

101.413-24/04 – including *Taq* polymerase, IFU-01
101.413-24u/04u – without *Taq* polymerase, IFU-02

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

Lot No.: **3L4**

Lot-specific Information
Olerup SSP® HLA-A*03

Product number:	101.413-24/04 – including <i>Taq</i> pol. 101.413-24u/04u – without <i>Taq</i> pol.
Lot number:	3L4
Expiry date:	2024-07-01
Number of tests:	24 tests – Product No. 101.413-24/24u 4 tests – Product No. 101.413-04/04u
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. 3L4.

Complete product documentation consists of generic Instructions for Use (IFU), lot specific Product Insert, Worksheet and Certificate.

**CHANGES COMPARED TO THE PREVIOUS OLERUP SSP®
HLA-A*03 LOT (9G9)**

- The product documentation has been updated for new alleles of IMGT 3.39.0.
- The kit resolution focuses on common and well documented (CWD) alleles¹.

¹As described in section Uniquely Identified Alleles.

The HLA-A*03 specificity and interpretation tables have been updated for the HLA-A alleles described since the previous *Olerup SSP®* HLA-A*03 lot was made (**Lot No. 9G9**).

The primers of the wells detailed below have been exchanged, added, or modified compared to the previous lot (**Lot No. 9G9**).

Well	5'-primer	3'-primer	rationale
5	Added	-	5'-primer added from primer mix 23.
23	-	Moved	3'-primer moved to primer mix 5 for decreased tendency of primer oligomer formation.

¹S. J. Mack, P. Cano, J. A. Hollenbach et al.
Common and well-documented HLA alleles: 2012 update to the CWD catalogue. *Tissue Antigens*, 2013, 81, 194–203

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Well **64** contains Negative Control primer pairs, that will amplify the majority 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 200 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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101.413-24u/04u – without *Taq* polymerase, IFU-02 “Instructions for Use” (IFU)

Lot No.: **3L4**

Lot-specific Information

PRODUCT DESCRIPTION

HLA-A*03 SSP subtyping

CONTENT

The primer set contains 5'- and 3'-primers for identifying the A*03:01 to A*03:386 alleles.

PLATE LAYOUT

Each test consists of 64 PCR reactions in a 64 well 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-A*03’ in silver/gray ink.

Well No. 1 is marked with the Lot No. ‘3L4’.

Wells 1 to 63 – HLA-A*03 high resolution primers.

Well 64 – 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.

INTERPRETATION

Due to the sharing of sequence motifs between HLA-A alleles non-HLA-A*03 alleles will be amplified by some primer mixes. For further details see Specificity Table.

UNIQUELY IDENTIFIED ALLELES

All the HLA-A*03 alleles, i.e. **A*03:01 to A*03:386**, recognized by the HLA Nomenclature Committee in January 2020^{1,2} will be amplified by the primers in the HLA-A*03 subtyping kit³.

The HLA-A*03 kit enables separation of the confirmed HLA-A*03 alleles as listed in the IMGT/HLA database 3.28.0. An HLA allele is listed as confirmed by IMGT/HLA if it has been sequenced by more than a single laboratory or from multiple sources. Current allele confirmation status for HLA-A*03 alleles is listed below.

The HLA-A*03 kit also enables identification of many null and alternatively expressed alleles.

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Lot-specific Information

The following HLA-A*03 alleles can be distinguished by the different sizes of the HLA-specific PCR product:

Alleles	Primer mix	Alleles	Primer mix
A*03:16, 03:61	20	A*03:38, 03:68N	41
A*03:17:01-03:17:02, 03:74	21	A*03:44:01-03:44:02, 03:53	46
A*03:20, 03:47	43	A*03:78, 03:161N	49
A*03:22:01-03:22:02, 03:103:01-03:103:02, 03:248, 03:282	23	A*03:118, 03:134	57
A*03:25, 03:71	27	A*03:128, 03:144	59
A*03:27, 03:49	30	A*03:132, 03:162N	62
A*03:29, 03:67	32		

¹HLA-A alleles listed on the IMGT/HLA web page 2020-January-20, release 3.39.0, www.ebi.ac.uk/imgt/hla.

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

³The HLA-A*03 primer set cannot separate the following alleles. These alleles can be distinguished by the HLA-A low resolution kit and/or the HLA-A*74 high resolution kit.

Alleles

A*03:95, 03:215, 03:343, A*74:13

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ALLELE CONFIRMATION STATUS

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

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Lot-specific Information

Allele	Status ¹	Allele	Status ¹	Allele	Status ¹	Allele	Status ¹
A*03:116	Unconfirmed	A*03:162N	Confirmed	A*03:213	Confirmed	A*03:262N	Unconfirmed
A*03:117	Unconfirmed	A*03:163	Unconfirmed	A*03:214	Unconfirmed	A*03:263	Unconfirmed
A*03:118	Unconfirmed	A*03:164	Unconfirmed	A*03:215	Unconfirmed	A*03:264	Unconfirmed
A*03:119	Unconfirmed	A*03:165	Unconfirmed	A*03:216	Unconfirmed	A*03:265	Unconfirmed
A*03:120	Unconfirmed	A*03:166	Unconfirmed	A*03:217	Unconfirmed	A*03:266N	Unconfirmed
A*03:121	Unconfirmed	A*03:167	Confirmed	A*03:218	Unconfirmed	A*03:267	Unconfirmed
A*03:122	Unconfirmed	A*03:168N	Unconfirmed	A*03:219	Unconfirmed	A*03:268	Unconfirmed
A*03:123:01	Confirmed	A*03:169	Unconfirmed	A*03:220	Confirmed	A*03:269N	Unconfirmed
A*03:123:02	Unconfirmed	A*03:170	Unconfirmed	A*03:221	Unconfirmed	A*03:270	Unconfirmed
A*03:124	Unconfirmed	A*03:171	Unconfirmed	A*03:222	Unconfirmed	A*03:271	Unconfirmed
A*03:125	Unconfirmed	A*03:172	Unconfirmed	A*03:223	Unconfirmed	A*03:272	Unconfirmed
A*03:126	Unconfirmed	A*03:173	Unconfirmed	A*03:224	Unconfirmed	A*03:273	Unconfirmed
A*03:127	Confirmed	A*03:174	Unconfirmed	A*03:225	Unconfirmed	A*03:274	Unconfirmed
A*03:128	Confirmed	A*03:175	Unconfirmed	A*03:226	Unconfirmed	A*03:275N	Unconfirmed
A*03:129N	Unconfirmed	A*03:176	Confirmed	A*03:227	Unconfirmed	A*03:276	Unconfirmed
A*03:130	Confirmed	A*03:177	Unconfirmed	A*03:228	Unconfirmed	A*03:277	Unconfirmed
A*03:131	Unconfirmed	A*03:178N	Unconfirmed	A*03:229	Unconfirmed	A*03:278	Unconfirmed
A*03:132	Unconfirmed	A*03:179	Unconfirmed	A*03:230	Unconfirmed		
A*03:133	Confirmed	A*03:180	Unconfirmed	A*03:231:01	Unconfirmed		
A*03:134	Unconfirmed	A*03:181	Unconfirmed	A*03:231:02	Unconfirmed		
A*03:135	Unconfirmed	A*03:182	Unconfirmed	A*03:232	Unconfirmed		
A*03:136	Unconfirmed	A*03:183	Unconfirmed	A*03:233	Unconfirmed		
A*03:137	Unconfirmed	A*03:184	Unconfirmed	A*03:234Q	Unconfirmed		
A*03:138	Unconfirmed	A*03:185	Unconfirmed	A*03:235	Unconfirmed		
A*03:139	Confirmed	A*03:186	Unconfirmed	A*03:236	Unconfirmed		
A*03:140	Unconfirmed	A*03:187	Unconfirmed	A*03:237	Unconfirmed		
A*03:141	Unconfirmed	A*03:188	Unconfirmed	A*03:238	Confirmed		
A*03:142	Unconfirmed	A*03:189	Unconfirmed	A*03:239	Unconfirmed		
A*03:143	Confirmed	A*03:190	Unconfirmed	A*03:240	Unconfirmed		
A*03:144	Confirmed	A*03:191	Confirmed	A*03:241	Unconfirmed		
A*03:145:01	Unconfirmed	A*03:192N	Unconfirmed	A*03:242	Unconfirmed		
A*03:145:02	Confirmed	A*03:193	Unconfirmed	A*03:243	Unconfirmed		
A*03:146	Unconfirmed	A*03:195	Confirmed	A*03:244	Unconfirmed		
A*03:147	Unconfirmed	A*03:196	Unconfirmed	A*03:245	Confirmed		
A*03:148	Unconfirmed	A*03:197N	Confirmed	A*03:246	Unconfirmed		
A*03:149	Confirmed	A*03:198	Unconfirmed	A*03:247	Unconfirmed		
A*03:150	Confirmed	A*03:199	Unconfirmed	A*03:248	Unconfirmed		
A*03:151	Unconfirmed	A*03:200Q	Unconfirmed	A*03:249	Unconfirmed		
A*03:152	Unconfirmed	A*03:201	Unconfirmed	A*03:250	Unconfirmed		
A*03:153	Unconfirmed	A*03:202	Confirmed	A*03:251	Confirmed		
A*03:154:01	Unconfirmed	A*03:203	Unconfirmed	A*03:252	Unconfirmed		
A*03:154:02	Unconfirmed	A*03:204	Confirmed	A*03:253	Unconfirmed		
A*03:155	Unconfirmed	A*03:205	Unconfirmed	A*03:254	Unconfirmed		
A*03:156	Unconfirmed	A*03:206	Unconfirmed	A*03:255	Unconfirmed		
A*03:157:01	Unconfirmed	A*03:207	Unconfirmed	A*03:256	Unconfirmed		
A*03:157:02	Confirmed	A*03:208	Unconfirmed	A*03:257	Unconfirmed		
A*03:158	Unconfirmed	A*03:209	Unconfirmed	A*03:258	Unconfirmed		
A*03:159	Unconfirmed	A*03:210	Unconfirmed	A*03:259	Unconfirmed		
A*03:160	Unconfirmed	A*03:211	Unconfirmed	A*03:260	Unconfirmed		
A*03:161N	Unconfirmed	A*03:212	Unconfirmed	A*03:261	Unconfirmed		

