

101.624-12 – including *Taq* pol., IFU-01
101.624-12u – without *Taq* pol., IFU-02

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

Lot No.: **6N5**

Lot-specific information

Olerup SSP® HLA-C*12

Product number:	101.624-12 – including <i>Taq</i> polymerase 101.624-12u – without <i>Taq</i> polymerase
Lot number:	6N5
Expiry date:	2025-11-01
Number of tests:	12
Number of wells per test:	47+1
Storage - pre-aliquoted primers:	dark at -20°C
- PCR Master Mix:	-20°C
- Adhesive PCR seals	RT
- Product Insert	RT

This Product Description is only valid for Lot No. 6N5.

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-C*12 Lot (6L7)

- The product documentation has been updated for new alleles of IMGT 3.45.0
- The kit resolution focuses on common and well documented (CWD) alleles¹.

¹As described in section Uniquely Identified Alleles.

The HLA-C*12 primer set, specificity and interpretation tables have been updated for the HLA-C alleles described since the previous *Olerup SSP®* HLA-C*12 lot was made (Lot No. 6L7).

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

Well	5'-primer	3'-primer	rationale
30	-	-	Positive control primer pair exchanged for reduced 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 **48** contains Negative Control primer pairs, that will amplify a 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'-CAC3'	5'-Agg3'	5'-TTA3'	5'-Tgg3'	5'-Tgg3'	5'-Tgg3'	5'-TAC3'
							36
							5'-TAT3'
3'-primer²	231	2nd I	507	59	58	57	47
	5'-TgC3'	5'-AAA3'	5'-TTg3'	5'-CTC3'	5'-ggC3'	5'-CTC3'	5'-ACA3'
							48
							5'-gCA3'
							48
							5'-gCC3'
							52
							5'-TgT3'
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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PRODUCT DESCRIPTION

HLA-C*12 SSP typing

CONTENT

The primer set contains 5'- and 3'-primers for identifying the C*12:02 to C*12:349 alleles.

PLATE LAYOUT

Each HLA-C*12 test consists of 48 PCR reactions in a 48 well cut PCR plate.

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	NC

The 48 well PCR plate is marked with ‘HLA-C*12’ in silver/gray ink.

Well No. 1 is marked with the Lot No. ‘6N5’.

Wells 1 to 47 – HLA-C*12 high resolution primers.

Well 48 – Negative Control (NC).

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

The PCR plates are heat-sealed with a PCR-compatible foil.

Please note: When removing each 48 well PCR plate, make sure that the remaining plates stay sealed. Use a scalpel or a similar instrument to carefully cut the foil between the plates.

INTERPRETATION

Due to the sharing of sequence motifs between HLA-C alleles non-HLA-C*12 alleles will be amplified by some primer mixes. For further details see Specificity Table.



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UNIQUELY IDENTIFIED ALLELES

All the HLA-C*12 alleles, i.e. **C*12:02 to C*12:349**, recognized by the HLA Nomenclature Committee in July 2021^{1,2} will be amplified by the primers in the HLA-C*12 subtyping kit.

The HLA-C*12 kit enables separation of the confirmed HLA-C*12 alleles as listed in the IMGT/HLA database 3.27.0. 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-C*12 alleles is listed below.

The HLA-C*12 kit also enables identification of many null and alternatively expressed alleles.

The following HLA-C*12 alleles can be distinguished by the different sizes of the HLA-specific PCR product:

Alleles	Primer mix	Alleles	Primer mix
C*12:03:09, 12:159	17	C*12:32, 12:34	30
C*12:06, 12:48, 12:81	6	C*12:39N, 12:167	25
C*12:11, 12:227	14	C*12:45, 12:50, 12:232N	28
C*12:23, 12:203	22	C*12:46N	20
C*12:29, 12:38	29	C*12:86, 12:104N	29
C*12:30, 12:36	27	C*12:109, 12:171	34

The following alleles give rise to identical amplification patterns with the HLA-C*12 primer set. These alleles can be distinguished by the HLA-C low resolution kit and the HLA-C*05, HLA-C*07, HLA-C*08 or HLA-C*16 kit, respectively.

Alleles

C*12:09, C*05:16, C*05:85, C*05:107, C05:241, C*16:88

C*12:33, C*16:91

C*12:181, C*07:723

C*12:208, C*12:222, C*12:233, C*12:251, C*12:258, C*08:05, C*08:25, C*16:15:01

¹HLA-C alleles listed on the IMGT/HLA web page 2021-July-12, release 3.45.0, 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 the web page <http://hla.alleles.org/alleles/deleted.html>.

