

101.503-48/12 – including *Taq* pol., IFU-01
101.503-48u/12u – without *Taq* pol., IFU-02

Visit <https://labproducts.caredx.com> for
“Instructions for Use” (IFU)

Lot No.: **5G4**

Lot-specific information

Olerup SSP® HLA-B low resolution screening

Product number:	101.503-48/12 – including <i>Taq</i> pol. 101.503-48u/12u – without <i>Taq</i> pol.
Lot number:	5G4
Expiry date:	2021-01-01
Number of tests:	48 tests – Product No. 101.503-48/48u 12 tests – Product No. 101.503-12/12u
Number of wells per test:	47 + 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. 5G4.

CHANGES COMPARED TO THE PREVIOUS OLERUP SSP® HLA-B LOW RESOLUTION SCREENING (8E4)

The format of the Worksheet has been changed.

The HLA-B low resolution screening specificity and interpretation tables have been updated for the HLA-B alleles reported since the previous *Olerup SSP*® HLA-B low resolution screening lot was made (**Lot No. 8E4**). The kit design is based on IMGT/HLA database 3.31.0.

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

Well	5'-primer	3'-primer	rationale
17	-	Added	3'-primer added for improved allelic resolution.
18	-	Added	3'-primer added for the B*35:329 allele.
22	-	Added	3'-primer added for the B*38:61 allele.
26	Added	-	5'-primer added for improved allelic resolution.
27	-	Added	3'-primer added for the B*41:06 allele.
34	-	Added	3'-primer added for the B*56:54 allele.

Changes to revision R01 compared to R00:

1. Primer mix 26 does not amplify the B*47:04 allele. This has been corrected in the Specificity and Interpretation tables.

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Well **48** 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 low resolution screening 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 48 PCR reactions in a 48 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	NC

The 48 well cut PCR plate is marked with ‘HLA-B low screening’ in silver/gray ink. Well No. 1 is marked with the Lot No. ‘5G4’.

Wells 1 to 47 – HLA-B low resolution screening primers.

Well 48 – 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 sealed. Use a scalpel or a similar instrument to carefully cut the foil between the plates.

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 some primer mixes. For further details see Specificity Table.

UNIQUELY IDENTIFIED ALLELES

All the HLA-B alleles recognized by the HLA Nomenclature Committee in January 2018¹ will be amplified by the primers in the HLA-B low resolution screening SSP kit⁴. The HLA-B alleles will be grouped into their corresponding serological specificities^{2,3,4}.

¹HLA-B alleles listed on the IMGT/HLA web page 2018-January-19, release 3.31.0, 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>.

³It is not possible to identify all serological splits and combinations of the B15 group of alleles, as the serological reactivity of several of the B*15 alleles is not known.

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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*1513 ^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*08:26:01-08:26:02, 08:50, 08:62, 08:85, 08:94, 08:146, B*42:07, 42:24	B*53:30, B*57:45, 57:51, 57:69
B*13:35, 13:59, 13:71, 13:108, B*44:135, 44:158, 44:184	B*55:04, 55:08, 55:13, 55:27, 55:46, 55:49, 55:81, 55:86, B*56:01:05, 56:15, 56:19N, 56:22
B*14:08:01-14:08:02, 14:55, B*39:01:19, 39:25N, 39:30, 39:32-39:34, 39:47, 39:50, 39:74, 39:82, 39:102, 39:107, 39:112, 39:128	B*55:23, 55:32, B*56:18, 56:31-56:32, 56:50
B*18:29, 18:72:01-18:72:03, 18:92, 18:102, B*35:32:01-35:32:02, 35:37, 35:53N, 35:64:01-35:64:02, 35:68:01-35:68:02, 35:99, 35:118-35:119, 35:174	B*57:67:01, B*58:36

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Lot-specific information
SPECIFICITY TABLE

HLA-B low resolution screening SSP typing

Specificities and sizes of the PCR products of the 47+1 primer mixes used for
HLA-B low resolution screening SSP typing

Primer Mix	Size of spec. PCR product ¹	Size of control band ²	HLA-B serol. ³	Amplified HLA-B alleles ⁴
1^{5,9}	110 bp	800 bp	7, 703, 35, 40, 41, 42, 48, 61	*07:02:01:01-07:18:02, 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, 07:236-07:300, 07:302-07:305, 08:79, 08:156, 08:187, 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, 40:355, 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	*08:01:01:01-08:05, 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, 08:147-08:190, 13:93, 15:142, 15:180, 15:429, 35:218, 35:256, 37:62, 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, 50, 61, 62, 77	*07:20, 07:24, 07:60, 07:100, 07:131, 07:220, 07:223, 08:21, 08:25, 08:175, 13:01:01:01-13:04, 13:06-13:08, 13:10-13:23, 13:25-13:38, 13:40-13:57, 13:59-13:66, 13:68-13:96, 13:99-13:108, 15:07:01:01-15:07:03, 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, 15:405, 15:431, 35:05:01:01-35:05:03, 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, 35:346, 40:05:01:01-40:05:01:02, 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, C*03:335, C*03:346
4⁶	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, 13:01:01:01-13:01:09, 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, 13:94-13:96, 13:99-13:101, 13:102 ^w , 13:103N-13:105, 13:107-13:108, 14:01:01:01-14:02:08, 14:02:10-14:05, 14:07N, 14:09, 14:11-14:36, 14:38-14:54, 14:57-14:59, 15:07:01:01-15:07:03, 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, 15:399, 15:405, 15:431, 18:14, 18:44:01-18:44:02, 18:107, 27:32, 27:138, 35:05:01:01-35:05:03, 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, 39:03:01:01-39:03:01:02, 39:14:01:01-39:14:01:02, 39:24:01-39:24:02, 39:29, 39:37, 39:76, 39:79, 39:120, 40:01:01-40:01:39, 40:01:42-40:01:49, 40:07, 40:10:01:01-40:10:02, 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,

101.503-48/12 – including *Taq* pol., IFU-01
101.503-48u/12u – without *Taq* pol., IFU-02

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“Instructions for Use” (IFU)

