

101.416-12/04 – including *Taq* pol., IFU-01
101.416-12u/04u – without *Taq* polymerase, IFU-02

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

Lot No.: **4E7**

Lot-specific information
Olerup SSP[®] HLA-A*11

Product number:	101.416-12/04 – including <i>Taq</i> pol. 101.416-12u/04u – without <i>Taq</i> pol.
Lot number:	4E7
Expiry date:	2019-07-01
Number of tests:	12 tests – Product No. 101.416-12/12u 4 tests – Product No. 101.416-04/04u
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. 4E7.

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*11 LOT (62Y)**

The HLA-A*11 kit is updated for new alleles to enable separation of:

- Confirmed¹ alleles as listed in the IMGT/HLA database
- Polymorphisms in exons outside of the region encoding the peptide binding domain
- Null and Alternatively expressed alleles

¹As described in section Uniquely Identified Alleles.

The HLA-A*11 specificity and interpretation tables have been updated for the HLA-A alleles described since the previous *Olerup SSP[®]* HLA-A*11 lot was made (**Lot No. 62Y**). The kit design is based on IMGT/HLA database 3.25.0.

As of lot series V, the Specificity Table is included in the lot-specific Product Insert, and the Interpretation Table is included in the Worksheet.

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

Well	5'-primer	3'-primer	rationale
5	-	Removed	3'-primer removed for allelic resolution of the A*11:77 and A*11:126 alleles.
11	Added	-	5'-primer added for the A*11:01:72 allele.
12	Added	-	5'-primer added for the A*11:01:72 allele.
14	Added	-	5'-primer added for the A*11:01:68 allele.
25	Added	-	5'-primer added for the A*11:219 allele.
28	-	Modified, added	3'-primer modified and added from well 46 for the A*11:80 allele.
30	-	Modified, added	3'-primer modified and added from well 46 for the A*11:80 allele.
32	-	Added	3'-primer added for the A*11:32:02 allele.
35	Added	Added	Primer pair added for the A*11:190 allele.
36	Modified, added	-	5'-primer modified and added from wells 46 and 57 for the A*11:193 allele.
37	Added	Added	Primer pair added from well 51 for the A*11:51 allele.
39	Added	-	5'-primer added for the A*11:235Q allele.
40	Added	-	5'-primer added for increased yield of the A*11:199:02 allele.
43	Added	Added	Primer pair added from well 51 for the A*11:51 allele.
45	Added	-	5-primer added for the A*11:219 allele.
46	Moved, modified	Moved, added	5'-primer moved to well 36, 3'-primers moved to wells 28 and 30, 5'-primer modified for improved HLA-specific amplification, 3'-primer added for the A*11:173 allele.
50	Moved	Moved	Primer pairs moved to wells 52 and 61 for improved HLA-specific amplification.
51	Moved, added	Moved, added	Primer pairs moved to wells 37 and 43, primer pair added for the A*11:77 and A*11:126 alleles.
52	Added	-	5'-primer added from well 50 for the A*11:34 allele.
54	Added	-	5'-primer added for the A*11:238N allele.
56	Added	-	5'-primer added for the A*11:238N allele.
57	Moved	Moved	Primer pair moved to well 36 for improved HLA-specific amplification.
61	Added	-	5'-primer added from well 50 for the A*11:34 allele.

Change in revision R01 compared to R00:

1. Primer mixes 53 and 55 do not amplify the A*11:172 and the A*01:37 alleles. This has been corrected in the Specificity and Interpretation Tables.

Change in revision R02 compared to R01:

1. Primer mix 12 amplifies the A*01:15N allele. This has been corrected in the Specificity and Interpretation Tables.

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Lot-specific information

Well **64** contains Negative Control primer pairs, that will amplify more than 95% of the *Olerup SSP*[®] HLA Class I, DRB, DQB1, DPB1 and DQA1 amplicons as well as all the amplicons generated by the control primer pairs matching the human growth hormone gene.

HLA-specific PCR product sizes range from 75 to 200 base pairs.
The PCR product generated by the positive control primer pair is 430 base pairs.

Length of PCR product	105	200	105	80	75	80	85
5'-primer¹	164	340	440	45	45	43	36
	5'-CAC ^{3'}	5'-Agg ^{3'}	5'-TTA ^{3'}	5'-Tgg ^{3'}	5'-Tgg ^{3'}	5'-Tgg ^{3'}	5'-TAC ^{3'}
							36
							5'-TAT ^{3'}
3'-primer²	231	2nd I	507	59	58	57	47
	5'-TgC ^{3'}	5'-AAA ^{3'}	5'-TTg ^{3'}	5'-CTC ^{3'}	5'-ggC ^{3'}	5'-CTC ^{3'}	5'-ACA ^{3'}
							48
							5'-gCA ^{3'}
							48
							5'-gCC ^{3'}
							52
							5'-TgT ^{3'}
A*	+	+	+				
B*	+	+	+				
C*	+	+	+				
DRB1				+	+		
DRB3				+	+		
DRB5				+			
DQB1					+		
DPB1						+	
DQA1							+

¹The nucleotide position for HLA class I genes and the codon for HLA class II genes, in the 2nd or 3rd exon, matching the specificity-determining 3'-end of the primer is given. Nucleotide and codon numbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

²The nucleotide position for HLA class I genes and the codon for HLA class II genes, in the 2nd or 3rd exon or the 2nd intron, matching the specificity-determining 3'-end of the primer is given in the anti-sense direction. Nucleotide and codon numbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

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Lot-specific information

PRODUCT DESCRIPTION

HLA-A*11 SSP subtyping

CONTENT

The primer set contains 5'- and 3'-primers for identifying the HLA-A*11:01 to A*11:245 alleles.

PLATE LAYOUT

Each test consists of 64 PCR reactions in a 64 well cut PCR plate.

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56
57	58	59	60	61	62	63	NC

The 64 well cut PCR plate is marked with 'HLA-A*11' in silver/gray ink.

Well No. 1 is marked with Lot No '4E7'.

Wells 1 to 63 – HLA-A*11 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*11 alleles will be amplified by primer mixes 1, 3 to 32, 34 to 43, 45, 47 to 56, 58 and 60 to 62. In addition, a few HLA-B and HLA-C alleles will be amplified by primer mixes 1, 10, 19, 20, 22, 26, 30, 31, 33, 35, 36, 38, 39, 43, 54, 56, 58 and 61.

For further details see Specificity Table.

UNIQUELY IDENTIFIED ALLELES

All the HLA-A*11 alleles, i.e. **A*11:01 to A*11:245**, recognized by the HLA Nomenclature Committee in July 2016^{1,2} will be amplified by the primers in the HLA-A*11 SSP kit³.

The HLA-A*11 kit enables separation of the confirmed HLA-A*11 alleles as listed in the IMGT/HLA database. An HLA allele is listed as confirmed by IMGT/HLA if it has been sequenced by more than a single laboratory or from multiple sources. Current allele confirmation status for HLA-A*11 alleles is listed below.

The HLA-A*11 kit also enables identification of polymorphisms in exons outside of the region encoding the peptide binding domain and of null and alternatively expressed alleles.