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ALLELE CONFIRMATION STATUS

Allele	Status ¹	Allele	Status ¹	Allele	Status ¹	Allele	Status ¹
C*12:02:01	Unconfirmed	C*12:03:29	Confirmed	C*12:35	Confirmed	C*12:84N	Unconfirmed
C*12:02:02:01	Confirmed	C*12:03:30	Unconfirmed	C*12:36	Unconfirmed	C*12:85	Unconfirmed
C*12:02:02:02	Unconfirmed	C*12:03:31	Unconfirmed	C*12:37	Confirmed	C*12:86	Confirmed
C*12:02:03	Unconfirmed	C*12:03:32	Unconfirmed	C*12:38	Confirmed	C*12:87	Unconfirmed
C*12:02:04	Confirmed	C*12:03:33	Unconfirmed	C*12:39N	Confirmed	C*12:88	Unconfirmed
C*12:02:05	Unconfirmed	C*12:03:34:01	Unconfirmed	C*12:40	Unconfirmed	C*12:89	Unconfirmed
C*12:02:06	Unconfirmed	C*12:03:34:02	Unconfirmed	C*12:41	Confirmed	C*12:90	Confirmed
C*12:02:07	Unconfirmed	C*12:03:35	Confirmed	C*12:42Q	Confirmed	C*12:91	Unconfirmed
C*12:02:08	Unconfirmed	C*12:03:36	Unconfirmed	C*12:43	Confirmed	C*12:92	Unconfirmed
C*12:02:09	Unconfirmed	C*12:03:37	Confirmed	C*12:44	Confirmed	C*12:93	Unconfirmed
C*12:02:10	Unconfirmed	C*12:03:38	Unconfirmed	C*12:45	Confirmed	C*12:94	Confirmed
C*12:02:11	Unconfirmed	C*12:03:39	Unconfirmed	C*12:46N	Unconfirmed	C*12:95	Unconfirmed
C*12:02:12	Confirmed	C*12:03:40	Unconfirmed	C*12:47	Confirmed	C*12:96	Unconfirmed
C*12:02:13	Confirmed	C*12:03:41	Confirmed	C*12:48	Unconfirmed	C*12:97	Unconfirmed
C*12:02:14	Unconfirmed	C*12:03:42	Unconfirmed	C*12:49	Unconfirmed	C*12:98	Unconfirmed
C*12:02:15	Unconfirmed	C*12:04:01	Unconfirmed	C*12:50	Confirmed	C*12:99:01	Confirmed
C*12:03:01:01	Confirmed	C*12:04:02	Confirmed	C*12:51	Unconfirmed	C*12:99:02	Unconfirmed
C*12:03:01:02	Unconfirmed	C*12:05	Confirmed	C*12:52	Unconfirmed	C*12:100	Confirmed
C*12:03:01:03	Unconfirmed	C*12:06	Unconfirmed	C*12:53	Unconfirmed	C*12:101	Confirmed
C*12:03:01:04	Confirmed	C*12:07	Confirmed	C*12:54	Confirmed	C*12:102	Confirmed
C*12:03:01:05	Unconfirmed	C*12:08	Unconfirmed	C*12:55	Unconfirmed	C*12:103	Unconfirmed
C*12:03:01:06	Unconfirmed	C*12:09	Confirmed	C*12:56	Unconfirmed	C*12:104N	Unconfirmed
C*12:03:01:07	Unconfirmed	C*12:10:01	Unconfirmed	C*12:57:01	Unconfirmed	C*12:105N	Unconfirmed
C*12:03:02	Unconfirmed	C*12:10:02	Unconfirmed	C*12:57:02	Unconfirmed	C*12:106	Unconfirmed
C*12:03:03	Unconfirmed	C*12:11	Unconfirmed	C*12:58	Confirmed	C*12:107	Unconfirmed
C*12:03:04	Confirmed	C*12:12	Confirmed	C*12:59	Confirmed	C*12:108	Unconfirmed
C*12:03:05	Confirmed	C*12:13	Confirmed	C*12:60	Confirmed	C*12:109	Confirmed
C*12:03:06	Confirmed	C*12:14:01	Unconfirmed	C*12:61	Unconfirmed	C*12:110	Unconfirmed
C*12:03:07	Unconfirmed	C*12:14:02	Unconfirmed	C*12:62	Confirmed	C*12:111	Unconfirmed
C*12:03:08	Confirmed	C*12:15	Unconfirmed	C*12:63	Confirmed	C*12:112	Unconfirmed
C*12:03:09	Confirmed	C*12:16	Confirmed	C*12:64	Unconfirmed	C*12:113	Confirmed
C*12:03:10	Confirmed	C*12:17	Unconfirmed	C*12:65	Unconfirmed	C*12:114	Unconfirmed
C*12:03:11	Confirmed	C*12:18:01	Confirmed	C*12:66	Unconfirmed	C*12:115	Unconfirmed
C*12:03:12	Confirmed	C*12:18:02	Unconfirmed	C*12:67	Unconfirmed	C*12:116	Unconfirmed
C*12:03:13	Confirmed	C*12:19	Confirmed	C*12:68	Unconfirmed	C*12:117	Unconfirmed
C*12:03:14	Confirmed	C*12:20	Unconfirmed	C*12:69	Unconfirmed	C*12:118	Unconfirmed
C*12:03:15	Confirmed	C*12:21	Confirmed	C*12:70	Unconfirmed	C*12:119	Unconfirmed
C*12:03:16	Unconfirmed	C*12:22	Unconfirmed	C*12:71	Unconfirmed	C*12:120	Unconfirmed
C*12:03:17	Confirmed	C*12:23	Confirmed	C*12:72	Confirmed	C*12:121	Unconfirmed
C*12:03:18	Confirmed	C*12:24	Confirmed	C*12:73	Confirmed	C*12:122	Confirmed
C*12:03:19	Confirmed	C*12:25	Confirmed	C*12:74	Unconfirmed	C*12:123	Confirmed
C*12:03:20	Unconfirmed	C*12:26	Unconfirmed	C*12:75	Unconfirmed	C*12:124	Unconfirmed
C*12:03:21	Unconfirmed	C*12:27	Confirmed	C*12:76	Unconfirmed	C*12:125	Unconfirmed
C*12:03:22	Confirmed	C*12:28	Confirmed	C*12:77	Unconfirmed	C*12:126	Unconfirmed
C*12:03:23	Confirmed	C*12:29	Unconfirmed	C*12:78	Unconfirmed	C*12:127	Unconfirmed
C*12:03:24	Unconfirmed	C*12:30	Confirmed	C*12:79	Unconfirmed	C*12:128	Unconfirmed
C*12:03:25	Unconfirmed	C*12:31	Unconfirmed	C*12:80N	Unconfirmed	C*12:129	Unconfirmed
C*12:03:26	Unconfirmed	C*12:32	Unconfirmed	C*12:81	Unconfirmed	C*12:130	Unconfirmed
C*12:03:27	Confirmed	C*12:33	Unconfirmed	C*12:82	Confirmed	C*12:131	Unconfirmed
C*12:03:28	Unconfirmed	C*12:34	Confirmed	C*12:83	Unconfirmed	C*12:132	Confirmed



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Allele	Status ¹	Allele	Status ¹	Allele	Status ¹	Allele	Status ¹
C*12:133	Unconfirmed	C*12:153	Confirmed	C*12:173	Unconfirmed	C*12:193	Unconfirmed
C*12:134	Unconfirmed	C*12:154	Unconfirmed	C*12:174	Unconfirmed	C*12:194	Unconfirmed
C*12:135	Unconfirmed	C*12:155Q	Unconfirmed	C*12:175	Unconfirmed	C*12:195	Unconfirmed
C*12:136	Confirmed	C*12:156	Confirmed	C*12:176	Unconfirmed	C*12:196	Unconfirmed
C*12:137	Unconfirmed	C*12:157	Unconfirmed	C*12:177	Unconfirmed	C*12:197	Unconfirmed
C*12:138	Unconfirmed	C*12:158	Confirmed	C*12:178	Unconfirmed	C*12:198	Unconfirmed
C*12:139	Confirmed	C*12:159	Confirmed	C*12:179	Unconfirmed	C*12:199	Unconfirmed
C*12:140	Unconfirmed	C*12:160	Unconfirmed	C*12:180	Unconfirmed	C*12:200	Unconfirmed
C*12:141	Unconfirmed	C*12:161	Unconfirmed	C*12:181	Unconfirmed	C*12:201	Unconfirmed
C*12:142	Unconfirmed	C*12:162	Confirmed	C*12:182	Unconfirmed	C*12:202	Unconfirmed
C*12:143	Confirmed	C*12:163	Confirmed	C*12:183	Unconfirmed	C*12:203	Unconfirmed
C*12:144	Confirmed	C*12:164	Confirmed	C*12:184	Unconfirmed	C*12:204	Unconfirmed
C*12:145	Unconfirmed	C*12:165	Confirmed	C*12:185	Unconfirmed	C*12:205	Confirmed
C*12:146	Unconfirmed	C*12:166	Unconfirmed	C*12:186	Unconfirmed	C*12:206	Unconfirmed
C*12:147	Unconfirmed	C*12:167	Unconfirmed	C*12:187	Unconfirmed		
C*12:148N	Unconfirmed	C*12:168	Unconfirmed	C*12:188	Confirmed		
C*12:149	Confirmed	C*12:169	Unconfirmed	C*12:189	Unconfirmed		
C*12:150	Unconfirmed	C*12:170	Unconfirmed	C*12:190	Unconfirmed		
C*12:151	Unconfirmed	C*12:171	Unconfirmed	C*12:191	Unconfirmed		
C*12:152	Unconfirmed	C*12:172	Unconfirmed	C*12:192	Unconfirmed		

¹Allele status “confirmed” or “unconfirmed” as listed on the IMGT/HLA web page 2017-January-20, release 3.27.0, www.ebi.ac.uk/imgt/hla.