¹Allele status “confirmed” or “unconfirmed” as listed on the IMGT/HLA web page 2017-April-13, release 3.28.0, www.ebi.ac.uk/imgt/hla.

RESOLUTION IN HOMO- AND HETEROZYGOTES

Results file with resolution in HLA-A*03 homo- and heterozygotes is available upon request.

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Lot-specific Information

SPECIFICITY TABLE

HLA-A*03 SSP subtyping

Specificities and sizes of the PCR products of the 63+1 primer mixes used for HLA-A*03 SSP subtyping

Primer Mix	Size of spec. PCR product ¹	Size of control band ²	Amplified HLA-A*03 alleles ³	Other amplified HLA-A alleles
1	235 bp	800 bp	*03:01:01:01-03:01:29, 03:01:31-03:01:49, 03:01:51-03:01:89, 03:01:91-03:04:03, 03:06-03:09, 03:11N-03:17:02, 03:19-03:39, 03:41, 03:43-03:74, 03:76-03:94, 03:96-03:97, 03:99-03:104, 03:106-03:121, 03:123:01-03:134, 03:136-03:166, 03:168N-03:176, 03:178N-03:186, 03:188-03:193, 03:195-03:199, 03:201-03:203, 03:205-03:207, 03:209-03:214, 03:216-03:224, 03:226-03:259, 03:261-03:325, 03:327-03:331, 03:333-03:342N, 03:344-03:346, 03:348-03:386	*11:130, 30:89, 32:04, 36:02
2 ⁵	225 bp	1070 bp	*03:01:01:01-03:01:11, 03:01:12 ^w , 03:01:13-03:01:22, 03:01:23 ^w , 03:01:24-03:01:82, 03:01:84-03:07:02, 03:09-03:11N, 03:13-03:31, 03:33-03:35, 03:37-03:40, 03:42-03:56, 03:58, 03:60-03:71, 03:73-03:87, 03:90-03:106, 03:109-03:110, 03:112-03:141, 03:143-03:148, 03:150-03:151, 03:153-03:171, 03:174-03:175, 03:177, 03:181-03:193, 03:195, 03:197N, 03:201-03:202, 03:204, 03:206-03:210, 03:212-03:218, 03:220, 03:222-03:242, 03:244, 03:246-03:251, 03:253-03:259, 03:261-03:266N, 03:268-03:272, 03:274-03:299, 03:301-03:318, 03:320-03:329N, 03:331-03:381N, 03:383-03:386	*01:13, 01:176, 01:194, 02:34 ^w -02:35:03 ^w , 02:56:01 ^w -02:56:02 ^w , 02:62 ^w , 02:103 ^w , 02:580 ^w , 11:199:01, 11:222, 30:55, 34:08, 68:71, 69:07, 74:13
3 ⁵	205 bp	1070 bp	*03:01:01:01-03:01:13, 03:01:15-03:01:46, 03:01:48-03:01:51, 03:01:53-03:01:91, 03:03N-03:06, 03:08:01:01-03:09, 03:11N-03:17:02, 03:19-03:30, 03:33-03:41, 03:43-03:49, 03:51:01-03:53, 03:55-03:63, 03:67-03:72, 03:74, 03:77-03:81,	*11:25:01-11:25:02, 11:175, 11:348, 30:89, 30:160, 32:04, 34:02:01:01-34:04, 34:07-34:10N, 34:13, 34:15, 34:20-34:22

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			03:83-03:89:02, 03:91N-03:94, 03:96-03:105, 03:107-03:112, 03:114-03:126, 03:128-03:132, 03:134, 03:136-03:139, 03:141- 03:152, 03:154:01-03:159, 03:161N-03:164, 03:166, 03:168N-03:170, 03:172-03:176, 03:178N-03:186, 03:188-03:193, 03:195-03:197N, 03:199, 03:201- 03:203, 03:205-03:214, 03:216- 03:217, 03:219-03:222, 03:224, 03:226-03:230, 03:232-03:233, 03:235, 03:238-03:241, 03:243, 03:245-03:252, 03:254-03:259, 03:261-03:273, 03:276-03:280:02, 03:282-03:284N, 03:286N-03:308, 03:310-03:313, 03:315-03:317, 03:320-03:331, 03:334N-03:342N, 03:344-03:346, 03:349-03:355, 03:357N-03:372, 03:374N-03:384, 03:386
4	215 bp	800 bp	*03:02:01-03:02:04, 03:10, 03:31- 03:32, 03:65, 03:69N, 03:73, 03:76, 03:82, 03:90, 03:106, 03:113, 03:160, 03:167, 03:198, 03:218, 03:223, 03:236-03:237, 03:242, 03:244, 03:253, 03:274- 03:275N, 03:281, 03:285, 03:309, 03:314, 03:318-03:319, 03:333, 03:348, 03:356, 03:385
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5	185 bp	800 bp	*03:03N, 03:238
			C*02:159^w, C*02:161^w, C*06:87^w, C*12:45^w, C*12:166^w
6	190 bp 275 bp	1070 bp	*03:234Q *03:04:01-03:04:03, 03:345:01:01- 03:345:01:02
			*01:86, 11:153:01-11:153:02, 11:351Q, 30:34
7	225 bp	1070 bp	*03:06, 03:69N
8	240 bp	1070 bp	*03:01:01:01-03:01:07, 03:01:09- 03:11N, 03:13-03:40, 03:42-03:56, 03:58-03:87, 03:89:01-03:106, 03:108, 03:110-03:151, 03:153- 03:172, 03:174-03:193, 03:195- 03:199, 03:201-03:218, 03:220- 03:256, 03:258-03:259, 03:261- 03:266N, 03:268-03:272, 03:274- 03:381N, 03:383-03:386
			*01:13, 01:28, 01:176, 01:194, 01:229, 01:299, 02:01:01:01-02:01:15, 02:01:17-02:01:19, 02:01:21-02:01:48, 02:01:50-02:01:81, 02:01:83- 02:01:100, 02:01:102-02:01:105, 02:01:107, 02:01:109-02:01:119, 02:01:121-02:01:123, 02:01:125-02:01:145, 02:01:147-02:04, 02:07:01:01-02:07:10, 02:07:12-02:07:14, 02:09:01:01-02:09:01:02, 02:11:01:01-02:13, 02:15N-02:20:02, 02:22:01:01-02:22:02, 02:24:01-02:27, 02:29-02:40:02, 02:42:01- 02:43N, 02:45-02:50, 02:52-02:53N, 02:55- 02:56:02, 02:58-02:60:02, 02:62-02:71, 02:73- 02:77, 02:80, 02:82N-02:83N, 02:85-02:86:02, 02:88N-02:90, 02:92-02:97:02, 02:101:01- 02:105, 02:107, 02:109-02:111, 02:113:01N- 02:121, 02:123, 02:125N, 02:128, 02:130- 02:135, 02:138-02:141, 02:145,

