

101.501-48/12 – including *Taq* polymerase, IFU-01
101.501-48u/12u – without *Taq* polymerase, IFU-02

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

Lot No.: **5E1**

Lot-specific information

Olerup SSP[®] HLA-B low resolution

Product number:	101.501-48/12 – including <i>Taq</i> pol. 101.501-48u/12u – without <i>Taq</i> pol.
Lot number:	5E1
Expiry date:	2019-05-01
Number of tests:	48 tests – Product No. 101.501-48/48u 12 tests – Product No. 101.501-12/12u
Number of wells per test:	63 + 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. 5E1.

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 LOW RESOLUTION LOT (8D1)

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

The HLA-B low resolution specificity and interpretation tables have been updated for the HLA-B alleles reported since the previous *Olerup SSP[®]* HLA-B low resolution lot was made (**Lot No. 8D1**). 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.

101.501-48/12 – including *Taq* polymerase, IFU-01
101.501-48u/12u – without *Taq* polymerase, IFU-02

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“Instructions for Use” (IFU)

Lot No.: **5E1**

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
8	-	Removed	3'-primer removed for improved HLA-specific amplification.
26	-	Modified	3'-primer modified for improved HLA-specific amplification.
31	-	Modified	3'-primer modified for improved HLA-specific amplification.
32	-	Added/modi fied	3'-primer added and modified for improved HLA-specific amplification.
46	-	Added	3'-primer added for the B*38:61 allele.
57	Modified	Modified	5'-primer and 3'-primer modified for improved yield.

Change in revision R01 compared to R00:

1. Primer mix 27 does not amplify the B*08:31, 41:06, 41:15 and 42:14 alleles, and primer mix 48 does not amplify the B*08:31 allele. This has been corrected in the Specificity and Interpretation Tables.

101.501-48/12 – including *Taq* polymerase, IFU-01
101.501-48u/12u – without *Taq* polymerase, IFU-02

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“Instructions for Use” (IFU)

Lot No.: **5E1**

Lot-specific information

Well **64** 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.

101.501-48/12 – including *Taq* polymerase, IFU-01
101.501-48u/12u – without *Taq* polymerase, IFU-02

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“Instructions for Use” (IFU)

Lot No.: **5E1**

Lot-specific information

PRODUCT DESCRIPTION

HLA-B low resolution SSP typing

CONTENT

The primer set contains 5'- and 3'-primers for grouping the B*07:02 to B*83:01 alleles into the corresponding serological groups B7 to B81 as well as primer pairs for recognizing the Bw4 and Bw6 sequence motifs.

PLATE LAYOUT

Each test consists of 64 PCR reactions in a 64 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	32
33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56
57	58	59	60	61	62	63	NC

The 64 well cut PCR plate is marked with 'HLA-B low' in silver/gray ink.

Well No. 1 is marked with the Lot No. '5E1'.

Wells 1 to 63 – HLA-B low resolution primers.

Well 64 – Negative Control.

A faint row of numbers is seen between wells 1 and 2 or wells 7 and 8 of the PCR trays. These stem from the manufacture of the trays, and should be disregarded. The PCR plates are covered with a PCR-compatible foil.

INTERPRETATION

Only HLA-B alleles will be amplified by the HLA-B low resolution typing kit, except that a few HLA-A and HLA-C alleles will be amplified by primer mixes 1 to 4, 6 to 8, 11, 13, 14, 17, 19 to 22, 24 to 26, 29 to 32, 35, 40 to 43, 45, 48, 50, 52 to 55, 57, 58, 61 and 63.

For further details see Specificity Table.

UNIQUELY IDENTIFIED ALLELES

All the HLA-B alleles recognized by the HLA Nomenclature Committee in July 2016^{1,2} will be amplified by the primers in the HLA-B low resolution SSP kit. The HLA-B alleles will be grouped into their corresponding serological specificities^{3,4}.

¹HLA-B alleles listed on the IMGT/HLA web page 2016-July-14, release 3.25.0, www.ebi.ac.uk/imgt/hla.

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

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Lot No.: 5E1

Lot-specific information

³It is not possible to identify all serological splits and combinations of the B*15 group of alleles, as the serological reactivity of several of the B*15 alleles is not known.

The resolution has been updated to fulfill the NMDP medium resolution confirmatory typing requirements effective from February 1st 2001.

DNA-based HLA-B typing resolution required:

B*07:xx, B*08:xx, B*13:xx, B*14:xx, B*18:xx, B*27:xx, B*15:22, B*35:xx, B*37:xx, B*38:xx, B*39:xx, B*40:05, B*41:xx, B*42:xx, B*44:xx, B*45:xx, B*46:xx, B*47:xx, B*48:xx, B*49:xx, B*50:xx, B*51:xx, B*52:xx, B*53:xx, B*54:xx, B*55:xx, B*56:xx, B*57:xx, B*58:xx, B*59:xx, B*67:xx, B*73:xx, B*78:xx, B*81:xx, B*82:xx,

B*40EJD ^a	40:01, 40:07, 40:10, 40:12, 40:14, 40:15, 40:16
B*40EJB ^b	40:02, 40:03, 40:04, 40:06, 40:08, 40:09, 40:11, 40:13, 40:18, 40:19, 40:20
B*15EJA ^c	15:01, 15:04, 15:05, 15:06, 15:07, 15:20, 15:24, 15:25, 15:26N, 15:27, 15:28, 15:30, 15:32, 15:33, 15:34, 15:35, 15:36, 15:38, 15:39, 15:40, 15:43, 15:45
B*15AHM ^d	15:16, 15:17
B*15EHZ ^e	15:03, 15:09, 15:10, 15:18, 15:23, 15:29, 15:37, 15:47
B*15CYP ^f	15:02, 15:08, 15:11, 15:15, 15:21, 15:31, 15:44
B*15AND ^g	15:12, 15:14, 15:19
B*15I3 ^h	

^aB60 serologic equivalent cluster.

^bB61 serologic equivalent cluster.

^cB62 serologic equivalent cluster.

^dB63 serologic equivalent cluster.

^eB70 serologic equivalent cluster.

^fB75 serologic equivalent cluster.

^gB76 serologic equivalent cluster.

^hB77 serologic equivalent cluster.

⁴The following alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

Alleles	Alleles
B*08:146, B*42:07	B*57:67:01, B*58:36
B*55:23, 55:32, B*56:18, 56:32	

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101.501-48u/12u – without *Taq* polymerase, IFU-02

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“Instructions for Use” (IFU)

Lot No.: **5E1**

Lot-specific information

SPECIFICITY TABLE

HLA-B low resolution SSP typing

Specificities and sizes of the PCR products of the 63+1 primer mixes used for
HLA-B low resolution SSP typing

Primer Mix	Size of spec. PCR product ¹	Size of control band ²	HLA-B serol. ³	Amplified HLA-B alleles ^{4,5}
1^{6,9}	110 bp	800 bp	7, 703, 40, 41, 42, 48, 61	*07:02:01-07:18:02, 07:20-07:32, 07:34-07:39, 07:41-07:47, 07:49N-07:52, 07:54-07:59, 07:61-07:99, 07:101-07:121, 07:123-07:138, 07:140-07:163, 07:166-07:208, 07:210-07:222, 07:224-07:225, 07:227-07:234, 07:236-07:270, 07:272N-07:275, 08:79, 08:156, 15:138, 15:230, 15:241, 15:297, 35:66, 37:07, 40:15-40:16, 40:23, 40:32, 40:98, 40:128, 40:136, 40:158, 40:183, 40:198, 40:231, 40:279, 41:08, 42:05:01-42:05:02, 44:150, 48:05, 48:08, 48:15, C*02:23, C*03:260, C*04:77
2	215 bp	1070 bp	8, 44	*08:01:01-08:05, 08:07-08:25, 08:27-08:49, 08:51-08:61, 08:63-08:64, 08:66-08:84, 08:86N-08:93, 08:95-08:122, 08:124-08:131, 08:133-08:145, 08:147-08:165, 13:93, 15:142, 15:180, 35:218, 35:256, 40:328, 44:49, 44:156, 49:25, 51:68, 51:176, C*06:147
3	140 bp, 235 bp	1070 bp	7, 8, 13, 15, 35, 4005, 44, 49, 61, 62, 77	*07:20, 07:24, 07:60, 07:100, 07:131, 07:220, 07:223, 08:21, 08:25, 13:01:01-13:04, 13:06-13:08, 13:10-13:23, 13:25-13:38, 13:40-13:57, 13:59-13:66, 13:68-13:93, 15:07:01-15:07:03, 15:36 ^w , 15:45, 15:55, 15:68, 15:89 ^w , 15:126, 15:197:02, 15:207, 15:324, 15:329, 15:331, 15:360, 15:383, 35:05:01-35:05:03, 35:16-35:17:02, 35:22, 35:30, 35:51, 35:58, 35:72, 35:89, 35:97, 35:113-35:114, 35:125, 35:164, 35:199, 35:232, 35:242, 35:318, 40:05, 40:71, 40:174, 44:08 ^w , 44:54, 44:57 ^w , 44:60, 44:106, 44:110, 44:135, 44:158, 44:184, 44:211, 44:213, 46:12, 51:64, 51:148, 53:14, 55:51, 58:18, C*03:05, C*03:25, C*03:27, C*03:143, C*03:167, C*03:296
4^{7,8}	140 bp, 265 bp	800 bp	12, 13, 14, 15, 17, 18, 21, 27, 35, 39, 40, 41, 44, 45, 47, 48, 49, 50, 57, 58, 60, 61, 62, 64, 65	*07:68:01-07:68:03, 07:100, 07:218, 07:220, 07:237, 07:262, 08:71, 08:118, 13:01:01-13:01:09, 13:01:11-13:04, 13:06-13:13:02, 13:15-13:23, 13:25-13:57, 13:59-13:82, 13:84-13:92, 14:01:01-14:02:08, 14:02:10-14:05, 14:07N, 14:09, 14:11-14:36, 14:38-14:54, 15:07:01-15:07:03, 15:45-15:46, 15:53, 15:55, 15:68, 15:106, 15:126, 15:197:02, 15:207, 15:212, 15:324, 15:329, 15:331, 15:336, 15:360, 15:383, 18:14, 18:44:01-18:44:02, 18:107, 27:32, 27:138, 35:05:01-35:05:03, 35:22, 35:46-35:47, 35:51, 35:58, 35:63, 35:66, 35:72, 35:89, 35:97, 35:154, 35:199, 35:207, 35:217, 35:232, 35:317, 38:19, 39:03, 39:14, 39:24:01-39:24:02, 39:29, 39:37, 39:76, 39:79, 40:01:01-40:01:39, 40:01:42-40:01:47, 40:07, 40:10:01-40:10:02, 40:14:01-40:16, 40:22N-40:23, 40:25, 40:30-40:36, 40:38, 40:42-40:43, 40:45, 40:47-40:49, 40:51-40:55, 40:58-40:63, 40:65-40:67, 40:69, 40:71-40:73, 40:76-40:77, 40:79-40:81, 40:84, 40:87:01-40:88, 40:92, 40:100-40:102, 40:106, 40:108, 40:110, 40:112-40:114:02, 40:116-40:118N, 40:121, 40:123-40:126, 40:128-40:130:02, 40:132, 40:134-40:136, 40:139-40:141, 40:146-40:147, 40:150-40:156, 40:158, 40:160:01-40:160:02, 40:163-40:164, 40:166, 40:168, 40:171-40:172, 40:174-40:175, 40:178-40:179, 40:182-40:183, 40:186:01-40:188, 40:191-40:199, 40:204, 40:207-40:208, 40:212-40:213, 40:215-40:219, 40:221-40:223, 40:227-40:228, 40:231, 40:233-40:242, 40:245, 40:247, 40:249-40:250, 40:252-40:253, 40:257-40:264, 40:272-40:273, 40:277-40:282,

101.501-48/12 – including *Taq* polymerase, IFU-01
101.501-48u/12u – without *Taq* polymerase, IFU-02