RESOLUTION IN HOMO- AND HETEROZYGOTES

Results file with resolution in HLA-C*12 homo- and heterozygotes is available upon request.



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SPECIFICITY TABLE

HLA-C*12 SSP subtyping

Specificities and sizes of the PCR products of the 47+1 primer mixes used for
HLA-C*12 SSP subtyping

Primer Mix	Size of spec. PCR product ¹	Size of control band ²	Amplified HLA-C*12 alleles ³	Other amplified HLA Class I alleles
1	235 bp	800 bp	*12:02:01-12:03:12, 12:03:13 ^w , 12:03:14-12:04:02:02, 12:06-12:08, 12:10:01-12:15, 12:17-12:20, 12:22-12:32, 12:34-12:48, 12:50-12:54, 12:56-12:97, 12:99:01-12:146, 12:148N-12:187, 12:189-12:194, 12:196-12:216, 12:218-12:268, 12:270N-12:298, 12:300, 12:302-12:349	*02:12, 02:49, 02:55:01-02:55:02, 02:115, 03:15, 03:27, 03:38:01-03:38:02, 03:53, 03:69, 03:130, 03:136, 03:163, 03:246, 03:274, 03:297, 03:431, 03:461, 04:03:01-01-04:03:01:02, 04:03:03-04:03:09, 04:06:01-04:06:03, 04:16, 04:80, 04:103:01-04:103:02, 04:107, 04:147, 04:160:01-04:160:02, 04:171, 04:190, 04:256, 04:286, 04:294, 04:335, 04:337, 04:351:01-04:351:02, 04:357, 04:363, 04:381, 04:383, 04:393, 04:400, 04:402, 05:42, 05:46:01-01-05:46:01:02, 06:03:01-06:03:02, 06:76:01-06:76:02, 06:132:01-06:132:02, 07:26:01-01-07:26:03, 07:92, 07:96:01-07:96:02, 07:314:01-07:314:03, 07:317, 07:351, 07:578, 07:583, 07:723, 07:756, 07:821N, 07:845, 07:870, 07:891, 07:894, 08:05, 08:21, 08:25, 08:137, 15:03, 15:16, 15:25, 16:15:01-16:15:02, 16:25, 16:64, 17:01:01-02-17:19, 17:21-17:26, 17:27N ^w , 17:28-17:39, 17:41-17:60, 18:09, A*25:55, A*68:226, B*07:13, B*07:15, B*07:160, B*67:02:01-01-67:02:01:02
2⁴	100 bp	1070 bp	*12:02:01-12:02:05, 12:02:07, 12:02:09-12:02:11, 12:02:13, 12:02:16-12:02:18, 12:02:20-12:02:29, 12:02:31, 12:02:33, 12:02:35-12:02:36, 12:02:38-12:02:39, 12:02:41-12:02:43, 12:03:19, 12:03:32, 12:05:02, 12:08, 12:10:01-12:10:02, 12:14:02, 12:16:01-12:18:01, 12:22, 12:27,	*01:04, 01:21, 14:02:21, 14:03:05, 16:02:13



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			12:30, 12:36, 12:40- 12:41, 12:44, 12:49, 12:56, 12:64, 12:67- 12:69, 12:72-12:74, 12:80N, 12:83-12:86, 12:96, 12:103-12:106, 12:112, 12:114, 12:117, 12:123-12:124, 12:126- 12:128, 12:130, 12:132, 12:134, 12:136-12:137, 12:142, 12:145-12:146, 12:148N, 12:151, 12:155Q, 12:161-12:162, 12:164, 12:166, 12:168- 12:169, 12:177, 12:179, 12:183, 12:188, 12:193, 12:196, 12:198, 12:200, 12:204, 12:207, 12:212, 12:214, 12:217, 12:219N, 12:221, 12:226, 12:228, 12:231, 12:234, 12:236N, 12:239-12:241, 12:243, 12:247, 12:250, 12:252, 12:255, 12:261, 12:263, 12:268, 12:270N, 12:275, 12:279-12:281, 12:285, 12:287, 12:294, 12:296, 12:303-12:304, 12:307- 12:308, 12:315, 12:327N, 12:329N, 12:335-12:336, 12:338, 12:344	
3	220 bp	800 bp	*12:03:01:01-12:07, 12:11-12:13:01:02, 12:15, 12:23, 12:25-12:26, 12:28-12:29, 12:31:01- 12:35, 12:37-12:39N, 12:42Q-12:43, 12:45- 12:48, 12:50-12:55, 12:57:01-12:63, 12:65- 12:66, 12:70-12:71, 12:75-12:79, 12:81-12:82, 12:87-12:95, 12:97- 12:102, 12:107-12:111, 12:113, 12:115-12:116, 12:119-12:122, 12:125, 12:129, 12:131, 12:133, 12:135, 12:138-12:141, 12:143-12:144, 12:147, 12:149-12:150, 12:152, 12:154, 12:156-12:160, 12:163, 12:165, 12:167, 12:170-12:174, 12:176, 12:178, 12:180, 12:182,	*01:04, 01:09:01-01:09:02, 02:05:01- 02:05:03, 02:17, 04:360, 06:02:01:01- 06:02:01:60, 06:02:03-06:02:42, 06:02:44-06:03:02, 06:07-06:13, 06:15-06:34:02, 06:36-06:39, 06:41- 06:71, 06:73-06:78, 06:80, 06:82- 06:100, 06:102:01-06:117, 06:119- 06:122, 06:124-06:126, 06:128N- 06:135, 06:137-06:142, 06:145- 06:152N, 06:154-06:196, 06:198- 06:202, 06:205-06:263N, 06:265- 06:270, 06:272-06:303, 06:305- 06:316N, 06:318-06:335, 14:16, 16:04:01:01-16:04:01:03, 16:04:03- 16:04:05, 16:29, 16:33, 16:42, 16:55, 16:61, 16:66, 16:78, 16:82, 16:91, 16:109, 16:124, 16:149-16:150, 16:182, B*15:510, B*35:475, B*46:84