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Lot-specific information

The following HLA-A*11 alleles can be distinguished by the different sizes of the HLA-specific PCR product:

Alleles	Primer mix	Alleles	Primer mix
A*11:09, 11:196	8	A*11:79, 11:129	45
A*11:13, 11:117	16	A*11:81, 11:108	52
A*11:58, 11:67	34	A*11:86, 11:142	50
A*11:59, 11:60	41	A*11:115N, 11:180N	58
A*11:62, 11:68	35	A*11:120, 11:171	63
A*11:63, 11:69N	42	A*11:124, 11:174	59
A*11:64, 11:65, 11:193	36	A*11:127N, 11:137N	60
A*11:66, 11:72	37		

The HLA-A*11 subtyping kit cannot distinguish the silent mutations in the A*11:01:01:01-11:01:03, 11:01:05-11:01:20, 11:01:22-11:01:43, 11:01:45-11:01:56, 11:01:58-11:01:61 and 11:01:63-11:01:72 alleles, the A*11:01:04, 11:01:21, 11:01:44 and 11:01:62 alleles, the A*11:02:01-11:02:06 alleles, the A*11:32:01-11:32:02, the A*11:33:01-11:33:02 alleles, the A*11:70:01-11:70:02, the A*11:153:01-11:153:02 or the A*11:199:01-11:199:02 alleles.

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

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

³The HLA-A*11 primer set cannot separate the A*11:139, 11:143, 11:242 from the A*66:23 alleles. These alleles can be distinguished by the HLA-A low resolution kit and/or the HLA-A*66 high resolution kit.

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ALLELE CONFIRMATION STATUS

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

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Allele	Status ¹	Allele	Status ¹	Allele	Status ¹	Allele	Status ¹
A*11:119:01	Unconfirmed	A*11:157	Unconfirmed	A*11:197	Unconfirmed	A*11:236	Unconfirmed
A*11:119:02	Unconfirmed	A*11:158	Unconfirmed	A*11:198	Unconfirmed	A*11:237	Unconfirmed
A*11:120	Unconfirmed	A*11:159	Unconfirmed	A*11:199:01	Confirmed	A*11:238N	Unconfirmed
A*11:121	Unconfirmed	A*11:160	Unconfirmed	A*11:199:02	Unconfirmed	A*11:239	Unconfirmed
A*11:122	Unconfirmed	A*11:161	Unconfirmed	A*11:200	Unconfirmed	A*11:240	Unconfirmed
A*11:123	Unconfirmed	A*11:162	Unconfirmed	A*11:201	Unconfirmed	A*11:241	Unconfirmed
A*11:124	Unconfirmed	A*11:163	Confirmed	A*11:202	Unconfirmed	A*11:242	Unconfirmed
A*11:125	Unconfirmed	A*11:164	Unconfirmed	A*11:203	Unconfirmed	A*11:243	Unconfirmed
A*11:126	Confirmed	A*11:165	Unconfirmed	A*11:204	Unconfirmed	A*11:244	Unconfirmed
A*11:127N	Unconfirmed	A*11:166	Confirmed	A*11:205	Unconfirmed	A*11:245	Unconfirmed
A*11:128	Confirmed	A*11:167	Unconfirmed	A*11:206	Unconfirmed		
A*11:129	Confirmed	A*11:168	Unconfirmed	A*11:207	Unconfirmed		
A*11:130	Unconfirmed	A*11:169	Unconfirmed	A*11:208N	Confirmed		
A*11:131	Confirmed	A*11:170Q	Unconfirmed	A*11:209	Unconfirmed		
A*11:132	Unconfirmed	A*11:171	Unconfirmed	A*11:210N	Unconfirmed		
A*11:133	Unconfirmed	A*11:172	Unconfirmed	A*11:211	Confirmed		
A*11:134	Confirmed	A*11:173	Unconfirmed	A*11:212	Unconfirmed		
A*11:135	Confirmed	A*11:174	Unconfirmed	A*11:213	Unconfirmed		
A*11:136	Unconfirmed	A*11:175	Unconfirmed	A*11:214	Unconfirmed		
A*11:137N	Unconfirmed	A*11:176	Unconfirmed	A*11:215N	Unconfirmed		
A*11:138	Unconfirmed	A*11:177	Unconfirmed	A*11:216	Unconfirmed		
A*11:139	Unconfirmed	A*11:178	Unconfirmed	A*11:217	Unconfirmed		
A*11:140	Unconfirmed	A*11:179	Unconfirmed	A*11:218	Unconfirmed		
A*11:141	Unconfirmed	A*11:180N	Unconfirmed	A*11:219	Confirmed		
A*11:142	Unconfirmed	A*11:181	Unconfirmed	A*11:220	Unconfirmed		
A*11:143	Unconfirmed	A*11:182Q	Unconfirmed	A*11:221	Unconfirmed		
A*11:144	Unconfirmed	A*11:183	Confirmed	A*11:222	Unconfirmed		
A*11:145	Unconfirmed	A*11:184	Unconfirmed	A*11:223	Confirmed		
A*11:146	Unconfirmed	A*11:185	Unconfirmed	A*11:224	Unconfirmed		
A*11:147	Unconfirmed	A*11:186	Unconfirmed	A*11:225	Unconfirmed		
A*11:148	Unconfirmed	A*11:187	Unconfirmed	A*11:226	Unconfirmed		
A*11:149	Unconfirmed	A*11:188	Unconfirmed	A*11:227	Unconfirmed		
A*11:150	Unconfirmed	A*11:189	Confirmed	A*11:228	Unconfirmed		
A*11:151	Unconfirmed	A*11:190	Confirmed	A*11:229	Unconfirmed		
A*11:152	Unconfirmed	A*11:191	Unconfirmed	A*11:230	Unconfirmed		
A*11:153:01	Unconfirmed	A*11:192	Unconfirmed	A*11:231	Unconfirmed		
A*11:153:02	Confirmed	A*11:193	Confirmed	A*11:232	Unconfirmed		
A*11:154	Unconfirmed	A*11:194	Unconfirmed	A*11:233	Unconfirmed		
A*11:155	Confirmed	A*11:195	Unconfirmed	A*11:234	Unconfirmed		
A*11:156	Confirmed	A*11:196	Confirmed	A*11:235Q	Unconfirmed		

¹Allele status “confirmed” or “unconfirmed” as listed on the IMGT/HLA web page 2016-July-14, release 3.25.0, www.ebi.ac.uk/imgt/hla.

RESOLUTION IN HOMO- AND HETEROZYGOTES

Results file with resolution in HLA-A*11 homo- and heterozygotes is available upon request.

