35:12:01-35:13, 35:15:01- 35:20:02, 35:22-35:37, 35:39-35:42:02, 35:45-35:57, 35:59:01-35:61:02, 35:63- 35:66, 35:68:01-35:72, 35:74-35:75, 35:77, 35:80-35:85, 35:88-35:95, 35:97-35:98, 35:100-35:101:02, 35:103-35:114, 35:116, 35:119-35:134N, 35:136-35:140, 35:142- 35:162, 35:164-35:166, 35:168, 35:170- 35:184, 35:187, 35:189-35:199, 35:201- 35:211, 35:214-35:228, 35:230-35:231, 35:233-35:254, 35:256-35:259, 35:261- 35:264, 35:266-35:276, 35:278-35:336, 35:338-35:342, 35:344-35:367, 35:369- 35:383, 35:385-35:389, 35:391-35:396, 37:02, 37:39-37:40, 38:01:01:01-38:09, 38:11-38:25, 38:27-38:29, 38:31,

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				38:33-38:53, 38:55Q-38:79, 40:01:01-40:01:11, 40:01:13-40:02:02, 40:02:04-40:04, 40:06:01:01-40:14:03, 40:18-40:22N, 40:24-40:25, 40:27:01, 40:29-40:31, 40:33-40:40, 40:42-40:50, 40:52-40:68, 40:70:01-40:94, 40:96-40:97, 40:99-40:102, 40:104-40:135, 40:137-40:145, 40:147, 40:149-40:157, 40:159-40:160:02, 40:162-40:165, 40:167-40:173, 40:175-40:182, 40:184-40:197, 40:199-40:203, 40:205-40:225, 40:228-40:230, 40:232-40:243, 40:245-40:248, 40:250-40:278, 40:280-40:308, 40:310-40:323, 40:325-40:354, 40:356, 40:358-40:368, 40:370-40:373, 40:375, 40:377-40:378, 40:380-40:400, 44:03:01:01-44:03:35, 44:03:37, 44:03:39-44:04, 44:07, 44:10, 44:13, 44:26, 44:28:01-44:32, 44:36-44:40, 44:43:01-44:43:02, 44:45-44:47, 44:50:01-44:50:02, 44:54, 44:56N-44:57, 44:60-44:61N, 44:64:01-44:65, 44:69:01-44:69:02, 44:77, 44:81-44:82, 44:85, 44:92, 44:94, 44:96, 44:98, 44:103, 44:105, 44:107-44:111, 44:114-44:115, 44:120, 44:122, 44:124-44:125, 44:128:01-44:130, 44:135, 44:141, 44:143-44:144, 44:147, 44:153-44:157, 44:159-44:161, 44:163:01-44:165, 44:167, 44:175, 44:178, 44:180-44:184, 44:186:01-44:186:02, 44:188-44:189, 44:192:01-44:194, 44:197-44:199, 44:202-44:205:02, 44:207, 44:209-44:210:02, 44:215, 44:222-44:224, 44:227-44:228, 44:231-44:234, 44:237N, 44:239, 44:245, 44:248, 44:250-44:252, 44:256, 44:258-44:259, 44:266, 44:268, 44:271-44:272, 44:276-44:278, 44:280-44:286, 44:290, 44:294, 47:01:01:02-47:08, 48:01:01:01-48:04:02, 48:06-48:07, 48:09-48:14, 48:17-48:18, 48:20-48:24, 48:26-48:38, 48:40-48:47, 49:11, 50:49, 51:05, 51:09:01-51:10, 51:15, 51:19, 51:31, 51:40, 51:42, 51:54, 51:73, 51:81, 51:93, 51:108, 51:122, 51:139, 51:148, 51:157, 51:194, 51:217, 52:03, 52:10:01-52:10:03, 52:71, 52:74, 53:01:01:01-53:05:01, 53:07, 53:09-53:21, 53:23-53:27, 53:29-53:52, 55:18, 56:33, 56:42, 56:44, 56:54, 59:01:01:01-59:10N, 78:04, 78:08, 78:10
44	150 bp	1070 bp	*39:139N	*15:209N, C*07:491:02N
45⁹	-	-	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-B*39 SSP subtypings.