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9⁸	230 bp	1070 bp	*03:05:01-03:05:02, 03:10, 03:42, 03:72, 03:187, 03:225, 03:332	*01:200, 01:244, 02:156, 02:338, 11:04, 11:35, 11:88, 24:19, 24:290, 24:406, 30:01:01:01-30:04:03, 30:06-30:20, 30:22-30:27N, 30:29-30:44, 30:46, 30:48-30:79, 30:81-30:116, 30:118-30:166, 31:03-31:04:01:02, 33:49, 33:144, 34:02:01:01-34:04, 34:07-34:10N, 34:13, 34:15, 34:20-34:22, 36:01, 36:05-36:10, 68:45, 68:103:01-68:103:02, 68:117, 74:23
10⁴	65 bp 205 bp	800 bp	*03:60 *03:02:01-03:02:04, 03:07:01, 03:10, 03:31-03:32, 03:42, 03:73, 03:76, 03:82, 03:90, 03:106, 03:113, 03:133, 03:160, 03:171, 03:198, 03:218, 03:223, 03:236-03:237, 03:242, 03:244, 03:253, 03:274-03:275N, 03:281, 03:285, 03:309, 03:314, 03:318-03:319, 03:332-03:333, 03:348, 03:356, 03:373, 03:385	*01:12, 01:19, 01:21, 01:126, 01:200, 01:244, 02:156, 02:338, 11:31, 11:35, 11:60, 11:158, 11:183, 11:209, 24:92, 24:458, 30:04:01:01-30:04:03, 30:06, 30:09, 30:17, 30:29, 30:46, 30:77, 30:90, 30:99, 30:103, 30:105, 30:117, 30:139, 30:150, 30:155, 31:03-31:04:01:02, 33:49, 33:144, 68:103:01-68:103:02, 74:23
11	225 bp	800 bp	*03:08:01:01-03:08:01:02, 03:32, 03:41, 03:107, 03:176	*01:01:01:01-01:01:01:31, 01:01:33-01:01:46, 01:01:48-01:01:61, 01:01:63-01:01:112, 01:03:01:01-01:04:01:02N, 01:06, 01:08-01:12, 01:14-01:16N, 01:18N-01:19, 01:21-01:33, 01:35-01:42, 01:44-01:94, 01:96-01:103, 01:105-01:107, 01:109-01:133, 01:135-01:142, 01:144-01:161, 01:163-01:175, 01:177-01:187, 01:189, 01:191-01:193, 01:195-01:210:02, 01:212-01:219, 01:221-01:228Q, 01:230-01:269N, 01:271-01:288, 01:290N-01:301Q, 01:303:01-01:306, 01:308N-01:311, 01:313-01:335, 01:337-01:341, 01:343, 02:749, 25:03, 25:30, 26:20, 32:01:01:01-32:01:14, 32:01:16-32:02, 32:03:01:01 ^w , 32:04-32:06, 32:08 ^w , 32:09-32:16, 32:18-32:26:02, 32:28-32:41, 32:43:01-32:63, 32:65-32:66, 32:68-32:125, 32:127-32:137, 36:01-36:10, 74:01:01:01-74:01:04, 74:01:06-74:04, 74:08-74:12N, 74:14N-74:18, 74:20, 74:22-74:32N, 74:34, 74:36-74:38, 80:01:01:01 ^w -80:01:02 ^w , 80:02, 80:03 ^w , 80:05 ^w -80:06 ^w
12	190 bp	1070 bp	*03:09, 03:89:02, 03:108, 03:172, 03:198, 03:330N	*01:134, 01:229, 02:01:09, 02:05:05, 02:06:07, 02:07:12, 02:50, 02:76:02, 02:122, 02:243:02-02:243:03, 02:528:02, 02:591:01, 11:06, 11:18, 11:312, 24:28, 24:89, 24:379, 26:03:01:01-26:03:01:02, 26:06, 26:21, 26:30, 26:78, 26:92, 26:111, 26:177, 26:193, 29:19, 29:48, 33:24, 33:184, 68:05, 68:15, 68:20, 74:06, 74:21
13⁴	55 bp	800 bp	*03:157:01, 03:172, 03:176	*01:191, 02:45, 11:224, 23:28, 24:77, 31:02:01-31:02:02, 31:07, 31:91, 32:05, 32:31
	145 bp		*03:01:01:02N	
14⁴	105 bp 235 bp	1070 bp	*03:11N *03:59	*11:137:02N *01:342
15	225 bp	1070 bp	*03:12, 03:88, 03:245	*02:78, 11:01:01:01-11:01:50, 11:01:52-11:02:01:02, 11:02:02 ^w , 11:02:03-11:05, 11:06 ^w , 11:07-11:16, 11:20-11:27, 11:29-11:39, 11:41-11:42, 11:44, 11:46, 11:48-11:52Q, 11:54:01-11:77, 11:79-11:87, 11:89-11:91:02,

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16	275 bp	1070 bp	*03:14	*02:450
17^{5,6}	215 bp	800 bp	*03:01:01:01-03:01:91, 03:03N-03:09, 03:11N-03:17:02, 03:19-03:30, 03:33-03:49, 03:51:01-03:64, 03:67-03:68N, 03:70-03:72, 03:74, 03:77-03:81, 03:83-03:89:02, 03:91N-03:94, 03:96-03:105, 03:107-03:112, 03:114-03:134, 03:136-03:152, 03:154:01-03:159, 03:161N-03:166, 03:168N-03:176, 03:178N-03:186, 03:188-03:193, 03:195-03:197N, 03:199, 03:201-03:203, 03:205-03:207, 03:209-03:214, 03:216-03:217, 03:219-03:222, 03:224, 03:226-03:228, 03:230-03:235, 03:238-03:241, 03:243, 03:245-03:248, 03:250-03:252, 03:254-03:259, 03:261-03:265, 03:267-03:273, 03:276-03:280:02, 03:282-03:284N, 03:286N-03:287, 03:289:01-03:308, 03:310-03:313, 03:315-03:317, 03:320-03:321, 03:323N-03:332, 03:334N-03:342N, 03:344-03:346, 03:349-03:355, 03:357N-03:376, 03:379-03:384, 03:386	*01:06, 01:200, 01:244, 01:304, 02:156, 02:338, 11:24:01-11:25:02, 11:31, 11:35, 11:158, 30:01:01:01-30:03, 30:07-30:16, 30:18-30:20, 30:22-30:27N, 30:30-30:45, 30:48-30:51, 30:53-30:62, 30:64-30:71, 30:73N-30:76N, 30:78N-30:79, 30:81-30:89, 30:91-30:98, 30:100-30:102, 30:104, 30:106-30:112, 30:114-30:116, 30:118-30:130N, 30:132N-30:138, 30:140-30:149, 30:151-30:154, 30:156-30:163, 30:165-30:166, 31:03-31:04:01:02, 32:04, 33:49, 33:144, 34:02:01:01-34:04, 34:07-34:10N, 34:13, 34:15, 34:20-34:22, 74:23, 80:01:01:01-80:06
18⁵	135 bp 215 bp	1070 bp	*03:13 *03:50, 03:64, 03:66, 03:225, 03:266N	*01:98, 11:08, 11:44, 11:183, 11:191, 11:269, 25:43, 30:04:01:01-30:04:03, 30:06, 30:17, 30:29, 30:46, 30:77, 30:90, 30:103, 30:105, 30:117, 30:139, 30:150, 30:155, 36:02, 68:103:01-68:103:02
19^{4,6}	125 bp 205 bp 240 bp	1070 bp	*03:202 *03:145:02 *03:15, 03:19, 03:84	