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SPECIFICITY TABLE

HLA-A*11 SSP subtyping

Specificities and sizes of the PCR products of the 63+1 primer mixes used for HLA-A*11 SSP subtyping

Primer Mix	Size of spec. PCR product ¹	Size of control band ²	Amplified HLA-A*11 alleles ³	Other amplified HLA-A alleles ⁴
1	195 bp	800 bp	*11:01:01:01-11:01:72, 11:03-11:13, 11:15:01-11:15:02, 11:20-11:27, 11:29-11:37, 11:39, 11:41-11:44, 11:46-11:52Q, 11:54-11:56, 11:58-11:70:02, 11:72-11:76, 11:79-11:97, 11:99N-11:100, 11:102-11:105, 11:107-11:109N, 11:112, 11:114-11:120, 11:122-11:139, 11:141-11:146, 11:148-11:160, 11:162-11:167, 11:169-11:175, 11:177, 11:179-11:189, 11:191-11:200, 11:202-11:222, 11:224-11:234, 11:236-11:245	*01:13, 01:176, 01:194, 02:34-02:35:03, 02:56:01-02:56:02, 02:62, 02:78, 02:103, 02:580, 03:01:01:01-03:01:08, 03:01:10-03:01:22, 03:01:24-03:07, 03:09-03:31, 03:33-03:35, 03:37-03:40, 03:42-03:56, 03:58-03:88, 03:90-03:106, 03:109-03:110, 03:112-03:141, 03:143-03:151, 03:153-03:160, 03:162N-03:171, 03:174-03:175, 03:177, 03:179-03:193, 03:195-03:197N, 03:200Q-03:202, 03:204-03:205, 03:207-03:210, 03:212-03:218, 03:220-03:249, 24:19, 24:290, 30:18, 30:55, 31:89, 34:01:01-34:13, 34:15, 66:01:01-66:02, 66:04, 66:06-66:10, 66:12-66:14, 66:16-66:26Q, 68:01:01:01-68:01:28, 68:01:30-68:02:12, 68:06-68:14, 68:16-68:19, 68:21:01-68:30, 68:32-68:35, 68:37-68:45, 68:47-68:56, 68:58-68:83, 68:85-68:89, 68:91, 68:93-68:108, 68:110-68:135, 68:137-68:148Q, 69:01-69:03, 74:13, C*03:82
2	270 bp	1070 bp	*11:02:01-11:02:06, 11:14, 11:16, 11:38, 11:57, 11:77, 11:101, 11:110, 11:113, 11:140, 11:147, 11:176, 11:201	
3	190 bp	1070 bp	*11:03, 11:33:01-11:33:02, 11:175, 11:191	*01:61, 03:22:01-03:22:02, 03:42, 03:135, 03:225, 03:248, 30:01:01-30:04:02, 30:06-30:20, 30:22-30:27N, 30:29-30:34, 30:36-30:46, 30:48-30:51, 30:53, 30:55-30:71, 30:73N-30:79, 30:81-30:85, 30:88, 30:90-30:99, 30:102, 31:03-31:04, 33:49, 34:02:01 ^w -34:02:04 ^w , 34:03, 34:04 ^w , 34:07 ^w -34:10N ^w , 34:13 ^w , 34:15 ^w , 74:23
4	235 bp	1070 bp	*11:04, 11:27, 11:35, 11:130, 11:209	*01:12, 01:14, 01:19, 01:200, 02:156, 02:338, 03:01:01:01-03:01:29, 03:01:31-03:01:48, 03:01:51-03:17:02, 03:19-03:39, 03:41-03:74, 03:76-03:94, 03:96-03:97, 03:99-03:104, 03:106-03:134, 03:136-03:176, 03:178N-03:193, 03:195-03:203, 03:205-03:207, 03:209-03:214, 03:216-03:248, 24:92, 30:01:01-30:04:02, 30:06-30:13, 30:15-30:20, 30:22-30:27N, 30:29-30:42, 30:44-30:46,

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5	180 bp 210 bp	800 bp	*11:05 *11:110	*02:294, 32:54, 66:08
6	190 bp 550 bp	1070 bp	*11:07, 11:22 *11:06, 11:18	*01:79 ^w *01:104 ^w , 01:134 ^w , 02:38, 02:101:01, 02:135, 02:154, 02:447, 02:543, 25:11, 26:03:01, 26:06, 26:21, 26:30, 26:36, 26:92, 26:111
7^r	210 bp	1070 bp	*11:08, 11:44, 11:50Q, 11:94, 11:155, 11:183, 11:191, 11:211, 11:226	*01:01:01:01-01:01:01:57, 01:01:59-01:02, 01:04N, 01:07-01:11N, 01:13-01:18N, 01:21- 01:33, 01:35-01:40, 01:42-01:62, 01:64-01:65, 01:67:01-01:72, 01:74-01:88, 01:90-01:129, 01:131-01:135, 01:137-01:191, 01:193-01:199, 01:201-01:208Q, 03:18, 03:50, 03:66, 03:135, 03:153, 03:187, 03:225, 30:04:01-30:04:02, 30:06, 30:17, 30:29, 30:46, 30:77, 30:90, 36:01-36:02, 36:04-36:05, 68:103:01- 68:103:02
8^s	100 bp 175 bp	800 bp	*11:09, 11:34 *11:196, 11:201	*01:205, 26:75 *01:129, 02:221, 23:41, 24:286, 29:15, 31:78
9^{5,6,8}	85 bp	800 bp	*11:27, 11:38-11:39, 11:94	*01:26, 01:136, 01:192, 24:59, 24:285
10⁵	120 bp	1070 bp	*11:10	*01:51, 25:01:01-25:12N, 25:14-25:35, 26:01:01:01-26:06, 26:08-26:18, 26:20-26:29, 26:32-26:43:02, 26:45-26:64, 26:66-26:71N, 26:73-26:75, 26:77-26:91, 26:93-26:113, 26:115-26:124, 33:13, 34:01:01-34:08, 34:10N-34:15, 66:01:01-66:01:03, 66:04- 66:11, 66:13-66:15, 66:17-66:20, 66:22, 66:24, 69:02, B*07:102, B*08:18, B*15:357, B*18:115, B*35:178, B*35:282, B*35:316, B*73:01-73:02, C*06:147
11	280 bp 220 bp	800 bp	*11:43 *11:01:01:01-11:01:56, 11:01:58-11:07, 11:09- 11:22, 11:27, 11:29- 11:30, 11:32:01-11:34, 11:36-11:43, 11:45- 11:47, 11:49, 11:51- 11:52Q, 11:54-11:93, 11:95-11:100, 11:102- 11:111, 11:112 ^w , 11:113-11:117, 11:119:01-11:138, 11:140-11:142, 11:144-11:157, 11:159-11:182Q, 11:184-11:190, 11:192-11:210N, 11:212-11:225, 11:227-11:241, 11:243-11:245	*01:143, 26:35, 29:66, 31:03, 33:13, C*07:449 *01:12, 01:19, 01:25 ^w , 01:127, 01:136, 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, 24:92, 30:99