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.

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Lot-specific information

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 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.

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

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

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

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

⁵Primer mixes 3 and 22 have a tendency giving rise to primer oligomer formation.

⁶Primer mixes 3, 5, 8, 11, 15, 16, 20, 24, 28 and 30 may have tendencies of unspecific amplifications.

⁷Primer mixes 25 and 28 may give rise to a long unspecific amplification product of approximately 600 bp. This should be disregarded when interpreting the B*39 typings.

⁸Primer mix 24 may give rise to a lower yield of HLA-specific PCR product than the other B*39 primer mixes.

⁹Primer mix 45 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.

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Lot-specific information

PRIMER SPECIFICATION

Well No.	1	2	3	4	5	6	7	8	9	10	11	12
Length of spec.	230	170	200	65	105	170	120	180	100	105	170	175
PCR product				145			165	405	230	165		205
				385			220		310	210		
										255		
Length of int.	800	1070	800	1070	800	800	1070	1070	800	800	1070	800
pos. control ¹												
5'-primer(s) ²	351	142	142	246	246	142	363	106	357	206	419	44
	5'-CAT 3'	5'-TCT 3'	5'-TCT 3'	5'-gAA 3'	5'-gAA 3'	5'-TCT 3'	5'-AgC 3'	5'-CCA 3'	5'-Tgg 3'	5'-gAC 3'	5'-gTT 3'	5'-ggC 3'
	355		419	419	246		420	486	486	368		412
	5'-CTC 3'		5'-gTC 3'	5'-gTT 3'	5'-gAA 3'		5'-TTA 3'	5'-TTC 3'	5'-ACg 3'	5'-gTC 3'		5'-ATg 3'
	355						463	646	3 rd I	419		
	5'-CCC 3'						5'-TgC 3'	5'-ACg 3'	5'-Agg 3'	5'-gTC 3'		
3'-primer(s) ³	544	272	292	272	311	272	544	246	544	272	539	79
	5'-ggT 3'	5'-TgC 3'	5'-gTA 3'	5'-TgA 3'	5'-ggT 3'	5'-Tgg 3'	5'-ggT 3'	5'-TAT 3'	5'-ggT 3'	5'-TgC 3'	5'-TCC 3'	5'-gTA 3'
			292	344	311			559	839	544	539	85
			5'-gTA 3'	5'-ACg 3'	5'-ggT 3'			5'-CTC 3'	5'-ATA 3'	5'-ggT 3'	5'-TCC 3'	5'-CAA 3'
			292	524				916		583	564	544
			5'-gTA 3'	5'-CAA 3'				5'-gAC 3'		5'-gTg 3'	5'-ACT 3'	5'-ggT 3'
			583								565	
			5'-gTg 3'								5'-CAT 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.	80	85	145	165	80	155	385	95	220	300	85	185
PCR product	230		190	220	180							
					205							
Length of int.	800	1070	800	800	800	800	1070	800	800	1070	800	1070
pos. control ¹												
5'-primer(s) ²	112	264	97	360	44	142	44	246	363	341	246	103
	5'-CCT 3'	5'-ACg 3'	5'-TCg 3'	5'-CAC 3'	5'-ggC 3'	5'-TCT 3'	5'-ggC 3'	5'-gAA 3'	5'-Agg 3'	5'-ggC 3'	5'-gAA 3'	5'-CCT 3'
	355	272	97	368	407							103
	5'-TCA 3'	5'-CTA 3'	5'-TCC 3'	5'-gTC 3'	5'-gg 3'							5'-CCT 3'
	362		141	419	503							
	5'-gAC 3'		5'-ATg 3'	5'-gTA 3'	5'-CCg 3'							
	365		419									
	5'-CAC 3'		5'-gTT 3'									
	733											
	5'-ATA 3'											
3'-primer(s) ³	311	311	246	544	79	250	259	299	544	355	292	246
	5'-ggT 3'	5'-ggT 3'	5'-TAT 3'	5'-ggT 3'	5'-gTA 3'	5'-CCg 3'	5'-gTT 3'	5'-TCA 3'	5'-ggT 3'	5'-gAA 3'	5'-gTC 3'	5'-TAT 3'
	544		563		544	259	259				292	246
	5'-ggT 3'		5'-CgA 3'		5'-ggT 3'	5'-CTC 3'	5'-gTT 3'				5'-gTC 3'	5'-TAT 3'
	774											
	5'-ggT 3'											
Well No.	13	14	15	16	17	18	19	20	21	22	23	24