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20⁴	60 bp 185 bp 405 bp	1070 bp	*03:61, 03:157:01, 03:172, 03:176 *03:16, 03:79 *03:61	*01:191, 02:45, 11:224, 23:28, 24:77, 31:02:01-31:02:02, 31:07, 31:91, 32:05, 32:31
21	140 bp 195 bp 290 bp	1070 bp	*03:17:01-03:17:02, 03:102, 03:171 *03:74 *03:297N	*01:88:01-01:88:03, 01:236, 02:156, 02:338, 11:119:01-11:119:02, 11:209, 24:51, 24:92, 24:458, 30:61, 30:74, 68:103:01-68:103:02
22⁴	90 bp 250 bp	1070 bp	*03:191, 03:236 *03:18, 03:97, 03:122, 03:135, 03:167	*11:59 *01:01:01:01-01:01:65, 01:01:67-01:02:02, 01:04:01:01N-01:04:01:02N, 01:06-01:19, 01:21-01:33, 01:35-01:62, 01:64-01:65, 01:67:01-01:71, 01:74-01:101, 01:103-01:129, 01:131-01:166, 01:168-01:191, 01:193-01:199, 01:201-01:243, 01:245-01:254, 01:256-01:266:02, 01:268-01:283, 01:285N-01:286, 01:288-01:300, 01:302-01:306, 01:308N-01:314, 01:316-01:343, 11:27, 11:38-11:39, 11:94, 11:209, 11:271, 11:326, 24:51, 24:92, 24:458, 25:59, 30:75, 80:01:01:01-80:06
23^{4,7}	95 bp 185 bp 210 bp 240 bp	1070 bp	*03:22:01-03:22:02, 03:248, 03:274 *03:19, 03:103:01-03:103:02, 03:282 *03:56, 03:88, 03:99, 03:177, 03:186 *03:75, 03:347, 03:377	*31:139, 32:52, C*06:187 *02:237, 02:809, 24:18, 24:204, 24:213, 31:139, 32:52 *11:130, 32:52, 36:02, C*06:187 *24:18, 24:204, 24:213, C*06:187
24	470 bp	1070 bp	*03:21N	*01:04:01:01N-01:04:01:02N, 11:21N, 23:07N, 24:11N, 30:132N
25	155 bp	1070 bp	*03:23:01-03:23:02, 03:89:02, 03:198	*01:83:01-01:83:02, 02:01:09, 02:05:05, 02:06:07, 02:07:12, 02:11:02, 02:35:03, 02:50, 02:76:02, 02:122, 02:243:02-02:243:03, 02:528:02, 02:591:01, 11:70:01-11:70:02, 11:121, 23:80, 24:08, 24:42, 24:89, 24:310:01-24:310:02, 24:342, 24:409, 25:46, 26:07:01-26:07:02, 26:92, 29:48, 31:109, 32:93, 33:08-33:09, 68:30, 74:04, 74:21
26	190 bp	1070 bp	*03:24, 03:93	*01:51, 01:341, 25:03, 25:30, 32:15, 32:37, 34:08, 68:71, 69:07
27⁴	95 bp 145 bp 170 bp 240 bp	1070 bp	*03:71, 03:348 *03:25 *03:251 *03:149, 03:245	*66:37 *11:49 *11:200, 68:193
28⁷	170 bp 220 bp 495 bp	1070 bp	*03:26, 03:318 *03:269N *03:41, 03:63, 03:88, 03:382	*11:77, 11:126, 11:348 *11:130, 36:02, C*06:187
29⁴	100 bp	1070 bp	*03:01:01:01-03:07:02, 03:09-03:31, 03:33, 03:35, 03:37-03:40, 03:42-03:61, 03:64-03:87, 03:90-03:106, 03:109-03:151, 03:153-03:171, 03:173-03:175, 03:177-03:193, 03:195-03:197N, 03:199, 03:201-03:259, 03:261-03:262N,	*01:194, 02:34-02:35:03, 02:56:01-02:56:02, 02:62, 02:78, 02:103, 02:580, 02:907, 11:12, 23:13, 24:07:01:01-24:07:03, 24:24, 24:108, 24:112, 24:131, 24:288, 24:290, 24:294Q, 24:339, 24:347:01-24:347:02, 24:387, 24:406, 24:453, 24:457, 24:477, 29:01:01:01-29:18, 29:21-29:29, 29:31-29:33, 29:35-29:47,

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			03:264-03:272, 03:274-03:381N, 03:383-03:386	29:49-29:65, 29:67-29:73, 29:75-29:97, 29:99- 29:105, 29:107-29:140, 29:142-29:143, 30:01:01:01-30:01:17, 30:08:01-30:08:02, 30:11:01-30:11:02, 30:14L-30:20, 30:23-30:26, 30:30, 30:35-30:43, 30:48-30:49, 30:52-30:56, 30:58-30:60, 30:62-30:63, 30:65, 30:71-30:75, 30:78N-30:79, 30:81-30:83, 30:86-30:89, 30:91- 30:98, 30:102, 30:104, 30:106, 30:109-30:116, 30:118, 30:120, 30:122-30:123N, 30:126, 30:128-30:132N, 30:134-30:138, 30:141-30:143, 30:145N, 30:147-30:148, 30:154, 30:159, 30:161, 30:163-30:165, 31:89, 31:115, 32:17, 33:125, 33:131, 34:09, 66:02, 66:12, 66:16, 66:21, 66:25-66:26Q, 66:34, 68:01:01:01- 68:01:17, 68:01:19-68:02:15, 68:06-68:14, 68:16-68:19, 68:21:01-68:30, 68:32-68:71, 68:73-68:89, 68:91-68:92, 68:94N-68:96, 68:98- 68:108, 68:110-68:179, 68:181N-68:205N, 68:207-68:211, 68:213N-68:226, 68:228-68:231, 69:01:01:01-69:01:03, 69:03-69:07, 74:13 *01:157, 11:233
30	140 bp 210 bp	1070 bp	*03:27, 03:102 *03:49, 03:139	
31^{4,6}	125 bp 200 bp	800 bp	*03:202 *03:56, 03:88, 03:99, 03:143, 03:177, 03:186, 03:262N	*11:130, 32:52, 36:02, C*06:187
	230 bp		*03:28	
32	150 bp 220 bp 270 bp	1070 bp	*03:67 *03:29 *03:91N	*02:748N, 32:112N
33	180 bp 210 bp 285 bp	1070 bp	*03:93 *03:30, 03:152, 03:273 *03:62:01:01-03:62:01:02	*01:341, 32:37, 80:01:01:01 ^w -80:06 ^w *23:64, 24:104, 32:05, 32:79 *01:144
34⁴	125 bp 160 bp	1070 bp	*03:58 *03:31	*11:273
35	235 bp 275 bp	1070 bp	*03:32 *03:55	*31:21, 74:07, 74:33
36⁴	120 bp 160 bp 210 bp	1070 bp	*03:81 *03:33 *03:70	
37⁴	95 bp 120 bp 225 bp	1070 bp	*03:48, 03:168N *03:81 *03:34	*02:525N
38	170 bp 195 bp 250 bp	800 bp	*03:35, 03:130 *03:79, 03:192N *03:73	*01:167
39	200 bp 235 bp	1070 bp	*03:36N, 03:182 *03:45	*01:109, 11:100, 11:175 *30:77
40	240 bp 280 bp 415 bp	1070 bp	*03:37 *03:220 *03:279N	
41	185 bp 280 bp	1070 bp	*03:38, 03:192N, 03:223 *03:68N, 03:297N	
42^{4,7}	110 bp 190 bp	800 bp	*03:52 *03:143	

101.413-24/04 – including *Taq* polymerase, IFU-01
101.413-24u/04u – without *Taq* polymerase, IFU-02