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

Lot No.: **5E1**

Lot-specific information

				40:285-40:286N, 40:288, 40:298-40:301, 40:308, 40:310, 40:312, 40:315-40:316, 40:319, 40:321, 40:323-40:327, 40:329, 40:332-40:333, 40:336, 40:338N, 41:01:01-41:40, 41:42-41:46, 42:10, 42:17, 44:02:01:01-44:02:31, 44:02:33-44:02:39, 44:03:01:01-44:03:06, 44:03:08-44:03:15, 44:03:17-44:03:18, 44:03:21-44:03:29, 44:03:32-44:05:04, 44:09-44:39, 44:41:01-44:43:02, 44:45-44:56N, 44:58N-44:80, 44:82, 44:84:01-44:102, 44:104-44:110, 44:112-44:129, 44:132-44:133, 44:135-44:144, 44:146-44:155, 44:157-44:193, 44:195N-44:199, 44:201-44:209, 44:211, 44:213-44:223, 44:226-44:230, 44:231 ^w , 44:232-44:245, 44:247-44:249, 45:01:01-45:19, 46:12, 47:01:01:01-47:10, 48:12, 48:14, 48:29, 49:01:01-49:02, 49:04:01-49:14, 49:16-49:24, 49:27-49:30, 49:32-49:41, 49:43, 50:01:01-50:02, 50:04-50:06, 50:08-50:20, 50:31-50:33, 50:35-50:42, 50:44-50:47, 51:64, 53:14, 53:30, 57:11, 57:45, 57:51, 57:69, 57:71, 58:02:01-58:02:02, 58:06-58:07, 58:18, 58:25, 58:38, 58:43, 58:60, C*01:30, C*01:32:01-01:32:02, C*06:20, C*12:87, C*16:85, C*16:98
5^a	185 bp, 235 bp	800 bp	7, 16, 17, 27, 2708, 37, 38, 3901, 3902, 39, 64, 67	*07:02:32, 07:197, 14:01:01-14:01:05, 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, 14:53-14:54, 27:01-27:05:15, 27:05:17-27:05:19, 27:05:21-27:06, 27:07:04, 27:08-27:10, 27:12-27:13, 27:16-27:18, 27:20, 27:23, 27:26-27:27, 27:29, 27:31, 27:35-27:37, 27:39-27:42, 27:44-27:46, 27:48-27:61, 27:64N-27:69, 27:72-27:75, 27:77-27:80, 27:82-27:124, 27:126, 27:128-27:129, 27:131-27:137, 27:140-27:149, 27:151-27:152, 27:154, 37:02, 38:01:01-38:01:07, 38:01:09-38:02:02, 38:02:04-38:03, 38:07-38:24, 38:26-38:32, 38:34N-38:63, 39:01:01:01-39:01:01:04, 39:01:03-39:01:08, 39:01:10-39:02:01, 39:03, 39:05:01-39:06:02, 39:06:04-39:09:03, 39:11, 39:14-39:15, 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, 39:111-39:117, 47:04-47:05, 48:21, 48:26, 67:01:01, 67:03-67:04, 67:06-67:07
6^a	190 bp	800 bp	14, 35, 38, 39, 65	*07:28, 08:87, 14:02:01:01-14:02:02, 14:02:04-14:02:05, 14:02:07-14:06:02, 14:09, 14:11, 14:13, 14:15-14:18, 14:20, 14:22-14:23, 14:25, 14:27, 14:29-14:31, 14:33-14:39, 14:41N, 14:43-14:45, 14:48, 14:50-14:52, 15:77, 15:189, 15:233, 35:03:17, 35:26, 38:05, 38:33, 39:04, 44:16, 44:37:01-44:37:02, 44:64:01-44:64:02, 44:91, 44:132, 44:150, 44:190, 52:26, 57:04:01-57:04:02, A*23:31, A*24:106, C*01:115, C*02:97, C*07:231, C*16:10
7	180 bp, 290 bp	1070 bp	15, 22,46, 62, 63, 71, 72, 75, 76, 77	*15:01:01:01-15:01:03, 15:01:06-15:02:11, 15:03:03, 15:04:01:01-15:08:02, 15:10:02, 15:11:01-15:11:03, 15:11:05-15:15, 15:17:01:01-15:17:05, 15:19-15:21, 15:24:01-15:28, 15:30-15:36, 15:38:01-15:40:02, 15:42-15:46, 15:48, 15:50, 15:55-15:58, 15:60, 15:63, 15:65-15:66, 15:70-15:71, 15:73, 15:75-15:79N, 15:81-15:89, 15:92, 15:94N, 15:96-15:97, 15:101-15:102, 15:104-15:107, 15:109-15:113, 15:116-15:118, 15:120-15:122, 15:125-15:126, 15:128-15:129, 15:135-15:150, 15:152, 15:154-15:155, 15:157, 15:159-15:160, 15:162-15:172, 15:174-15:175, 15:177-15:179:02, 15:181N-15:185, 15:187-15:196, 15:199, 15:201-15:209N, 15:211, 15:213-15:219, 15:223-15:225, 15:227-15:228, 15:230-15:234, 15:236-15:237, 15:239-15:241, 15:244-15:251, 15:256-15:262N, 15:264-15:265, 15:267-15:273, 15:276-15:280, 15:283-15:289, 15:291, 15:295-15:305, 15:308-15:310, 15:315-15:322, 15:324-15:328, 15:330-15:334, 15:339-15:346, 15:348-15:350, 15:352-15:353, 15:355-15:361, 15:363-15:368, 15:370-15:375N, 15:377Q-15:378,

101.501-48/12 – including *Taq* polymerase, IFU-01
101.501-48u/12u – without *Taq* polymerase, IFU-02

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

Lot No.: **5E1**

Lot-specific information

				15:381, 15:383-15:387, 15:390-15:396, 15:398, 46:01:01-46:68, C*01:73, C*05:01:28, C*07:02:30, C*08:16:02
8	165 bp, 225 bp, 285 bp, 330 bp	1070 bp	5, 8, 12, 21, 22, 37, 41, 42, 44, 45, 48, 51, 56, 57, 60, 62, 70, 71, 72, 82	*08:01:01:01-08:01:22, 08:01:24-08:05, 08:08N-08:13, 08:15-08:27, 08:29-08:36, 08:38-08:48, 08:50-08:73, 08:75-08:76, 08:78, 08:80- 08:86N, 08:88, 08:90-08:106, 08:109-08:110, 08:112-08:155, 08:157-08:163, 08:165, 13:46, 15:03:01:01-15:03:06, 15:09- 15:10:04, 15:18:01:01-15:18:06, 15:23, 15:29, 15:37, 15:46- 15:47:02, 15:49, 15:51-15:54, 15:61-15:62, 15:64:01-15:64:02, 15:69, 15:72, 15:74, 15:80, 15:83, 15:90-15:91, 15:93, 15:98-15:99, 15:103, 15:106, 15:108, 15:114-15:115, 15:119, 15:123-15:124, 15:127, 15:131-15:134, 15:143, 15:151, 15:153, 15:156, 15:158, 15:161, 15:173, 15:176, 15:186, 15:197:01-15:198, 15:200, 15:210, 15:212, 15:220-15:221, 15:226N, 15:229, 15:235, 15:238, 15:242:01-15:243, 15:252-15:253, 15:255, 15:259, 15:263, 15:266, 15:274-15:275:02, 15:281-15:282, 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, 15:369, 15:379-15:380N, 15:382, 15:388-15:389, 15:397, 35:87, 37:12, 38:30, 40:12, 40:136, 40:231, 40:279, 41:01:01-41:03:02, 41:05-41:09, 41:11-41:17, 41:19-41:46, 42:01:01-42:02:01:02, 42:04-42:08, 42:10-42:15, 42:17-42:19, 42:21-42:23, 44:14-44:15, 44:18, 44:20, 44:62, 44:100, 44:166, 44:213, 45:01:01-45:19, 51:08:01-51:08:02, 51:20, 51:36, 51:44N, 51:97, 51:141, 51:153, 52:19, 55:20, 55:56, 56:13, 57:09, 82:01- 82:03, C*07:46, C*07:356, C*12:184, C*15:99, C*16:85
9	180bp, 390 bp	1070 bp	63	*15:01:01:02N, 15:16:01:01-15:17:05, 15:67, 15:95, 15:162, 15:168, 15:177, 15:196, 15:208, 15:216, 15:222, 15:230, 15:254, 15:268, 15:273, 15:356, 15:361-15:362, 15:396
10	180 bp	800 bp	13, 22, 55, 60	*07:78, 13:01:01-13:02:18, 13:07N-13:09, 13:11, 13:14-13:20, 13:22:01-13:23, 13:25, 13:27-13:34, 13:36-13:45, 13:47, 13:49N- 13:50, 13:52, 13:54-13:58, 13:60-13:61, 13:63N-13:70, 13:73-13:78, 13:80-13:85, 13:87-13:93, 40:48, 45:10, 49:07, 50:31, 54:26, 55:09, 55:22, 55:24, 59:09
11⁶	100 bp, 195 bp	1070 bp	8, 12, 27, 38, 39, 3902, 44, 45, 48, 60, 70, 71, 72, 82	*07:27, 07:50, 07:219, 08:04, 08:17, 08:54, 08:110, 15:03:01:01- 15:03:06, 15:47:01-15:47:02, 15:49, 15:54, 15:61-15:62, 15:64:01- 15:64:02, 15:68-15:69, 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, 15:242:01-15:242:02, 15:253, 15:259, 15:266, 15:274, 15:281-15:282, 15:369, 15:379, 15:389, 15:397, 18:37, 18:125, 27:18, 27:29, 37:28, 38:03, 39:02:01-39:02:02, 39:08, 39:13:01- 39:13:02, 39:23, 39:39:01-39:39:02, 39:49, 39:88, 39:101, 39:105, 39:110, 40:12, 40:46, 40:93, 42:11, 44:10, 44:15, 44:18, 44:40, 44:44, 44:117, 44:130, 44:140, 44:156, 44:210, 45:01:01-45:03, 45:05-45:07, 45:11-45:19, 48:01:01-48:05, 48:07-48:30, 48:32- 48:40, 49:20, 50:02, 52:16, 55:18, 56:44, 58:44, 82:01-82:03, C*05:102, C*08:93, C*15:25
12	280 bp	1070 bp	5, 7, 8, 13, 15, 16, 17, 18, 22, 35, 40, 42, 44, 46, 48, 49, 51, 53, 55, 56, 57, 58, 60, 61, 62, 63, 70, 71,	*07:09, 07:11, 07:17, 07:162, 07:235, 07:237, 07:255, 08:28, 08:35, 08:37, 08:89, 08:107, 13:04, 13:10, 13:26:01-13:26:02, 13:72, 15:01:01:01-15:01:04, 15:01:06-15:08:02, 15:11:01-15:16:03, 15:18:01:01-15:21, 15:23-15:29, 15:31-15:36, 15:38:01-15:40:02, 15:43-15:44, 15:46-15:47:02, 15:49-15:57, 15:60-15:62, 15:64:01- 15:72, 15:74-15:76, 15:78:01-15:82, 15:84-15:85, 15:87-15:89, 15:91-15:98, 15:101-15:129, 15:131-15:132, 15:134-15:136, 15:138-15:149N, 15:151-15:161, 15:163-15:167, 15:169-15:176, 15:178-15:187, 15:189-15:195, 15:197:01-15:207, 15:209N-15:215, 15:217-15:223, 15:225-15:228, 15:231-15:232, 15:234-15:242:02,

101.501-48/12 – including *Taq* polymerase, IFU-01
101.501-48u/12u – without *Taq* polymerase, IFU-02

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

Lot No.: **5E1**

Lot-specific information

			72, 75, 76, 77, 78	15:244-15:247, 15:249-15:251, 15:254-15:268, 15:270-15:272N, 15:274-15:286, 15:288-15:302N, 15:304N-15:311, 15:314-15:322, 15:325-15:328, 15:330-15:333, 15:335-15:337, 15:340-15:341, 15:343-15:355, 15:357-15:360, 15:362-15:395, 15:397-15:398, 18:01:01:01-18:15, 18:17N-18:25, 18:27-18:40, 18:42-18:60, 18:62- 18:121, 18:123, 18:125-18:127, 27:41, 27:107, 35:01:01:01- 35:01:45, 35:05:01-35:05:03, 35:07-35:08:08, 35:10-35:11:03, 35:14:01-35:17:02, 35:19-35:21, 35:23-35:30, 35:32:01-35:32:02, 35:35, 35:37, 35:40N-35:43:01, 35:45-35:54, 35:57-35:58, 35:61:01- 35:64:02, 35:66-35:69, 35:71-35:72, 35:76-35:80, 35:82, 35:86, 35:89-35:94, 35:97, 35:99-35:105, 35:107-35:108:02, 35:110- 35:126, 35:130N-35:135, 35:137-35:148, 35:158-35:159, 35:161, 35:165N-35:166, 35:168, 35:170-35:171, 35:173N-35:178, 35:180, 35:185-35:192, 35:194, 35:196-35:197, 35:200, 35:202-35:203, 35:206-35:210, 35:212, 35:215-35:219, 35:222, 35:224-35:229, 35:232, 35:238-35:241, 35:244-35:245, 35:247-35:250, 35:252- 35:255, 35:259-35:260, 35:262-35:265, 35:268-35:269, 35:271- 35:272, 35:275, 35:277, 35:280, 35:283-35:284, 35:286-35:289, 35:293-35:295, 35:297, 35:299-35:308, 35:310, 35:313-35:315, 35:317-35:319, 35:322, 37:35, 37:56, 38:52, 39:07, 39:43, 39:91, 40:03, 40:20, 40:38, 40:52, 40:59-40:60, 40:105, 40:158-40:159, 40:222, 40:267, 40:284, 41:24, 41:30, 42:09, 44:17, 44:43:01- 44:43:02, 44:144, 44:230, 45:09, 46:01:01-46:10, 46:12-46:17, 46:19-46:60, 46:62-46:68, 48:02:01-48:02:03, 48:14, 48:23, 48:25, 49:04:01-49:05, 50:33, 51:37, 51:45, 51:63, 51:97, 52:39, 53:01:01- 53:03, 53:05-53:06, 53:08:01-53:18, 53:20-53:30, 53:32, 53:34- 53:35, 53:37-53:41, 53:43, 54:06, 54:09, 54:14, 55:14, 55:23, 55:32, 55:68, 56:03, 56:09, 56:18, 56:31-56:32, 56:50, 57:01:01-57:01:22, 57:06, 57:08, 57:10-57:11, 57:13-57:16, 57:18-57:27, 57:29-57:31, 57:33-57:38, 57:40-57:41, 57:43-57:45, 57:47-57:56, 57:58-57:62, 57:64-57:65, 57:67:01-57:69, 57:71-57:75, 57:77-57:79N, 57:81, 57:83, 58:01:01:01-58:02:02, 58:04-58:07, 58:09-58:19, 58:21- 58:26, 58:29, 58:31N-58:33, 58:35-58:64, 58:66-58:72N, 58:74- 58:81
13¹⁰	195 bp	1070 bp	27, 35, 37, 44, 58, 76	*07:236, 07:240, 08:126, 08:131, 08:139, 15:12, 15:14, 15:19, 15:91, 15:131, 15:161, 15:270, 15:298, 15:304N, 18:54, 18:56, 18:108, 35:45, 35:71, 37:01:01-37:09, 37:12-37:13, 37:15-37:21, 37:23-37:28, 37:30N-37:33N, 37:35-37:36, 37:38-37:59, 38:17, 44:17, 44:43:01-44:43:02, 44:144, 44:230, 45:09, 46:17, 53:22, 58:07, A*24:174, C*02:82, C*06:165, C*14:61
14⁶	105 bp, 395 bp, 435 bp	1070 bp	5, 7, 15, 41, 42, 62, 63, 70, 71, 75, 77	*07:04, 07:25, 07:146, 15:09-15:10:04, 15:13:01-15:13:02, 15:16:01:01-15:18:06, 15:21, 15:23-15:24:02, 15:37, 15:44, 15:51- 15:52, 15:66-15:67, 15:72, 15:76, 15:80, 15:87, 15:90, 15:93, 15:95, 15:99, 15:101, 15:108, 15:114-15:115, 15:119, 15:124, 15:133- 15:134, 15:153, 15:157, 15:161-15:162, 15:168, 15:176-15:177, 15:186, 15:189, 15:196-15:198, 15:200, 15:208, 15:216, 15:221- 15:222, 15:226N, 15:229-15:230, 15:238, 15:243, 15:252, 15:254- 15:255, 15:263, 15:268, 15:273, 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, 15:356, 15:361-15:362, 15:376, 15:380N, 15:382, 15:388, 15:394, 15:396, 40:136, 40:231, 40:279, 41:08, 42:05:01-42:05:02, C*07:335, C*14:62
15⁶	115 bp, 150 bp	1070 bp	18	*18:01:01:01-18:15, 18:17N-18:28, 18:30-18:71, 18:73-18:91, 18:93-18:101, 18:103-18:106, 18:108-18:123, 18:125-18:127, 35:289, 48:28