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Well No.	25	26	27	28	29	30	31	32	33	34	35	36
Length of spec.	150	265	180	140	245	65	175	190	120	105	85	245
PCR product	235		205	180		140		225	150			
						190			230			
Length of int.	1070	800	800	1070	800	800	800	1070	1070	1070	1070	1070
pos. control ¹												
5'-primer(s) ²	-149	361	141	419	357	142	412	361	142	709	256	357
	5'-ggg 3'	5'-AgT 3'	5'-ATT 3'	5'-gTT 3'	5'-Tgg 3'	5'-TCT 3'	5'-ATA 3'	5'-AgT 3'	5'-TCT 3'	5'-AgT 3'	5'-ACg 3'	5'-Tgg 3'
	419		419			385		394				
	5'-gTT 3'		5'-gTT 3'			5'-ggT 3'		5'-ggg 3'				
						527						
						5'-TgA 3'						
3'-primer(s) ³	44	583	272	518	559	172	544	544	221	774	302	559
	5'-CCg 3'	5'-gTg 3'	5'-TgT 3'	5'-CCC 3'	5'-CgT 3'	5'-CAT 3'	5'-ggC 3'	5'-ggT 3'	5'-ACA 3'	5'-ggT 3'	5'-ggC 3'	5'-CAT 3'
	527		563	559	559	236			251			
	5'-CCg 3'		5'-CgA 3'	5'-CAG 3'	5'-CTC 3'	5'-CCA 3'			5'-CCT 3'			
			583	564		251			331			
			5'-gTg 3'	5'-ACT 3'		5'-CCT 3'			5'-CTA 3'			
						280						
						5'-gTC 3'						
						544						
						5'-ggT 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
Length of spec.	90	90	440	465	200	135	530	150
PCR product								
Length of int.	1070	1070	1070	1070	1070	1070	1070	1070
pos. control ¹								
5'-primer(s) ²	493	607	246	246	386	368	283	363
	5'-CTT 3'	5'-CgC 3'	5'-gAA 3'	5'-gAA 3'	5'-gCT 3'	5'-gTC 3'	5'-ACA 3'	5'-Agg 3'
3'-primer(s) ³	544	3 rd I	398	426	544	463	527	471
	5'-ggT 3'	5'-TAT 3'	5'-ggg 3'	5'-TCT 3'	5'-ggT 3'	5'-gCT 3'	5'-CCA 3'	5'-gTT 3'
Well No.	37	38	39	40	41	42	43	44

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.

101.566-12/04 – including *Taq* polymerase, IFU-01
101.566-12u/04u – without *Taq* polymerase, IFU-02