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Lot-specific Information

	215 bp		*03:39, 03:238, 03:269N	
	245 bp		*03:84	
43	150 bp	1070 bp	*03:20	
	260 bp		*03:47, 03:76	
44	170 bp	1070 bp	*03:51:01, 03:130, 03:286N	
	240 bp		*03:40	
45	150 bp	1070 bp	*03:43, 03:186	*30:89, 30:160
	270 bp		*03:91N	*32:112N
46⁴	115 bp	1070 bp	*03:44:01-03:44:02, 03:52	
	170 bp		*03:213	*32:131
	190 bp		*03:53	*02:575, 29:138, 30:30, 31:69, C*04:341, C*05:123, C*07:35, C*07:352, C*08:48
47⁵	240 bp	1070 bp	*03:41, 03:57, 03:107, 03:382	
			*01:01:01:01-01:01:03, 01:01:05-01:01:12, 01:01:14-01:01:28, 01:01:30-01:01:31, 01:01:33-01:01:34, 01:01:36-01:01:49, 01:01:51-01:01:96, 01:01:98-01:01:110, 01:01:112, 01:03:01:01-01:04:01:02N, 01:06, 01:08-01:12, 01:14-01:19, 01:21-01:23:02, 01:25-01:27N, 01:29-01:33, 01:35-01:42, 01:44-01:94, 01:96-01:112, 01:114-01:133, 01:135-01:142, 01:144-01:157, 01:159Q-01:175, 01:177-01:182, 01:184-01:187, 01:189, 01:191-01:193, 01:195-01:209, 01:211-01:215, 01:217-01:219, 01:221-01:228Q, 01:230-01:288, 01:290N-01:297, 01:300-01:302, 01:304-01:306, 01:308N-01:341, 01:343, 36:01-36:10, 74:10, 80:01:01:01-80:01:02, 80:03, 80:05-80:06	
48⁴	70 bp	1070 bp	*03:54	
	120 bp		*03:284N	
	145 bp		*03:46	C*07:86, C*15:198
	190 bp		*03:197N	*02:314N, 32:48N, C*07:55N
49⁴	70 bp	1070 bp	*03:283N	
	170 bp		*03:251	*11:49
	195 bp		*03:161N	
	545 bp		*03:78	*01:45, 02:453, 02:557, 02:690, 11:108, 23:92, 23:96, 24:271, 33:151, 66:17
50⁶	130 bp	1070 bp	*03:86	
	165 bp		*03:213	
	200 bp		*03:145:02, 03:262N	
51^{5,6}	215 bp	1070 bp	*03:50	*11:183, 11:191, 11:269, 25:43, 30:04:01:01-30:04:03, 30:06, 30:17, 30:29, 30:46, 30:77, 30:90, 30:103, 30:105, 30:117, 30:139, 30:150, 30:155, 68:103:01-68:103:02
	285 bp		*03:87	*01:101, 11:30, 30:92
52⁴	90 bp	1070 bp	*03:96, 03:168N	
	170 bp		*03:275N	*74:14N
	215 bp		*03:89:02, 03:152, 03:172, 03:176, 03:198, 03:273	*01:83:01-01:83:02, 01:191, 02:01:02:01-02:01:02:02, 02:07:14, 02:50, 23:64, 24:104, 32:05, 32:31, 32:79, 74:04, 74:21
53	190 bp	800 bp	*03:234Q, 03:286N	
	225 bp		*03:150, 03:153	
	260 bp		*03:104	*33:49
	400 bp		*03:242	*02:45, 02:56:01-02:56:02, 02:78, 02:103, 02:169, 02:195, 02:829, 23:09, 24:129, 24:191,

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Lot-specific Information

				25:59, 26:19, 26:72, 26:184, 34:19, 66:23, 68:66:01-68:66:02, 68:178
54	145 bp 240 bp	1070 bp	*03:195 *03:111, 03:178N	
55⁵	205 bp	800 bp	*03:02:01-03:02:04, 03:07:01-03:07:02, 03:10, 03:31-03:32, 03:42, 03:73, 03:76, 03:82, 03:90, 03:106, 03:113, 03:133, 03:160, 03:171, 03:198, 03:218, 03:223, 03:236-03:237, 03:242, 03:244, 03:253, 03:274-03:275N, 03:281, 03:285, 03:309, 03:314, 03:318-03:319, 03:332-03:333, 03:348, 03:356, 03:373, 03:385	*01:12, 01:19, 01:21, 01:126, 01:200, 01:244, 02:156, 02:338, 11:31, 11:35, 11:60, 11:158, 11:183, 11:209, 24:51, 24:92, 24:458, 30:04:01:01 ^w -30:04:03 ^w , 30:06, 30:09, 30:17, 30:29, 30:46, 30:77, 30:90, 30:99, 30:103, 30:105, 30:117, 30:139, 30:150, 30:155, 31:03-31:04:01:02, 33:49, 33:144, 68:103:01-68:103:02, 74:23
56	180 bp 215 bp	1070 bp	*03:182, 03:275N *03:113, 03:157:02	*01:109, 11:100, 11:175, 74:14N
57⁷	180 bp 280 bp 400 bp	1070 bp	*03:134 *03:118, 03:220 *03:112	
58⁵	215 bp	1070 bp	*03:127, 03:150, 03:153, 03:266N	*01:06, 11:24:02
59⁴	105 bp 145 bp 240 bp	1070 bp	*03:144 *03:195 *03:128, 03:178N	
60	310 bp 400 bp	1070 bp	*03:218 *03:112, 03:129N, 03:279N	*01:246, 11:86
61	225 bp	1070 bp	*03:18, 03:97, 03:122, 03:135, 03:167	*01:221, 02:19, 02:36-02:37, 02:54, 02:255, 02:417, 02:723, 02:804, 02:848, 02:883, 23:01:01:01-23:03:02, 23:05-23:15, 23:17:01:01-23:30, 23:32-23:41, 23:44, 23:46-23:54, 23:56-23:68, 23:70-23:74, 23:76-23:78, 23:80-23:82, 23:84N-23:107Q, 24:02:01:01-24:02:04, 24:02:06-24:02:28, 24:02:30-24:02:69, 24:02:71-24:02:129, 24:02:131-24:02:135, 24:04-24:09N, 24:11N, 24:13:01-24:14:01:04, 24:17, 24:19-24:21:03, 24:24-24:32, 24:34-24:40N, 24:42-24:50, 24:52-24:64, 24:66-24:74:02, 24:76-24:91, 24:93, 24:95-24:117, 24:119-24:124, 24:126-24:131, 24:133-24:137, 24:139-24:166, 24:168-24:203, 24:205-24:206, 24:208:01-24:209, 24:212-24:218, 24:220-24:234, 24:236-24:260, 24:262-24:288, 24:290-24:291, 24:293-24:296, 24:298, 24:301-24:304, 24:306-24:314, 24:317-24:328, 24:330-24:338, 24:341-24:373, 24:375-24:386, 24:388N-24:389N, 24:391-24:392, 24:394-24:403, 24:405-24:440, 24:442-24:444, 24:446-24:458, 24:460, 24:462-24:470, 24:472-24:482, 29:03, 30:75, 31:05, 33:10, 33:19, 68:26, 68:65, 68:115, 68:131, 80:01:01:01-80:06
62	190 bp 245 bp 375 bp	1070 bp	*03:132, 03:197N *03:204, 03:288 *03:162N	*02:314N, 32:48N, C*07:55N *33:179, C*05:214
63^{4,7}	90 bp 135 bp	800 bp	*03:283N *03:284N	*02:113:02N

101.413-24/04 – including *Taq* polymerase, IFU-01
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Lot No.: **3L4**

Lot-specific Information

175 bp	*03:123:01-03:123:02, 03:171	*02:156, 02:338, 11:16, 11:35, 11:57, 11:73, 11:158, 68:103:01-68:103:02
205 bp	*03:42, 03:133, 03:139	*01:244, 30:09, 31:03-31:04:01:02, 33:49, 33:144, 74:23
525 bp		*02:113:02N
555 bp		B*56:28N^w
64⁹	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-A*03 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.

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

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

⁵Primer mix 2, 3, 17, 18, 47, 51, 55 and 58 may give rise to a lower yield of HLA-specific PCR product than the other A*03 primer mixes.

⁶Primer mixes 17, 19, 31, 50 and 51 may have tendencies of unspecific amplifications.

⁷Primer mixes 23, 28, 42, 57 and 63 have a tendency to giving rise to primer oligomer formation.

⁸Primer mix 9 may give rise to a long unspecific amplification product of approximately 750 bp. This should be disregarded when interpreting the A*03 typings.

⁹Primer mix 64 contains a negative control, which will amplify the majority 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 200 base pairs.

Abbreviations

w: may be weakly amplified.