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12	240 bp	1070 bp	*11:01:01:01-11:01:03, 11:01:05-11:01:20, 11:01:22-11:01:43, 11:01:45-11:01:61, 11:01:63-11:03, 11:05- 11:25:02, 11:29-11:34, 11:36-11:47, 11:49, 11:51-11:52Q, 11:54- 11:89, 11:91:01- 11:100, 11:102- 11:117, 11:119:01- 11:129, 11:131- 11:138, 11:140- 11:142, 11:144- 11:156, 11:157 ^w , 11:158-11:169, 11:171-11:181, 11:183-11:208N, 11:210N-11:241, 11:243-11:245	*01:01:01:01-01:01:22, 01:01:24-01:01:47, 01:01:49-01:02, 01:04N, 01:06-01:07, 01:09:01-01:11N, 01:13, 01:15N-01:18N, 01:21-01:33, 01:35-01:40, 01:42-01:62, 01:64- 01:65, 01:67:01-01:72, 01:74-01:88, 01:90- 01:129, 01:131-01:146, 01:148, 01:150- 01:158, 01:160N-01:177, 01:179N-01:191, 01:193-01:199, 01:201-01:207, 03:18, 03:135, 36:04
13⁸	195 bp	800 bp	*11:11	*43:01, 68:130
14^{5,7}	100 bp	1070 bp	*11:01:01:01-11:11, 11:13-11:16, 11:20- 11:27, 11:29-11:39, 11:41-11:52Q, 11:54- 11:60, 11:61 ^w , 11:62- 11:95, 11:97, 11:99N- 11:105, 11:107- 11:120, 11:122- 11:155, 11:156 ^w , 11:157-11:158, 11:160-11:177, 11:179-11:223, 11:224 ^w , 11:225- 11:245	*01:13, 01:17, 01:176, 03:63, 03:88, 25:02, 26:13, 26:19, 26:33, 29:66, 34:01:01 ^w - 34:01:02 ^w , 34:02:01-34:04, 34:05 ^w , 34:06, 34:08, 34:10N, 34:11 ^w -34:12 ^w , 34:13, 34:14 ^w , 34:15, 66:01:01-66:01:03, 66:04, 66:06-66:11, 66:13-66:14, 66:17-66:20, 66:22-66:24, 69:02
15⁵	100 bp	800 bp	*11:12	*01:194, 02:34 ^w -02:35:03 ^w , 02:56:01-02:56:02, 02:62, 02:78, 02:103, 02:580 ^w , 03:01:01:01- 03:01:09, 03:01:11-03:07, 03:09-03:22:02, 03:23:01 ^w -03:23:02 ^w , 03:24-03:28, 03:31, 03:33, 03:35, 03:37-03:40, 03:42-03:61, 03:64- 03:87, 03:90-03:106, 03:109-03:112, 03:113 ^w , 03:114-03:151, 03:153-03:156, 03:157:01 ^w - 03:157:02 ^w , 03:158-03:171, 03:173-03:175, 03:177-03:193, 03:195-03:197N, 03:199- 03:249, 24:24, 24:290, 29:01:01:01-29:02:16, 29:02:17 ^w , 29:03, 29:04 ^w , 29:05-29:18, 29:21- 29:29, 29:31-29:33, 29:35-29:47, 29:49-29:65, 29:67-29:73, 29:75-29:90, 30:01:01-30:01:11, 30:08, 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, 30:58-30:59N, 30:60 ^w , 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, 31:89, 32:17, 34:09, 66:02, 66:12, 66:16, 66:21, 66:25-66:26Q, 68:01:01:01- 68:01:17, 68:01:19-68:02:12, 68:06-68:14, 68:16-68:19, 68:21:01-68:23, 68:25-68:30,

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16^{5,6,8}	95 bp 210 bp	1070 bp	*11:13 *11:07, 11:26, 11:54, 11:117	*02:38, 02:101:01, 02:154, 02:447, 02:543, 03:18 ^w , 03:135 ^w , 23:10 ^w , 24:10:01-24:10:02, 24:46 ^w , 24:210, 24:300, 24:340, 25:10, 31:24, 33:61, 68:134
17	205 bp	1070 bp	*11:14, 11:50Q	*01:10, 03:231, 30:01:01-30:01:06, 30:01:08-30:03, 30:07-30:08, 30:10-30:16, 30:18-30:20, 30:22, 30:24-30:26, 30:30-30:45, 30:48-30:51, 30:53-30:71, 30:73N-30:76N, 30:78N-30:79, 30:81-30:88, 30:91-30:98, 30:102, 80:01:01:01-80:03
18	225 bp 240 bp	1070 bp	*11:47, 11:221 *11:15:01, 11:170Q	*30:39
19⁵	100 bp 175 bp 265 bp	800 bp	*11:134 *11:42 *11:46, 11:215N	*68:147 B*39:75, B*40:268 B*07:111N
20	180 bp 235 bp	800 bp	*11:42, 11:131 *11:17, 11:40, 11:223	B*39:75, B*40:268 *01:43, 26:01:01:01-26:01:29, 26:01:31-26:02:02, 26:04, 26:07:01-26:15, 26:17-26:19, 26:22-26:29, 26:31-26:34, 26:36-26:43:02, 26:45-26:56, 26:58-26:77, 26:79-26:91, 26:93-26:110, 26:112-26:124, 43:01
21^{5,7}	100 bp	1070 bp	*11:17, 11:19, 11:40, 11:98, 11:121	*01:01:01:01-01:01:27, 01:01:29-01:01:56, 01:01:58-01:01:61, 01:01:63-01:04N, 01:06, 01:08-01:12, 01:14-01:16N, 01:18N-01:33, 01:35-01:70, 01:72-01:99, 01:101-01:104, 01:106-01:143, 01:145-01:175, 01:177-01:189, 01:191-01:193, 01:195-01:203, 01:205-01:208Q, 02:346, 02:427, 03:41, 24:44 ^w , 24:109 ^w , 24:260 ^w , 25:01:01-25:01:09,