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Lot No.: **2H5**

Lot-specific information

CELL LINE VALIDATION SHEET																				
HLA-B*39 SSP subtyping kit ²																				
					Well															
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
				Prod. No.:	201665101	201324802	201324803	201665104	201324805	201324806	201788107	201324808	201446709	201446710	201324811	201800512	201324832	201446714	201324815	201324816
	IHWC cell line ¹		B*																	
1	9001	SA	*07:02		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
2	9280	LK707	*52:01	*73:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	9011	E4181324	*52:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	9275	GU373	*15:10	*53:01	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-
5	9009	KAS011	*37:01		-	-	+	-	-	+	-	-	-	-	-	-	-	-	-	-
6	9353	SM	*39:01	*51:01	+	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-
7	9020	QBL	*18:01		-	-	+	-	-	+	-	-	-	-	+	-	-	-	-	-
8	9025	DEU	*35:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	9026	YAR	*38:01		+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-
10	9107	LKT3	*54:01		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
11	9051	PITOUT	*44:03		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	9052	DBB	*57:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	9025	JESTHOM	*27:05		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	9071	OLGA	*15:01	*15:20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	9075	DKB	*40:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	9037	SWEIG007	*40:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	9282	CTM3953540	*08:01	*55:01	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
18	9257	32367	*14:01	*56:01	-	+	-	-	+	-	-	-	-	-	-	-	-	+	-	-
19	9038	BM16	*18:01		-	-	+	-	-	+	-	-	-	+	-	-	-	-	-	-
20	9059	SLE005	*40:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	9064	AMALA	*15:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	9056	KOSE	*35:03		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	9124	IHL	*40:02	*56:02	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
24	9035	JBUSH	*38:01		+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-
25	9049	IBW9	*14:02		-	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-
26	9285	WT49	*58:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	9191	CH1007	*07:05	*51:01	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
28	9320	BEL5GB	*44:02	*44:03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	9050	MOU	*44:03		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	9021	RSH	*42:01		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
31	9019	DUCAF	*18:01		-	-	+	-	-	+	-	-	-	+	-	-	-	-	-	-
32	9297	HAG	*41:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	9098	MT14B	*40:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34	9104	DHIF	*38:01		+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-
35	9302	SSTO	*44:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
36	9024	KT17	*15:01	*35:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
37	9065	HHKB	*07:02		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
38	9099	LZL	*15:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39	9315	CML	*08:01	*27:05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40	9134	WHONP199	*13:02	*46:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41	9055	H0301	*14:02		-	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-
42	9066	TAB089	*46:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43	9076	T7526	*46:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44	9057	TEM	*38:01		+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-
45	9239	SHJO	*42:01	*50:01	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
46	9013	SCHU	*07:02		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
47	9045	TUBO	*51:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
48	9303	TER-ND	*35:01	*44:03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

101.566-12/04 – including *Taq* polymerase, IFU-01
101.566-12u/04u – without *Taq* polymerase, IFU-02

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Lot No.: **2H5**

Lot-specific information

CELL LINE VALIDATION SHEET																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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101.566-12/04 – including *Taq* polymerase, IFU-01
101.566-12u/04u – without *Taq* polymerase, IFU-02