Lot No.: **5G4**

Lot-specific information

				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, 40:285-40:286N, 40:288, 40:298:01-40:301, 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-40:339, 40:342, 40:344, 40:346, 40:352-40:353, 40:355, 40:357-40:358, 40:360, 41:01:01-41:40, 41:42-41:54, 42:10, 42:17, 44:02:01:01-44:02:31, 44:02:33-44:02:39, 44:02:41-44:03:06, 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, 44:247-44:277, 45:01:01-45:21, 46:12, 47:01:01:01-47:10, 48:12, 48:14, 48:29, 49:01:01:01-49:02, 49:04:01-49:14, 49:16-49:24, 49:27-49:30, 49:32-49:41, 49:43-49:48, 50:01:01:01-50:02, 50:04-50:06, 50:08-50:20, 50:31-50:33, 50:35-50:42, 50:44-50:54, 51:64, 53:14, 53:30, 54:38, 57:11, 57:45, 57:51, 57:69, 57:71, 57:88, 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*06:207, C*12:87, C*14:76, C*14:82, C*16:85, C*16:98, C*16:102, C*16:110
5 ⁷	185 bp, 235 bp	800 bp	7, 16, 17, 27, 2708, 37, 38, 39, 3901, 3902, 64, 67	*07:02:32, 07:197, 14:01:01:01-14:01:05, 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, 14:53-14:55, 27:01-27:05:15, 27:05:17-27:05:19, 27:05:21-27:06, 27:07:04, 27:08-27:10, 27:12:01:01-27:13, 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, 27:154-27:163, 27:165-27:167, 37:02, 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-38:68Q, 39:01:01:01-39:01:01:07, 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, 47:04-47:05, 48:21, 48:26, 67:01:01, 67:03-67:04, 67:06-67:07
6	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, 14:56-14:59, 15:77, 15:189, 15:233, 35:03:17, 35:26, 38:05, 38:33, 39:04, 39:129, 44:16, 44:37:01-44:37:02, 44:64:01-44:64:02, 44:91, 44:132, 44:150, 44:190, 44:268, 44:275, 52:26, 57:04:01-57:04:02, A*23:31, A*24:106, C*01:115, C*02:97, C*07:231, C*14:79, C*16:10

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Lot-specific information

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, 15:17:01:01-15:17:06, 15:19-15:21:01:02, 15:24:01-15:28, 15:30:01:01-15:36, 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, 15:363:01-15:368, 15:370-15:375N, 15:377Q-15:378, 15:381, 15:383-15:387, 15:390-15:396, 15:398-15:407, 15:409-15:413, 15:415-15:417, 15:419-15:425, 15:428-15:432, 46:01:01-46:70, 46:72-46:73, 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, 08:165-08:190, 13:46, 15:03:01:01-15:03:06, 15:09:01-15:10:04, 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, 15:414, 15:426-15:427, 15:433, 15:435, 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, 41:19-41:48, 41:50, 41:53-41:54, 42:01:01-42:02:01:02, 42:04-42:08, 42:10-42:15, 42:17-42:19, 42:21-42:24, 44:14- 44:15:01:02, 44:18, 44:20, 44:62, 44:100, 44:166, 44:213, 45:01:01-45:21, 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*03:342, C*07:46, C*07:356, C*07:546, C*12:184, C*15:99, C*16:85
g ^{7,8,10}	165 bp, 190 bp, 390 bp	1070 bp	63	*13:62, 15:01:02, 15:09:01-15:09:02, 15:16:01:01-15:17:06, 15:67, 15:95, 15:162, 15:168, 15:177, 15:196, 15:208, 15:216, 15:222, 15:230, 15:243, 15:254, 15:268, 15:273, 15:277-15:278, 15:356, 15:361-15:362, 15:396, 15:403, 15:408, 15:411, 15:423- 15:424, 15:435, 27:153, 35:01:10, 35:04:02, 35:251, 40:26, 40:28, 44:03:40, 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, 51:63:01, 51:64- 51:80, 51:82-51:91, 51:92:02, 51:94-51:98N, 51:100-51:106:01,

101.503-48/12 – including *Taq* pol., IFU-01
101.503-48u/12u – without *Taq* pol., IFU-02

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“Instructions for Use” (IFU)

Lot No.: **5G4**

Lot-specific information

				51:107-51:130, 51:132-51:142, 51:145-51:147, 51:149N-51:156, 51:158-01-51:196, 51:198, 51:200-51:219, 51:221-51:224, 51:226-51:229, 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, 52:59-52:66, 52:68-52:73, 53:28, 56:05:01-56:06, 56:21, 58:08:01-58:08:02, 78:01:01:01-78:09
10	180 bp	800 bp	13, 22, 55, 60	*07:78, 13:01:01:01-13:02:21, 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, 13:87-13:107, 40:48, 45:10, 49:07, 50:31, 54:26, 55:09, 55:22, 55:24, 59:09
11⁵	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, 08:04:01-08:04:02, 08:17, 08:54:01-08:54:02, 08:110, 13:97, 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, 39:02:01-39:02:03, 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, 44:15:01:01-44:15:01:02, 44:18, 44:40, 44:44, 44:117, 44:130, 44:140, 44:156, 44:210:01-44:210:02, 44:251, 45:01:01-45:03, 45:05-45:07, 45:11-45:21, 48:01:01:01-48:05, 48:07-48:30, 48:32-48:40, 48:42, 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, 72, 75, 76, 77, 78	*07:09, 07:11, 07:17, 07:162, 07:235, 07:237, 07:255, 07:287, 08:28, 08:35, 08:37, 08:89, 08:107, 13:04, 13:10, 13:26:01-13:26:02, 13:72, 14:56, 15:01:01:01-15:01:04, 15:01:06-15:08:02, 15:11:01-15:16:03, 15:18:01:01-15:21:01:02, 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, 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, 15:397-15:399, 15:401-15:402, 15:404-15:410, 15:412-15:415, 15:417-15:419, 15:421-15:422, 15:425-15:426, 15:428-15:434, 18:01:01:01-18:15, 18:17N-18:25, 18:27-18:40, 18:42-18:60, 18:62-18:121, 18:123-18:143, 27:41, 27:107, 35:01:01:01-35:01:47, 35:05:01:01-35:05:03, 35:07-35:08:10, 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, 35:173:01N-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, 35:324-35:325, 35:327-35:328, 35:330-35:334, 35:336-35:338, 35:340-35:343, 35:346-35:348, 35:351-35:353, 35:356, 35:359, 37:35, 37:56, 38:52, 39:07, 39:43, 39:91, 40:03:01:01-40:03:01:02, 40:20:01:01-40:20:01:02, 40:38, 40:52, 40:59-40:60, 40:105, 40:158-40:159, 40:222, 40:267, 40:284, 40:352, 41:24, 41:30, 41:51, 42:09, 44:17, 44:43:01-44:43:02, 44:144, 44:230, 44:256,