101.501-48/12 – including *Taq* polymerase, IFU-01
101.501-48u/12u – without *Taq* polymerase, IFU-02

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“Instructions for Use” (IFU)

Lot No.: **5E1**

Lot-specific information

16⁶	80 bp	1070 bp	7, 27, 2708, 44, 60	*07:73, 08:88, 08:102, 27:01-27:05:22, 27:05:24-27:21, 27:23-27:51, 27:53-27:66N, 27:68-27:74, 27:76-27:139, 27:141-27:154, 38:22, 40:46, 40:93, 44:40, 44:44, 44:130, 44:210, 49:26
17	150 bp	800 bp	12, 13, 17, 18, 22, 27, 35, 37, 39, 44, 45, 47, 48, 51, 53, 56, 57, 58, 62, 70, 75, 77, 78	*07:235, 08:49, 13:01:01-13:01:12, 13:06-13:07N, 13:12:01-13:13:02, 13:17, 13:20, 13:22:01-13:23, 13:25-13:26:02, 13:28-13:29, 13:36, 13:39, 13:43, 13:50-13:52, 13:57, 13:60-13:61, 13:63N, 13:73, 13:76N-13:80, 13:83, 13:86-13:87, 13:90, 13:92, 14:10, 15:02:01-15:02:11, 15:13:01-15:13:02, 15:20-15:21, 15:25:01-15:25:03, 15:36, 15:44, 15:62, 15:77, 15:80, 15:85, 15:88-15:89, 15:106, 15:112, 15:121, 15:139, 15:144, 15:154, 15:165, 15:170, 15:194, 15:204, 15:213-15:214, 15:223, 15:240, 15:250, 15:265, 15:271, 15:283, 15:289, 15:291, 15:297, 15:301-15:302N, 15:308, 15:319, 15:325, 15:328, 15:330, 15:341, 15:345, 15:357-15:358, 15:366, 15:374, 15:378, 15:393-15:394, 18:22, 18:69, 18:105, 27:19, 27:30, 27:127, 27:150, 35:01:01:01-35:04:03, 35:06-35:08:08, 35:10-35:17:02, 35:19-35:21, 35:23-35:30, 35:33-35:36, 35:38-35:42:02, 35:45-35:50, 35:52, 35:54-35:57, 35:59:01-35:59:02, 35:61:01-35:63, 35:65Q, 35:69-35:71, 35:74, 35:76-35:78, 35:80-35:85, 35:90-35:96, 35:98, 35:100-35:101:02, 35:103-35:113, 35:115-35:116, 35:120-35:126, 35:128-35:134N, 35:136-35:150:02, 35:152-35:173N, 35:175-35:184, 35:186-35:198, 35:200-35:204, 35:206-35:229, 35:231, 35:233, 35:236-35:250, 35:252-35:259, 35:261-35:264, 35:266-35:272, 35:274-35:275, 35:277-35:291, 35:293-35:320, 35:322, 37:01:01-37:01:07, 37:01:09, 37:01:11, 37:03N-37:06:02, 37:08, 37:10-37:11, 37:13-37:43, 37:45-37:50, 37:52-37:59, 38:20, 39:42, 40:28, 44:02:01:01-44:02:33, 44:02:35-44:14, 44:16-44:17, 44:19N, 44:21-44:30, 44:32-44:40, 44:42-44:46, 44:48-44:52N, 44:55-44:64:02, 44:66-44:98, 44:101-44:105, 44:107-44:134, 44:136-44:137, 44:139-44:157, 44:159-44:165, 44:167-44:181, 44:183, 44:185-44:191, 44:194-44:196, 44:198N-44:212, 44:214-44:229, 44:231-44:235, 44:237N-44:245, 44:247-44:249, 46:33, 46:67, 48:02:01-48:02:03, 48:25, 50:17, 51:04, 51:42, 51:46, 51:56:01-51:56:03, 51:139, 51:186, 53:01:01-53:13, 53:15-53:43, 55:14, 56:09, 56:11-56:12, 57:01:01-57:01:04, 57:01:06-57:10, 57:12, 57:14:01-57:20, 57:22-57:30, 57:32-57:46, 57:48-57:81, 58:01:01:01-58:01:02, 58:01:04-58:01:15, 58:01:17-58:01:20, 58:04-58:05, 58:09-58:15, 58:17N, 58:19, 58:21-58:24, 58:28:01-58:29, 58:31N-58:37, 58:39N-58:42, 58:44-58:45:02, 58:47-58:59:02, 58:62-58:81, 83:01, C*03:102, C*03:263, C*15:126
18	140 bp	1070 bp	8, 18, 22, 35, 39, 78	*07:65, 07:134, 08:32, 08:133, 15:202, 15:239, 15:308, 15:376, 18:01:01:01-18:08, 18:10-18:15, 18:17N-18:36, 18:38-18:47, 18:49-18:53, 18:55-18:65, 18:68-18:106, 18:108-18:123, 18:126-18:127, 35:01:01:01-35:18, 35:20:01-35:24:02, 35:27-35:45, 35:48, 35:50-35:62, 35:64:01-35:72, 35:74-35:153, 35:155-35:197, 35:199-35:206, 35:208-35:209, 35:211-35:216N, 35:218-35:253, 35:255-35:270, 35:272-35:273, 35:275-35:310, 35:312-35:316, 35:318-35:322, 37:05, 37:11, 37:14 ^w , 37:37, 39:19:01-39:19:02, 40:185, 40:209, 40:308, 46:40:01-46:40:02, 56:06, 56:45, 58:64, 78:01:01-78:09
19^{6,9}	55 bp, 245 bp, 390 bp, 415 bp	1070 bp	5, 15, 44, 48, 60, 62, 63, 70, 71, 72, 75, 76, 77, 82	*15:01:01:01-15:01:04, 15:01:06-15:21, 15:23-15:40:02, 15:42-15:58, 15:60-15:67, 15:69-15:99, 15:102-15:129, 15:131-15:179:02, 15:181N-15:235, 15:237-15:254, 15:256-15:398, 40:12, 46:50, 82:01-82:03, C*03:179, C*06:147, C*14:61, C*16:85

101.501-48/12 – including *Taq* polymerase, IFU-01
101.501-48u/12u – without *Taq* polymerase, IFU-02

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

Lot No.: **5E1**

Lot-specific information

20⁹	210 bp	800 bp	27, 37	*07:27, 07:236, 07:273, 08:49, 08:126, 18:54, 37:01:01-37:59, 38:17, C*07:302
21	170 bp	800 bp	16, 35, 38, 39, 3901, 3902, 67, 72	*08:55, 15:69, 15:186, 35:35, 35:276, 38:01:01-38:02:05, 38:02:07-38:09, 38:11-38:21, 38:23-38:29, 38:31-38:35, 38:38-38:44, 38:46-38:49, 38:51, 38:53-38:62, 39:01:01:01-39:01:01:04, 39:01:03-39:01:18, 39:01:20-39:20, 39:22-39:24:02, 39:26-39:29, 39:31, 39:35, 39:37-39:42, 39:44-39:46, 39:48-39:49, 39:51-39:73, 39:75-39:81, 39:83-39:101, 39:103-39:106, 39:108-39:111, 39:113-39:117, 40:184, 51:101, 58:20, 67:01:01-67:07, C*15:51
22⁶	110 bp	1070 bp	38	*27:07:04, 38:01:01-38:01:07, 38:01:09-38:02:02, 38:02:04-38:03, 38:05, 38:08-38:24, 38:26-38:34N, 38:36-38:60, 38:62-38:63, 49:26, 52:01:10, A*23:01:18, A*25:01:08
23	395 bp	1070 bp	14, 16, 38, 39, 3901, 64, 65	*07:69, 07:85, 07:180, 08:65, 14:01:01-14:20, 14:22-14:41N, 14:43-14:48, 14:50-14:54, 38:01:01-38:02:07, 38:04-38:05, 38:08-38:25, 38:27-38:53, 38:55Q-38:63, 39:01:01:01-39:01:01:04, 39:01:03-39:01:23, 39:03-39:07, 39:09:01-39:09:03, 39:11-39:12, 39:14-39:15, 39:18-39:19:02, 39:22, 39:24:01-39:38Q, 39:40:01N-39:48, 39:50-39:57, 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, 39:111-39:117, 40:322 [?] , 49:26
24	160 bp, 425 bp	1070 bp	7, 703, 8, 14, 15, 16, 21, 39, 3901, 3902, 40, 41, 42, 45, 48, 50, 60, 61, 64, 65, 67, 70, 73, 81	*07:02:01-07:26, 07:28-07:35, 07:37, 07:39-07:64, 07:66-07:80, 07:82-07:148, 07:150-07:178, 07:181N-07:191, 07:193-07:194, 07:196-07:218, 07:220-07:235, 07:237-07:256, 07:258-07:270, 07:272N, 07:274-07:275, 08:01:01:01-08:01:34, 08:04-08:05, 08:07-08:35, 08:37-08:51, 08:53:01-08:77, 08:79-08:116, 08:118-08:125, 08:127-08:130, 08:132-08:135, 08:137-08:138, 08:140-08:146, 08:148N-08:165, 14:01:01-14:01:04, 14:01:06-14:02:04, 14:02:06-14:02:07, 14:02:09-14:29, 14:31-14:54, 27:14, 27:81, 27:130, 39:01:01:01-39:01:01:04, 39:01:03-39:06:04, 39:07-39:20, 39:22-39:24:01, 39:25N-39:103, 39:105-39:117, 40:01:01-40:01:47, 40:06:01:01-40:06:04, 40:06:06-40:07, 40:09 [?] , 40:11:01 [?] -40:11:02 [?] , 40:14:01 [?] -40:15 [?] , 40:16, 40:18 [?] , 40:21 [?] -40:22N [?] , 40:23, 40:24 [?] -40:38 [?] , 40:42 [?] -40:43 [?] , 40:44, 40:45 [?] -40:46 [?] , 40:48 [?] -40:50 [?] , 40:51, 40:52 [?] , 40:53, 40:54 [?] -40:58 [?] , 40:59-40:60, 40:61 [?] -40:65 [?] , 40:66, 40:67 [?] -40:69 [?] , 40:70:01-40:70:02, 40:71 [?] , 40:72:01-40:73, 40:74 [?] , 40:75, 40:77, 40:78 [?] , 40:79, 40:80 [?] -40:82 [?] , 40:83, 40:84 [?] -40:85 [?] , 40:86, 40:87:01 [?] -40:88 [?] , 40:90 [?] -40:92 [?] , 40:93, 40:95 [?] , 40:96, 40:98 [?] -40:102 [?] , 40:103, 40:104 [?] -40:108 [?] , 40:109-40:110, 40:111 [?] -40:116 [?] , 40:118N [?] -40:121 [?] , 40:123 [?] , 40:124:01, 40:124:02 [?] -40:126 [?] , 40:127, 40:128 [?] -40:130:02 [?] , 40:131, 40:132 [?] -40:134 [?] , 40:136 [?] -40:137 [?] , 40:138-40:140, 40:141 [?] , 40:145 [?] , 40:146-40:148, 40:149 [?] , 40:150, 40:151 [?] , 40:152-40:153, 40:154 [?] , 40:155:01N-40:155:02N, 40:156 [?] , 40:158 [?] , 40:159, 40:160:01 [?] -40:160:02 [?] , 40:161-40:162, 40:163 [?] -40:164 [?] , 40:165, 40:166 [?] , 40:167, 40:168 [?] -40:171 [?] , 40:172, 40:173 [?] -40:176 [?] , 40:177, 40:178 [?] -40:185 [?] , 40:186:01, 40:186:02 [?] -40:187 [?] , 40:189 [?] , 40:190, 40:191 [?] -40:200 [?] , 40:202 [?] -40:213 [?] , 40:215 [?] -40:228 [?] , 40:230, 40:231 [?] -40:243 [?] , 40:244, 40:245 [?] -40:249 [?] , 40:250-40:253, 40:256N, 40:257 [?] , 40:258-40:265N, 40:268-40:270, 40:272, 40:273 [?] -40:274 [?] , 40:275, 40:276 [?] , 40:277-40:278, 40:279 [?] -40:280 [?] , 40:282 [?] -40:283 [?] , 40:285-40:286N, 40:287 [?] -40:291N [?] , 40:293 [?] , 40:294-40:295, 40:296 [?] -40:297 [?] , 40:298, 40:299 [?] -40:300 [?] , 40:301, 40:306-40:307, 40:308 [?] -40:310 [?] , 40:311, 40:312 [?] , 40:313, 40:315 [?] , 40:316-40:318, 40:319 [?] -40:320 [?] , 40:321, 40:322 [?] , 40:323, 40:324 [?] -40:329 [?] , 40:330, 40:331 [?] , 40:332, 40:333 [?] -40:334 [?] , 40:336 [?] -40:338N [?] , 41:01:01-41:45N, 42:01:01-42:02:01:02, 42:04-42:21, 42:23, 45:01:01-45:19, 48:01:01-48:17,