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Lot No.: 2H5

Lot-specific information

CELL LINE VALIDATION SHEET																			
HLA-B*39 SSP subtyping kit ²																			
					Prod. No.:	Well													
						33	34	35	36	37	38	39	40	41	42	43	44		
						201800533	201665134	201665135	201665136	201665137	201665138	201788139	201788140	201788141	201788142	201788143	201800544		
	IHWC cell line ¹		B*																
1	9001	SA	*07:02			-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	9280	LK707	*52:01		*73:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	9011	E4181324	*52:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	9275	GU373	*15:10		*53:01	-	-	-	-	-	-	-	-	-	-	-	+	-	-
5	9009	KAS011	*37:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	9353	SM	*39:01		*51:01	-	-	-	-	-	-	-	-	-	-	-	+	-	-
7	9020	QBL	*18:01			-	-	-	-	-	-	-	-	-	-	-	+	-	-
8	9025	DEU	*35:01			-	-	-	-	-	-	-	-	-	-	-	+	-	-
9	9026	YAR	*38:01			-	-	-	-	-	-	-	-	-	-	-	+	-	-
10	9107	LKT3	*54:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	9051	PITOUT	*44:03			-	-	-	-	-	-	-	-	-	-	-	+	-	-
12	9052	DBB	*57:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	9025	JESTHOM	*27:05			-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	9071	OLGA	*15:01		*15:20	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	9075	DKB	*40:01			-	-	-	-	-	-	-	-	-	-	-	+	-	-
16	9037	SWEIG007	*40:02			-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	9282	CTM3953540	*08:01		*55:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	9257	32367	*14:01		*56:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	9038	BM16	*18:01			-	-	-	-	-	-	-	-	-	-	-	+	-	-
20	9059	SLE005	*40:01			-	-	-	-	-	-	-	-	-	-	-	+	-	-
21	9064	AMALA	*15:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	9056	KOSE	*35:03			-	-	-	-	-	-	-	-	-	-	-	+	-	-
23	9124	IHL	*40:02		*56:02	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	9035	JBUSH	*38:01			-	-	-	-	-	-	-	-	-	-	-	+	-	-
25	9049	IBW9	*14:02			-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	9285	WT49	*58:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	9191	CH1007	*07:05		*51:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	9320	BEL5GB	*44:02		*44:03	-	-	-	-	-	-	-	-	-	-	-	+	-	-
29	9050	MOU	*44:03			-	-	-	-	-	-	-	-	-	-	-	+	-	-
30	9021	RSH	*42:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-
31	9019	DUCAF	*18:01			-	-	-	-	-	-	-	-	-	-	-	+	-	-
32	9297	HAG	*41:02			-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	9098	MT14B	*40:01			-	-	-	-	-	-	-	-	-	-	-	+	-	-
34	9104	DHIF	*38:01			-	-	-	-	-	-	-	-	-	-	-	+	-	-
35	9302	SSTO	*44:02			-	-	-	-	-	-	-	-	-	-	-	-	-	-
36	9024	KT17	*15:01		*35:01	-	-	-	-	-	-	-	-	-	-	-	+	-	-
37	9065	HHKB	*07:02			-	-	-	-	-	-	-	-	-	-	-	-	-	-
38	9099	LZL	*15:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-
39	9315	CML	*08:01		*27:05	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40	9134	WHONP199	*13:02		*46:01	-	-	-	-	-	-	-	-	-	-	-	+	-	-
41	9055	H0301	*14:02			-	-	-	-	-	-	-	-	-	-	-	-	-	-
42	9066	TAB089	*46:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-
43	9076	T7526	*46:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-
44	9057	TEM	*38:01			-	-	-	-	-	-	-	-	-	-	-	+	-	-
45	9239	SHJO	*42:01		*50:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-
46	9013	SCHU	*07:02			-	-	-	-	-	-	-	-	-	-	-	-	-	-
47	9045	TUBO	*51:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-
48	9303	TER-ND	*35:01		*44:03	-	-	-	-	-	-	-	-	-	-	-	+	-	-

101.566-12/04 – including *Taq* polymerase, IFU-01
101.566-12u/04u – without *Taq* polymerase, IFU-02

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

Lot No.: 2H5

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 4, 7, 13, 15, 20, 22, 25, 27, 30, 32 to 41 and 44 were available. The specificities of the primers in primer solutions 4, 7, 13, 15, 20, 22, 25, 27, 30, 32 and 35 were tested by separately adding one, two or three additional 5'-primers, respectively one, two or three additional 3'-primers. In primer solutions 33, 36, 39, 40 and 44 it was only possible to test the 5'-primers, the 3'-primers were not possible to test. In primer solutions 34, 37, 38 and 41 it was only possible to test the 3'-primers, the 5'-primers were not possible to test. In primer solutions 1, 5, 8, 13 to 17, 25 and 32 one to four 5'-primers were not possible to test. In primer solutions 4, 9, 11, 12, 15, 17, 18, 23, 27, 28 and 30 one, two, three or four 3'-primers were not possible to test. Additional primers in primer solutions 8, 9, 10, 12, 16 and 17 were tested by separately adding 5'- and/or 3'-primers.

101.566-12/04 – including *Taq* polymerase, IFU-01
101.566-12u/04u – without *Taq* polymerase, IFU-02

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Lot No.: **2H5**

Lot-specific information

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