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22	150 bp 230 bp	1070 bp	*11:37 *11:06, 11:18	B*27:87 *02:05:01-02:06:04, 02:06:06-02:06:21, 02:08, 02:10, 02:14, 02:21, 02:28, 02:41, 02:44, 02:51, 02:54, 02:57, 02:61, 02:72, 02:79:01-02:79:02, 02:84, 02:91, 02:99, 02:106, 02:108, 02:122, 02:126-02:127, 02:137, 02:142-02:144, 02:154, 02:169-02:170, 02:172, 02:178-02:180, 02:229, 02:232, 02:244, 02:248, 02:259, 02:271, 02:278, 02:286, 02:290, 02:295, 02:300, 02:310, 02:324, 02:328, 02:330, 02:333, 02:337, 02:344, 02:355, 02:358-02:359, 02:373N, 02:376, 02:382, 02:387, 02:398, 02:404-02:405, 02:409, 02:413, 02:415, 02:419-02:421, 02:428, 02:433, 02:438, 02:453-02:454, 02:465, 02:470-02:476N, 02:484, 02:489, 02:493, 02:495-02:496, 02:506N-02:507, 02:527, 02:532, 02:546, 02:550, 02:558, 02:572, 02:577, 02:591-02:593, 02:602, 02:623, 02:625-02:626, 02:630-02:631, 26:03:01, 26:06, 26:21, 26:30, 26:78, 26:92, 26:111, 68:15
23^{5,6}	80 bp	800 bp	*11:08, 11:25:01	*01:196, 02:03:01 ^w -02:03:08 ^w , 02:26, 02:99, 02:117 ^w , 02:148 ^w , 02:171:02, 02:253 ^w , 02:258 ^w , 02:264 ^w , 02:281 ^w , 02:315 ^w , 02:345 ^w , 02:355 ^w , 02:370 ^w , 02:393, 02:412 ^w , 02:431 ^w , 02:447 ^w , 02:463 ^w , 02:466 ^w , 02:480 ^w , 02:489 ^w , 02:505 ^w , 02:529 ^w , 02:541 ^w , 02:544 ^w , 02:557 ^w , 02:568 ^w , 02:589, 02:592, 02:612 ^w , 03:01:38, 03:123:02, 68:42 ^w , 68:54 ^w , 68:61 ^w , 68:63
24⁷	295 bp 465 bp	1070 bp	*11:48 *11:21N	*01:41 *01:04N, 03:21N, 23:07N, 24:11N
25⁷	190 bp 225 bp	1070 bp	*11:135 *11:24:01, 11:25:02, 11:47, 11:219, 11:221	*03:210 *03:01:02, 03:05:02, 30:02:05, 34:02:02, 68:43:01, 80:01:01:01-80:03
26	305 bp 370 bp	1070 bp	*11:26, 11:118 *11:41	*01:03, 01:192, 26:32, 26:70, 29:66, 32:62, 33:13, 36:03, 74:10, C*06:72 *34:12, C*04:210, C*04:237, C*06:90, C*07:277, C*07:394
27	160 bp 205 bp	1070 bp	*11:208N *11:17, 11:155, 11:226	*26:71N, 68:94N *01:01:01:01-01:01:11, 01:01:13-01:01:15, 01:01:17-01:01:54, 01:01:56-01:01:57, 01:01:59-01:02, 01:04N, 01:07-01:09:02, 01:11N, 01:13-01:18N, 01:22N-01:25, 01:27N- 01:33, 01:35-01:40, 01:42-01:62, 01:64-01:65, 01:67:01-01:72, 01:74-01:88, 01:90-01:118, 01:120-01:125, 01:127-01:129, 01:131-01:135, 01:137-01:159, 01:161-01:191, 01:193-01:195, 01:197-01:199, 01:201-01:208Q, 03:18,

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28	140 bp 240 bp	800 bp	*11:80 *11:15:02, 11:49, 11:170Q	
	280 bp			*26:35
29⁵	80 bp	1070 bp	*11:10	*02:55, 03:24, 24:290, 26:03:01, 26:06, 26:21, 26:30, 26:78, 26:111, 33:01:01-33:01:08, 33:03:01-33:07, 33:10-33:12, 33:14-33:16, 33:18:01-33:20, 33:22-33:37, 33:39-33:47, 33:49-33:52, 33:54-33:65, 33:67-33:114, 34:01:01-34:15, 66:01:01-66:10, 66:12-66:22, 66:24-66:26Q, 68:01:01:01-68:01:26, 68:01:28-68:09, 68:11N-68:12, 68:15-68:29, 68:31-68:35, 68:37-68:45, 68:47-68:65, 68:67-68:74, 68:76:01-68:83, 68:85-68:108, 68:110-68:112:01, 68:113-68:129, 68:131-68:135, 68:137-68:148Q, 69:01-69:03
30	140 bp 190 bp 235 bp	1070 bp	*11:80 *11:131, 11:156 *11:45, 11:50Q, 11:182Q	*66:11
	270 bp		*11:29, 11:55, 11:215N	B*07:111N
31⁹	230 bp 285 bp	1070 bp	*11:49 *11:30, 11:43	*01:101, 01:143, 03:87, 29:66, 30:92, 31:03, 33:13, C*07:449
32	205 bp	1070 bp	*11:31, 11:35, 11:158, 11:183	*01:21, 01:126, 01:200, 02:156, 02:338, 03:07, 03:42, 03:133, 03:171, 30:04:01-30:04:02, 30:06, 30:09, 30:17, 30:29, 30:46, 30:77, 30:90, 31:03-31:04, 33:49, 68:103:01-68:103:02, 74:23
	295 bp		*11:32:01-11:32:02, 11:50Q, 11:147	*01:115, 03:154:01-03:154:02, 30:51
33⁵	110 bp 280 bp 305 bp	1070 bp	*11:61 *11:74 *11:56	C*07:221
34⁵	85 bp 170 bp 200 bp 265 bp	1070 bp	*11:58 *11:67, 11:208N *11:156 *11:46	*26:119 *26:71N, 68:94N
35⁵	95 bp	1070 bp	*11:62, 11:178, 11:190	*01:95, 01:125, 03:219, 23:09, 23:28, 24:77, 24:191, 31:07, 31:10, 32:03, B*15:95
	290 bp 450 bp		*11:68 *11:62	*01:125
36^{5,6}	65 bp 220 bp 380 bp	1070 bp	*11:65 *11:193, 11:210N *11:64	*03:174, B*44:36 *24:264 *31:65
37⁵	105 bp	1070 bp	*11:66	

101.416-12/04 – including *Taq* pol., IFU-01
101.416-12u/04u – without *Taq* polymerase, IFU-02

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Lot No.: **4E7**

Lot-specific information

38 ⁵	185 bp		*11:57, 11:158	*02:156, 02:338, 03:171, 68:103:01-68:103:02
	265 bp		*11:51	
	290 bp		*11:72	
	95 bp	1070 bp	*11:105, 11:189	*02:484, 26:77, 66:13, B*39:110
	120 bp		*11:75	B*07:117
39	225 bp		*11:78N	
	205 bp	1070 bp	*11:166	*01:203, 80:01:01:01-80:03, C*04:129, C*05:25, C*05:42, C*06:05, C*06:67, C*07:101, C*07:148, C*07:161, C*08:28
40	255 bp		*11:235Q	
	280 bp		*11:52Q, 11:74	
	225 bp	1070 bp	*11:199:01-11:199:02, 11:222	*01:13, 01:176, 01:194, 03:01:01:01-03:01:07, 03:01:09-03:01:11, 03:01:13-03:01:22, 03:01:24-03:07, 03:10-03:11N, 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, 03:110, 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, 03:200Q-03:202, 03:204, 03:206-03:210, 03:212-03:215, 03:217-03:218, 03:220, 03:222-03:242, 03:244, 03:246-03:249, 30:55, 34:08, 68:71, 74:13
41 ⁵	90 bp	1070 bp	*11:59	*03:191, 03:236
	215 bp		*11:01:57, 11:31, 11:35, 11:60, 11:158, 11:183, 11:209	*01:12, 01:19, 01:21, 01:126, 01:200, 02:156, 02:338, 03:02:01-03:02:04, 03:07, 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, 24:92, 30:04:01 ^w - 30:04:02 ^w , 30:06 ^w , 30:09, 30:17 ^w , 30:29 ^w , 30:46 ^w , 30:77 ^w , 30:90 ^w , 30:99 ^w , 31:03-31:04, 33:49, 68:103:01 ^w -68:103:02 ^w , 74:23
42 ⁵	95 bp	1070 bp	*11:134, 11:189	*02:484, 26:77, 68:147
	175 bp		*11:63	
43 ⁸	560 bp		*11:69N	*01:56N
	265 bp	1070 bp	*11:51	
44	445 bp		*11:70:01-11:70:02, 11:121	*01:83:01-01:83:02, 02:65, 02:80, 02:114, 02:117, 02:152, 02:246, 02:279, 02:298, 02:304, 02:406, 02:527, 02:582, 03:23:01- 03:23:02, 03:89:01-03:89:02, 03:198, 29:48, 31:109, 33:08-33:09, 68:30, 68:75:01- 68:75:02, 74:04, 74:21, B*57:04:01-57:04:02, B*57:32
	145 bp	800 bp	*11:76	
45	215 bp		*11:106	
	210 bp	1070 bp	*11:79	
46	235 bp		*11:219	*68:43:01
	340 bp		*11:129, 11:163	
	400 bp		*11:210N	
47 ⁵	280 bp	1070 bp	*11:173	
48	55 bp	1070 bp	*11:44	*24:285
	195 bp	1070 bp	*11:71, 11:135	*03:210