101.501-48/12 – including *Taq* polymerase, IFU-01
101.501-48u/12u – without *Taq* polymerase, IFU-02

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Lot No.: **5E1**

Lot-specific information

				48:19-48:40, 50:01:01-50:02, 50:04-50:20, 50:31-50:47, 51:01:09, 51:01:21, 51:01:25, 51:10, 51:24:02-51:24:04, 51:197, 52:54, 54:11, 56:20:02, 67:01:01-67:07, 73:01-73:02, 81:02, C*07:463
25¹¹	180 bp	1070 bp	15, 40, 44, 48, 60	*15:116, 15:124, 15:352, 27:125, 35:230, 38:63, 40:01:01-40:01:06, 40:01:08-40:01:17, 40:01:19-40:01:47, 40:07, 40:10:01:01-40:10:02, 40:12, 40:21-40:23, 40:25, 40:30, 40:33-40:34, 40:36, 40:38, 40:42-40:43, 40:46-40:49, 40:51-40:52, 40:54-40:55, 40:59-40:63, 40:65-40:67, 40:69, 40:73-40:74, 40:76, 40:79, 40:81, 40:84, 40:87:01-40:88, 40:92, 40:100-40:102, 40:106, 40:108, 40:112-40:114:02, 40:116-40:118N, 40:123-40:126, 40:128, 40:130:01-40:130:02, 40:132, 40:134-40:135, 40:137-40:141, 40:146-40:147, 40:149-40:156, 40:160:01-40:160:02, 40:163, 40:166, 40:168, 40:170-40:172, 40:175, 40:178-40:179, 40:182-40:183, 40:185-40:188, 40:191, 40:193-40:196, 40:198-40:199, 40:204, 40:207-40:208, 40:210, 40:212-40:213, 40:215-40:218, 40:221-40:223, 40:227-40:228, 40:231, 40:234-40:236, 40:238-40:242, 40:245, 40:247, 40:249-40:253, 40:257-40:265N, 40:272-40:273, 40:277-40:282, 40:285-40:286N, 40:288, 40:299-40:301, 40:308, 40:310, 40:312, 40:315, 40:319, 40:321, 40:323-40:329, 40:332-40:333, 40:336, 40:338N, 44:31, 44:169, 44:182, 46:06, 46:43, 48:03:01-48:03:02, 48:17, 48:23, 48:40, 57:59, C*03:129, C*03:234, C*17:16
26⁹	290 bp, 465 bp	1070 bp	13, 17, 21, 35, 37, 40, 4005, 41, 46, 47, 50, 57, 60, 61, 62, 63	*13:02:06, 13:26:01, 13:72, 15:16:03, 15:20, 15:85, 15:194, 15:393, 18:48, 35:46, 35:207, 37:06:01-37:06:02, 40:02:01-40:06:15, 40:08, 40:09 [?] , 40:10:02 [?] -40:11:02 [?] , 40:13, 40:14:01 [?] -40:15 [?] , 40:18 [?] -40:19 [?] , 40:20, 40:22N [?] , 40:24 [?] -40:31 [?] , 40:33 [?] -40:38 [?] , 40:39, 40:42 [?] , 40:44 [?] -40:45 [?] , 40:47 [?] -40:50 [?] , 40:52 [?] -40:58 [?] , 40:61 [?] -40:65 [?] , 40:67 [?] -40:69 [?] , 40:70:01-40:70:02, 40:71 [?] , 40:72:02 [?] , 40:74 [?] -40:76 [?] , 40:78 [?] , 40:80 [?] -40:82 [?] , 40:84 [?] -40:88 [?] , 40:89, 40:90 [?] -40:92 [?] , 40:94, 40:95 [?] -40:96 [?] , 40:97, 40:98 [?] -40:121 [?] , 40:122, 40:123 [?] , 40:124:02 [?] -40:136 [?] , 40:141 [?] , 40:142N-40:144N, 40:145 [?] , 40:148 [?] -40:149 [?] , 40:151 [?] , 40:154 [?] , 40:156 [?] -40:169 [?] , 40:173 [?] -40:176 [?] , 40:178 [?] -40:184 [?] , 40:186:02 [?] -40:208 [?] , 40:210 [?] -40:213 [?] , 40:214, 40:216N [?] -40:228 [?] , 40:229, 40:230 [?] -40:236 [?] , 40:238 [?] -40:248 [?] , 40:254-40:255, 40:256N [?] -40:257 [?] , 40:266-40:271, 40:273 [?] -40:276 [?] , 40:279 [?] -40:283 [?] , 40:284, 40:287 [?] -40:293 [?] , 40:295 [?] -40:300 [?] , 40:302-40:305, 40:306 [?] -40:313 [?] , 40:314, 40:315 [?] , 40:317 [?] -40:320 [?] , 40:322 [?] , 40:324 [?] -40:331 [?] , 40:333 [?] -40:338N [?] , 46:01:07, 46:33, 47:01:01:01-47:10, 57:05, 57:67:01, 58:36, C*01:73
27⁶	105 bp	1070 bp	7, 8, 22, 41, 42	*07:04, 07:25, 07:146, 08:01:01:01-08:01:24, 08:01:26-08:05, 08:07-08:12:03, 08:14-08:19N, 08:21-08:24, 08:26:01-08:30N, 08:32-08:39, 08:41-08:54, 08:56:01-08:69, 08:71-08:78, 08:80-08:102, 08:104-08:112, 08:114-08:115, 08:117-08:133, 08:135-08:142, 08:144-08:155, 08:157-08:165, 35:87, 40:136, 40:231, 40:279, 41:01:01-41:05, 41:07-41:08, 41:10-41:14, 41:16-41:28, 41:30-41:31, 41:33-41:46, 42:01:01-42:02:01:02, 42:04-42:07, 42:09-42:13, 42:15-42:18, 42:20-42:23, 44:166, 55:20
28	325 bp	800 bp	7, 22, 27, 2708, 35, 42, 45, 46, 54, 55, 56, 67, 73, 78, 81, 82	*07:02:01-07:02:49, 07:04-07:07, 07:09-07:15, 07:17-07:26, 07:28-07:31, 07:33:01-07:36, 07:39-07:46, 07:47 ^w , 07:48-07:49N, 07:51-07:68:03, 07:70-07:84, 07:86-07:179, 07:181N-07:206, 07:208-07:218, 07:220-07:227, 07:229-07:231N, 07:233-07:270, 07:272N-07:275, 08:123, 08:132, 14:21, 15:76, 15:101, 15:255, 27:01-27:11, 27:13-27:15, 27:17, 27:19-27:21, 27:24-27:28, 27:30-27:38, 27:40-27:58, 27:60-27:76, 27:78-27:91, 27:93-27:118, 27:120-27:128, 27:130-27:136, 27:138-27:152, 27:154, 35:76, 35:186, 35:229,

101.501-48/12 – including *Taq* polymerase, IFU-01
101.501-48u/12u – without *Taq* polymerase, IFU-02

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“Instructions for Use” (IFU)

Lot No.: **5E1**

Lot-specific information

				38:26, 40:166, 42:01:01-42:02:01:02, 42:04-42:06, 42:08-42:10, 42:12-42:23, 44:90, 44:97, 45:06, 46:01:01-46:01:22, 46:02 ^w , 46:03-46:40:02, 46:42-46:48, 46:50-46:68, 54:01:01-54:29, 54:31-54:35, 55:01:01-55:05, 55:07-55:17, 55:19-55:77, 56:01:01:01-56:16, 56:18-56:22, 56:24-56:32, 56:34-56:41, 56:43, 56:45-56:51, 67:01:01-67:07, 73:01-73:02, 81:01-81:08, 82:01-82:03, 83:01
29⁶	80 bp, 115 bp, 160 bp, 195 bp, 225 bp, 260 bp	1070 bp	12, 35, 37, 44, 47, 57	*08:49, 08:60, 08:76, 08:87, 08:129, 27:127, 35:38, 35:45, 35:71, 35:115, 35:169, 35:260, 35:309, 37:01:01-37:01:07, 37:01:09, 37:01:11, 37:03N-37:06:02, 37:08, 37:10-37:38, 37:41-37:43, 37:45-37:50, 37:52-37:59, 40:132, 40:178, 40:231, 40:279, 42:13, 44:02:01:01-44:14, 44:16-44:17, 44:19N-44:36, 44:38-44:63, 44:65-44:134, 44:136-44:149N, 44:151-44:157, 44:159-44:165, 44:167-44:183, 44:185-44:212, 44:214-44:229, 44:231-44:235, 44:237N-44:245, 44:247-44:249, 48:11, 51:42, 53:22, 57:07, 57:09, 57:24, 83:01, C*15:25
30	215 bp	800 bp	5, 8, 12, 17, 21, 22, 41, 42, 44, 45, 51, 5102, 5103, 52, 53, 56, 62	*08:09, 08:84, 13:46, 15:83, 41:01:01-41:01:04, 41:05-41:07, 41:09, 41:12, 41:14, 41:16-41:17, 41:20-41:22, 41:25-41:26, 41:28-41:30, 41:32-41:35, 41:37, 41:44, 42:04, 44:06, 44:15, 44:18, 44:20, 44:100, 45:01:01-45:19, 51:01:01:01-51:01:01:02, 51:01:03-51:01:08, 51:01:10-51:01:39, 51:01:41-51:02:01, 51:02:03-51:04, 51:06:01-51:07:01, 51:08:01-51:09:01, 51:09:03-51:14, 51:16-51:24:05, 51:26-51:46, 51:48-51:53, 51:55-51:77, 51:79-51:88, 51:90-51:92:02, 51:94-51:102, 51:104-51:115, 51:117-51:118N, 51:120-51:131, 51:133-51:143, 51:145-51:147, 51:149N-51:175, 51:177-51:178N, 51:181-51:208, 52:01:02, 52:01:04, 52:01:09, 52:02:01, 52:03, 52:06:01-52:06:02, 52:09, 52:10:03, 52:19, 52:21, 52:31:02, 53:06, 55:20, 55:56, 56:13, 57:01:20, 58:08:01, A*23:01:14
31¹⁰	130 bp, 280 bp	800 bp	7, 17, 18, 22, 35, 37, 46, 51, 53, 60, 62, 78	*07:12, 07:14, 07:18:01-07:18:02, 07:137, 07:162-07:163, 07:199, 07:225, 07:227, 07:248, 14:10, 15:57 ^w , 15:289, 15:297, 15:318, 18:22, 18:69, 18:105, 35:21, 35:24:01-35:24:02, 35:81, 35:96, 35:109, 35:157, 35:188, 35:190, 35:233, 35:287, 37:04:01-37:04:02, 40:28, 40:30, 40:34, 40:59, 40:137, 40:160:01-40:160:02, 44:150, 44:190, 44:203, 46:01:01-46:39, 46:41N-46:46, 46:48-46:68, 48:17, 51:04, 51:46, 51:56:01-51:56:03, 51:139, 53:02, 53:06, 53:28, 57:14:01-57:14:02, 58:09, 58:76, C*01:73, C*03:260, C*15:39
32^{6,12}	90 bp, 410 bp	1070 bp	7, 15, 22, 27, 2708 35, 47, 54, 55, 56, 78, 81, 82	*07:65, 27:01 ^w , 27:02:01-27:11, 27:13-27:15, 27:17, 27:19-27:21, 27:24-27:28, 27:30-27:38, 27:40-27:58, 27:60-27:76, 27:78-27:91, 27:93-27:118, 27:120-27:128, 27:130-27:136, 27:138-27:152, 27:154, 35:76, 35:186, 35:229, 44:90, 44:97, 47:01:01:01-47:03, 47:06-47:10, 54:01:01-54:29, 54:31-54:35, 55:01:01-55:05, 55:07-55:17, 55:19-55:77, 56:01:01:01-56:16, 56:18-56:22, 56:24-56:32, 56:34-56:41, 56:43, 56:45-56:51, 81:01, 81:08 [?] , 82:01-82:03, 83:01, A*23:70
33⁶	90 bp, 175 bp	1070 bp	7, 15, 27, 2708, 35, 48, 60, 62, 75, 77, 81	*07:174, 07:202, 07:222, 13:36, 15:02:01-15:02:11, 15:08:01-15:08:02, 15:11:01-15:11:07, 15:13:01-15:13:02, 15:15, 15:21, 15:31, 15:44, 15:55, 15:76 ^w , 15:88-15:89, 15:112, 15:121, 15:139, 15:144, 15:148, 15:170, 15:189, 15:191, 15:194, 15:209N, 15:213-15:215, 15:223, 15:265, 15:283-15:284, 15:291, 15:297, 15:301-15:303, 15:305, 15:319, 15:325, 15:328, 15:330, 15:341, 15:345, 15:350, 15:357-15:358, 15:367, 15:374, 15:378, 15:384, 15:394, 27:24, 35:46, 35:311, 40:31, 40:45, 40:80, 48:01:01-48:01:06, 48:04:01-48:04:02, 48:06-48:07, 48:09, 48:11, 48:15-48:16, 48:18-48:20, 48:22, 48:24, 48:27-48:39, 56:39 ^w , 81:01-81:08