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Lot-specific Information
PRIMER SPECIFICATION

Well No.	1	2	3	4	5	6	7	8	9	10	11	12
Length of spec. PCR product	235	225	205	215	185	190	225	240	230	65	225	190
						275				205		
Length of int. pos. control ¹	800	1070	1070	800	800	1070	1070	1070	1070	800	800	1070
5'-primer(s) ²	363	98	363	363	382	363	363	102	98	363	98	144
	5'-ATA 3'	5'-CTT 3'	5'-ATA 3'	5'-ATA 3'	5'-Tgg 3'	5'-ATA 3'	5'-ATA 3'	5'-ACA 3'	5'-CTC 3'	5'-ATA 3'	5'-CTT 3'	5'-gCC 3'
	363		363		385			102	363			
	5'-ATA 3'		5'-ATA 3'		5'-ggT 3'			5'-ACA 3'	5'-ATA 3'			
			363									
			5'-ATA 3'									
3'-primer(s) ³	555	282	527	539	527	513	538	299	282	388	282	292
	5'-CCA 3'	5'-gAC 3'	5'-CCT 3'	5'-TCT 3'	5'-CCT 3'	5'-TCC 3'	5'-CTA 3'	5'-CCA 3'	5'-gAC 3'	5'-gAT 3'	5'-gAg 3'	5'-gTg 3'
	555	282	527			595	557	299	555	527	282	
	5'-CCA 3'	5'-gAC 3'	5'-CCT 3'			5'-CCg 3'	5'-Tgg 3'	5'-CCA 3'	5'-CCC 3'	5'-CCA 3'	5'-gAg 3'	
	557					595				527	282	
	5'-Tgg 3'					5'-CCT 3'				5'-CCA 3'	5'-gAg 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	55	105	225	275	215	135	125	60	140	90	95	470
	145	235				215	205	185	195	250	185	
							240	405	290		210	240
Length of int. pos. control ¹	800	1070	1070	1070	800	1070	1070	1070	1070	1070	1070	1070
5'-primer(s) ²	257	28	88	98	363	363	350	257	363	363	355	3 rd I
	5'-CCA 3'	5'-TCC 3'	5'-Tgg 3'	5'-CTT 3'	5'-ATA 3'	5'-ATA 3'	5'-TCg 3'	5'-CCA 3'	5'-ATA 3'	5'-ATA 3'	5'-CCC 3'	5'-ATA 3'
	4 th I	363	98		363		368	363			385	
	5'-ggA 3'	5'-ATA 3'	5'-CTA 3'		5'-ATA 3'		5'-gTT 3'	5'-ATA 3'			5'-ggC 3'	
							391				413	
							5'-ACA 3'				5'-CCA 3'	
							470				502	
							5'-TTC 3'				5'-CCC 3'	
3'-primer(s) ³	270	92	282	333	539	455	555	270	453	412	555	621
	5'-ACT 3'	5'-AAC 3'	5'-gAC 3'	5'-CTg 3'	5'-TCA 3'	5'-CCA 3'	5'-CCA 3'	5'-ACT 3'	5'-TCT 3'	5'-CCC 3'	5'-CCA 3'	5'-ggg 3'
	899	426				528		382	453	570		
	5'-ACA 3'	5'-TCT 3'				5'-gCg 3'		5'-CCT 3'	5'-TCC 3'	5'-CCg 3'		
						539		496	479			
						5'-TCC 3'		5'-gAA 3'	5'-CCC 3'			
						539		518	518			
						5'-CA 3'		5'-CCA 3'	5'-CCT 3'			
						540			610			
						5'-C 3'			5'-CTA 3'			
Well No.	13	14	15	16	17	18	19	20	21	22	23	24

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101.413-24u/04u – without *Taq* polymerase, IFU-02

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Lot No.: **3L4**

Lot-specific Information

Well No.	25	26	27	28	29	30	31	32	33	34	35	36
Length of spec.	155	190	95	170	100	140	125	150	180	125	235	120
PCR product			145	220		210	200	220	210	160	275	160
			170	495			230	270	285			210
			240									
Length of int. pos. control ¹	1070	1070	1070	1070	1070	1070	800	1070	1070	1070	1070	1070
5'-primer(s) ²	144	98	83	341	282	363	365	98	98	98	98	98
	5'-gCC ^{3'}	5'-CTT ^{3'}	5'-CTg ^{3'}	5'-ggA ^{3'}	5'-CAg ^{3'}	5'-ATA ^{3'}	5'-AAC ^{3'}	5'-CTT ^{3'}	5'-CTT ^{3'}	5'-CTT ^{3'}	5'-CTT ^{3'}	5'-CTT ^{3'}
			88	375	282		385			418		
			5'-Tgg ^{3'}	5'-TgA ^{3'}	5'-CAg ^{3'}		5'-ggC ^{3'}			5'-AgT ^{3'}		
			151	874			394					
			5'-gCC ^{3'}	5'-CCg ^{3'}			5'-..C ^{3'}					
			179				406					
			5'-gTg ^{3'}				5'-gCC ^{3'}					
			228				470					
			5'-ATg ^{3'}				5'-TTC ^{3'}					
3'-primer(s) ³	256	239	282	555	341	454	555	206	239	181	290	175
	5'-CCC ^{3'}	5'-gCT ^{3'}	5'-gAC ^{3'}	5'-CCA ^{3'}	5'-Cgg ^{3'}	5'-CTg ^{3'}	5'-CCA ^{3'}	5'-CCg ^{3'}	5'-gCT ^{3'}	5'-gTT ^{3'}	5'-CAA ^{3'}	5'-CCC ^{3'}
		259		899		479		278	265	539	330	217
		5'-gTT ^{3'}		5'-ACA ^{3'}		5'-CCC ^{3'}		5'-ggA ^{3'}	5'-CCC ^{3'}	5'-TCT ^{3'}	5'-TgT ^{3'}	5'-CgA ^{3'}
						526		327	343			265
						5'-CTT ^{3'}		5'-TTT ^{3'}	5'-T ^{3'}			5'-CCA ^{3'}
						533						
						5'-gCC ^{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.	95	170	200	240	185	110	150	170	150	115	240	70
PCR product	120	195	235	280	280	190	260	240	270	170		120
		225	250		415		215			190		145
							245					190
Length of int. pos. control ¹	1070	800	1070	1070	1070	800	1070	1070	1070	1070	1070	1070
5'-primer(s) ²	98	363	98	629	98	350	98	363	98	410	98	205
	5'-CTT ^{3'}	5'-ATA ^{3'}	5'-CTT ^{3'}	5'-..AA ^{3'}	5'-CTT ^{3'}	5'-TCg ^{3'}	5'-CTT ^{3'}	5'-ATA ^{3'}	5'-CTT ^{3'}	5'-gTg ^{3'}	5'-CTT ^{3'}	5'-g.A ^{3'}
			650	764	363	375	890		418	429		411
			5'-CCC ^{3'}	5'-CgC ^{3'}	5'-ATA ^{3'}	5'-TgA ^{3'}	5'-gAA ^{3'}		5'-AgC ^{3'}	5'-gAA ^{3'}		5'-TAg ^{3'}
				801		376				484		457
				5'-AAC ^{3'}		5'-gCT ^{3'}				5'-ACC ^{3'}		5'-AgC ^{3'}
						385				484		530
						5'-ggT ^{3'}				5'-ACT ^{3'}		5'-ggT ^{3'}
						406				488		
						5'-gCC ^{3'}				5'-ggT ^{3'}		
						488						
						5'-ggT ^{3'}						
3'-primer(s) ³	152	487	259	899	331	555	316	486	327	559	299	282
	5'-Cgg ^{3'}	5'-Cgg ^{3'}	5'-CTC ^{3'}	5'-ACA ^{3'}	5'-CTA ^{3'}	5'-CCA ^{3'}	5'-gCT ^{3'}	5'-gCg ^{3'}	5'-TTT ^{3'}	5'-CgT ^{3'}	5'-TCg ^{3'}	5'-gAC ^{3'}
	153	490	806		506		899	490	527			559
	5'-ACT ^{3'}	5'-AgT ^{3'}	5'-CCA ^{3'}		5'-Tgg ^{3'}		5'-ACA ^{3'}	5'-AgT ^{3'}	5'-CCT ^{3'}			5'-CgT ^{3'}
	175	513	845		513			508				
	5'-CCC ^{3'}	5'-TCT ^{3'}	5'-AgT ^{3'}		5'-TCT ^{3'}			5'-CTA ^{3'}				
	281	518			610			561				
	5'-ACg ^{3'}	5'-CCA ^{3'}			5'-CTA ^{3'}			5'-CAg ^{3'}				
		574										
		5'-gAA ^{3'}										
Well No.	37	38	39	40	41	42	43	44	45	46	47	48