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20⁴	105 bp 175 bp	1070 bp	*12:46N *12:22, 12:58, 12:94 12:252, 12:326	*01:129, 04:52, 04:55, 04:405, 05:55, 06:325, 14:10, 14:48, 15:12, 15:144
	230 bp		*12:19, 12:139Q, 12:158	*01:31, 06:313, 14:38, 16:174Q
21	250 bp	1070 bp	*12:14:01-12:14:02, 12:18:01-12:18:02, 12:20, 12:83, 12:169, 12:175	*01:22, 01:35, 01:131, 01:160, 05:11, 05:17, 05:27, 05:68, 05:79, 05:115, 05:134, 05:151, 05:184, 06:04:01-06:04:02:02, 06:118, 06:153:01-06:153:02, 06:197, 08:01:01:01-08:01:32, 08:03:01:01-08:04:03, 08:06, 08:08:01-08:11, 08:13-08:14, 08:16:01-08:16:02, 08:20-08:22:01:02,



101.624-12 – including *Taq* pol., IFU-01
101.624-12u – without *Taq* pol., IFU-02

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Lot No.: **6N5**

Lot-specific information

				08:24, 08:26N, 08:36N, 08:38-08:42, 08:44, 08:46, 08:50, 08:54, 08:56-08:61, 08:65-08:66, 08:72:01-08:72:02, 08:78-08:89N, 08:91, 08:93, 08:95-08:99, 08:101-08:102, 08:104-08:106, 08:109, 08:113, 08:117, 08:119, 08:121N-08:122, 08:124, 08:127N-08:131, 08:133, 08:135-08:139, 08:141Q, 08:143-08:145, 08:147-08:148, 08:153-08:155, 08:157, 08:162-08:165, 08:168, 08:173N-08:178, 08:182, 08:186-08:190, 08:192-08:194, 08:196-08:197, 08:199, 08:203-08:205, 08:208N-08:210, 08:212-08:213, 08:217, 08:219-08:221, 08:228, 08:232, 14:06, 14:15, 14:53, 14:77, 14:87, 15:02:01:01-15:05:07, 15:05:09-15:07:01:02, 15:09:01:01-15:13:02, 15:15-15:19, 15:21-15:24, 15:26-15:50, 15:52:01-15:73, 15:76-15:83, 15:85-15:101, 15:103-15:142, 15:144-15:147, 15:149-15:213N, 15:215-15:241, 16:35, 16:40, 16:48, 16:110, 17:01:01:02-17:16:02, 17:18-17:60
22⁴	100 bp 135 bp	1070 bp	*12:15, 12:23 *12:99:01-12:99:02, 12:235, 12:328 *12:21, 12:203	*15:02:14 *03:03:40, B*18:01:42, B*40:02:21^w
23⁴	590 bp 105 bp	1070 bp	*12:205	*05:106:02, 08:01:19 *05:235, 06:56, 07:620, 15:147, A*02:362, A*26:85, A*66:41, B*13:80, B*18:116, B*35:326, B*44:38
	140 bp 185 bp		*12:26, 12:63 *12:172, 12:201	*07:470, 16:36 *03:477, 03:496, 04:337
24	135 bp 185 bp 425 bp	1070 bp	*12:99:01, 12:235 *12:43 *12:28, 12:135, 12:325	*03:03:40, B*18:01:42 *04:01:05, 04:01:124, 06:02:38, 06:76:02, 07:447, 07:940
25⁴	80 bp 155 bp	1070 bp	*12:39N *12:02:06, 12:02:08, 12:02:12, 12:21, 12:118, 12:149	*02:02:44, 04:01:05, 04:01:124, 05:01:60, 05:106:02, 07:413, 07:422, 07:940, 08:01:19, 08:02:02, B*18:01:42, B*27:05:27, B*40:02:21
	430 bp		*12:167, 12:243	*02:12, 02:49 ^w , 02:55:01 ^w -02:55:02 ^w , 02:115, 04:226 ^w , 06:329:01:01 ^w - 06:329:01:02 ^w , 15:03 ^w , 15:16 ^w , 15:25
26⁵	355 bp	800 bp	*12:44, 12:309	*03:38:01-03:38:02, 03:69, 03:130, 03:136, 03:163, 03:246, 03:274, 03:297, 03:461, 04:80, 04:100, 04:178, 04:370, 04:422, 06:14, 06:143, 07:10,



101.624-12 – including *Taq* pol., IFU-01
101.624-12u – without *Taq* pol., IFU-02

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Lot No.: **6N5**

Lot-specific information

				07:43:01, 07:196, 07:367, 07:568, 15:03, 15:16, 15:25
27⁴	100 bp 150 bp 175 bp 215 bp 295 bp	1070 bp	*12:30 *12:03:19, 12:03:32, 12:05:02, 12:155Q *12:94 *12:36, 12:153 *12:101	*07:214, 07:429 *01:04, 14:02:21, 14:03:05, 16:02:13 *01:129, 06:325, 14:48, A*02:605Q *16:103 *14:84, 16:81, 16:143
28⁶	165 bp 275 bp 350 bp	1070 bp	*12:232N *12:50 *12:45, 12:166	*01:32:01-01:32:02, 02:56, 03:102, 03:263:01-03:263:02, 03:514, 04:180:01, 05:217, 06:20, 07:81, 07:168, 07:450, 07:896, 07:959, 08:123, 08:139, 14:82, 14:92, 15:126, 16:98, 16:102, 16:110 *01:203, 02:159, 02:161, 05:81, 06:87, 06:330, 07:24, 07:218, 14:65, 16:13, 16:61
29⁴	125 bp 185 bp 210 bp	1070 bp	*12:38, 12:104N, 12:219N *12:42Q, 12:172 *12:29, 12:86, 16:119	*07:820N, 14:93N, B*15:181N B*57:50, B*57:143N, 15:584N *03:477, 03:496, 04:337, 07:513Q, B*46:51Q
30^{4,7}	90 bp 210 bp 230 bp	800 bp	*12:32, 12:102, 12:144, 12:185 *12:162 *12:34	*02:51, 05:08, 05:52, 05:89, 06:41, 08:29, 08:31, B*15:33, B*15:248 *02:64
31	135 bp 180 bp 240 bp	1070 bp	*12:47, 12:84N, 12:123 *12:42Q, 12:80N *12:164	*02:133, A*11:197, A*26:67, A*68:95 *07:513Q, B*46:51Q *15:67
32⁴	55 bp 115 bp 180 bp	1070 bp	*12:54, 12:188 *12:37 *12:62	*01:59, 01:118, 02:65, 03:130, 03:140:01-01:03:140:01:02, 03:243, 04:114, 04:383, 05:20, 06:82, 06:210, 07:49, 07:210, 07:238, 07:247, 07:403, 14:04, 14:64, 14:77, 15:85, 15:181, 16:57, A*03:267, A*68:46, B*07:253 *06:209:02, 07:204:01, 07:482, A*02:211:01, A*02:594, A*02:817, A*24:261, A*24:445N, A*68:76:01- 68:76:02 A*02:335
33	135 bp 210 bp	1070 bp	*12:105N, 12:219N *12:100	*07:820N
34⁴	85 bp 235 bp 260 bp	1070 bp	*12:171 *12:109 *12:125	*01:200, 02:170, 03:171, 03:211:01, 04:144, 05:93, 06:73, 08:20, 08:40, 15:221
35	195 bp 260 bp	1070 bp	*12:110, 12:143, 12:278, 12:325 *12:125	*01:173, 03:411, 04:375, 04:380, 06:227, 08:229, 15:154, A*68:275