101.501-48/12 – including *Taq* polymerase, IFU-01
101.501-48u/12u – without *Taq* polymerase, IFU-02

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Lot No.: **5E1**

Lot-specific information

34	145 bp, 430 bp	1070 bp	44, 49, 59, 61	*40:13, 40:19, 40:109, 40:117, 40:292, 41:46, 44:18, 44:25, 44:50:01, 44:95, 49:01:01-49:01:08, 49:04:01-49:14, 49:16-49:25, 49:27-49:43, 51:112, 53:30, 53:39, 54:12, 56:21, 57:45, 57:51, 57:69, 59:01:01:01-59:07, 59:09
35⁶	120 bp, 210 bp	800 bp	5, 13, 15, 17, 22, 35, 45, 49, 50, 51, 5102, 5103, 52, 55, 56, 62, 63, 78	*07:78, 07:84, 13:16, 13:31 ^w , 13:48, 13:62, 14:37, 15:04:01:01 ^w -, 15:04:04 ^w , 15:16:01:01-15:16:03, 15:42, 15:67, 15:95, 15:137 ^w , 15:254, 15:293, 15:303 ^w , 15:310, 15:362, 27:153, 35:265 ^w , 40:95, 40:148, 40:161, 46:32 ^w , 49:01:01, 49:01:03-49:10, 49:12-49:14, 49:16-49:43, 50:01:01-50:02, 50:04-50:11, 50:13-50:16, 50:18- 50:20, 50:31-50:46, 50:47 ^w , 51:01:01:01-51:03, 51:05, 51:07:01- 51:09:03, 51:11N-51:14, 51:16-51:24:05, 51:26-51:41N, 51:43- 51:44N, 51:48-51:55, 51:57-51:58, 51:60-51:61:02, 51:63, 51:65- 51:80, 51:82-51:134, 51:136-51:138, 51:140-51:147, 51:149N- 51:156, 51:158:01-51:193, 51:195-51:208, 52:01:01:01-52:61, 54:20, 54:33 ^w , 55:01:01-55:01:06, 55:01:08-55:01:16, 55:03, 55:05, 55:09, 55:11, 55:15, 55:17, 55:21 ^w , 55:24-55:25, 55:28-55:29, 55:31, 55:33, 55:36, 55:38, 55:40, 55:44-55:45, 55:52-55:55N, 55:58-55:60, 55:64, 55:66, 55:68, 55:73-55:76, 55:78, 56:05:01- 56:06, 56:21, 56:25, 56:37, 58:08:01-58:08:02, 78:01:01-78:09, C*12:183^w
36	430 bp	1070 bp	5, 17, 27, 44, 51, 5102, 5103, 52, 53, 57, 58, 61	*18:67, 27:02:01-27:02:02, 27:30, 27:53, 27:57, 27:62, 27:65N, 27:75, 27:77, 27:83, 27:95, 27:102, 27:119, 27:126, 27:134, 37:34, 40:13, 40:19, 40:109, 40:117, 40:292, 44:06, 44:25, 44:50:01, 44:95, 51:01:01:01-51:01:39, 51:01:41-51:24:05, 51:26-51:46, 51:48-51:53, 51:55-51:77, 51:79-51:208, 52:01:01:01-52:19, 52:21- 52:61, 53:01:01-53:02, 53:04-53:08:02, 53:10, 53:14-53:30, 53:32- 53:35, 53:37, 53:39-53:43, 57:01:01-57:11, 57:13-57:83, 58:01:01:01-58:02:02, 58:04-58:16:02, 58:18-58:29, 58:31N-58:63, 58:65-58:81
37	145 bp	1070 bp	12, 21, 35, 40, 4005, 41, 45, 47, 50, 60, 61	*07:133, 08:155, 15:46, 15:53, 15:106, 15:143, 15:212, 18:48, 18:107, 35:19, 35:47, 35:63, 35:154, 35:217, 35:274, 35:317, 39:69, 40:01:01-40:11:02, 40:14:01-40:16, 40:18, 40:20, 40:22N-40:40, 40:42-40:45, 40:48-40:75, 40:77-40:92, 40:94-40:95, 40:97-40:108, 40:111-40:116, 40:118N-40:136, 40:138-40:156, 40:158-40:184, 40:186:01-40:187, 40:189-40:200, 40:202-40:207, 40:210-40:264, 40:266-40:291N, 40:293-40:307, 40:309-40:338N, 41:01:01-41:04, 41:05 [?] , 41:06-41:25, 41:27-41:45N, 44:09, 44:46, 44:75, 44:90, 44:129, 44:131, 45:01:01-45:15, 45:17-45:19, 47:02, 47:03 ^w , 50:01:01-50:02, 50:04-50:05, 50:07-50:20, 50:31-50:47
38	300 bp	1070 bp	7, 12, 13, 15, 17, 18, 21, 27, 2708, 35, 37, 38, 39, 3902, 40, 4005, 41, 44, 45, 47, 48, 49, 50, 52, 60, 61, 62, 70, 72, 76	*07:54, 07:123, 08:17, 08:38, 08:54, 08:101, 13:01:01-13:04, 13:06, 13:08-13:23, 13:25-13:35, 13:37-13:93, 15:01:01:01-15:01:04, 15:01:06-15:01:18, 15:01:20-15:01:39, 15:03:01:01-15:03:04, 15:03:06-15:07:03, 15:12, 15:14, 15:19-15:20, 15:24:01-15:27:03, 15:30, 15:32:01-15:36, 15:38:01-15:40:02, 15:42-15:43, 15:45- 15:50, 15:53-15:54, 15:56-15:58, 15:60-15:63, 15:65-15:66, 15:68- 15:71, 15:73-15:75, 15:77-15:79N, 15:81-15:87, 15:91-15:92, 15:94N, 15:96-15:98, 15:101-15:107, 15:109-15:111N, 15:113, 15:116-15:118, 15:122-15:123, 15:125-15:129, 15:131-15:132, 15:135-15:138, 15:140-15:142, 15:145-15:147, 15:150-15:152, 15:154-15:160, 15:163-15:167, 15:169, 15:171-15:175, 15:178- 15:179:02, 15:181N-15:185, 15:187-15:188, 15:190N, 15:192- 15:193, 15:195, 15:199, 15:201-15:207, 15:210-15:212, 15:217- 15:220, 15:224-15:225, 15:227-15:228, 15:231-15:237, 15:239- 15:245Q, 15:247-15:251, 15:253, 15:255-15:262N, 15:264, 15:266- 15:267, 15:269-15:272N, 15:274, 15:276-15:282, 15:286-15:289, 15:295-15:296, 15:298-15:300, 15:304N, 15:309-15:310,

101.501-48/12 – including *Taq* polymerase, IFU-01
101.501-48u/12u – without *Taq* polymerase, IFU-02

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“Instructions for Use” (IFU)

Lot No.: **5E1**

Lot-specific information

				15:315-15:318, 15:320-15:322, 15:324, 15:326-15:327, 15:331-15:334, 15:336, 15:339-15:340, 15:342-15:344, 15:346-15:349, 15:352-15:353, 15:355, 15:359-15:360, 15:363-15:366, 15:368-15:373, 15:375N-15:377Q, 15:379, 15:381, 15:383, 15:385-15:387, 15:389-15:391, 15:393, 15:395, 15:397-15:398, 18:12:01-18:12:02, 27:01-27:21, 27:24-27:91, 27:93-27:108, 27:110-27:154, 35:10, 35:13, 35:16, 35:28, 35:63, 35:69, 35:80, 35:207, 35:226, 35:270, 35:317-35:318, 37:01:01-37:07, 37:09-37:59, 38:03-38:04, 38:25, 39:02:01-39:02:02, 39:08, 39:13:01-39:13:02, 39:22-39:23, 39:49, 39:101, 39:105, 39:110, 40:01:01-40:07, 40:09-40:16, 40:18-40:24, 40:26-40:40, 40:42-40:67, 40:70:01-40:105, 40:107-40:165, 40:167-40:231, 40:233-40:312, 40:314-40:338N, 41:01:01-41:46, 42:11, 44:02:01:01-44:02:21, 44:02:23-44:03:35, 44:04-44:05:04, 44:07-44:11, 44:13-44:170, 44:172-44:231, 44:233-44:245, 44:247-44:249, 45:01:01-45:19, 47:01:01:01-47:10, 48:01:01-48:05, 48:07-48:15, 48:17-48:38, 48:40, 49:01:01-49:14, 49:16-49:25, 49:27-49:43, 50:01:01-50:02, 50:04-50:14, 50:16-50:20, 50:31-50:47, 52:01:01:01-52:61, 53:17:01-53:17:02, 53:28, 53:38, 54:35, 55:18, 55:34, 55:40, 78:05-78:06
39^{8,13}	160 bp, 370 bp	1070 bp	22, 44, 45, 47, 54	*08:87, 27:127, 44:02:01:01-44:02:40, 44:06, 44:08-44:09, 44:11-44:12, 44:16, 44:19N-44:24, 44:27:01-44:27:02, 44:33-44:34:02, 44:41:01-44:41:02, 44:44, 44:48-44:49, 44:52N-44:53, 44:55, 44:59:01-44:59:02, 44:63, 44:66-44:68, 44:71-44:74, 44:80, 44:83-44:84:02, 44:86-44:87, 44:89-44:91, 44:93, 44:95, 44:97, 44:99-44:102, 44:104, 44:106, 44:112-44:113, 44:116, 44:118-44:119, 44:121, 44:126:01-44:127, 44:131-44:132, 44:137-44:138Q, 44:142, 44:145, 44:148-44:149N, 44:151-44:152, 44:162, 44:168-44:173, 44:176-44:177, 44:179, 44:185, 44:187, 44:190-44:191, 44:195N-44:196, 44:200-44:201, 44:206, 44:208, 44:211-44:212, 44:214, 44:216, 44:218-44:221, 44:225, 44:229, 44:235, 44:238, 44:240-44:244, 44:249, 54:01:01-54:35, 83:01
40	180 bp, 210 bp	1070 bp	13, 15, 18, 35, 39, 40, 54, 55, 56, 59, 78	*07:65, 07:206, 08:26:03, 13:06, 13:53, 14:37, 15:32:02, 15:42, 15:86, 15:224, 18:04, 18:125, 35:08:05, 35:42:02, 35:60, 35:185, 39:17, 39:63, 40:01:11, 40:58, 45:08, 46:18, 46:40:01, 50:45, 51:157, 54:01:01-54:02, 54:05N, 54:07-54:08N, 54:10, 54:12-54:13, 54:16-54:25, 54:27-54:32, 54:34-54:35, 55:01:01-55:03, 55:05, 55:07, 55:10-55:12, 55:15-55:16, 55:18-55:19, 55:21, 55:25-55:26, 55:29-55:31, 55:33-55:45, 55:47-55:48, 55:50, 55:52-55:57, 55:59-55:67, 55:69-55:78, 56:05:01, 56:06, 56:10, 56:23, 59:01:01:01-59:01:01:02, 59:05-59:08, 78:01:01-78:01:02, 78:02:02-78:03, 78:07-78:09, C*01:90, C*15:02:04, C*15:91, C*15:128
41	180 bp, 205 bp	1070 bp	7, 12, 15, 21, 22, 44, 45, 49, 50, 56, 61, 62, 82	*07:29, 07:186, 08:123, 08:132, 13:03, 13:48, 15:73, 15:303, 40:71, 44:10, 44:15, 44:18, 44:140, 45:01:01-45:01:02, 45:04-45:07, 45:11-45:19, 46:11, 49:01:01-49:01:07, 49:02-49:03, 49:06, 49:08-49:14, 49:16-49:17, 49:19N-49:43, 50:01:01-50:02, 50:04-50:08, 50:10-50:13, 50:15-50:19, 50:32, 50:34-50:38, 50:40-50:44, 50:46-50:47, 51:15, 51:62, 51:106, 52:25:01-52:25:02, 54:03, 54:33, 56:01:01:01-56:01:04, 56:01:06-56:02:02, 56:04, 56:07-56:08, 56:13-56:14, 56:16-56:17, 56:20:01-56:20:02, 56:24-56:30, 56:33-56:49, 56:51, 58:73, 59:04, 82:01-82:03, C*03:19, C*03:102
42⁶	90 bp, 240 bp	800 bp	57	*55:14, 57:01:01-57:04:01, 57:05-57:44, 57:46-57:50, 57:52-57:68, 57:70-57:83, 58:36, C*06:72

101.501-48/12 – including *Taq* polymerase, IFU-01
101.501-48u/12u – without *Taq* polymerase, IFU-02