101.503-48/12 – including *Taq* pol., IFU-01
101.503-48u/12u – without *Taq* pol., IFU-02

Visit <https://labproducts.caredx.com> for
“Instructions for Use” (IFU)

Lot No.: **5G4**

Lot-specific information

				44:276, 45:09, 46:01:01-46:10, 46:12-46:17, 46:19-46:60, 46:62-46:69, 46:71-46:73, 48:02:01-48:02:03, 48:14, 48:23, 48:25, 49:04:01-49:05, 50:33, 51:37, 51:45, 51:63:01-51:63:02, 51:97, 51:216, 51:220, 52:39, 53:01:01-53:03, 53:05:01-53:06, 53:08:01-53:18, 53:20-53:30, 53:32, 53:34-53:35, 53:37-53:41, 53:43-53:49, 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, 57:01:01:01-57:01:24, 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, 57:85-57:93, 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, 58:74-58:91
13	195 bp	1070 bp	27, 35, 37, 44, 58, 76	*07:27, 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, 18:132, 35:45, 35:71, 37:01:01:01-37:09, 37:12-37:13, 37:15-37:21, 37:23-37:28, 37:30N-37:33N, 37:35-37:36, 37:38-37:66, 37:68-37:70, 38:17, 44:17, 44:43:01-44:43:02, 44:144, 44:230, 44:256, 45:09, 46:17, 53:22, 57:93, 58:07, A*24:174, C*02:82, C*06:165, C*14:61
14⁵	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, 08:187, 15:09:01-15:10:04, 15:13:01-15:13:02, 15:16:01:01-15:18:06, 15:21:01:01-15:21:01:02, 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, 15:403-15:404, 15:408, 15:411, 15:414, 15:418, 15:420, 15:423-15:424, 15:426-15:427, 15:433-15:435, 40:136, 40:231, 40:279, 41:08, 42:05:01-42:05:02, C*07:335, C*14:62
15⁵	115 bp, 150 bp	1070 bp	18	*08:176, 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, 18:108-18:143, 35:289, 48:28
16⁵	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, 27:141-27:167, 38:22, 40:46, 40:93, 44:40, 44:44, 44:130, 44:210:01-44:210:02, 49:26
17⁵	100 bp, 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	*07:137, 07:235, 08:49, 08:60, 08:76, 08:129, 08:181, 13:01:01:01-13:01:12, 13:06-13:07N, 13:12:01-13:13:02, 13:17, 13:20-13:23, 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, 13:95, 13:106-13:107, 14:10, 15:02:01-15:02:11, 15:13:01-15:13:02, 15:20-15:21:01:02, 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, 15:399, 15:402, 15:404, 15:407, 15:418, 15:420, 15:425, 18:22, 18:69, 18:105, 27:19, 27:30, 27:127, 27:150, 35:01:01:01-35:04:03, 35:06-35:21, 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,

101.503-48/12 – including *Taq* pol., IFU-01
101.503-48u/12u – without *Taq* pol., IFU-02

Visit <https://labproducts.caredx.com> for
“Instructions for Use” (IFU)

Lot No.: **5G4**

Lot-specific information

				35:61:01-35:63, 35:65Q, 35:69-35:71, 35:74, 35:76-35:78, 35:80-35:85, 35:88, 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, 35:152-35:173:02N, 35:175-35:184, 35:186-35:198, 35:200-35:204, 35:206-35:231, 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, 35:293-35:330, 35:332-35:360, 37:01:01:01-37:01:07, 37:01:09, 37:01:11, 37:03N-37:06:02, 37:08, 37:10-37:43, 37:45-37:50, 37:52-37:70, 38:20, 39:42, 40:04, 40:28, 40:30, 40:34, 40:64, 40:68, 40:99, 40:129, 40:137, 40:160:01-40:160:02, 40:343, 41:48, 42:13, 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, 44:247-44:277, 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, 51:227, 53:01:01-53:13, 53:15-53:43, 53:45-53:46, 53:48N-53:49, 55:14, 56:09, 56:11-56:12, 57:01:01:01-57:01:04, 57:01:06-57:10, 57:12, 57:14:01-57:20, 57:22-57:30, 57:32-57:46, 57:48-57:81, 57:84-57:93, 58:01:01:01-58:01:02, 58:01:04-58:01:15, 58:01:17-58:01:22, 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, 58:62-58:91, 83:01, C*03:102, C*03:263:01-03:263:02, C*03:317, C*15:24, C*15:126
18⁸	140 bp	1070 bp	8, 18, 22, 35, 39, 78	*07:65, 07:134, 08:32, 08:133, 08:180, 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, 18:108-18:124, 18:126-18:135, 18:137-18:143, 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, 35:318-35:360, 37:05, 37:11, 37:14, 37:29, 37:37, 37:67, 39:19:01-39:19:02, 40:185, 40:209, 40:308, 40:350, 40:365, 46:40:01-46:40:02, 56:06, 56:45, 58:64, 78:01:01:01-78:09
19^{5,9}	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, 15:01:06-15:21:01:02, 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, 15:256-15:435, 40:12, 46:50, 82:01-82:03, C*03:179, C*06:147, C*14:61, C*16:85
20^{8,9}	210 bp	800 bp	27, 37	*07:27, 07:236, 07:273, 08:49, 08:126, 18:54, 37:01:01:01-37:70, 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, 38:01:01:01-38:02:05, 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, 38:64, 38:66-38:68Q, 39:01:01:01-39:01:01:07, 39:01:03:01-39:01:18, 39:01:20-39:20, 39:22-39:24:02, 39:26-39:29, 39:31:01:01-39:31:01:02, 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, 39:113-39:127, 39:129-39:131, 40:184, 50:49, 51:101, 52:71, 58:20, 58:84, 67:01:01-67:07, C*15:51
22⁵	110 bp	1070 bp	38	*27:07:04, 38:01:01:01-38:01:07, 38:01:09-38:02:02, 38:02:04-38:03, 38:05, 38:08-38:24, 38:26-38:34N, 38:36-38:68Q, 49:26, 52:01:10, A*23:01:18, A*25:01:08