101.624-12 – including *Taq* pol., IFU-01
101.624-12u – without *Taq* pol., IFU-02

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Lot No.: **6N5**

Lot-specific information

36	180 bp	1070 bp	*12:62, 12:111, 12:149	*03:282, 07:413, 07:422, 08:18, A*02:335, A*11:379, A*30:191, B*35:339, B*40:346
37⁴	90 bp 225 bp 285 bp	1070 bp	*12:163 *12:108 *12:73	B*14:51, B*53:34, B*58:21
38⁴	105 bp	1070 bp	*12:15, 12:113, 12:282, 12:309 *12:156	*15:02:14, B*18:01:42, B*40:02:21, B*57:01:24 *04:01:05, 04:01:124, 14:02:08
39	145 bp 200 bp 225 bp	1070 bp	*12:136 *12:59, 12:82	*04:280 ^w *07:102, 07:351, A*25:55, B*07:13, B*07:15, B*07:160, B*42:18, B*67:02:01:01-67:02:01:02
40^{4,7}	65 bp	1070 bp	*12:04:01-12:04:02:02, 12:41, 12:60, 12:72, 12:135, 12:146, 12:154	*02:12, 02:49, 02:55:01-02:55:02, 03:15, 03:163, 03:297, 03:461, 04:01:01:01-04:01:01:29, 04:01:01:31- 04:01:47, 04:01:49-04:01:106:02, 04:01:108-04:01:131, 04:01:133- 04:01:141, 04:03:01:01-04:09N, 04:12- 04:20, 04:23-04:28, 04:30-04:35:02, 04:37-04:44, 04:46-04:54:02, 04:56- 04:96, 04:98:01-04:113, 04:115N- 04:147, 04:149-04:152, 04:154- 04:168, 04:170N-04:171, 04:173N- 04:209, 04:211-04:213, 04:216- 04:249, 04:251-04:284, 04:286- 04:332, 04:334-04:345, 04:348- 04:382Q, 04:384-04:413, 04:415, 04:417N-04:456Q, 05:42, 05:46:01:01- 05:46:01:02, 06:02:01:01-06:02:01:60, 06:02:03-06:02:23, 06:02:25- 06:02:50:02, 06:02:52-06:02:86, 06:02:88-06:02:90, 06:02:92- 06:04:02:02, 06:06:01:01-06:10, 06:12-06:43:02, 06:45-06:64, 06:66- 06:81, 06:83-06:123, 06:125-06:137, 06:139-06:146, 06:148-06:197, 06:199-06:209:02, 06:211:01:01N- 06:216, 06:218-06:247, 06:249- 06:251, 06:253-06:335, 07:07, 07:09, 07:76:01-07:76:02, 07:315, 07:406, 07:559, 07:598, 07:656, 07:914, 14:49, 15:03, 15:16, 16:25, 17:01:01:02- 17:01:14, 17:01:16-17:14, 17:16:01- 17:21, 17:23-17:39, 17:41-17:60, 18:01:01:01-18:14
41	215 bp 240 bp	1070 bp	*12:90, 12:148N *12:164	B*56:08 *15:67
42⁴	125 bp	1070 bp	*12:122	*03:03:40, B*35:01:54, B*35:08:10, B*35:12:03, B*44:03:24, B*51:01:79, B*53:01:06, B*57:01:24, B*58:01:33



101.624-12 – including *Taq* pol., IFU-01
101.624-12u – without *Taq* pol., IFU-02

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Lot-specific information

43	180 bp	1070 bp	*12:28, 12:132, 12:135, 12:146, 12:287, 12:325	*02:49, 02:75, 02:115, 04:01:01:01- 04:01:01:29, 04:01:01:31-04:01:09, 04:01:11-04:01:22, 04:01:24-04:01:73, 04:01:74 ^w , 04:01:75-04:01:141, 04:03:01:01-04:03:08, 04:04:01:01- 04:07:01, 04:08-04:10, 04:12-04:20, 04:23-04:26, 04:28-04:32, 04:34- 04:51, 04:53-04:54:02, 04:56-04:106, 04:108-04:115N, 04:117-04:129, 04:131-04:166:01, 04:166:03-04:168, 04:170N-04:171, 04:173N-04:230, 04:232-04:282, 04:284-04:404, 04:406-04:413, 04:415-04:456Q, 05:25, 05:42, 06:02:72, 06:05, 06:76:02, 07:01:74, 07:02:09, 07:125:02, 07:583, 08:28, 08:137, 08:168, 14:116, 15:25, 15:62, 15:169, 16:26, 16:46, 16:55, 16:64
44	145 bp	1070 bp	*12:16:01, 12:147, 12:195:02, 12:217	*02:14:01-02:14:02, 02:107, 02:164, 04:42:01-04:42:02, 04:220, 05:43, 06:02:72, 06:05, 07:01:74, 07:02:09, 07:125:02, 08:37, 15:23:01-15:23:02, 15:63, 15:138, 15:158, 16:21, 16:80
	290 bp		*12:160	
45	245 bp	1070 bp	*12:181	*07:01:01:01-07:01:02:10, 07:01:04- 07:01:88, 07:01:90-07:02:20, 07:02:22-07:02:104:02, 07:02:106:01- 07:33N, 07:35-07:40, 07:42-07:165, 07:167-07:294, 07:296-07:347N, 07:349-07:622, 07:624-07:765, 07:767-07:798, 07:800-07:831, 07:833-07:942, 07:944-07:947, 07:949-07:969
46	175 bp 190 bp	1070 bp	*12:165 *12:143, 12:278, 12:325	*02:148 *01:173, 03:411, 04:375, 04:380, 06:227, 08:229, 15:154, A*68:275
47	370 bp	1070 bp	*12:02:01-12:02:02:15, 12:02:04-12:02:07, 12:02:09-12:02:11, 12:02:13-12:02:43, 12:03:29, 12:03:32, 12:08, 12:14:01-12:14:02, 12:16:01-12:18:02, 12:22, 12:27, 12:30, 12:36, 12:40-12:41, 12:56, 12:64, 12:67-12:69, 12:72-12:74, 12:80N, 12:83-12:86, 12:103- 12:106, 12:112, 12:114, 12:117, 12:123-12:124, 12:126-12:128, 12:130, 12:132, 12:134, 12:136- 12:137, 12:142,	*01:21, 02:12, 02:49, 02:55:01- 02:55:02, 02:115, 04:01:55, 04:15:01, 04:15:03, 04:294, 04:367, 04:443, 06:02:37, 06:127:02, 06:264, 07:01:07, 07:04:03, 07:14, 07:27:02, 07:31:02, 07:43:02, 07:199:02, 07:526:01, 07:681, 17:01:10



