

101.603-24/12 – including *Taq* pol., IFU-01
101.603-24u/12u – without *Taq* pol., IFU-02

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

Lot No.: **4N2**

Lot-specific information

Olerup SSP® HLA-C low resolution screening

Product number:	101.603-24/12 – including <i>Taq</i> pol. 101.603-24u/12u – without <i>Taq</i> pol.
Lot number:	4N2
Expiry date:	2025-07-01
Number of tests:	24 tests – Product No. 101.603-24/24u 12 tests – Product No. 101.603-12/12u
Number of wells per test:	23 + 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. 4N2.

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 LOW RESOLUTION SCREENING LOT (1K9)

The **HLA-C low resolution Screening** specificity and interpretation tables have been updated for the HLA-C alleles described since the previous *Olerup SSP*® HLA-C low resolution Screening lot was made (**Lot No. 1K9**). The kit design is based on IMGT/HLA database 3.44.0.

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

Well	5'-primer	3'-primer	rationale
1	Added	Added	Primer pair added for the C*01:156 allele.
3	Added		5'-primer added for the C*03:02:10 allele.
4	Added	-	5'-primer added for the C*03:02:13 allele.
8	-	Added	3'-primer added for improved yield of the C*15:05 alleles.
20	-	Added	3'-primer added for the C*14:02:32 allele.



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Well **24** contains Negative Control primer pairs, that will amplify the majority of the *Olerup SSP*[®] HLA Class I, DRB, DQB1, DPB1 and DQA1 amplicons as well as all the amplicons generated by the control primer pairs matching the human growth hormone gene.

HLA-specific PCR product sizes range from 75 to 200 base pairs.

The PCR products generated by the positive control primer pair is 200 base pairs.

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

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

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



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Lot-specific information

PRODUCT DESCRIPTION

HLA-C-low resolution screening SSP subtyping

CONTENT

The primer set contains 5'- and 3'-primers for grouping the HLA-C*01:02 to C*18:14 alleles into the groups C*01:xx to C*18:xx.

PLATE LAYOUT

Each test consists of 24 PCR reactions in a 24 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	NC

The 24 well cut PCR plate is marked with 'HLA-C low screening' in silver/gray ink. Well No. 1 is marked with the Lot No. '4N2'.

Wells 1 to 23 – HLA-C low resolution screening primers.

Well 24 – Negative Control.

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

Please note: When removing each 24 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 alleles non-HLA-C alleles will be amplified by some primer mixes. For further details see Specificity Table.

UNIQUELY IDENTIFIED ALLELES

All the HLA-C alleles, i.e. **C*01:02 to C*18:14**, recognized by the HLA Nomenclature Committee in April 2021^{1,2} will be amplified by the primers in the HLA-C low resolution screening SSP kit³. The HLA-C alleles will be grouped into the C*01:xx to C*18:xx groups.

¹HLA-C alleles listed on the IMGT/HLA web page 2021-April-20, release 3.44.0, 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 following alleles give rise to identical amplification patterns with the HLA-C low screening resolution primer set. These alleles can be separated by the respective high resolution primer sets.



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Lot-specific information

Alleles	Alleles
C*01:125, 14:58	C*12:02:29, 12:49, 12:123, B*18:01:42, B*57:01:24
C*01:169:02, 03:94	C*12:03:34:01-12:03:34:02, B*15:510, B*35:475
C*03:16, 03:536, B*46:77	C*14:06, 14:08-14:09, 14:28:01-14:28:02, 14:63, 14:105Q, A*29:86, A*30:62, A*31:187, A*33:63, B*08:249, B*18:64, B*35:183, 35:252, 35:502, B*39:114, 39:140, B*40:138, B*41:59
C*05:206, 17:05	C*14:110, B*07:239, B*14:03
C*12:02:14-12:02:15, 12:02:19, 12:02:30, 12:02:32, 12:02:34, 12:02:37, 12:02:40, 12:18:02, 12:222, 12:224, B*67:02:01:01- 67:02:01:02	



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Lot-specific information

SPECIFICITY TABLE

HLA-C low resolution screening SSP typing

Specificities and sizes of the PCR products of the 23+1 primer mixes used for HLA-C low resolution SSP typing