101.503-48/12 – including *Taq* pol., IFU-01
101.503-48u/12u – without *Taq* pol., IFU-02

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Lot No.: **5G4**

Lot-specific information

23	395 bp	1070 bp	14, 16, 38, 39, 3901, 64, 65	*07:69, 07:85, 07:180, 08:65, 14:01:01:01-14:20, 14:22-14:41N, 14:43-14:48, 14:50-14:56, 14:58-14:59, 38:01:01:01-38:02:07, 38:04-38:05, 38:08-38:25, 38:27-38:53, 38:55Q-38:68Q, 39:01:01:01-39:01:01:07, 39:01:03:01-39:01:24, 39:03:01:01-39:07, 39:09:01:01-39:09:03, 39:11-39:12, 39:14:01:01-39:15, 39:18-39:19:02, 39:22, 39:24:01-39:38Q, 39:40:01N-39:48, 39:50-39:57, 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, 40:75 [?] , 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	*07:02:01:01-07:26, 07:28-07:35, 07:37:01-07:37:02, 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, 07:274-07:305, 08:01:01:01-08:01:36, 08:04:01-08:05, 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-08:190, 14:01:01:01-14:01:04, 14:01:06-14:02:04, 14:02:06-14:02:07, 14:02:09-14:29, 14:31-14:59, 15:68, 27:14, 27:81, 27:130, 39:01:01:01-39:01:01:07, 39:01:03:01-39:06:04, 39:07-39:20, 39:22-39:24:01, 39:25N-39:103, 39:105-39:131, 40:01:01-40:01:49, 40:06:01:01-40:06:04:02, 40:06:06-40:07, 40:09 [?] , 40:14:01 [?] -40:15 [?] , 40:16, 40:18 [?] , 40:21 [?] -40:22N [?] , 40:23, 40:24 [?] -40:25 [?] , 40:27:02 [?] -40:29 [?] , 40:30-40:32, 40:33 [?] -40:36 [?] , 40:38 [?] , 40:42-40:44, 40:45 [?] -40:46 [?] , 40:48, 40:49 [?] , 40:51-40:54, 40:55 [?] -40:58 [?] , 40:59-40:60, 40:61 [?] -40:63 [?] , 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 [?] , 40:91 [?] -40:92 [?] , 40:93, 40:95 [?] , 40:96, 40:98 [?] , 40:100 [?] -40:102 [?] , 40:103, 40:104 [?] -40:108 [?] , 40:109-40:110, 40:111 [?] -40:112 [?] , 40:113-40:114:01, 40:114:02 [?] -40:116 [?] , 40:118N [?] -40:121 [?] , 40:123 [?] , 40:124:01, 40:124:02 [?] -40:126 [?] , 40:127, 40:128 [?] -40:130:01 [?] , 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 [?] -40:169 [?] , 40:170-40:172, 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 [?] -40:236 [?] , 40:237, 40:238 [?] -40:243 [?] , 40:244-40:245, 40:246 [?] -40:248 [?] , 40:249-40:253, 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, 40:297 [?] , 40:298:01-40:298:02, 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 [?] , 40:321, 40:322 [?] , 40:323, 40:324 [?] -40:329 [?] , 40:330, 40:331 [?] , 40:332, 40:333 [?] , 40:336 [?] -40:339 [?] , 40:340-40:342, 40:343 [?] , 40:346, 40:348-40:350, 40:351 [?] -40:352 [?] , 40:354, 40:355 [?] , 40:357 [?] -40:360 [?] , 40:361N-40:364, 40:365 [?] , 41:01:01-41:45N, 41:47-41:54, 42:01:01-42:02:01:02, 42:04-42:21, 42:23-42:24, 45:01:01-45:21, 48:01:01:01-48:17, 48:19-48:42, 50:01:01:01-50:02, 50:04-50:20, 50:31-50:54, 51:01:09, 51:01:21, 51:01:25, 51:10, 51:24:02-51:24:04, 51:197, 51:217, 52:54, 54:11, 56:20:02, 67:01:01-67:07, 73:01-73:02, 81:02, C*05:152, C*07:463

101.503-48/12 – including *Taq* pol., IFU-01
101.503-48u/12u – without *Taq* pol., IFU-02