101.624-12 – including Taq pol., IFU-01
101.624-12u – without Taq pol., IFU-02

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Lot-specific information

			12:145-12:146, 12:148N, 12:151, 12:161, 12:164, 12:166, 12:168-12:169, 12:177, 12:179, 12:183, 12:193, 12:196, 12:198, 12:200, 12:204, 12:207, 12:212, 12:214, 12:217, 12:219N, 12:224, 12:226, 12:228, 12:231, 12:234, 12:236N, 12:239-12:241, 12:243, 12:247, 12:250, 12:252, 12:255, 12:261, 12:263, 12:268, 12:270N, 12:275, 12:279-12:281, 12:285, 12:287, 12:294, 12:298, 12:303-12:304, 12:307-12:308, 12:315, 12:327N, 12:329N, 12:335-12:336, 12:338, 12:344
48⁸	-	-	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-C*12 high resolution SSP typings.

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

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

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

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

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

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

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

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

⁵Primer mixes 5 and 26 may give rise to a lower yield of HLA-specific PCR product than the other C*12 primer mixes

⁶Primer mix 28 has a most pronounced tendency to giving rise to primer oligomer formation.

⁷Primer mixes 30 and 40 may have tendencies of unspecific amplifications.



101.624-12 – including *Taq* pol., IFU-01101.624-12u – without *Taq* pol., IFU-02Visit www.labproducts.caredx.com for

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⁸Primer mix 48 contains a negative control, which will amplify a 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: might be weakly amplified.



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Lot No.: **6N5**

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	100	220	340	130	75 150 415	225	95 155 195 245	95	155	230	135
Length of int. pos. control ¹	800	1070	800	1070	1070	1070	1070	1070	1070	1070	1070	1070
5'-primer(s) ²	98 5'-CTA 3'	419 5'-gTC 3'	357 5'-CTT 3' 361 5'-AgT 3'	1st I 5'-CgA 3'	201 5'-CCA 3'	28 431 5'-CgT 3'	118 5'-CCg 3'	98 420 5'-TTA 3'	289 5'-Agg 3'	361 5'-AgT 3'	361 5'-AgT 3'	201 213 5'-CCC 3'
3'-primer(s) ³	289 5'-AgC 3'	477 5'-gCA 3'	538 5'-CCA 3'	302 5'-ggT 3'	289 5'-AgT 3'	270 5'-TAG 3'	302 5'-ggT 3'	214 5'-CCA 3'	341 5'-Cgg 3'	474 5'-gCA 3'	538 5'-CCg 3'	302 5'-ggC 3'
	289 5'-AgC 3'				289 5'-AgT 3'	538 5'-CCA 3'		251 5'-CCT 3'			559 5'-CAT 3'	
	295 5'-TCC 3'							301 5'-gCC 3'				
								474 5'-gCA 3'				
Well No.	1	2	3	4	5	6	7	8	9	10	11	12



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Lot No.: **6N5**

Lot-specific information

Well No.	13	14	15	16	17	18	19	20	21	22	23	24
Length of spec.	105	100	140	185	130	145	100	105	250	100	105	135
PCR product	150	150		225	565	175		175		135	140	185
						245		230		590	185	425
						270						
Length of int.	1070	1070	1070	1070	1070	1070	1070	1070	1070	1070	1070	1070
pos. control ¹												
5'-primer(s) ²	368	142	201	2nd I	201	98	257	201	2nd I	176	201	98
	5'-gTT 3'	5'-TCT 3'	5'-CCA 3'	5'-CCA 3'	5'-CCg 3'	5'-CTA 3'	5'-CCC 3'	5'-CCA 3'	5'-CCA 3'	5'-gCA 3'	5'-CCA 3'	5'-CTA 3'
	375	364			379	201	477	361		379	368	341
	5'-Tgg 3'	5'-ggT 3'			5'-ACg 3'	5'-CCA 3'	5'-gCT 3'	5'-AgT 3'		5'-ACg 3'	5'-gTA 3'	5'-ggA 3'
	412	368			386	3rd I				379	3rd I	379
	5'-ATA 3'	5'-gTC 3'			5'-gCT 3'	5'-Cgg 3'				5'-ACg 3'	5'-Cgg 3'	5'-ACg 3'
										420		
										5'-TTA 3'		
										3rd I		
										5'-Cgg 3'		
3'-primer(s) ³	474	201	299	473	474	295	311	332	539	474	288	241
	5'-gCA 3'	5'-CTT 3'	5'-TCT 3'	5'-CAA 3'	5'-gCA 3'	5'-TCC 3'	5'-ggT 3'	5'-TCC 3'	5'-TCA 3'	5'-gCA 3'	5'-gCg 3'	5'-CgT 3'
	477	474		512		308	539	343		658	430	474
	5'-gCA 3'	5'-gCA 3'		5'-CCA 3'		5'-TCg 3'	5'-TCA 3'	5'-T 3'		5'-gTg 3'	5'-gCT 3'	5'-gCA 3'
						326		426			476	
						5'-TgC 3'		5'-TCC 3'			5'-CgA 3'	
						728		506			728	
						5'-CCg 3'		5'-TgT 3'			5'-CCg 3'	
								538			739	
								5'-gCA 3'			5'-gTT 3'	
								559				
								5'-CAT 3'				
								562				
								5'-gCg 3'				
Well No.	13	14	15	16	17	18	19	20	21	22	23	24



101.624-12 – including *Taq* pol., IFU-01
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Lot-specific information