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Lot No.: **5E1**

Lot-specific information

43^{6,12}	90 bp	1070 bp	5, 13, 17, 39, 55, 56, 58, 60, 61, 62, 71	*07:182N, 13:11, 15:18:03, 15:73, 15:224, 39:17, 40:48, 40:71, 51:62, 56:02:01-56:02:02, 56:04, 56:10, 56:51, 58:01:01-01-58:02:02, 58:04-58:29, 58:31N-58:35, 58:37-58:43, 58:45:01-58:81, C*02:06:01^w, C*02:47^w
44⁶	95 bp	1070 bp	8, 18, 22, 35, 37, 38, 39, 44, 51, 5102, 5103, 53, 78	*07:65 ^w , 07:134 ^w , 08:32, 08:133, 15:308, 18:01:01:01-18:11, 18:13-37, 18:15, 18:17N-18:36, 18:38-18:47, 18:49-18:65, 18:67-18:106, 18:108-18:123, 18:126-18:127, 35:01:01:01-35:08:04, 35:08:06-35:09:03, 35:11:01-35:12:03, 35:14:01-35:15:02, 35:17:01-35:18, 35:20:01-35:24:02, 35:27, 35:29:01-35:45, 35:48, 35:50-35:62, 35:64:01-35:68:02, 35:70-35:72, 35:74-35:75, 35:76 ^w , 35:77-35:79, 35:81-35:153, 35:155-35:185, 35:187-35:190, 35:192-35:197, 35:199-35:206, 35:208-35:209, 35:211-35:216N, 35:218-35:225, 35:227-35:253, 35:255-35:269, 35:272-35:273, 35:275-35:310, 35:312-35:316, 35:319-35:322, 37:08, 38:06-38:07, 39:19:01-39:19:02, 44:06, 51:01:01:01-51:24:05, 51:26-51:46, 51:48-51:103, 51:105-51:111, 51:113-51:117, 51:119-51:146, 51:148-51:208, 53:01:01-53:16, 53:18-53:27, 53:29, 53:31-53:37, 53:40-53:43, 56:06 ^w , 56:45 ^w , 78:01:01-78:04, 78:07-78:09
45^{6,8,9}	115 bp, 150 bp	1070 bp	15, 18, 22, 27, 35, 39, 46, 55, 62, 72, 73, 75, 76	*07:100, 13:31, 13:41, 15:01:01:01-15:01:04, 15:01:06-15:01:16, 15:01:18-15:01:30, 15:01:32-15:01:39, 15:04:01:01-15:04:04, 15:07:01-15:08:02, 15:11:01-15:12, 15:14-15:15, 15:19, 15:24:01-15:24:02, 15:26N-15:28, 15:30, 15:32:01-15:32:02, 15:34-15:35, 15:38:01-15:38:02, 15:43, 15:45-15:46, 15:50, 15:53-15:54, 15:56-15:58, 15:60, 15:63, 15:66, 15:68, 15:70-15:71, 15:73, 15:75-15:77, 15:79N, 15:81-15:82, 15:85, 15:87, 15:92, 15:94N, 15:96-15:97, 15:101-15:102, 15:104-15:105, 15:109-15:111N, 15:113, 15:117-15:118, 15:120, 15:122, 15:125-15:126, 15:128-15:129, 15:135, 15:137, 15:140, 15:142-15:149N, 15:152, 15:154, 15:157, 15:159-15:160, 15:163-15:167, 15:169, 15:171-15:172, 15:174-15:175, 15:178, 15:180-15:184, 15:187, 15:189-15:193, 15:201-15:203, 15:205-15:207, 15:209N, 15:211-15:212, 15:215, 15:217, 15:225, 15:227-15:228, 15:231-15:234, 15:236, 15:239, 15:241, 15:244-15:247, 15:251, 15:256-15:262N, 15:264, 15:267, 15:269-15:270, 15:272N, 15:276-15:280, 15:284-15:286, 15:296, 15:298-15:299, 15:303-15:305, 15:309, 15:315-15:318, 15:320-15:321Q, 15:324, 15:326-15:327, 15:331, 15:333-15:334, 15:336, 15:340, 15:342-15:344, 15:346-15:347, 15:349-15:350, 15:353, 15:355, 15:359, 15:363, 15:365, 15:367-15:368, 15:370-15:373, 15:375N, 15:377Q, 15:381, 15:385-15:387, 15:390-15:392, 15:398, 18:19, 27:25, 27:75, 27:115, 35:14:01-35:14:02, 35:43:01-35:44, 35:62, 35:67, 35:79, 35:86, 35:102, 35:117, 35:135, 35:163, 35:185, 35:213, 35:265, 39:18, 39:36, 44:146, 46:01:01-46:02, 46:04-46:05, 46:07N, 46:09-46:10, 46:12, 46:14-46:17, 46:20, 46:22-46:24, 46:26-46:32, 46:34-46:42, 46:44, 46:46-46:53, 46:55N-46:57, 46:60-46:61, 46:63-46:68, 50:47, 51:61:01-51:61:02, 52:21, 54:06, 54:33, 55:21, 56:03, 56:43, 58:78, 73:01-73:02, A*26:68, A*26:100, A*68:56, C*02:56, C*06:20, C*12:50
46¹⁴	360 bp	1070 bp	Bw4	
47	350 bp	1070 bp	Bw6	
48	285 bp	800 bp	7, 703, 8, 35, 40, 41, 42, 48, 60, 61, 81	*07:02:01-07:02:38, 07:02:40-07:06:02, 07:08-07:18:02, 07:20-07:32, 07:34-07:39, 07:41-07:52, 07:54-07:59, 07:61-07:76, 07:79-07:83, 07:85-07:99, 07:101-07:121, 07:123-07:138, 07:140-07:164, 07:166-07:192, 07:194-07:195, 07:199-07:213, 07:215-07:234, 07:236-07:238, 07:240-07:254, 07:256-07:270, 07:272N-07:275, 08:01:01:01-08:01:20, 08:01:22-08:01:24, 08:01:26-08:05, 08:07-

101.501-48/12 – including *Taq* polymerase, IFU-01
101.501-48u/12u – without *Taq* polymerase, IFU-02

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Lot No.: **5E1**

Lot-specific information

				08:08N, 08:10-08:11, 08:13-08:15, 08:17-08:30N, 08:32-08:83, 08:85-08:88, 08:90-08:102, 08:104-08:106, 08:108-08:112, 08:114-08:115, 08:117-08:133, 08:135-08:165, 15:297, 35:66, 35:87, 37:07, 40:15-40:16, 40:30-40:32, 40:34, 40:45, 40:59, 40:80, 40:98, 40:137, 40:160:01-40:160:02, 41:02:01-41:02:06, 41:04, 41:10-41:11, 41:13, 41:18-41:19, 41:23-41:24, 41:27, 41:31, 41:36, 41:38-41:43, 41:45N-41:46, 42:01:01-42:02:01:02, 42:05:01-42:07, 42:09-42:13, 42:15-42:23, 44:150, 44:166, 48:01:01-48:01:06, 48:05-48:12, 48:14-48:20, 48:22, 48:27-48:39, 53:15, 81:01-81:08, C*03:260
49	165 bp, 190 bp	1070 bp	5, 17, 21, 35, 51, 5102, 52, 56, 62, 70, 78	*13:62, 15:01:02, 15:09, 15:243, 15:277-15:278, 15:361, 27:153, 35:01:10, 35:04:02, 35:251, 40:26, 40:28, 44:62, 49:18:01, 50:14, 51:01:01:01-51:01:03, 51:01:05-51:02:03, 51:02:05-51:09:03, 51:11N-51:12, 51:13:02-51:14, 51:16-51:23, 51:24:03-51:24:05, 51:26-51:33, 51:37-51:41N, 51:43-51:44N, 51:46, 51:48-51:61:02, 51:63-51:80, 51:82-51:91, 51:92:02, 51:94-51:98N, 51:100-51:130, 51:132-51:142, 51:145-51:147, 51:149N-51:156, 51:158:01-51:196, 51:198, 51:200-51:208, 52:01:01:01-52:01:04, 52:01:06-52:01:14, 52:01:16-52:13, 52:15-52:24, 52:25:02-52:57, 52:59-52:61, 53:28, 56:05:01-56:06, 56:21, 58:08:01-58:08:02, 78:01:01-78:09
50	260 bp	800 bp	14, 16, 18, 51, 62, 70	*14:06:01-14:06:02, 14:08:01-14:08:02, 15:37-15:38:02, 15:185, 15:323, 15:335, 15:364, 15:368, 18:01:01:01-18:01:15, 18:01:17-18:01:24, 18:03-18:09, 18:12:01-18:13, 18:15, 18:17N-18:20, 18:23N-18:26, 18:28-18:34, 18:36-18:38, 18:40-18:43, 18:45-18:55, 18:57, 18:59-18:68, 18:70-18:100, 18:102-18:104, 18:106-18:109, 18:111-18:123, 18:125-18:127, 39:32, 39:43, 39:48, 40:51, 40:113, 40:163, 51:06:01-51:06:03, 51:45, 51:62, 51:135, 51:194, 56:31, 67:06, C*07:516, C*07:521, C*08:51, C*08:114
51	390 bp	1070 bp	18, 35, 44, 51, 5102, 5103, 52, 53, 61, 78	*18:07:01-18:07:02, 18:29, 18:79, 27:23, 35:01:01:01-35:19, 35:21-35:25, 35:27, 35:29:01-35:62, 35:64:01-35:71, 35:74-35:75, 35:77, 35:79-35:81, 35:83-35:84, 35:86-35:94, 35:96-35:134N, 35:136-35:185, 35:187-35:225, 35:227-35:228, 35:230-35:254, 35:256-35:293, 35:295, 35:297-35:316, 35:318-35:322, 37:21, 40:08, 40:13, 40:68 [?] , 40:106 [?] , 40:162 [?] , 40:220 [?] , 40:232 [?] , 44:06, 44:232, 51:01:01:01-51:06:03, 51:08:01-51:21, 51:23-51:24:05, 51:26-51:46, 51:48-51:127, 51:129-51:188, 51:190-51:208, 52:06:01-52:06:03, 53:01:01-53:08:02, 53:10-53:16, 53:18-53:27, 53:29-53:37, 53:39, 53:41-53:43, 78:01:01-78:02:02, 78:04, 78:07-78:09
52	380 bp	1070 bp	5, 8, 17, 48, 51, 5102, 5103, 52, 57, 58, 59, 61	*08:03, 08:52, 08:78, 15:361, 27:102, 40:13, 40:19, 40:109, 40:117, 40:292, 41:46, 48:18, 49:18:01-49:18:02, 51:01:01:01-51:01:07, 51:01:09-51:01:14, 51:01:16-51:01:39, 51:01:41-51:01:42, 51:01:44-51:12, 51:16-51:24:05, 51:26-51:36, 51:38-51:41N, 51:43-51:44N, 51:46, 51:48-51:49, 51:51-51:53, 51:55-51:61:02, 51:64-51:77, 51:79-51:84, 51:86-51:89, 51:91, 51:93-51:96, 51:98N-51:105, 51:107-51:134, 51:136-51:156, 51:158:01-51:171, 51:173Q-51:181, 51:183-51:191, 51:193-51:196, 51:198-51:208, 52:01:01:01-52:11, 52:13, 52:15-52:19, 52:21-52:24, 52:27-52:38, 52:40-52:61, 53:19, 56:21, 57:02:01-57:03:02, 57:05, 57:07, 57:09, 57:17, 57:39, 57:42, 57:46, 57:57, 57:63, 57:66, 57:70, 57:80, 57:82, 58:08:01-58:08:02, 58:27-58:28:02, 58:65, 59:02, A*24:146
53	160 bp	1070 bp	44, 51, 54	*08:101, 44:24, 44:181, 51:39, 54:01:01-54:01:07, 54:03-54:04, 54:06-54:35, C*05:30, C*06:125, C*07:441, C*16:86
54⁶	125 bp, 150 bp, 260 bp	800 bp	12, 17, 18, 35, 37, 40,	*18:09, 18:54, 18:67, 27:127, 35:45, 35:71, 35:169, 35:309, 37:06:01-37:06:02, 40:13, 40:19, 40:47, 40:96, 40:109-40:110, 40:117, 40:157, 40:188, 40:201, 40:292, 41:46, 44:02:01:01-44:245,

101.501-48/12 – including *Taq* polymerase, IFU-01
101.501-48u/12u – without *Taq* polymerase, IFU-02

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“Instructions for Use” (IFU)