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Lot No.: **5G4**

Lot-specific information

25 ¹¹	180 bp	1070 bp	15, 40, 44, 48, 60, 62, 71	*15:116, 15:124, 15:352, 15:412, 27:125, 35:230, 35:331, 38:63, 40:01:01-40:01:06, 40:01:08-40:01:17, 40:01:19-40:01:49, 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-40:339, 40:344, 40:346, 40:352-40:353, 40:355, 40:357-40:358, 40:360, 40:365, 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*05:136, C*17:16
26 ⁹	130 bp, 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, 15:407, 18:22, 18:48, 18:52, 18:105, 27:107, 35:46, 35:50, 35:84, 35:207, 35:231, 40:02:01:01-40:06:16, 40:08-40:09, 40:10:02 [?] , 40:11:01-40:11:02, 40:13, 40:14:01 [?] -40:14:02 [?] , 40:15 [?] , 40:18-40:20:01:02, 40:22N [?] , 40:24, 40:25 [?] , 40:26-40:29, 40:33 [?] -40:34 [?] , 40:35:01-40:35:02, 40:36 [?] , 40:37, 40:38 [?] , 40:39, 40:44, 40:45 [?] , 40:47 [?] , 40:49 [?] , 40:50, 40:53 [?] , 40:55 [?] , 40:56, 40:57 [?] -40:58 [?] , 40:61 [?] -40:63 [?] , 40:64, 40:65 [?] , 40:67 [?] , 40:68, 40:69 [?] , 40:70:01-40:71, 40:74-40:75, 40:76 [?] , 40:78, 40:80 [?] -40:81 [?] , 40:82, 40:84 [?] , 40:85-40:86, 40:87:01 [?] -40:88 [?] , 40:89-40:91, 40:92 [?] , 40:94-40:99, 40:100 [?] -40:102 [?] , 40:103-40:105, 40:106 [?] , 40:107, 40:108 [?] , 40:109, 40:110 [?] , 40:111, 40:112 [?] , 40:114:02 [?] , 40:115, 40:116 [?] , 40:118N [?] , 40:119-40:120, 40:121 [?] , 40:122, 40:123 [?] , 40:124:02 [?] -40:126 [?] , 40:127, 40:128 [?] -40:130:01 [?] , 40:131, 40:132 [?] , 40:133Q, 40:134 [?] -40:136 [?] , 40:141 [?] , 40:142N-40:145, 40:148-40:149, 40:151 [?] , 40:154 [?] , 40:156 [?] , 40:157, 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 [?] , 40:169, 40:173-40:174, 40:175 [?] , 40:176, 40:178 [?] -40:179 [?] , 40:180-40:181, 40:182 [?] -40:183 [?] , 40:184, 40:186:02 [?] -40:188 [?] , 40:189-40:190, 40:191 [?] -40:199 [?] , 40:200-40:203, 40:204 [?] , 40:205-40:206, 40:207 [?] -40:208 [?] , 40:210 [?] , 40:211, 40:212 [?] -40:213 [?] , 40:214, 40:215 [?] -40:219 [?] , 40:220, 40:221 [?] -40:223 [?] , 40:224-40:226, 40:227 [?] -40:228 [?] , 40:229-40:230, 40:231 [?] , 40:232, 40:233 [?] -40:236 [?] , 40:238 [?] -40:242 [?] , 40:243-40:244, 40:246, 40:247 [?] , 40:248, 40:254-40:256N, 40:257 [?] , 40:266-40:271, 40:274-40:276, 40:279 [?] -40:282 [?] , 40:283-40:284, 40:287, 40:288 [?] , 40:289-40:293, 40:295-40:297, 40:298:01 [?] -40:300 [?] , 40:302-40:307, 40:308 [?] , 40:309, 40:310 [?] , 40:311, 40:312 [?] , 40:313-40:314, 40:315 [?] , 40:317, 40:318 [?] -40:319 [?] , 40:320, 40:322, 40:324 [?] -40:329 [?] , 40:330-40:331, 40:333 [?] , 40:334-40:335, 40:336 [?] , 40:337N, 40:338N [?] -40:339 [?] , 40:340-40:341, 40:342 [?] , 40:343, 40:344 [?] , 40:345N, 40:347-40:351, 40:354, 40:356, 40:357 [?] -40:358 [?] , 40:359, 40:360 [?] , 40:361N-40:364, 44:103, 44:131, 44:139 [?] , 44:212,

101.503-48/12 – including *Taq* pol., IFU-01
101.503-48u/12u – without *Taq* pol., IFU-02

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Lot No.: **5G4**

Lot-specific information

				46:01:07, 46:33, 47:01:01:01-47:01:02, 47:02-47:03, 47:05-47:10, 57:05, 57:67:01, 58:36, C*01:73
27⁵	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, 08:41-08:54:02, 08:56:01-08:69, 08:71-08:78, 08:80-08:102, 08:104-08:112, 08:114-08:133, 08:135-08:142, 08:144-08:155, 08:157-08:168, 08:170, 08:172-08:174, 08:176-08:190, 35:87, 40:136, 40:231, 40:279, 41:01:01-41:08, 41:10-41:28, 41:30-41:31, 41:33-41:54, 42:01:01-42:02:01:02, 42:04-42:07, 42:09-42:18, 42:20-42:24, 44:166, 55:20
28⁸	325 bp	800 bp	7, 22, 27, 2708, 35, 42, 45, 46, 54, 55, 56, 67, 73, 78, 81, 82	*07:02:01:01-07:02:52, 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, 07:233-07:305, 08:123, 08:132, 14:21, 14:57, 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, 27:154-27:167, 35:76, 35:186, 35:229, 37:60, 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, 46:01:01-46:01:23, 46:02 ^w , 46:03-46:40:02, 46:42-46:48, 46:50-46:73, 54:01:01-54:29, 54:31-54:38, 55:01:01-55:05, 55:07-55:17, 55:19-55:77, 55:79-55:87, 56:01:01:01-56:16, 56:18-56:22, 56:24-56:32, 56:34-56:41, 56:43, 56:45-56:53, 56:55, 67:01:01-67:07, 73:01-73:02, 81:01-81:08, 82:01-82:03, 83:01
29⁵	80 bp, 115 bp, 160 bp, 195 bp, 225 bp, 260 bp	1070 bp	12, 35, 37, 44, 45, 47, 48, 57	*08:49, 08:60, 08:76, 08:87, 08:129, 08:181, 27:127, 35:38, 35:45, 35:71, 35:115, 35:169, 35:260, 35:309, 37:01:01:01-37:01:07, 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, 37:52-37:65, 37:67-37:70, 40:132, 40:178, 40:231, 40:279, 41:48, 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, 44:247-44:267N, 44:269-44:274, 44:277, 48:11, 51:42, 53:22, 57:07, 57:09, 57:24, 57:93, 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, 41:01:01-41:01:05, 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, 41:50, 41:53-41:54, 42:04, 44:06, 44:15:01:01-44:15:01:02, 44:18, 44:20, 44:100, 45:01:01-45:21, 49:03, 51:01:01:01-51:01:01:23, 51:01:03-51:01:08, 51:01:10-51:01:39, 51:01:41-51:02:01:02, 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, 51:181-51:217, 51:219-51:225, 51:227-51:229, 52:01:02:01-52:01:02:03, 52:01:04, 52:01:09, 52:02:01, 52:03, 52:06:01-52:06:02, 52:09, 52:10:03, 52:19, 52:21:01, 52:31:02, 53:01:13, 53:06, 55:20, 55:56, 56:13, 57:01:20, 58:08:01, A*23:01:14
31	130 bp, 280 bp	800 bp	7, 17, 18, 22, 35, 37, 40, 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,

101.503-48/12 – including *Taq* pol., IFU-01
101.503-48u/12u – without *Taq* pol., IFU-02

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“Instructions for Use” (IFU)