Primer Mix	Size of spec. PCR product ¹	Size of control band ²	Amplified HLA class I alleles ³
1⁴	90 bp, 150 bp, 210 bp	800 bp	*01:02:01:01-01:211N, 01:213, 03:58, 03:86, 03:94, 03:416, 04:37, 04:71, 04:436N, 05:85, 05:107, 05:200, 05:241, 06:204, 07:316, 07:338, 07:579, 12:215, 14:45, 14:58, 15:102, 15:104, B*15:539, B*39:76, B*54:18
2^{5,11}	130 bp, 200 bp, 270 bp, 300 bp	800 bp	*01:10, 01:43, 02:02:01-02:02:03, 02:02:06-02:40:02, 02:42-02:57, 02:59-02:196, 02:198-02:203, 04:32, 04:77, 04:265, 04:357, 04:406, 05:105, 05:200, 05:206, 06:08, 07:101, 07:148, 07:161, 07:583, 08:31, 08:185, 12:119, 12:198, 14:25, 15:42, 15:111, 15:201, 16:29, 16:50, 17:01:01:02-17:02, 17:08-17:16:02, 17:18-17:22, 17:24-17:32, 17:34-17:59, 18:03
3	250 bp, 280 bp	800 bp	*01:48, 01:169:02, 02:02:01-02:02:03, 02:02:06-02:40:02, 02:42-02:86, 02:88-02:106, 02:108-02:133, 02:135N-02:151, 02:153-02:166, 02:168-02:203, 03:02:01-03:02:25, 03:04:01:01-03:10, 03:14-03:17:02, 03:19, 03:23N-03:29, 03:32-03:38:02, 03:40:01-03:42:02, 03:44-03:48, 03:51, 03:54, 03:57:01-03:57:02, 03:60, 03:63-03:64:01, 03:65, 03:70-03:74, 03:77-03:78, 03:80:01-03:80:02, 03:82, 03:84, 03:87:01-03:87:02, 03:89-03:95, 03:98, 03:100-03:101, 03:104-03:111, 03:113:01-03:115:02, 03:117-03:118, 03:121N, 03:123, 03:125, 03:128-03:131, 03:134-03:140:01:02, 03:143, 03:145-03:149, 03:153-03:157, 03:159, 03:162-03:164, 03:166, 03:169Q-03:170, 03:172-03:174, 03:178-03:181, 03:183-03:184:02, 03:186:01-03:186:02, 03:190-03:191, 03:193-03:194, 03:197-03:201N, 03:208N-03:213, 03:215-03:216, 03:218-03:219, 03:221-03:222, 03:224N-03:226, 03:232-03:236, 03:238-03:240, 03:244Q-03:250, 03:252, 03:255-03:261, 03:263:01-03:266, 03:269-03:270, 03:277N-03:283, 03:286-03:287:02, 03:292-03:294, 03:296:01-03:303, 03:305-03:306, 03:309-03:311, 03:313-03:315, 03:317-03:318N, 03:322-03:323N, 03:326, 03:328-03:335, 03:337-03:338, 03:340, 03:342-03:343, 03:347-03:350, 03:353-03:355, 03:358-03:359, 03:361-03:362, 03:365-03:366N, 03:368-03:369, 03:371, 03:373, 03:376, 03:379, 03:381-03:382, 03:384-03:388, 03:390-03:394, 03:396:01N-03:397, 03:399-03:412, 03:415, 03:417, 03:419-03:420, 03:423-03:426, 03:429, 03:431, 03:434-03:435, 03:437, 03:439, 03:441-03:443, 03:445N-03:446N, 03:448Q-03:449N, 03:452-03:456, 03:458-03:459, 03:462N-03:470N, 03:473, 03:475, 03:478, 03:480, 03:482-03:489, 03:491:01-03:494, 03:496-03:502, 03:505, 03:508N, 03:510N-03:513, 03:518, 03:521-03:523, 03:525-03:526, 03:531N-03:532, 03:536, 03:538-03:539, 03:543-03:544, 03:546-03:549, 03:552-03:555, 03:558, 03:561, 04:03:01:01-04:03:07, 04:06:01-04:06:03, 04:16, 04:80, 04:107, 04:147, 04:160:01-04:160:02, 04:171, 04:190, 04:256, 04:286, 04:294, 04:299, 04:335, 04:337,