Lot No.: **5E1**

Lot-specific information

			44, 45, 47, 49, 57, 61	44:247-44:249, 47:01:01:01-47:01:02, 47:03-47:10, 49:01:01-49:02, 49:04:01-49:14, 49:16-49:20, 49:22-49:25, 49:27-49:43, 51:42, 51:112, 53:22, 53:30, 53:39, 57:07, 57:45, 57:51, 57:69, 83:01, A*24:02:37, C*15:25, C*16:85
55	205 bp, 235 bp	1070 bp	7, 703, 27, 35, 40, 42, 48, 60, 61, 81	*07:02:01-07:02:38, 07:02:40-07:06:02, 07:08-07:11, 07:13, 07:15- 07:17, 07:19, 07:21-07:23, 07:25-07:30, 07:32-07:33:03, 07:35- 07:42, 07:44N-07:59, 07:61-07:76, 07:79-07:83, 07:85-07:99, 07:101-07:130, 07:132-07:136:02, 07:138-07:161N, 07:164-07:192, 07:194-07:195, 07:199-07:213, 07:215-07:219, 07:221-07:222, 07:224, 07:226, 07:228-07:234, 07:236-07:238, 07:240-07:247, 07:249-07:254, 07:256-07:268, 07:270, 07:272N-07:275, 08:40, 08:53:01-08:53:02, 08:79, 08:156, 08:165, 13:71, 27:07:01- 27:07:05, 27:11, 27:24, 27:32-27:34, 27:43, 27:138, 35:31, 35:66, 37:07, 40:02:01-40:03, 40:08-40:09, 40:13, 40:15-40:16, 40:18- 40:19, 40:24, 40:27:01-40:27:02, 40:29, 40:31-40:32, 40:35:01- 40:35:02, 40:37, 40:40, 40:45, 40:50, 40:56-40:58, 40:78, 40:80, 40:82, 40:85, 40:89-40:91, 40:94, 40:97-40:98, 40:104-40:105, 40:107, 40:111, 40:115, 40:119, 40:122, 40:142N-40:145, 40:157, 40:164, 40:169, 40:173, 40:176, 40:180-40:181, 40:189, 40:200- 40:203, 40:205-40:206, 40:209, 40:211, 40:214, 40:219-40:220, 40:224, 40:226, 40:229, 40:232, 40:246, 40:248, 40:254-40:255, 40:266-40:267, 40:271, 40:274, 40:276, 40:283-40:284, 40:287, 40:289-40:293, 40:296-40:297, 40:302-40:305, 40:309, 40:314, 40:320, 40:322, 40:331, 40:334-40:335, 40:337N, 41:19, 48:01:01- 48:01:06, 48:04:01-48:16, 48:18-48:20, 48:22, 48:24, 48:27-48:36, 48:38-48:39, 51:81, 58:27, 81:01-81:08, C*02:60
56¹⁵	550 bp	1070 bp	7, 22, 42, 45, 56, 82	*07:04, 07:19, 07:25, 07:146, 08:123, 08:132, 08:146, 42:01:01- 42:02:01:02, 42:04-42:10, 42:12-42:18, 42:20-42:23, 44:90, 45:06, 55:20, 55:56, 56:13, 82:01 ^w , 82:02:01-82:02:02, 82:03 ^w , 83:01
57¹⁵	640 bp	1070 bp	7, 8, 14, 16, 22, 27, 38, 39, 3901, 3902, 42, 55, 59, 64, 65, 67, 71, 72	*07:19, 07:31, 07:34, 07:43, 08:01:01:01-08:05, 08:07-08:10, 08:12:01-08:20, 08:22-08:24, 08:26:01-08:31, 08:33-08:39, 08:41- 08:78, 08:80-08:124, 08:126-08:132, 08:134-08:154, 08:157- 08:164, 14:01:01-14:18, 14:20-14:26, 14:28-14:34, 14:36-14:43, 14:45, 14:47-14:54, 15:69, 15:93, 15:186, 15:252, 15:323, 18:37, 18:125, 27:15, 27:28, 27:62, 27:71, 37:28, 38:01:01-38:05, 38:08- 38:29, 38:31-38:62, 39:01:01:01-39:01:01:04, 39:01:03-39:18, 39:20, 39:22-39:31, 39:34-39:37, 39:39:01-39:39:02, 39:41-39:46, 39:48-39:49, 39:51-39:68, 39:70-39:73, 39:75-39:117, 42:01:01- 42:02:01:02, 42:04-42:23, 48:37, 55:01:01-55:05, 55:10-55:21, 55:23, 55:25-55:34, 55:36-55:50, 55:52-55:78, 56:10, 56:12, 56:18, 56:23, 56:31-56:32, 59:01:01:01-59:03, 59:05, 59:07-59:08, 67:01:01-67:01:03, 67:03-67:07, C*07:46, C*07:356, C*15:99
58⁶	90 bp, 125 bp, 155 bp, 190 bp	1070 bp	5, 17, 45, 51, 56, 60, 61, 78	*07:65, 07:133, 07:206, 08:26:03, 08:155, 39:63, 39:69, 40:43, 40:50, 40:166, 41:27, 44:90, 45:06, 46:40:01 ^w , 51:20 ^w , 51:208 ^w , 56:05:01, 56:06, 57:01:20, 57:45, 57:51, 57:69, 58:08:01, 78:01:01- 78:01:02, 78:03, 78:07-78:08, A*23:01:14^w
59	460 bp	1070 bp	21, 52, 60, 62	*13:62, 15:01:02, 15:277-15:278, 40:01:06, 40:26, 40:28, 40:95, 44:62, 49:18:01, 50:14, 52:01:01:01-52:01:04, 52:01:06-52:01:14, 52:01:16-52:05, 52:07-52:13, 52:15-52:17, 52:19-52:24, 52:25:02- 52:61, 53:28, 58:08:01-58:08:02, 78:05-78:06
60⁶	105 bp	800 bp	18, 27, 35, 37, 49, 51, 52, 53	*13:58, 15:202, 15:239, 15:308, 18:01:01:01-18:06, 18:08-18:15, 18:17N-18:28, 18:30-18:32, 18:34-18:36, 18:38-18:47, 18:49-18:65, 18:67-18:78, 18:80-18:106, 18:108-18:123, 18:126-18:127, 35:20:01-35:20:02, 35:28, 35:72, 35:95, 35:226, 35:296, 37:01:01- 37:01:05, 37:01:07-37:05, 37:07-37:20, 37:22-37:25, 37:27, 37:29-

101.501-48/12 – including *Taq* polymerase, IFU-01
101.501-48u/12u – without *Taq* polymerase, IFU-02

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“Instructions for Use” (IFU)

Lot No.: **5E1**

Lot-specific information

				37:56, 37:58-37:59, 40:185, 40:209, 40:308, 44:83, 44:134, 49:03, 51:07:01-51:07:02, 52:01:01:01-52:01:12, 52:01:14-52:01:28, 52:03-52:05, 52:07-52:15, 52:17-52:21, 52:24-52:31:02, 52:33-52:61, 53:09, 53:17:01-53:17:02, 53:28, 53:38, 53:40, 78:05-78:06
61 ⁶	90 bp, 120 bp, 150 bp, 180 bp	800 bp	7, 35, 61, 62, 73	*07:11, 07:57, 07:75, 07:240, 07:253, 13:39, 13:67, 15:57, 15:135, 27:67, 27:75, 35:27, 35:56, 35:185, 35:203, 37:05, 40:37, 42:15, 44:75, 44:97, 73:01-73:02, 78:06, 78:09, C*05:01:28^w , C*06:02:39^w
62	435 bp, 495 bp	1070 bp	39, 42, 55, 56, 67	*07:115, 07:214, 07:246, 14:21, 38:26, 39:10:01, 39:16, 39:20, 39:63, 39:89, 39:96, 39:99, 42:06, 42:20, 51:11N, 55:13, 55:58, 56:11, 56:22, 67:01:01-67:01:03, 67:03-67:07
63 ⁶	95 bp	1070 bp	5, 13, 15, 16, 17, 18, 21, 22, 27, 35, 38, 39, 3901, 3902, 44, 46, 48, 49, 51, 5102, 5103, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 67, 70, 71, 72, 75, 76, 78, 82	*07:68:01-07:68:03, 07:100, 07:214, 07:235, 07:237, 07:262, 08:71, 13:01:01-13:04, 13:06-13:09, 13:11-13:20, 13:22:01-13:23, 13:25-13:33, 13:35-13:45, 13:47-13:50, 13:52-13:70, 13:72-13:78, 13:80-13:93, 14:13, 14:23, 14:53, 15:01:01:01-15:01:04, 15:01:06-15:01:39, 15:03:01:01-15:05:02, 15:07:01-15:12, 15:14-15:16:03, 15:18:01:01-15:20, 15:23-15:24:02, 15:26N-15:30, 15:32:01-15:32:02, 15:34-15:35, 15:37-15:40:02, 15:42-15:43, 15:45-15:54, 15:56-15:58, 15:60-15:71, 15:73-15:76, 15:79N-15:87, 15:90-15:99, 15:101-15:105, 15:108-15:111N, 15:113-15:115, 15:117-15:120, 15:122-15:127, 15:129, 15:131-15:136, 15:138, 15:140, 15:142-15:143, 15:145-15:149N, 15:151-15:155, 15:157-15:161, 15:163-15:167, 15:169, 15:171-15:176, 15:178-15:187, 15:189-15:195, 15:197:01-15:203, 15:205-15:206, 15:209N-15:210, 15:212, 15:215, 15:217-15:229, 15:231-15:232, 15:234-15:239, 15:241-15:247, 15:249, 15:251-15:264, 15:266-15:270, 15:272N, 15:274-15:282, 15:284-15:286, 15:288, 15:290, 15:292-15:296, 15:298-15:300, 15:303-15:307, 15:309-15:318, 15:320-15:324, 15:326-15:327, 15:329, 15:331-15:338, 15:340, 15:343-15:344, 15:346-15:348, 15:350-15:351, 15:353-15:355, 15:359, 15:361-15:365, 15:367-15:373, 15:376-15:377Q, 15:379-15:383, 15:385-15:393, 15:397-15:398, 18:01:01:01-18:01:03, 18:01:05-18:15, 18:17N-18:19, 18:22-18:39, 18:41-18:60, 18:62-18:102, 18:104-18:121, 18:123, 18:125-18:127, 27:27, 27:41, 27:136, 27:153, 35:01:01:01-35:02:07, 35:03:01-35:08:08, 35:10-35:17:02, 35:19-35:30, 35:32:01-35:52, 35:54-35:63, 35:65Q-35:72, 35:74-35:86, 35:89-35:113, 35:115-35:117, 35:119-35:130N, 35:132-35:163, 35:165N-35:173N, 35:175-35:204, 35:206-35:214, 35:216N-35:229, 35:231-35:233, 35:235-35:259, 35:262-35:320, 37:35, 37:56, 38:01:01-38:21, 38:23-38:62, 39:01:01:01-39:01:01:04, 39:01:03-39:16, 39:18-39:20, 39:22-39:67, 39:69-39:117, 40:26, 40:28, 40:35:01-40:35:02, 40:71, 40:77, 40:87:01-40:87:02, 40:95, 40:121, 40:158, 40:184, 40:222, 40:237, 41:24, 42:10, 42:17, 44:10, 44:14, 44:17, 44:43:01-44:43:02, 44:45, 44:51, 44:62, 44:77, 44:82, 44:107, 44:123, 44:135, 44:184, 44:213, 44:230, 45:09, 45:14, 46:01:01-46:01:05, 46:01:07-46:05, 46:07N-46:44, 46:46-46:53, 46:55N-46:68, 48:02:01-48:02:03, 48:12, 48:14, 48:25, 48:29, 49:04:01-49:04:02, 51:01:01:01-51:01:49, 51:01:51-51:09:03, 51:11N-51:16, 51:19-51:23, 51:26-51:41N, 51:43-51:46, 51:48-51:80, 51:82-51:84, 51:86-51:147, 51:149N-51:171, 51:173Q-51:196, 51:198, 51:200-51:208, 52:01:01:01-52:25:02, 52:27-52:53, 52:55-52:61, 53:01:01-53:06, 53:08:01-53:43, 54:01:01-54:10, 54:12-54:14, 54:16-54:35, 55:01:01-55:03, 55:05, 55:07, 55:09-55:19, 55:21-55:40, 55:42-55:48, 55:50, 55:52-55:57, 55:59-55:78, 56:01:01:01-56:01:03, 56:01:05-56:19N, 56:21-56:51, 57:01:01-57:01:04, 57:01:06-57:03:02, 57:06-57:12, 57:14:01-57:30, 57:33-57:40, 57:42-57:46, 57:48-57:83, 58:01:01:01-58:01:02, 58:01:04-

101.501-48/12 – including *Taq* polymerase, IFU-01
101.501-48u/12u – without *Taq* polymerase, IFU-02

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“Instructions for Use” (IFU)

Lot No.: **5E1**

Lot-specific information

			58:02:02, 58:04-58:26, 58:28:01-58:29, 58:31N-58:45:02, 58:47-58:60, 58:62-58:81, 59:01:01:01-59:01:01:02, 59:03-59:09, 67:01:01-67:02, 67:04-67:07, 78:01:01-78:09, 82:01-82:03, C*15:126
64¹⁶	-	-	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 low resolution SSP typings.

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

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

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

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

Some primers may give rise to primer oligomer artifacts. Sometimes this phenomenon is an inherent feature of the primer pair(s) of a primer mix. More often it is due to other factors such as too low amount of DNA in the PCR reactions, taking too long time in setting up the PCR reactions, working at elevated room temperature or using thermal cyclers that are not pre-heated.

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

³The serological reactivity of all HLA-B alleles is not known. In this table we use the expert-assigned serological grouping in Tissue Antigens (2009) 73:95-170 and the serological grouping of the sequence-defined allele.

⁴For 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.

⁵Only HLA-B alleles will be amplified by the HLA-B low resolution typing kit, except that a few HLA-A and HLA-C alleles will be amplified by primer mixes 1 to 4, 6 to 8, 11, 13, 14, 17, 19 to 22, 24 to 26, 29 to 32, 35, 40 to 43, 45, 48, 50, 52 to 55, 57, 58, 61 and 63.

⁶HLA-specific PCR products shorter than 125 base pairs have a lower intensity and are less sharp than longer PCR products.

⁷Primer mix 4 may give rise to a lower yield of HLA-specific PCR product than the other HLA-B low resolution primer mixes in the B*40, B*41, B*45, B*49 and B*50 alleles.

⁸Primer mixes 4, 5, 6, 39 and 45 may give rise to a lower yield of HLA-specific PCR product than the other HLA-B low resolution primer mixes.

⁹Primer mixes 1, 19, 20, 26 and 45 have a tendency to giving rise to primer oligomer formation.

¹⁰Primer mixes 13 and 31 may have tendencies of unspecific amplifications.

¹¹The C*17:01 to C*17:04 alleles might be faintly amplified by primer mix 25.

¹²Primer mixes 32 and 43 may generate a false positive band of about 800 base pairs. This band should be disregarded when interpreting HLA-B low resolution typings.

¹³Primer mix 39 may give rise to a lower yield of HLA-specific PCR product than the other HLA-B low resolution primer mixes in the B*54 alleles.

¹⁴The Bw4-associated HLA-A specificities A9, A23, A24, A2403, A25 and A32 are not amplified by the primer pair in primer mix 46.

¹⁵In primer mixes 56 and 57 the specific PCR products of 550 respective 640 base pairs may give rise to a lower yield of HLA-specific PCR product than the other HLA-B low primer mixes.

¹⁶Primer mix 64 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.