Well No.	25	26	27	28	29	30	31	32	33	34	35	36
Length of spec.	80	355	100	165	125	90	135	55	135	85	195	180
PCR product	155		150	275	185	210	180	115	210	235	260	
	430		175	350	210	230	240	180		260		
			215									
			295									
Length of int.	1070	800	1070	1070	1070	800	1070	1070	1070	1070	1070	1070
pos. control ¹												
5'-primer(s) ²	28	289	127	385	419	347	98	173	419	625	625	173
	5'-TCC 3'	5'-Agg 3'	5'-gAC 3'	5'-ggT 3'	5'-gTC 3'	5'-gTg 3'	5'-CTA 3'	5'-CgA 3'	5'-gTC 3'	5'-ACg 3'	5'-ACg 3'	5'-CgA 3'
	173		228	463	3rd I	370	419	302		652	694	173
	5'-CgC 3'		5'-ATg 3'	5'-TgA 3'	5'-Cgg 3'	5'-ACT 3'	5'-gTC 3'	5'-gAA 3'		5'-CCA 3'	5'-gCA 3'	5'-CgC 3'
	252		361	569		485		379		802	1046	710
	5'-TgA 3'		5'-AgT 3'	5'-gA 3'		5'-CAA 3'		5'-ACC 3'		5'-AgC 3'	5'-TgT 3'	5'-gAA 3'
	361		375			490						
	5'-AgC 3'		5'-Tgg 3'			5'-CgT 3'						
	361					499						
	5'-AgA 3'					5'-TCg 3'						
3'-primer(s) ³	289	353	289	3rd I	502	538	175	312	508	846	846	312
	5'-AgC 3'	5'-TgA 3'	5'-AgC 3'	5'-CTC 3'	5'-CTA 3'	5'-CCA 3'	5'-CCA 3'	5'-Agg 3'	5'-CTA 3'	5'-CAC 3'	5'-CAC 3'	5'-Agg 3'
	474		477		505		197	453	514		1087	846
	5'-gCA 3'		5'-gCA 3'		5'-gCC 3'		5'-gAT 3'	5'-TCT 3'	5'-CTA 3'		5'-AgC 3'	5'-CAC 3'
			506		508		201		589			
			5'-TgT 3'		5'-CTA 3'		5'-CTT 3'		5'-CTg 3'			
			545		564		251					
			5'-AgA 3'		5'-ACC 3'		5'-CCT 3'					
			613		587		296					
			5'-gCA 3'		5'-CCC 3'		5'-CTg 3'					
					739		564					
					5'-gTT 3'		5'-ACC 3'					
Well No.	25	26	27	28	29	30	31	32	33	34	35	36

Well No.	37	38	39	40	41	42	43	44	45	46	47
Length of spec.	90	105	200	65	215	125	180	145	245	175	370
PCR product	225	145	225		240			290		190	
	285										
Length of int.	1070	1070	1070	1070	1070	1070	1070	1070	1070	1070	1070
pos. control ¹											
5'-primer(s) ²	98	368	103	289	98	474	201	97	648	404	289
	5'-CTA 3'	5'-gTT 3'	5'-CCT 3'	5'-Agg 3'	5'-CTA 3'	5'-ACT 3'	5'-CCA 3'	5'-TCg 3'	5'-CAC 3'	5'-CCA 3'	5'-Agg 3'
		409	112					832		1046	
		5'-ggC 3'	5'-CCg 3'					5'-AAC 3'		5'-TgT 3'	
			130								
			5'-AgA 3'								
3'-primer(s) ³	146	474	289	312	265	559	341	201	853	538	369
	5'-CCC 3'	5'-gCA 3'	5'-AgC 3'	5'-AgT 3'	5'-CTA 3'	5'-CAg 3'	5'-CgT 3'	5'-CTT 3'	5'-CAT 3'	5'-CCA 3'	5'-CCg 3'
	284				277			956		1087	
	5'-gTT 3'				5'-gCC 3'			5'-CAg 3'		5'-AgC 3'	
	340				296						
	5'-ggT 3'				5'-CTg 3'						
Well No.	37	38	39	40	41	42	43	44	45	46	47



101.624-12 – including *Taq* pol., IFU-01
101.624-12u – without *Taq* pol., IFU-02

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Lot No.: 6N5

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.



101.624-12 – including *Taq* pol., IFU-01
101.624-12u – without *Taq* pol., IFU-02

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Lot No.: 6N5

Lot-specific information

CELL LINE VALIDATION SHEET																					
HLA-C*12 SSP primer set ²																					
					Prod. No.:	Well															
						1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
						202014601	202014602	202014603	202014604	202014605	202014606	202014607	202014608	202014609	202014610	202014611	202014612	202014613	202014614	202014615	202014616
	IHCW cell line ¹		C*																		
1	9001	SA	*07:02			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2	9280	LK707	*07:01	*15:05		-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	
3	9011	E4181324	*12:02			+	+	-	-	-	-	-	-	+	-	-	+	-	-	-	
4	9275	GU373	*03:04	*04:01		-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	
5	9009	KAS011	*06:02			-	-	+	+	-	-	+	-	-	-	-	-	-	-	-	
6	9353	SM	*03:04	*07:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
7	9020	QBL	*05:01			-	-	-	+	+	-	+	-	-	-	-	-	-	-	-	
8	9025	DEU	*04:01			-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	
9	9026	YAR	*12:03			+	-	+	-	-	-	-	-	+	+	-	+	-	-	-	
10	9107	LKT3	*01:02			-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	
11	9051	PITOUT	*16:01			-	-	-	-	+	-	-	-	-	-	-	+	-	-	-	
12	9052	DBB	*06:02			-	-	+	+	-	-	+	-	-	-	-	-	-	-	-	
13	9004	JESTHOM	*01:02			-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	
14	9071	OLGA	*01:02	*03:04		-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	
15	9075	DKB	*03:04			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
16	9037	SWEIG007	*02:02			-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	
17	9282	CTM3953540	*03:03	*07:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
18	9257	32367	*01:02	*07:05		-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	
19	9038	BM16	*07:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
20	9059	SLE005	*03:04			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
21	9064	AMALA	*03:03			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
22	9056	KOSE	*12:03			+	-	+	-	-	-	-	-	+	+	-	+	-	-	-	
23	9124	IHL	*01:02	*15:02		-	-	-	+	+	-	-	-	-	-	+	-	-	-	-	
24	9035	JBUSH	*12:03			+	-	+	-	-	-	-	-	+	+	-	+	-	-	-	
25	9049	IBW9	*08:02			-	-	-	-	+	-	-	-	-	-	-	+	-	-	-	
26	9285	WT49	*07:18			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
27	9191	CH1007	*07:04	*15:29		-	-	-	+	+	-	-	-	-	-	-	+	-	-	-	
28	9320	BEL5GB	*05:01	*16:01		-	-	-	+	+	-	+	-	-	-	-	+	-	-	-	
29	9050	MOU	*16:01			-	-	-	-	+	-	-	-	-	-	-	+	-	-	-	
30	9021	RSH	*17:01			+	-	-	+	-	-	+	-	+	-	-	-	-	-	+	
31	9019	DUCAF	*05:01			-	-	-	+	+	-	+	-	-	-	-	-	-	-	-	
32	9297	HAG	*17:03			+	-	-	+	-	-	+	-	+	-	-	-	-	-	+	
33	9098	MT14B	*03:04			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
34	9104	DHIF	*12:03			+	-	+	-	-	-	-	-	+	+	-	+	-	-	-	
35	9302	SSTO	*05:01			-	-	-	+	+	-	+	-	-	-	-	-	-	-	-	
36	9024	KT17	*03:03	*04:01		-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	
37	9065	HHKB	*07:02			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
38	9099	LZL	*03:03			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
39	9315	CML	*02:02	*07:01		-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	
40	9134	WHONP199	*01:02	*06:02		-	-	+	+	-	-	+	-	-	-	+	-	-	-	-	
41	9055	H0301	*08:02			-	-	-	-	+	-	-	-	-	-	-	+	-	-	-	
42	9066	TAB089	*01:02			-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	
43	9076	T7526	*01:02	*08:01		-	-	-	-	+	-	-	-	-	-	+	+	-	-	-	
44	9057	TEM	*12:03			+	-	+	-	-	-	-	-	+	+	-	+	-	-	-	
45	9239	SHJO	*06:02	*17:01		+	-	+	+	-	-	+	-	+	-	-	-	-	-	+	
46	9013	SCHU	*07:02			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
47	9045	TUBO	*07:04	*15:02		-	-	-	+	+	-	-	-	-	-	-	+	-	-	-	
48	9303	TER-ND	*04:01	*16:01		-	-	-	+	+	-	-	-	-	-	-	+	-	-	-	