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Lot No.: **3L4**

Lot-specific Information

Well No.	49	50	51	52	53	54	55	56	57	58	59	60
Length of spec.	70	130	215	90	190	145	205	180	180	215	105	310
PCR product	170	165	285	170	225	240		215	280		145	400
	195	200		215	260				400		240	
	545				400							
Length of int.	1070	1070	1070	1070	800	1070	800	1070	1070	1070	1070	1070
pos. control ¹												
5'-primer(s) ²	127	391	363	98	28	98	363	98	643	363	98	629
	5'-ggT ^{3'}	5'-ACA ^{3'}	5'-ATA ^{3'}	5'-CTT ^{3'}	5'-TCg ^{3'}	5'-CTT ^{3'}	5'-ATA ^{3'}	5'-CTT ^{3'}	5'-CCg ^{3'}	5'-ATA ^{3'}	5'-CTT ^{3'}	5'-AA ^{3'}
	151	394			363			650	764			643
	5'-gCC ^{3'}	5'-..C ^{3'}			5'-ATA ^{3'}			5'-CCC ^{3'}	5'-CgC ^{3'}			5'-CCg ^{3'}
	252	429							766			652
	5'-TgA ^{3'}	5'-gAA ^{3'}							5'-TgA ^{3'}			5'-CA ^{3'}
	3 rd I	466							864			733
	5'-ATA ^{3'}	5'-gCC ^{3'}							5'-gAT ^{3'}			5'-ATA ^{3'}
3'-primer(s) ³	282	555	538	143	256	204	527	225	899	527	160	899
	5'-gAC ^{3'}	5'-CCA ^{3'}	5'-CCA ^{3'}	5'-CgT ^{3'}	5'-CTg ^{3'}	5'-ATA ^{3'}	5'-CCA ^{3'}	5'-ATT ^{3'}	5'-ACA ^{3'}	5'-CCg ^{3'}	5'-gTg ^{3'}	5'-ACA ^{3'}
	704		605	153	508	295	527	270		539	204	
	5'-CCA ^{3'}		5'-gCA ^{3'}	5'-ACT ^{3'}	5'-CTA ^{3'}	5'-TCA ^{3'}	5'-CCA ^{3'}	5'-ACC ^{3'}		5'-CA ^{3'}	5'-ATA ^{3'}	
				225	513	296		806		540	295	
				5'-ATT ^{3'}	5'-TCC ^{3'}	5'-CTA ^{3'}		5'-CCA ^{3'}		5'-..C ^{3'}	5'-TCA ^{3'}	
				270	545					545	298	
				5'-ACT ^{3'}	5'-AgA ^{3'}					5'-AgA ^{3'}	5'-CAg ^{3'}	
					583							
					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.	225	190	90
PCR product		245	135
		375	175
			205
			525
			555
Length of int.	1070	1070	800
pos. control ¹			
5'-primer(s) ²	385	359	205
	5'-ggT ^{3'}	5'-gCA ^{3'}	5'-g.A ^{3'}
		411	252
		5'-TAg ^{3'}	5'-TgA ^{3'}
		665	363
		5'-TgA ^{3'}	5'-ATA ^{3'}
		853	
		5'-ATA ^{3'}	
3'-primer(s) ³	570	559	299
	5'-CCg ^{3'}	5'-CgT ^{3'}	5'-CCA ^{3'}
		899	497
		5'-ACA ^{3'}	5'-Tgg ^{3'}
			524
			5'-CAC ^{3'}
			526
			5'-CTT ^{3'}
Well No.	61	62	63

101.413-24/04 – including *Taq* polymerase, IFU-01 Visit <https://labproducts.caredx.com> for
101.413-24u/04u – without *Taq* polymerase, IFU-02 “Instructions for Use” (IFU)

Lot No.: 3L4

Lot-specific Information

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.

101.413-24/04 – including *Taq* polymerase, IFU-01
101.413-24u/04u – without *Taq* polymerase, IFU-02

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

Lot No.: **3L4**

Lot-specific Information

CELL LINE VALIDATION SHEET																			
HLA-A*03 SSP subtyping kit ²																			
			Prod. No.:	Well															
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	IHWC cell line ¹	A*		201549601	201549602	201898303	201549604	202021605	201665006	201549607	201549608	201549609	201549610	201549611	201549612	201784613	201549614	201784615	201549616
1	9001 SA	*24:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	9280 LK707	*02:01		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
3	9011 E4181324	*01:01		-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
4	9275 GU373	*30:01		-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-
5	9009 KAS011	*01:01		-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
6	9353 SM	*02:01	*26:03	-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-
7	9020 QBL	*26:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	9025 DEU	*31:01		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
9	9026 YAR	*26:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	9107 LKT3	*24:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	9051 PITOUT	*29:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	9052 DBB	*02:01		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
13	9004 JESTHOM	*02:01		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
14	9071 OLGA	*31:01		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
15	9075 DKB	*24:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	9037 SWEIG007	*29:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	9282 CTM3953540	*03:01	*80:01	+	+	+	-	-	-	-	+	-	-	W	-	-	-	-	-
18	9257 32367	*33:03	*74:01	-	-	-	-	-	-	-	+	-	-	+	-	-	-	-	-
19	9038 BM16	*02:01		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
20	9059 SLE005	*02:01		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
21	9064 AMALA	*02:17		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
22	9056 KOSE	*02:01		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
23	9124 IHL	*02:01	*34:01	-	-	-	-	-	-	-	+	-	-	-	-	-	-	+	-
24	9035 JBUSH	*32:01		-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
25	9049 IBW9	*33:01		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
26	9285 WT49	*02:05		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	9191 CH1007	*24:10	*29:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	9320 BEL5GB	*02:01	*29:02	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
29	9050 MOU	*29:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	9021 RSH	*30:01	*68:02	-	-	-	-	-	-	-	+	+	-	-	-	-	-	+	-
31	9019 DUCAF	*30:02		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
32	9297 HAG	*02:01		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
33	9098 MT14B	*31:01		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
34	9104 DHIF	*31:01		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
35	9302 SSTO	*32:01		-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
36	9024 KT17	*02:06	*11:01	-	-	-	+	-	-	-	-	-	-	-	-	-	-	+	-
37	9065 HHKB	*03:01		+	+	+	-	-	-	-	+	-	-	-	-	-	-	-	-
38	9099 LZL	*02:17		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
39	9315 CML	*01:01	*03:01	+	+	+	-	-	-	-	+	-	-	+	-	-	-	-	-
40	9134 WHONP199	*02:07	*30:01	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-
41	9055 H0301	*03:01		+	+	+	-	-	-	-	+	-	-	-	-	-	-	-	-
42	9066 TAB089	*02:07		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
43	9076 T7526	*02:06	*02:07	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
44	9057 TEM	*66:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
45	9239 SHJO	*23:01	*24:02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
46	9013 SCHU	*03:01		+	+	+	-	-	-	-	+	-	-	-	-	-	-	-	-
47	9045 TUBO	*02:16	*03:01	+	+	+	-	-	-	-	+	-	-	-	-	-	-	-	-
48	9303 TER-ND	*02:01	*11:01	-	-	-	+	-	-	-	+	-	-	-	-	-	-	+	-

101.413-24/04 – including *Taq* polymerase, IFU-01
101.413-24u/04u – without *Taq* polymerase, IFU-02