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4^{4,6}	85 bp, 170 bp, 210 bp, 275 bp	1070 bp	*01:67, 01:122, 01:131, 03:02:01-03:03:51, 03:03:53-03:04:06, 03:04:08-03:11:02, 03:13:01:01-03:15, 03:17:01-03:40:04, 03:42:01-03:57:02, 03:59-03:79, 03:80:02-03:85, 03:87:01-03:93, 03:95-03:98, 03:100-03:112, 03:114-03:150, 03:152-03:164, 03:166-03:250, 03:252-03:259, 03:261-03:266, 03:268-03:285, 03:287:01-03:292, 03:294-03:383, 03:385-03:434, 03:436-03:450, 03:452-03:511N, 03:513-03:533, 03:537-03:539, 03:541-03:561, 04:201:02, 04:212, 07:133:01, 07:242, 07:330:01, 07:748, 15:218, B*15:96, B*44:274
5	280 bp	800 bp	*03:03:01:01-03:03:20, 03:03:22-03:03:50, 03:03:52-03:03:61, 03:11:01-03:11:02, 03:13:01:01-03:13:02, 03:18:02:03:18:03, 03:20N-03:22Q, 03:30-03:31, 03:43:01-03:43:02, 03:49-03:50, 03:52-03:53, 03:55-03:56, 03:58-03:59, 03:61-03:62, 03:66, 03:67 ^w , 03:68-03:69, 03:75-03:76, 03:79, 03:81, 03:83, 03:85-03:86, 03:88, 03:96-03:97, 03:102-03:103, 03:112, 03:116:01-03:116:02, 03:119:01-03:120, 03:122, 03:124, 03:126-03:127, 03:132-03:133, 03:141-03:142, 03:150-03:152, 03:158, 03:160-03:161, 03:165:01-03:165:02, 03:167-03:168, 03:171, 03:175-03:177, 03:185, 03:187-03:189N, 03:192, 03:196, 03:202-03:207, 03:214, 03:217, 03:220, 03:223, 03:227-03:230, 03:237, 03:241-03:243, 03:251, 03:253-03:254, 03:262, 03:267-03:268, 03:271-03:276, 03:284-03:285, 03:288-03:291, 03:295 ^w , 03:304, 03:307-03:308, 03:312, 03:316N, 03:319-03:321, 03:324-03:325, 03:327, 03:336, 03:339, 03:341, 03:345-03:346, 03:351-03:352, 03:356-03:357, 03:360, 03:363N-03:364, 03:367, 03:370, 03:372:01-03:372:02, 03:374-03:375, 03:377N-03:378, 03:380N, 03:383, 03:389, 03:395, 03:398, 03:413-03:414, 03:416, 03:418, 03:421N-03:422, 03:427-03:428, 03:430, 03:432N-03:433, 03:436, 03:438, 03:440, 03:444N, 03:447N, 03:450-03:451, 03:457, 03:460-03:461, 03:471-03:472, 03:474, 03:476-03:477, 03:479, 03:481, 03:490, 03:495, 03:503, 03:506-03:507, 03:509N, 03:514-03:517, 03:519-03:520, 03:524, 03:527-03:529, 03:533-03:535, 03:537, 03:540-03:542, 03:545, 03:550-03:551, 03:556, 03:559-03:560N, 15:12, 15:144
6¹²	135 bp, 330 bp	800 bp	*02:02:01-02:02:03, 02:02:06-02:02:12, 02:02:14-02:02:25, 02:02:27-02:02:28, 02:02:30-02:20, 02:22-02:25Q, 02:27:01-02:38:02N, 02:40:01-02:40:02, 02:42-02:44, 02:46-02:86, 02:88-02:100, 02:101 ^w , 02:102-02:106, 02:108-02:133, 02:135N-02:151, 02:153-02:166, 02:168-02:188, 02:190, 02:192N-02:203, 03:231, 04:01:01:01-04:01:01:29, 04:01:01:31-04:01:27, 04:01:29-04:01:60, 04:01:62, 04:01:64, 04:01:66-04:01:139, 04:03:01:01-04:07:01, 04:08:04:15:03, 04:17-04:20, 04:23-04:41, 04:43-04:102, 04:104-04:139, 04:141-04:195, 04:197-04:212, 04:214-04:219, 04:221-04:235, 04:237-04:303, 04:305N-04:310, 04:312-04:350N, 04:352-04:442, 05:26,