Lot No.: **5G4**

Lot-specific information

				40:160:01-40:160:02, 44:150, 44:190, 44:203, 44:275, 46:01:01-46:39, 46:41N-46:46, 46:48-46:71, 46:73, 48:17, 51:04, 51:46, 51:56:01-51:56:03, 51:139, 51:227, 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, C*15:130
32^{5,12}	90 bp, 410 bp	1070 bp	7, 15, 22, 27, 2708, 35, 47, 54, 55, 56, 78, 81, 82	*07:65, 27:01 ^w , 27:02:01:01-27:11, 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, 27:154-27:167, 35:76, 35:186, 35:229, 37:60, 44:90, 44:97, 47:01:01:01-47:03, 47:06-47:10, 54:01:01-54:29, 54:31-54:38, 55:01:01-55:05, 55:07-55:17, 55:19-55:77, 55:79-55:87, 56:01:01:01-56:16, 56:18-56:22, 56:24-56:32, 56:34-56:41, 56:43, 56:45-56:53, 56:55, 81:01, 82:01-82:03, 83:01, C*14:79
33⁵	90 bp, 175 bp	1070 bp	15, 27, 35, 48, 60, 62, 75, 77, 81	*07:174, 07:202, 07:222, 07:279, 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, 15:21:01:01-15:21:01:02, 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, 15:399, 15:404, 15:418, 15:420, 15:425, 27:24, 35:46, 35:311, 40:31, 40:45, 40:80, 48:01:01:01-48:01:06, 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, 48:41-48:42, 56:39 ^w , 81:01-81:08
34	145 bp, 430 bp	1070 bp	44, 49, 59, 61	*15:143, 40:13, 40:19, 40:61, 40:109, 40:117, 40:292, 40:340, 41:46, 44:18, 44:25, 44:50:01, 44:95, 49:01:01:01-49:01:10, 49:04:01-49:14, 49:16-49:25, 49:27-49:48, 51:112, 53:30, 53:39, 54:12, 56:21, 56:42, 56:54, 57:45, 57:51, 57:69, 59:01:01:01-59:07, 59:09-59:10N
35⁵	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, 15:408, 27:153, 35:265 ^w , 40:95, 40:148, 40:161, 46:32 ^w , 49:01:01:01-49:01:01:02, 49:01:03-49:10, 49:12-49:14, 49:16-49:44, 49:46, 49:48, 50:01:01:01-50:02, 50:04-50:11, 50:13-50:16, 50:18-50:20, 50:31-50:46, 50:47 ^w , 50:48, 50:50, 50:52-50:54, 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, 51:63:01-51:63:02, 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, 51:195-51:212, 51:214-51:219, 51:221-51:226, 51:228-51:229, 52:01:01:01-52:73, 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, 55:78-55:79, 55:84-55:85, 55:87, 56:05:01-56:06, 56:21, 56:25, 56:37, 58:08:01-58:08:02, 78:01:01:01-78:09, C*05:152, C*12:183^w
36	430 bp	1070 bp	5, 17, 27, 44, 51, 5102, 5103, 52, 53, 57, 58, 61	*18:67, 18:136, 27:02:01:01-27:02:04, 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, 27:157, 27:163, 37:34, 40:13, 40:19, 40:109, 40:292, 40:340 [?] , 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, 51:79-51:229, 52:01:01:01-52:01:28, 52:02:01-52:19,

101.503-48/12 – including *Taq* pol., IFU-01
101.503-48u/12u – without *Taq* pol., IFU-02

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“Instructions for Use” (IFU)

Lot No.: **5G4**

Lot-specific information

				52:21:01-52:73, 53:01:01-53:02, 53:04-53:08:02, 53:10, 53:14-53:30, 53:32-53:35, 53:37, 53:39-53:49, 57:01:01:01-57:11, 57:13-57:93, 58:01:01:01-58:02:02, 58:04-58:16:02, 58:18-58:29, 58:31N-58:63, 58:65-58:91
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, 40:20:01:01-40:20:01:02, 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, 40:309-40:339, 40:341-40:349, 40:351-40:364, 41:01:01-41:04, 41:05 [?] , 41:06-41:25, 41:27-41:45N, 41:47-41:54, 44:09, 44:46, 44:75, 44:90, 44:129, 44:131, 44:254, 44:277, 45:01:01-45:15, 45:17-45:21, 47:02, 47:03 ^w , 48:41, 50:01:01:01-50:02, 50:04-50:05, 50:07-50:20, 50:31-50:54
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, 08:54:01-08:54:02, 08:101, 13:01:01:01-13:04, 13:06, 13:08-13:23, 13:25-13:35, 13:37-13:108, 15:01:01:01-15:01:04, 15:01:06-15:01:18, 15:01:20-15:01:41, 15:03:01:01-15:03:04, 15:03:06-15:07:03, 15:12, 15:14, 15:19-15:20, 15:24:01-15:27:04, 15:30:01:01-15:30:01:02, 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, 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, 15:346-15:349:02, 15:352-15:353, 15:355, 15:359-15:360, 15:363:01-15:366, 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, 15:400N-15:402, 15:405-15:407, 15:409-15:410, 15:412-15:413, 15:415-15:417, 15:419, 15:421-15:422, 15:429-15:432, 18:12:01-18:12:02, 27:01-27:21, 27:24-27:91, 27:93-27:108, 27:110-27:156, 27:158-27:167, 35:10, 35:13, 35:16, 35:28, 35:63, 35:69, 35:80, 35:207, 35:226, 35:270, 35:317-35:318, 37:01:01:01-37:07, 37:09-37:66, 37:68-37:70, 38:03-38:04, 38:25, 39:02:01-39:02:03, 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, 40:314-40:356, 40:358-40:365, 41:01:01-41:54, 42:11, 44:02:01:01-44:02:21, 44:02:23-44:03:35, 44:03:37-44:05:04, 44:07-44:11, 44:13-44:170, 44:172-44:231, 44:233-44:245, 44:247-44:262, 44:264-44:277, 45:01:01-45:21, 47:01:01:01-47:10, 48:01:01:01-48:05, 48:07-48:15, 48:17-48:38, 48:40-48:42, 49:01:01:01-49:14, 49:16-49:25, 49:27-49:48, 50:01:01:01-50:02, 50:04-50:14, 50:16-50:20, 50:31-50:54,

101.503-48/12 – including *Taq* pol., IFU-01
101.503-48u/12u – without *Taq* pol., IFU-02

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“Instructions for Use” (IFU)