101.624-12 – including *Taq* pol., IFU-01
101.624-12u – without *Taq* pol., IFU-02

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Lot No.: **6N5**

Lot-specific information

CELL LINE VALIDATION SHEET																																			
HLA-C*12 SSP primer set ²																																			
						Prod. No.:	Well																												
							17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32													
							202014617	202014618	202014619	202014620	202014621	202014622	202014623	202014624	202014625	202014626	202014627	202014628	202014629	202136530	202014631	202014632													
	IHWC cell line ¹		C*																																
1	9001	SA	*07:02				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2	9280	LK707	*07:01			*15:05	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
3	9011	E4181324	*12:02				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4	9275	GU373	*03:04			*04:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
5	9009	KAS011	*06:02				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
6	9353	SM	*03:04			*07:02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
7	9020	QBL	*05:01				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
8	9025	DEU	*04:01				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
9	9026	YAR	*12:03				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
10	9107	LKT3	*01:02				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
11	9051	PITOUT	*16:01				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
12	9052	DBB	*06:02				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
13	9004	JESTHOM	*01:02				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
14	9071	OLGA	*01:02			*03:04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
15	9075	DKB	*03:04				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
16	9037	SWEIG007	*02:02				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
17	9282	CTM3953540	*03:03			*07:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
18	9257	32367	*01:02			*07:05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
19	9038	BM16	*07:01				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
20	9059	SLE005	*03:04				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
21	9064	AMALA	*03:03				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
22	9056	KOSE	*12:03				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
23	9124	IHL	*01:02			*15:02	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
24	9035	JBUSH	*12:03				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
25	9049	IBW9	*08:02				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
26	9285	WT49	*07:18				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
27	9191	CH1007	*07:04			*15:29	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
28	9320	BEL5GB	*05:01			*16:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
29	9050	MOU	*16:01				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
30	9021	RSH	*17:01				-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
31	9019	DUCAF	*05:01				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
32	9297	HAG	*17:03				-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
33	9098	MT14B	*03:04				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
34	9104	DHIF	*12:03				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
35	9302	SSTO	*05:01				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
36	9024	KT17	*03:03			*04:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
37	9065	HHKB	*07:02				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
38	9099	LZL	*03:03				-	-	-	-	-	-	-	-	-	-	-	-																	



101.624-12 – including *Taq* pol., IFU-01

101.624-12u – without *Taq* pol., IFU-02

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Lot No.: **6N5**

Lot-specific information

CELL LINE VALIDATION SHEET																				
HLA-C*12 SSP primer set ²																				
					Prod. No.:	Well														
						33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
						202014633	202014634	202014635	202014636	202014637	202014638	202014639	202014640	202014641	202014642	202014643	202014644	202014645	202014646	202014647
	IHC cell line ¹		C*																	
1	9001	SA	*07:02			-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
2	9280	LK707	*07:01	*15:05		-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
3	9011	E4181324	*12:02			-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
4	9275	GU373	*03:04	*04:01		-	-	-	-	-	-	-	+	-	-	+	-	-	-	-
5	9009	KAS011	*06:02			-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
6	9353	SM	*03:04	*07:02		-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
7	9020	QBL	*05:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	9025	DEU	*04:01			-	-	-	-	-	-	-	+	-	-	+	-	-	-	-
9	9026	YAR	*12:03			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	9107	LKT3	*01:02			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	9051	PITOUT	*16:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	9052	DBB	*06:02			-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
13	9004	JESTHOM	*01:02			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	9071	OLGA	*01:02	*03:04		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	9075	DKB	*03:04			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	9037	SWEIG007	*02:02			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	9282	CTM3953540	*03:03	*07:01		-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
18	9257	32367	*01:02	*07:05		-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
19	9038	BM16	*07:01			-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
20	9059	SLE005	*03:04			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	9064	AMALA	*03:03			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	9056	KOSE	*12:03			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	9124	IHL	*01:02	*15:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	9035	JBUSH	*12:03			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	9049	IBW9	*08:02			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	9285	WT49	*07:18			-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
27	9191	CH1007	*07:04	*15:29		-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
28	9320	BEL5GB	*05:01	*16:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	9050	MOU	*16:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	9021	RSH	*17:01			-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
31	9019	DUCAF	*05:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	9297	HAG	*17:03			-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
33	9098	MT14B	*03:04			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34	9104	DHIF	*12:03			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35	9302	SSTO	*05:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
36	9024	KT17	*03:03	*04:01		-	-	-	-	-	-	-	+	-	-	+	-	-	-	-
37	9065	HHKB	*07:02			-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
38	9099	LZL	*03:03			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39	9315	CML	*02:02	*07:01		-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
40	9134	WHONP199	*01:02	*06:02		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
41	9055	H0301	*08:02			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
42	9066	TAB089	*01:02			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43	9076	T7526	*01:02	*08:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44	9057	TEM	*12:03			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45	9239	SHJO	*06:02	*17:01		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
46	9013	SCHU	*07:02			-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
47	9045	TUBO	*07:04	*15:02		-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
48	9303	TER-ND	*04:01	*16:01		-	-	-	-	-	-	-	+	-	-	+	-	-	-	-



101.624-12 – including *Taq* pol., IFU-01

101.624-12u – without *Taq* pol., IFU-02

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Lot No.: 6N5

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 6, 8, 13 to 15, 17 to 20, 22 to 39, 41, 42, 44 and 46 were available. The specificities of the primers in primer solutions 6, 8, 13 to 15, 17, 19, 20, 22, 24 to 28, 30, 32, 38, 39, 42 and 44 were tested by separately adding additional 5'-primers, respectively additional 3'-primers. In primer solutions 18, 23, 29, 31, 33, 37 and 41 it was only possible to test the 5'-primers, the 3'-primers were not possible to test. In primer solutions 34 to 36 and 46 it was only possible to test the 3'-primers, the 5'-primers were not possible to test. In primer solutions 3, 6, 13, 14, 17, 19, 25, 27, 28, 30, 32, 39 and 44 one or more 5'-primers were not possible to test, and in primer solutions 1, 8, 11, 16, 20, 22, 24 and 27 one or more 3'-primers were not possible to test.



101.624-12 – including *Taq* pol., IFU-01
101.624-12u – without *Taq* pol., IFU-02

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Lot No.: **6N5**

Lot-specific information

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