101.416-12/04 – including *Taq* pol., IFU-01
101.416-12u/04u – without *Taq* polymerase, IFU-02

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Lot No.: **4E7**

Lot-specific information

49	180 bp	800 bp	*11:16, 11:35, 11:57, 11:73, 11:109N, 11:158	*02:156, 02:338, 03:123:01-03:123:02, 03:171, 68:103:01-68:103:02
	230 bp		*11:23, 11:50Q, 11:182Q	*03:229
50 ⁸	210 bp	800 bp	*11:142	
	310 bp		*11:86	*03:218
	400 bp		*11:210N	
51 ⁶	170 bp	1070 bp	*11:77, 11:126	*03:26
52 ⁵	90 bp	1070 bp	*11:34	*01:205, 26:75
	230 bp		*11:81	
	545 bp		*11:108	*01:45, 02:453, 02:557, 03:78, 24:271, 66:17
53 ^{6,8}	150 bp	1070 bp	*11:154	
	195 bp		*11:100, 11:175	*01:109, 03:182
54	195 bp	1070 bp	*11:109N, 11:166, 11:238N	*01:203, 80:01:01:01-80:03, C*04:129, C*05:25, C*05:42, C*06:05, C*06:67, C*07:101, C*07:148, C*07:161, C*08:28
	270 bp		*11:89, *11:153:01- 11:153:02	*01:86, 03:04:01-03:04:03, 30:34
55 ^{5,7,8}	115 bp	1070 bp	*11:102, 11:128	*01:148, 01:177, 24:249
	170 bp		*11:194	
	235 bp		*11:90	*03:208, 80:01:01:01-80:02
56 ⁵	65 bp	1070 bp	*11:94, 11:112, 11:211	*01:10, 01:21, 01:26, 01:192, 03:135, B*15:90^w, B*45:05^w
	185 bp		*11:238N	
	230 bp		*11:99N	
57	245 bp	800 bp	*11:36	
58 ⁵	95 bp	1070 bp	*11:105, 11:115N	*66:13, B*39:110
	245 bp		*11:180N	
59	165 bp	1070 bp	*11:174	
	340 bp		*11:163	
	370 bp		*11:124	
60 ^{5,8}	105 bp	1070 bp	*11:128, 11:137N	*01:148
	270 bp		*11:127N, 11:153:01- 11:153:02	*01:86, 03:04:01-03:04:03, 30:34
61 ⁵	90 bp	1070 bp	*11:34	*01:205, 26:75
	130 bp		*11:03, 11:175	*02:393, 02:489, 02:541, 02:589, 02:592, 03:135, 03:225, 24:177, 24:289, 26:28, 26:52, 29:83, 31:97, 31:110, B*15:173, B*50:11, C*03:299, C*12:74
	265 bp		*11:54	*33:70
62 ⁵	205 bp	1070 bp	*11:03, 11:20, 11:25:01-11:25:02, 11:175, 11:191	*03:01:01:01-03:01:05, 03:01:07-03:01:13, 03:01:15-03:01:46, 03:01:48, 03:01:50- 03:01:51, 03:01:53-03:01:58, 03:03N-03:06, 03:08-03:09, 03:11N-03:17:02, 03:19-03:30, 03:33-03:41, 03:43-03:53, 03:55-03:63, 03:65, 03:67-03:72, 03:74, 03:77-03:81, 03:83- 03:89:02, 03:91N-03:94, 03:96-03:105, 03:107-03:112, 03:114-03:126, 03:128-03:132, 03:134, 03:136-03:139, 03:141-03:152, 03:154:01-03:159, 03:161N-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, 03:226-03:228, 03:230, 03:232-03:233, 03:235, 03:238-

101.416-12/04 – including *Taq* pol., IFU-01
101.416-12u/04u – without *Taq* polymerase, IFU-02

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Lot No.: **4E7**

Lot-specific information

				03:241, 03:243, 03:245-03:248, 30:89, 32:04, 34:02:01-34:04, 34:07-34:10N, 34:13, 34:15
63 ⁶	145 bp 170 bp 275 bp	1070 bp	*11:171 *11:154, 11:194 *11:120	
64 ¹⁰	-	-	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*11 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.

⁴Due to the sharing of sequence motifs between HLA-A alleles non-HLA-A*11 alleles will be amplified by primer mixes 1, 3 to 32, 34 to 43, 45, 47 to 56, 58 and 60 to 62. In addition, a few HLA-B and HLA-C alleles will be amplified by primer mixes 1, 10, 19, 20, 22, 26, 30, 31, 33, 35, 36, 38, 39, 43, 54, 56, 58 and 61.

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

⁶Primer mixes 9, 16, 23, 36, 51, 53 and 63 may have tendencies of unspecific amplifications.

⁷Primer mixes 7, 14, 21, 24, 25 and 55 may give rise to a lower yield of HLA-specific PCR product than the other A*11 primer mixes.

⁸Primer mixes 9, 13, 16, 43, 50, 53, 55 and 60 may have a tendency of giving rise to primer oligomer formation.

⁹Primer mix 31 may give rise to a long unspecific amplification product of about 800 bp. This band should be disregarded when interpreting the A*11 SSP typings.

¹⁰Primer mix 64 contains a negative control, which will amplify more than 95% of HLA amplicons as well as the amplicons generated by the control primer pairs matching the human growth hormone gene. HLA-specific PCR product sizes range from 75 to 200 base pairs and the PCR product generated by the HGH positive control primer pair is 430 base pairs.

'w', may be weakly amplified.