Lot No.: **5G4**

Lot-specific information

				52:01:01:01-52:72, 53:17:01-53:17:02, 53:28, 53:38, 54:35, 55:18, 55:34, 55:40, 78:05-78:06
39^{7,8}	160 bp, 370 bp	1070 bp	22, 44, 45, 47, 54	*08:87, 27:127, 44:02:01:01-44:02:48, 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-44:53:02, 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, 44:253-44:255, 44:257, 44:260-44:262, 44:265, 44:267N, 44:269-44:270, 44:273-44:274, 54:01:01-54:38, 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, 18:04:01, 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, 50:49, 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, 54:34-54:38, 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, 55:69-55:80, 55:82-55:85, 55:87, 56:05:01, 56:06, 56:10, 56:23, 56:54, 59:01:01:01-59:01:01:02, 59:05-59:08, 59:10N, 78:01:01:01-78:01:02, 78:02:02-78:03, 78:07-78:09, C*01:90, C*07:536, C*15:02:04, C*15:91, C*15:128
41⁹	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, 44:15:01:01-44:15:01:02, 44:18, 44:140, 45:01:01-45:01:03, 45:04-45:07, 45:11-45:21, 46:11, 49:01:01:01-49:01:07, 49:01:09-49:03, 49:06, 49:08-49:14, 49:16-49:17, 49:19N-49:48, 50:01:01:01-50:02, 50:04-50:08, 50:10-50:13, 50:15-50:19, 50:32, 50:34-50:38, 50:40-50:44, 50:46-50:48, 50:50-50:54, 51:15, 51:62, 51:106:01-51:106:02, 51:223, 51:225, 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, 56:51-56:53, 56:55, 58:73, 59:04, 82:01-82:03, C*03:19, C*03:102
42⁵	90 bp, 240 bp	800 bp	57	*08:181, 55:14, 57:01:01:01-57:01:22, 57:01:24-57:04:01, 57:05-57:44, 57:46-57:50, 57:52-57:68, 57:70-57:88, 57:90-57:93, 58:36, C*06:72
43^{5,12}	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, 58:45:01-58:91, C*02:06:01^w, C*02:47^w
44⁵	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, 08:180, 15:308, 18:01:01:01-18:11, 18:13-18:15, 18:17N-18:36, 18:38-18:47, 18:49-18:65, 18:67-18:106, 18:108-18:124, 18:126-18:143, 35:01:01:01-35:08:04, 35:08:06-35:09:03, 35:11:01-35:12:04, 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,

101.503-48/12 – including *Taq* pol., IFU-01
101.503-48u/12u – without *Taq* pol., IFU-02

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“Instructions for Use” (IFU)

Lot No.: **5G4**

Lot-specific information

				35:272-35:273, 35:275-35:310, 35:312-35:316, 35:319-35:360, 37:08, 37:67, 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, 51:148-51:229, 53:01:01-53:16, 53:18-53:27, 53:29, 53:31-53:37, 53:40-53:49, 56:06 ^w , 56:45 ^w , 78:01:01:01-78:04, 78:07-78:09
45^{5,7,9}	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, 15:01:32-15:01:41, 15:04:01:01-15:04:04, 15:07:01:01-15:08:02, 15:11:01-15:12, 15:14-15:15, 15:19, 15:24:01-15:24:02, 15:26N-15:28, 15:30:01:01-15:30:01:02, 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, 15:349:01-15:350, 15:353, 15:355, 15:359, 15:363:01-15:363:02, 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, 15:400N-15:401, 15:405-15:406, 15:409-15:410, 15:412-15:413, 15:415-15:417, 15:419, 15:422, 15:428-15:432, 18:19, 27:25, 27:75, 27:115, 27:161, 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, 35:343, 37:60, 37:66, 39:18, 39:36, 44:146, 44:275, 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, 46:63-46:73, 50:47, 51:61:01-51:61:02, 51:220, 52:21:01-52:21:02, 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
46^{8,13}	360 bp	1070 bp	Bw4	
47	350 bp	1070 bp	Bw6	
48¹⁴	-	-	-	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 screening 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.

101.503-48/12 – including *Taq* pol., IFU-01
101.503-48u/12u – without *Taq* pol., IFU-02

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Lot No.: 5G4

Lot-specific information

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.

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

⁶Primer mix 4 may give rise to a lower yield of HLA-specific PCR product than the other HLA-B low resolution primer mixes in B*40, B*41, B*45, B*49 and B*50 alleles.

⁷Primer mixes 5, 9, 39 and 45 may give rise to a lower yield of HLA-specific PCR product than the other HLA-B low resolution primer mixes.

⁸Primer mixes 9, 18, 20, 28, 39 and 46 may have tendencies of unspecific amplifications, most pronounced in primer mix 9.

⁹Primer mixes 1, 19, 20, 26, 41 and 45 have a tendency to giving rise to primer oligomer formation.

¹⁰The B*57 and B*58 alleles might be faintly amplified by primer mix 9.

¹¹The C*17 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 screening typings.

¹³The Bw4-associated HLA-A specificities A9, A23, A24, A2403, A25 and A32 are not amplified by the primer pair in primer mix 46.

¹⁴Primer mix 48 contains a negative control, which will amplify more than 95% of HLA amplicons as well as the amplicons generated by the control primer pairs matching the human growth hormone gene. HLA-specific PCR product sizes range from 75 to 200 base pairs and the PCR product generated by the HGH positive control primer pair is 430 base pairs.

‘w’, might be weakly amplified.

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

101.503-48/12 – including *Taq* pol., IFU-01
101.503-48u/12u – without *Taq* pol., IFU-02

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“Instructions for Use” (IFU)