101.501-48/12 – including *Taq* polymerase, IFU-01
101.501-48u/12u – without *Taq* polymerase, IFU-02

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Lot No.: **5E1**

Lot-specific information

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

101.501-48/12 – including *Taq* polymerase, IFU-01
101.501-48u/12u – without *Taq* polymerase, IFU-02

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“Instructions for Use” (IFU)

Lot No.: **5E1**

Lot-specific information

PRIMER SPECIFICATION

Well No.	1	2	3	4	5	6	7	8	9	10	11	12
Length of spec.	110	215	140	140	185	190	180	165	180	180	100	280
PCR product			235	265	235		290	225	390		195	
								285				
								330				
Length of int.	800	1070	1070	800	800	800	1070	1070	1070	800	1070	1070
pos. control ¹												
5'-primer(s) ²	527	97	209	103	103	103	45	45	45	420	206	419
	5'-TgA 3'	5'-TCg 3'	5'-ggC 3'	5'-CCg 3'	5'-CCT 3'	5'-CCg 3'	5'-ggA 3'	5'-ggA 3'	5'-ggA 3'	5'-TTA 3'	5'-AgA 3'	5'-gTC 3'
	539		363	103	103	418		357			416	
	5'-gCg 3'		5'-AgC 3'	5'-CCg 3'	5'-CCT 3'	5'-Agg 3'		5'-Tgg 3'			5'-CCg 3'	
	540		363	361	363			412			420	
	5'-gAC 3'		5'-AgC 3'	5'-AgT 3'	5'-AAT 3'			5'-ATA 3'			5'-TTA 3'	
				363							420	
3'-primer(s) ³				5'-AgC 3'							5'-TTC 3'	
	605	272	309	193	246	246	1 st I	206	1 st I	559	256	3 rd I
	5'-gCT 3'	5'-Tgg 3'	5'-gTg 3'	5'-CgT 3'	5'-TAT 3'	5'-TAT 3'	5'-gAC 3'	5'-CCT 3'	5'-gAC 3'	5'-CTC 3'	5'-CCC 3'	5'-TAT 3'
		272	312	193	246	572	165	538	266		272	
		5'-TgA 3'	5'-gCC 3'	5'-CgT 3'	5'-TAT 3'	5'-gCC 3'	5'-Tgg 3'	5'-gTC 3'	5'-TCC 3'		5'-Tgg 3'	
			559	463	559			603			572	
			5'-CAg 3'	5'-gCT 3'	5'-CTC 3'			5'-gTg 3'			5'-gCg 3'	
				583								
				5'-gTg 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.	195	105	115	80	150	140	55	210	170	110	395	160
PCR product		395	150				245					425
		435					390					
							415					
Length of int.	1070	1070	1070	1070	800	1070	1070	800	800	1070	1070	1070
pos. control ¹												
5'-primer(s) ²	142	45	161	167	349	206	45	142	409	246	44	44
	5'-TCT 3'	5'-ggA 3'	5'-Cgg 3'	5'-gCT 3'	5'-CTT 3'	5'-gAC 3'	5'-ggA 3'	5'-TCT 3'	5'-ggC 3'	5'-gAA 3'	5'-ggC 3'	5'-ggC 3'
	419	540			355		368	368	420			357
	5'-gTC 3'	5'-gAC 3'			5'-TCA 3'		5'-gTT 3'	5'-gTC 3'	5'-TTA 3'			5'-Tgg 3'
							557					
							5'-ggA 3'					
3'-primer(s) ³	301	272	234	204	463	302	259	311	544	317	272	302
	5'-gTC 3'	5'-TgC 3'	5'-TCT 3'	5'-TCT 3'	5'-gCT 3'	5'-ggC 3'	5'-gTT 3'	5'-ggg 3'	5'-ggT 3'	5'-ggA 3'	5'-TgC 3'	5'-ggC 3'
	301	272	272			311	259	311				302
	5'-gTC 3'	5'-TgT 3'	5'-TgA 3'			5'-ggT 3'	5'-gTT 3'	5'-ggg 3'				5'-ggT 3'
	570	309	272			312	266	538				477
	5'-CCg 3'	5'-ATC 3'	5'-Tgg 3'			5'-AgT 3'	5'-TCC 3'	5'-gTC 3'				5'-gCg 3'
	572	605					272					
	5'-gCg 3'	5'-gCT 3'					5'-Tgg 3'					
							292					
							5'-gTA 3'					
							572					
							5'-gCg 3'					
Well No.	13	14	15	16	17	18	19	20	21	22	23	24

101.501-48/12 – including *Taq* polymerase, IFU-01
101.501-48u/12u – without *Taq* polymerase, IFU-02

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Lot No.: **5E1**

Lot-specific information

Well No.	25	26	27	28	29	30	31	32	33	34	35	36
Length of spec.	180	290	105	325	80	215	130	90	90	145	120	430
PCR product		465			115		280	410	175	430	210	
					160							
					195							
					225							
					260							
Length of int. pos. control ¹	1070	1070	1070	800	1070	800	800	1070	1070	1070	800	1070
5'-primer(s) ²	355	72	540	1 st I	355	141	209	41	209	48	357	49
	5'-TCA 3'	5'-gCT 3'	5'-gAC 3'	5'-CAg 3'	5'-TCA 3'	5'-ATT 3'	5'-ggC 3'	5'-CTg 3'	5'-ggC 3'	5'-gCC 3'	5'-Tgg 3'	5'-CAg 3'
	363	209			418	357	209	368	363	206		
	5'-Agg 3'	5'-ggC 3'			5'-Agg 3'	5'-Tgg 3'	5'-ggg 3'	5'-gTT 3'	5'-AgC 3'	5'-gAA 3'		
					499		355					
					5'-TCT 3'		5'-TCA 3'					
3'-primer(s) ³	499	193	603	282	538	309	299	282	259	309	435	309
	5'-ggA 3'	5'-CgT 3'	5'-gTg 3'	5'-gCC 3'	5'-gTC 3'	5'-ATC 3'	5'-TCA 3'	5'-gCC 3'	5'-gTT 3'	5'-ATC 3'	5'-TCT 3'	5'-ATC 3'
		193	605		572	538	583	418	499		527	
		5'-TgT 3'	5'-gCT 3'		5'-gCA 3'	5'-gTC 3'	5'-gTg 3'	5'-gTC 3'	5'-ggA 3'		5'-CCT 3'	
		387			572		605					
		5'-TCg 3'			5'-gCg 3'		5'-gCT 3'					
					573							
					5'-AgT 3'							
Well No.	25	26	27	28	29	30	31	32	33	34	35	36

Well No.	37	38	39	40	41	42	43	44	45	46	47	48
Length of spec.	145	300	160	180	180	90	90	95	115	360	350	285
PCR product			370	210	205	240			150			
Length of int. pos. control ¹	1070	1070	1070	1070	1070	800	1070	1070	1070	1070	1070	800
5'-primer(s) ²	206	1 st I	15	141	97	209	207	206	165	1 st I	1 st I	355
	5'-gAA 3'	5'-CAg 3'	5'-gCA 3'	5'-ATT 3'	5'-TCg 3'	5'-ggC 3'	5'-ACC 3'	5'-gAC 3'	5'-ACC 3'	5'-CAg 3'	5'-CAg 3'	5'-TCA 3'
			418	420	420	209	208		463			363
			5'-Agg 3'	5'-TTA 3'	5'-TTA 3'	5'-ggA 3'	5'-CgT 3'		5'-TgA 3'			5'-AgC 3'
						362	209					
						5'-ggT 3'	5'-ggA 3'					
							369					
							5'-TAC 3'					
3'-primer(s) ³	311	259	207	311	259	256	256	259	272	317	311	603
	5'-ggT 3'	5'-CTC 3'	5'-TCC 3'	5'-ggT 3'	5'-gTT 3'	5'-CCC 3'	5'-CTC 3'	5'-gTT 3'	5'-TgC 3'	5'-ggA 3'	5'-ggT 3'	5'-gTg 3'
		259	226	559	559	259	256		538	320		605
		5'-CTC 3'	5'-CAC 3'	5'-CgT 3'	5'-CAg 3'	5'-CTT 3'	5'-CCC 3'		5'-CCA 3'	5'-AgT 3'		5'-gCT 3'
		262	538			263	420					
		5'-TgC 3'	5'-gTC 3'			5'-gTT 3'	5'-gCT 3'					
						559						
						5'-CgT 3'						
Well No.	37	38	39	40	41	42	43	44	45	46	47	48

101.501-48/12 – including *Taq* polymerase, IFU-01
101.501-48u/12u – without *Taq* polymerase, IFU-02

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Lot No.: **5E1**

Lot-specific information

Well No.	49	50	51	52	53	54	55	56	57	58	59	60
Length of spec.	165	260	390	380	160	125	205	550	640	90	460	105
PCR product	190					150	235			125		
						260				155		
										190		
Length of int.	1070	800	1070	1070	1070	800	1070	1070	1070	1070	1070	800
pos. control ¹												
5'-primer(s) ²	435	363	49	317	106	206	363	272	206	141	256	206
	5'-AAA 3'	5'-Agg 3'	5'-CAg 3'	5'-gCT 3'	5'-CCA 3'	5'-gAA 3'	5'-AgC 3'	5'-CTA 3'	5'-AgA 3'	5'-ATT 3'	5'-ACg 3'	5'-gAC 3'
						234	363			206	272	
						5'-CAA 3'	5'-AgC 3'			5'-gAA 3'	5'-CTC 3'	
						355						
						5'-TCA 3'						
3'-primer(s) ³	559	583	272	412	226	317	527	538	559	256	435	272
	5'-CAg 3'	5'-gTg 3'	5'-TgA 3'	5'-gTT 3'	5'-CAC 3'	5'-ggA 3'	5'-CCT 3'	5'-gTC 3'	5'-CgT 3'	5'-CCC 3'	5'-TCT 3'	5'-Tgg 3'
	583					572	559			292		
	5'-gTg 3'					5'-gCg 3'	5'-CTC 3'			5'-gTC 3'		
						572						
						5'-gTg 3'						
Well No.	49	50	51	52	53	54	55	56	57	58	59	60

Well No.	61	62	63
Length of spec.	90	435	95
PCR product	120	495	
	150		
	180		
Length of int.	800	1070	1070
pos. control ¹			
5'-primer(s) ²	165	272	407
	5'-ACC 3'	5'-CTA 3'	5'-gg 3'
	222	3 rd I	409
	5'-CCA 3'	5'-CTT 3'	5'-ggC 3'
			409
			5'-ggC 3'
3'-primer(s) ³	272	419	463
	5'-TgC 3'	5'-CgA 3'	5'-gCT 3'
	302	621	
	5'-ggT 3'	5'-ggg 3'	
Well No.	61	62	63

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.

101.501-48/12 – including *Taq* polymerase, IFU-01
101.501-48u/12u – without *Taq* polymerase, IFU-02

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Lot No.: 5E1

Lot-specific information

[illegible]

101.501-48/12 – including *Taq* polymerase, IFU-01
101.501-48u/12u – without *Taq* polymerase, IFU-02

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Lot No.: 5E1

Lot-specific information

CELL LINE VALIDATION SHEET																						
HLA-B low resolution SSP kit ²																						
					Well																	
				Prod. No.:	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32		
					201673617	201673618	201673619	201673620	201673621	201673622	201673623	201673624	201673625	201673626	201673627	201673628	201673629	201673630	201673631	201673632		
	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	9004	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	+	+	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	

101.501-48/12 – including *Taq* polymerase, IFU-01
101.501-48u/12u – without *Taq* polymerase, IFU-02

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Lot No.: **5E1**

Lot-specific information

CELL LINE VALIDATION SHEET																									
HLA-B low resolution SSP kit ²																									
					Prod. No.:	Well																			
						33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48				
						201673633	201673634	201673635	201673636	201673637	201673638	201673639	201673640	201673641	201673642	201673643	201673644	201673645	201673646	201673647	201673648				
	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	9004	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		-	-	-	-	-	+	-	-	-	-	-	-	+	-	+	+	-			

101.501-48/12 – including *Taq* polymerase, IFU-01
101.501-48u/12u – without *Taq* polymerase, IFU-02

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Lot No.: 5E1

Lot-specific information

CELL LINE VALIDATION SHEET																					
HLA-B low resolution SSP kit ²																					
					Prod. No.:	Well															
						49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	
						201555349	201555350	201555351	201555352	201555353	201555354	201666555	201555356	201666557	201555358	201555359	201555360	201555361	201555362	201555363	
	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	9004	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		-	-	+	-	-	+	-	-	-	-	-	-	-	-	-	

101.501-48/12 – including *Taq* polymerase, IFU-01
101.501-48u/12u – without *Taq* polymerase, IFU-02

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Lot No.: 5E1

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.

Additional 5'-primers and 3'-primers in primer solutions 3, 6, 11, 14, 19, 29, 31, 40, 41 and 58 were tested by separately adding one or two additional 3'-primers, respectively one or two additional 5'-primers.

Additional 3'-primers in primer solutions 2, 8, 13, 15 and 18 were tested by separately adding one or two additional 5'-primers.

Additional 5'-primers in primer solutions 1, 4, 21, 25, 48, 54, 56, 59 and 61 were tested by separately adding one or two additional 3'-primers.

In primer solutions 11, 17, 31, 42, 43 and 63 one or two 5'-primers were not possible to test and in primer solutions 3, 7, 9, 29, 38, 39, 42, 46, 54 and 55 one or two 3'-primers were not possible to test.

101.501-48/12 – including *Taq* polymerase, IFU-01
101.501-48u/12u – without *Taq* polymerase, IFU-02

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Lot No.: **5E1**

Lot-specific information

101.501-48/12 – including *Taq* polymerase, IFU-01
101.501-48u/12u – without *Taq* polymerase, IFU-02

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101.501-48/12 – including *Taq* polymerase, IFU-01
101.501-48u/12u – without *Taq* polymerase, IFU-02

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Lot No.: **5E1**

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**.