101.416-12/04 – including *Taq* pol., IFU-01
101.416-12u/04u – without *Taq* polymerase, IFU-02

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Lot No.: **4E7**

Lot-specific information
PRIMER SPECIFICATION

Well No.	1	2	3	4	5	6	7	8	9	10	11	12
Length of spec. PCR product	195	270	190	235	180 210	190 550	210	100 175	85	120 280	220	240
Length of int. pos. control ¹	800	1070	1070	1070	800	1070	1070	800	800	1070	800	1070
5'-primer(s) ²	127 5'-ggg 3'	28 5'-TCC 3'	363 5'-ATA 3'	363 5'-ATA 3'	363 5'-ATA 3'	292 831 399 5'-gAg 3'	363 5'-ATA 3'	484 553 565 5'-gCA 3'	527 5'-TgC 3'	97 103 261 5'-AAC 3'	357 363 5'-ATA 3'	357 363 5'-ATA 3'
3'-primer(s) ³	282 5'-gAC 3'	127 5'-CTT 3'	502 5'-CTg 3'	559 5'-CgT 3'	502 5'-CTC 3'	559 5'-CCg 3'	521 5'-ggA 3'	616 5'-CgT 3'	570 5'-CCg 3'	341 5'-CgT 3'	539 5'-TCT 3'	559 5'-CCg 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	100	100	95	205	225	100	180	100	150	80	295
Length of int. pos. control ¹	800	1070	800	1070	1070	1070	800	800	1070	1070	800	1070
5'-primer(s) ²	102 5'-ACC 3'	282 5'-Cag 3'	282 5'-Cag 3'	385 5'-ggT 3'	363 5'-ATA 3'	97 5'-TCC 3'	103 5'-CCT 3'	103 5'-CCT 3'	282 5'-CAC 3'	103 5'-CCT 3'	489 5'-gCA 3'	341 5'-ggA 3'
3'-primer(s) ³	257 5'-gCA 3'	341 5'-CgT 3'	341 5'-Cgg 3'	559 5'-CCg 3'	526 526 564 5'-CCA 3'	282 564 236 5'-ACC 3'	164 236 244 5'-CCA 3'	236 244 299 5'-CTT 3'	341 5'-CgT 3'	214 292 527 5'-gTg 3'	527 527 621 5'-CCT 3'	353 621 5'-TgA 3'
Well No.	13	14	15	16	17	18	19	20	21	22	23	24

101.416-12/04 – including *Taq* pol., IFU-01
101.416-12u/04u – without *Taq* polymerase, IFU-02

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Lot No.: **4E7**

Lot-specific information

Well No.	25	26	27	28	29	30	31	32	33	34	35	36
Length of spec.	190	305	160	140	80	140	230	205	110	85	95	65
PCR product	225	370	205	240		190	285	295	280	170	290	220
			260	280		235			305	200	450	380
						270				265		
Length of int. pos. control ¹	1070	1070	1070	800	1070	1070	1070	1070	1070	1070	1070	1070
5'-primer(s) ²	87	341	103	103	261	103	97	363	77	103	257	322
	5'-ATA 3'	5'-ggA 3'	5'-CCT 3'	5'-CCA 3'	5'-AAC 3'	5'-CCT 3'	5'-TCA 3'	5'-ATA 3'	5'-CTA 3'	5'-CCT 3'	5'-CCA 3'	5'-gCC 3'
	97		363	151		363	151		101		363	395
	5'-TCC 3'		5'-ATA 3'	5'-gCC 3'		5'-ATA 3'	5'-gCC 3'		5'-CAT 3'		5'-ATA 3'	5'-gCT 3'
	134			363			363		272			644
	5'-CCA 3'			5'-ATA 3'			5'-ATA 3'		5'-TgC 3'			5'-CA 3'
	363											662
	5'-ATA 3'											5'-CCg 3'
3'-primer(s) ³	282	362	224	341	299	244	341	527	341	146	299	418
	5'-gAC 3'	5'-TCA 3'	5'-TCT 3'	5'-CgT 3'	5'-CCA 3'	5'-CTT 3'	5'-CgT 3'	5'-CCA 3'	5'-CgT 3'	5'-CCg 3'	5'-TCT 3'	5'-gTC 3'
	538	430	271	460		261	605	616		224	427	831
	5'-CAg 3'	5'-gCg 3'	5'-CAT 3'	5'-CAC 3'		5'-gTA 3'	5'-gCA 3'	5'-CgC 3'		5'-TCT 3'	5'-gTg 3'	5'-TCC 3'
			330	564		299		616		242	614	
			5'-TgC 3'	5'-ACC 3'		5'-CCg 3'		5'-TgC 3'		5'-CCC 3'	5'-TgT 3'	
			521	565		327				261		
			5'-ggA 3'	5'-CAA 3'		5'-TTT 3'				5'-gTA 3'		
			570			330				329		
			5'-CCg 3'			5'-TgC 3'				5'-ggC 3'		
						460						
						5'-CAC 3'						
						559						
						5'-CTC 3'						
						587						
						5'-CCT 3'						
Well No.	25	26	27	28	29	30	31	32	33	34	35	36

101.416-12/04 – including *Taq* pol., IFU-01
101.416-12u/04u – without *Taq* polymerase, IFU-02

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Lot No.: **4E7**

Lot-specific information

Well No.	37	38	39	40	41	42	43	44	45	46	47	48
Length of spec.	105	95	205	225	90	95	265	145	210	280	55	195
PCR product	185	120	255		215	175	445	215	235			
	265	225	280			560			340			
	290								400			
Length of int. pos. control ¹	1070	1070	1070	1070	1070	1070	1070	800	1070	1070	1070	1070
5'-primer(s) ²	28	103	101	98	363	103	28	98	87	763	527	125
	5'-TCC 3'	5'-CCT 3'	5'-CAT 3'	5'-CTT 3'	5'-ATA 3'	5'-CCT 3'	5'-TCC 3'	5'-CTA 3'	5'-ATA 3'	5'-TCA 3'	5'-TgC 3'	5'-CgC 3'
	363		107			3 ^d I	257	511	112			134
	5'-ATA 3'		5'-gT 3'			5'-ATA 3'	5'-Cgg 3'	5'-AgA 3'	5'-CCT 3'			5'-CCA 3'
			127						644			
			5'-gg 3'						5'-CA 3'			
			176						701			
			5'-gCA 3'						5'-CCT 3'			
									703			
									5'-CTA 3'			
3'-primer(s) ³	122	154	341	282	412	154	122	270	282	899	539	282
	5'-Cgg 3'	5'-CAT 3'	5'-CgT 3'	5'-gAC 3'	5'-CCC 3'	5'-CAT 3'	5'-Cgg 3'	5'-ACT 3'	5'-gAC 3'	5'-ACA 3'	5'-TCC 3'	5'-gAC 3'
	427	164			527	164	418	616	899			
	5'-gTA 3'	5'-gCA 3'			5'-CCA 3'	5'-gCT 3'	5'-gTC 3'	5'-CgT 3'	5'-ACA 3'			
	506	181			546	235						
	5'-TgT 3'	5'-gTT 3'			5'-TAA 3'	5'-CTg 3'						
	613	285				723						
	5'-gCA 3'	5'-T.. 3'				5'-TgT 3'						
Well No.	37	38	39	40	41	42	43	44	45	46	47	48