Lot No.: **5G4**

Lot-specific information

PRIMER SPECIFICATION

Well No.	1	2	3	4	5	6	7	8	9	10	11	12
Length of spec. PCR product	110	215	140	140	185	190	180	165	165	180	100	280
			235	265	235		290	285	390		195	
								330				
Length of int. pos. control ¹	800	1070	1070	800	800	800	1070	1070	1070	800	1070	1070
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	435		416	
	5'-gCg 3'		5'-AgC 3'	5'-CCg 3'	5'-CCT 3'	5'-Agg 3'		5'-Tgg 3'	5'-AAA 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	
				5'-AgC 3'							5'-TTC 3'	
3'-primer(s) ³	605	272	309	193	246	246	1 st I	206	266	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'-TCC 3'	5'-CTC 3'	5'-CCC 3'	5'-TAT 3'
		272	312	193	246	572	165	538	559		272	
		5'-TgA 3'	5'-gCC 3'	5'-CgT 3'	5'-TAT 3'	5'-gCC 3'	5'-Tgg 3'	5'-gTC 3'	5'-CAg 3'		5'-Tgg 3'	
			559	463	559			603	583		572	
			5'-CAg 3'	5'-gCT 3'	5'-CTC 3'			5'-gTg 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. PCR product	195	105	115	80	100	140	55	210	170	110	395	160
		395	150		150		245					425
		435					390					
							415					
Length of int. pos. control ¹	1070	1070	1070	1070	800	1070	1070	800	800	1070	1070	1070
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	412	301	259	311	544	317	272	302
	5'-gTC 3'	5'-TgC 3'	5'-TCT 3'	5'-TCT 3'	5'-gTT 3'	5'-gCT 3'	5'-gTT 3'	5'-ggg 3'	5'-ggT 3'	5'-ggA 3'	5'-TgC 3'	5'-ggC 3'
	301	272	272		463	302	259	311				302
	5'-gTC 3'	5'-TgT 3'	5'-TgA 3'		5'-gCT 3'	5'-ggC 3'	5'-gTT 3'	5'-ggg 3'				5'-ggT 3'
	570	309	272			311	266	538				477
	5'-CCg 3'	5'-ATC 3'	5'-Tgg 3'			5'-ggT 3'	5'-TCC 3'	5'-gTC 3'				5'-gCg 3'
	572	605				312	272					
	5'-gCg 3'	5'-gCT 3'				5'-AgT 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

101.503-48/12 – including *Taq* pol., IFU-01
101.503-48u/12u – without *Taq* pol., IFU-02

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Lot No.: **5G4**

Lot-specific information

Well No.	25	26	27	28	29	30	31	32	33	34	35	36
Length of spec.	180	130	105	325	80	215	130	90	90	145	120	430
PCR product		290			115		280	410	175	430	210	
		465			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	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	103			418	357	209	368	363	206		
	5'-Agg 3'	5'-CCT 3'			5'-Agg 3'	5'-Tgg 3'	5'-ggg 3'	5'-gTT 3'	5'-AgC 3'	5'-gAA 3'		
		209			499		355					
		5'-ggC 3'			5'-TCT 3'		5'-TCA 3'					
3'-primer(s) ³	499	193	603	282	538	309	299	282	259	272	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'-TgT 3'	5'-TCT 3'	5'-ATC 3'
		193	603		572	538	583	418	499	309	527	
		5'-TgT 3'	5'-gTg 3'		5'-gCA 3'	5'-gTC 3'	5'-gTg 3'	5'-gTC 3'	5'-ggA 3'	5'-ATC 3'	5'-CCT 3'	
		387	605		572		605					
		5'-TCg 3'	5'-gCT 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
Length of spec.	145	300	160	180	180	90	90	95	115	360	350
PCR product			370	210	205	240			150		
Length of int. pos. control ¹	1070	1070	1070	1070	1070	800	1070	1070	1070	1070	1070
5'-primer(s) ²	206	1 st	15	141	97	209	207	206	165	1 st	1 st
	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'
			418	420	420	209	208		463		
			5'-Agg 3'	5'-TTA 3'	5'-TTA 3'	5'-ggA 3'	5'-CgT 3'		5'-TgA 3'		
						362	209				
						5'-ggT 3'	5'-ggA 3'				
3'-primer(s) ³							369				
							5'-TAC 3'				
	311	259	207	311	259	256	256	259	272	317	311
	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'
		259	226	559	559	259	256		538	320	
		5'-CTC 3'	5'-CAC 3'	5'-CgT 3'	5'-CAg 3'	5'-CTT 3'	5'-CCC 3'		5'-CCA 3'	5'-AgT 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

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.

101.503-48/12 – including *Taq* pol., IFU-01
101.503-48u/12u – without *Taq* pol., IFU-02

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Lot No.: 5G4

Lot-specific information

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.

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101.503-48u/12u – without *Taq* pol., IFU-02

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Lot No.: **5G4**

Lot-specific information

CELL LINE VALIDATION SHEET																				
HLA-B low resolution SSP kit²																				
				Well																
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
				Prod. No.:	201890601	201890602	201890603	201893404	201890605	201890606	201890607	201890608	201893409	201890610	201890611	201890612	201890613	201890614	201890615	201890616
IHCW 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	-	-	-	+	-	-	-	-	-	-	-	+	-	-	-	-	-

101.503-48/12 – including *Taq* pol., IFU-01
101.503-48u/12u – without *Taq* pol., IFU-02

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Lot No.: **5G4**

Lot-specific information

CELL LINE VALIDATION SHEET																				
HLA-B low resolution SSP kit ²																				
				Well																
				17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
				Prod. No.:	201890617	201890618	201890619	201890620	201890621	201890622	201890623	201890624	201890625	201893426	201890627	201890628	201890629	201890630	201890631	201890632
	IHCW 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	+	+	-	-	-	-	-	-	-	-	-	+	-	-	-

101.503-48/12 – including *Taq* pol., IFU-01
101.503-48u/12u – without *Taq* pol., IFU-02

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Lot No.: **5G4**

Lot-specific information

					Well													
					33	34	35	36	37	38	39	40	41	42	43	44	45	46
			Prod. No.:															
IHWC cell line ¹			B*	201890633	201890634	201890635	201890636	201890637	201890638	201890639	201890640	201893441	201890642	201890643	201890644	201890645	201890646	201890647
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	-	-	-	-	-	+	-	-	-	-	+	-	+	+

101.503-48/12 – including *Taq* pol., IFU-01
101.503-48u/12u – without *Taq* pol., IFU-02

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Lot No.: 5G4

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 and 41 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, 18 and 34 were tested by separately adding one or two additional 5'-primers. Additional 5'-primers in primer solutions 1, 21, 25 and 26 were tested by separately adding one or two additional 3'-primers.

In primer mixes 11, 17, 31, 42 and 43 one or two 5'-primers were not possible to test, and in primer mixes 3, 7, 22, 27, 29, 38, 39, 42 and 46 one or two 3'-primers were not possible to test.

101.503-48/12 – including *Taq* pol., IFU-01
101.503-48u/12u – without *Taq* pol., IFU-02

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Lot No.: **5G4**

Lot-specific information

101.503-48/12 – including *Taq* pol., IFU-01
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Lot No.: **5G4**

Lot-specific information

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