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

Lot No.: **3L4**

Lot-specific Information

CELL LINE VALIDATION SHEET																				
HLA-A*03 SSP subtyping kit ²																				
			Prod. No.:	Well																
				17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
	IHWC cell line ¹	A*		201784617	201784618	201784619	201784620	201898321	201549622	202021623	201898324	201549625	201549626	201784627	201784628	201549629	201549630	201784631	201549632	
1	9001 SA	*24:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	9280 LK707	*02:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	9011 E4181324	*01:01		-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
4	9275 GU373	*30:01		+	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
5	9009 KAS011	*01:01		-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
6	9353 SM	*02:01	*26:03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	9020 QBL	*26:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	9025 DEU	*31:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	9026 YAR	*26:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	9107 LKT3	*24:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	9051 PITOUT	*29:02		-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-
12	9052 DBB	*02:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	9004 JESTHOM	*02:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	9071 OLGA	*31:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	9075 DKB	*24:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	9037 SWEIG007	*29:02		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
17	9282 CTM3953540	*03:01	*80:01	+	-	-	-	-	+	-	-	-	-	-	-	-	+	-	-	-
18	9257 32367	*33:03	*74:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	9038 BM16	*02:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	9059 SLE005	*02:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	9064 AMALA	*02:17		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	9056 KOSE	*02:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	9124 IHL	*02:01	*34:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	9035 JBUSH	*32:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	9049 IBW9	*33:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	9285 WT49	*02:05		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	9191 CH1007	*24:10	*29:01	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
28	9320 BEL5GB	*02:01	*29:02	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
29	9050 MOU	*29:02		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
30	9021 RSH	*30:01	*68:02	+	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
31	9019 DUCAF	*30:02		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	9297 HAG	*02:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	9098 MT14B	*31:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34	9104 DHIF	*31:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35	9302 SSTO	*32:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
36	9024 KT17	*02:06	*11:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
37	9065 HHKB	*03:01		+	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
38	9099 LZL	*02:17		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39	9315 CML	*01:01	*03:01	+	-	-	-	-	+	-	-	-	-	-	-	-	+	-	-	-
40	9134 WHONP199	*02:07	*30:01	+	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
41	9055 H0301	*03:01		+	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
42	9066 TAB089	*02:07		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43	9076 T7526	*02:06	*02:07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44	9057 TEM	*66:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45	9239 SHJO	*23:01	*24:02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
46	9013 SCHU	*03:01		+	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
47	9045 TUBO	*02:16	*03:01	+	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
48	9303 TER-ND	*02:01	*11:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

101.413-24/04 – including *Taq* polymerase, IFU-01
101.413-24u/04u – without *Taq* polymerase, IFU-02

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

Lot No.: **3L4**

Lot-specific Information

CELL LINE VALIDATION SHEET																				
HLA-A*03 SSP subtyping kit ²																				
			Prod. No.:	Well																
				33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	
	IHWC cell line ¹	A*		201549633	201549634	201549635	201549636	201549637	201549638	201549639	201898340	201898341	201898342	201549643	201898344	201549645	201898346	201549647	201898348	
1	9001 SA	*24:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	9280 LK707	*02:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	9011 E4181324	*01:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
4	9275 GU373	*30:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	9009 KAS011	*01:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
6	9353 SM	*02:01	*26:03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	9020 QBL	*26:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	9025 DEU	*31:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	9026 YAR	*26:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	9107 LKT3	*24:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	9051 PITOUT	*29:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	9052 DBB	*02:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	9004 JESTHOM	*02:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	9071 OLGA	*31:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	9075 DKB	*24:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	9037 SWEIG007	*29:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	9282 CTM3953540	*03:01	*80:01	w	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
18	9257 32367	*33:03	*74:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	9038 BM16	*02:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	9059 SLE005	*02:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	9064 AMALA	*02:17		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	9056 KOSE	*02:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	9124 IHL	*02:01	*34:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	9035 JBUSH	*32:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	9049 IBW9	*33:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	9285 WT49	*02:05		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	9191 CH1007	*24:10	*29:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	9320 BEL5GB	*02:01	*29:02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	9050 MOU	*29:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	9021 RSH	*30:01	*68:02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31	9019 DUCAF	*30:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	9297 HAG	*02:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	9098 MT14B	*31:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34	9104 DHIF	*31:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35	9302 SSTO	*32:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
36	9024 KT17	*02:06	*11:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
37	9065 HHKB	*03:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38	9099 LZL	*02:17		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39	9315 CML	*01:01	*03:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
40	9134 WHONP199	*02:07	*30:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41	9055 H0301	*03:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
42	9066 TAB089	*02:07		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43	9076 T7526	*02:06	*02:07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44	9057 TEM	*66:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45	9239 SHJO	*23:01	*24:02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
46	9013 SCHU	*03:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
47	9045 TUBO	*02:16	*03:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
48	9303 TER-ND	*02:01	*11:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

101.413-24/04 – including *Taq* polymerase, IFU-01
101.413-24u/04u – without *Taq* polymerase, IFU-02

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

Lot No.: **3L4**

Lot-specific Information

CELL LINE VALIDATION SHEET			HLA-A*03 SSP subtyping kit ²														
			Well														
			49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
			Prod. No.:														
			201898349	201784650	201549651	202021652	201898353	201784654	201784655	201784656	201784657	201784658	201784659	201898360	201549661	201898362	201898363
	IHWC cell line ¹	A*															
1	9001 SA	*24:02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	9280 LK707	*02:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	9011 E4181324	*01:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	9275 GU373	*30:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	9009 KAS011	*01:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	9353 SM	*02:01	*26:03	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	9020 QBL	*26:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	9025 DEU	*31:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	9026 YAR	*26:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	9107 LKT3	*24:02	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
11	9051 PITOUT	*29:02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	9052 DBB	*02:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	9004 JESTHOM	*02:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	9071 OLGA	*31:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	9075 DKB	*24:02	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
16	9037 SWEIG007	*29:02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	9282 CTM3953540	*03:01	*80:01	-	-	-	-	-	-	-	-	-	-	-	-	+	-
18	9257 32367	*33:03	*74:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	9038 BM16	*02:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	9059 SLE005	*02:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	9064 AMALA	*02:17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	9056 KOSE	*02:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	9124 IHL	*02:01	*34:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	9035 JBUSH	*32:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	9049 IBW9	*33:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	9285 WT49	*02:05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	9191 CH1007	*24:10	*29:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	9320 BEL5GB	*02:01	*29:02	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	9050 MOU	*29:02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	9021 RSH	*30:01	*68:02	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31	9019 DUCAF	*30:02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	9297 HAG	*02:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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34	9104 DHIF	*31:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35	9302 SSTO	*32:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
36	9024 KT17	*02:06	*11:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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45	9239 SHJO	*23:01	*24:02	-	-	-	-	-	-	-	-	-	-	-	-	+	-
46	9013 SCHU	*03:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
47	9045 TUBO	*02:16	*03:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-
48	9303 TER-ND	*02:01	*11:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-

101.413-24/04 – including Taq polymerase, IFU-01 Visit <https://labproducts.caredx.com> for
101.413-24u/04u – without Taq polymerase, IFU-02 “Instructions for Use” (IFU)

Lot No.: 3L4

Lot-specific Information

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

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

No DNAs carrying the alleles to be amplified by primer solutions 5 to 7, 13, 16, 19 to 21, 23, 25 to 28, 30 to 32, 34 to 46, 48 to 50, 52 to 54, 56 to 60, 62 and 63 were available. The specificities of the primers in primer solutions 13, 20, 21, 23, 25, 26, 28, 31, 32, 34, 35, 39, 43 to 45, 49, 52, 53, 56 and 63 were tested by separately adding additional 5'-primers, or additional 3'-primers respectively. In primer solutions 6, 7, 16, 30, 36 to 38, 41, 54, 58 and 59 it was only possible to test the 5'-primers, the 3'-primers were not possible to be tested. In primer solutions 5, 19, 27, 40, 42, 46, 48, 50, 57, 60 and 62 it was only possible to test the 3'-primers, the 5'-primers were not possible to be tested. In primer mixes 1, 3, 13, 15, 17, 28, 31, 34, 43, 49 and 63 one or more of the 5'-primers were not possible to be tested, and in primer mixes 1, 10, 14, 18, 20 to 22, 26, 32, 34, 35, 39, 43 to 45, 49, 51 to 53, 56 and 63 one to three 3'-primers were not possible to be test. In addition, one or more primers in primer mixes 3, 14 and 33 were tested by separately adding one 3'-primer or one or two 5'-primers.

101.413-24/04 – including *Taq* polymerase, IFU-01
 101.413-24u/04u – without *Taq* polymerase, IFU-02

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

Lot No.: **3L4**

Lot-specific Information

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