Well No.	49	50	51	52	53	54	55	56	57	58	59	60
Length of spec.	180	210	170	90	150	195	115	65	245	95	165	105
PCR product	230	310		230	195	270	145	185		245	340	270
		400		545			170	230			370	
							235					
Length of int. pos. control ¹	800	800	1070	1070	1070	1070	1070	1070	800	1070	1070	1070
5'-primer(s) ²	363	644	874	428	650	116	363	154	368	103	670	363
	5'-ATA 3'	5'-CA 3'	5'-CCg 3'	5'-CgC 3'	5'-CCC 3'	5'-gCT 3'	5'-ATA 3'	5'-Ag 3'	5'-gTg 3'	5'-CCT 3'	5'-CCg 3'	5'-ATA 3'
		733		565		176	650	199			703	
		5'-ATA 3'		5'-gCA 3'		5'-gCA 3'	5'-CCC 3'	5'-gCT 3'			5'-CTA 3'	
		832		3 ^d I		199		521			877	
		5'-AgA 3'		5'-ATA 3'		5'-gCT 3'		5'-ggC 3'			5'-Agg 3'	
						363						
						5'-ATA 3'						
3'-primer(s) ³	497	899	899	616	755	341	430	341	570	153	899	426
	5'-Tgg 3'	5'-ACA 3'	5'-ACA 3'	5'-CgT 3'	5'-CCA 3'	5'-CgT 3'	5'-gCT 3'	5'-CgT 3'	5'-CAC 3'	5'-ACT 3'	5'-ACA 3'	5'-TCC 3'
	513			704	770	513	559	545		164		430
	5'-TCT 3'			5'-CCA 3'	5'-TgA 3'	5'-TCT 3'	5'-CTC 3'	5'-AgA 3'		5'-gCA 3'		5'-gCT 3'
	542				806	595	727			305		585
	5'-CTg 3'				5'-CCA 3'	5'-CCT 3'	5'-CCA 3'			5'-CA 3'		5'-AgT 3'
	559					595	755					595
	5'-CTC 3'					5'-CCg 3'	5'-CCA 3'					5'-CCT 3'
							779					595
							5'-CTC 3'					5'-CCg 3'
Well No.	49	50	51	52	53	54	55	56	57	58	59	60

101.416-12/04 – including *Taq* pol., IFU-01
101.416-12u/04u – without *Taq* polymerase, IFU-02

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Lot No.: **4E7**

Lot-specific information

Well No.	61	62	63
Length of spec.	90	205	145
PCR product	130		170
	265		275
Length of int.	1070	1070	1070
pos. control ¹			
5'-primer(s) ²	391	363	650
	5'-ACA 3'	5'-ATA 3'	5'-CCC 3'
	527		
	5'-TgA 3'		
	565		
5'-gCA 3'			
3'-primer(s) ³	616	527	755
	5'-CgT 3'	5'-CCT 3'	5'-CCC 3'
			770
			5'-TgA 3'
			779
			5'-CTC 3'
			884
			5'-ggC 3'
Well No.	61	62	63

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

²The nucleotide position matching the specificity-determining 3'-end of the primer is given. Nucleotide numbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

³The nucleotide position matching the specificity-determining 3'-end of the primer is given in the anti-sense direction. Nucleotide numbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

101.416-12/04 – including *Taq* pol., IFU-01
101.416-12u/04u – without *Taq* polymerase, IFU-02

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Lot No.: **4E7**

Lot-specific information

CELL LINE VALIDATION SHEET																				
HLA-A*11 SSP subtyping kit ²																				
				Well																
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
				Prod. No.:	201673201	201673202	201673203	201673204	201673205	201673206	201673207	201673208	201673209	201673210	201673211	201673212	201673213	201673214	201673215	201673216
IHC 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		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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	+	-	-	-	-	-	-	-	-	-	+	+	-	+	-	-	-

101.416-12/04 – including *Taq* pol., IFU-01
101.416-12u/04u – without *Taq* polymerase, IFU-02

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“Instructions for Use” (IFU)

Lot No.: **4E7**

Lot-specific information

CELL LINE VALIDATION SHEET																				
HLA-A*11 SSP subtyping kit ²																				
			Prod. No.:	Well																
				17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
				201673217	201673218	201673219	201673220	201673221	201673222	201673223	201673224	201673225	201673226	201673227	201673228	201673229	201673230	201673231	201673232	
	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		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

101.416-12/04 – including *Taq* pol., IFU-01
101.416-12u/04u – without *Taq* polymerase, IFU-02

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“Instructions for Use” (IFU)

Lot No.: **4E7**

Lot-specific information

CELL LINE VALIDATION SHEET																				
HLA-A*11 SSP subtyping kit ²																				
				Well																
				Prod. No.:	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
					201673233	201673234	201673235	201673236	201673237	201673238	201673239	201673240	201673241	201673242	201673243	201673244	201673245	201673246	201673247	201673248
	IHCW 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		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

101.416-12/04 – including *Taq* pol., IFU-01
101.416-12u/04u – without *Taq* polymerase, IFU-02

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Lot No.: **4E7**

Lot-specific information

CELL LINE VALIDATION SHEET																			
HLA-A*11 SSP subtyping kit ²																			
				Well															
				49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	
				Prod. No.:	201673249	201673250	201673251	201673252	201673253	201673254	201673255	201673256	201673257	201673258	201673259	201673260	201673261	201673262	201673263
IHCW 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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

101.416-12/04 – including *Taq* pol., IFU-01
101.416-12u/04u – without *Taq* polymerase, IFU-02

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

Lot No.: 4E7

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, 8, 9, 13, 19, 23, 28, 30, 31, 33 to 38, 42 to 53, 56 to 61 and 63 were available.

The specificities of the primers in primer solutions 5, 9, 13, 23, 28, 31, 35, 37, 43 to 45, 47, 48, 51 to 53, 56, 59 and 61 were tested by separately adding one or two additional 5'-primers, respectively one or two additional 3'-primers.

In primer solutions 19, 30, 34, 38, 42, 49, 58, 60 and 63 it was only possible to test the 5'-primers, the 3'-primers were not possible to test. In primer solutions 8, 33, 36 and 50 it was only possible to test the 3'-primers, the 5'-primers were not possible to test. In primer solutions 6, 10 to 12, 14, 16, 25, 28, 31, 39, 44, 45, 48, 52, 54, 56, 59 and 61 one to four of the 5'-primers were not possible to test. In primer solutions 1, 5, 18, 20, 22, 24, 26 to 28, 31, 32, 35, 37, 41, 43, 44 and 52 to 55 one to four of the 3'-primers were not possible to test.

Additional primers in primer solutions 3, 10, 18, 24, 25, 27, 40, 54, 55 and 62 were tested by separately adding one additional 5'-primer and/or one or two additional 3'-primers.

101.416-12/04 – including *Taq* pol., IFU-01
101.416-12u/04u – without *Taq* polymerase, IFU-02

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Lot-specific information

101.416-12/04 – including *Taq* pol., IFU-01
101.416-12u/04u – without *Taq* polymerase, IFU-02

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Lot-specific information

101.416-12/04 – including *Taq* pol., IFU-01
101.416-12u/04u – without *Taq* polymerase, IFU-02

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Lot No.: **4E7**

Lot-specific information

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