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			05:78:01-05:78:02, 07:01:74, 07:02:09, 07:125:01-07:125:02, 07:356, 07:531, 07:583, 07:723, 08:163, 08:183, 12:269, 15:11, 15:36, 15:118, 16:34, 16:121, 16:150
7	165 bp, 390 bp, 445 bp	1070 bp	*02:94, 04:129, 05:01:01:01-05:01:64, 05:03-05:255, 06:05, 06:67, 08:10, 12:21, 12:33, 15:107, 15:178, 16:40, 16:53, 16:110, 16:113, 17:05
8⁴	125 bp, 355 bp	800 bp	*01:02:49, 01:90, 01:101-01:102, 01:113, 01:136, 01:145:01N, 01:146:01-01:146:02, 02:06:01-02:06:02, 02:23, 02:36:01-02:36:02, 02:47, 02:111, 04:23, 04:100, 04:108, 04:178, 04:335, 04:422, 05:01:56, 05:22:01-05:22:02, 05:132, 05:215, 05:241, 05:252, 06:02:01-01-06:02:01:60, 06:02:03-06:02:38, 06:02:40-06:02:71, 06:02:73-06:16N, 06:18-06:31, 06:33-06:76:01, 06:77-06:93, 06:96-06:98, 06:100-06:132:01, 06:133-06:179, 06:181-06:235, 06:237-06:243, 06:245-06:325, 08:83, 08:108, 08:113, 08:207, 12:02:11, 12:02:35, 12:03:09, 12:03:26, 12:03:66, 12:15, 12:113, 12:208, 12:298, 12:309, 14:26, 15:02:01:01-15:03, 15:05:01:01-15:05:07, 15:05:09-15:13:02, 15:15-15:19, 15:21-15:23:02, 15:26-15:29, 15:31-15:39, 15:41-15:64, 15:67-15:75, 15:78:01-15:101, 15:103-15:189N, 15:191-15:210, 15:212-15:221, 15:223-15:233, 16:01:16, 16:20, 16:109, 16:169, B*58:02:01:01-58:02:02
9⁷	245 bp, 425 bp	800 bp	*07:01:01:01-07:01:02:10, 07:01:04-07:33N, 07:35-07:294, 07:296-07:944, 12:181, 14:121
10^{4,8,12}	110 bp, 165 bp, 390 bp	800 bp	*01:43, 02:87, 03:280, 03:530, 07:101, 07:148, 07:161, 07:583, 08:01:01:01-08:63, 08:65-08:225Q, 12:127, 12:203, 16:139
11	155 bp, 255 bp, 340 bp	1070 bp	*01:14, 01:59, 01:118, 01:186, 02:02:01-02:02:03, 02:02:06-02:40:02, 02:42-02:86, 02:88-02:203, 03:07:01:01-03:07:02, 03:15, 03:45, 03:130, 03:140:01:01-03:140:01:02, 03:163, 03:231, 03:243, 03:248, 03:268, 03:297, 03:308, 03:461, 04:01:01:01-04:01:01:29, 04:01:01:31-04:01:139, 04:03:01:01-04:20, 04:23-04:442, 05:01:01:01-05:01:64, 05:03-05:128N, 05:130-05:255, 06:02:01:01-06:02:01:60, 06:02:03-06:02:11, 06:02:13-06:02:64, 06:02:66-06:10, 06:12-06:51, 06:53:01-06:121, 06:123, 06:125-06:146, 06:148-06:216, 06:218-06:247, 06:249-06:251, 06:253-06:279, 06:281N-06:325, 07:07, 07:09, 07:49, 07:53, 07:76:01-07:76:02, 07:125:01-07:125:02, 07:210, 07:216, 07:238, 07:247, 07:315, 07:328, 07:356, 07:403, 07:406, 07:531, 07:598, 07:932, 08:10, 12:04:01-12:05:02, 12:09, 12:21, 12:33, 12:41, 12:54, 12:60, 12:146, 12:188, 12:194, 14:04, 14:12, 14:49, 14:64, 14:77, 14:90, 14:108, 15:02:01:01-15:05:07, 15:05:09-15:05:10, 15:05:13-15:06:03, 15:08:01-15:13:02, 15:15-15:19, 15:22-15:24, 15:26-15:42, 15:44:01-15:70, 15:72-15:115N, 15:117-15:143, 15:145N-15:233, 16:01:01:01-16:02:19, 16:06-16:09, 16:11-16:28, 16:30N-16:32, 16:34, 16:36-16:39:02, 16:41, 16:43-16:44, 16:46-16:52, 16:54, 16:56-16:60, 16:62-16:65, 16:69-16:77N, 16:79-16:81, 16:83-16:108, 16:111-16:123N, 16:125-16:148, 16:151-16:168, 16:170-16:181, 16:183-16:184, 17:01:01:02-17:21, 17:23-17:59, 18:01:01:01-18:14, A*24:174, B*57:129
12^{4,10}	100 bp, 155 bp, 220 bp	800 bp	*01:02:18, 01:04, 01:21, 02:02:44, 06:02:38, 06:76:02, 07:940, 12:02:01-12:02:13, 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, 12:02:41-12:03:01:42, 12:03:03-12:03:07, 12:03:09-12:03:15, 12:03:17-12:03:19, 12:03:21-12:03:29, 12:03:31-12:03:33, 12:03:35-12:03:72, 12:04:02:01-12:08, 12:10:01-12:13:01:02, 12:14:02-12:18:01, 12:19-12:25, 12:27-12:32,



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13⁴	120 bp, 250 bp	800 bp	*01:21, 02:12, 02:49, 02:55:01-02:55:02, 02:115, 04:01:01:01-04:01:01:29, 04:01:01:31-04:01:139, 04:03:01:01-04:07:01, 04:08-04:09N, 04:12-04:20, 04:23-04:35:02, 04:37-04:54:02, 04:56-04:152, 04:154-04:168, 04:170N-04:191N, 04:193, 04:195-04:209, 04:211-04:213, 04:216-04:226, 04:228-04:248, 04:250-04:277, 04:279N ^w , 04:280-04:298, 04:300N-04:346, 04:348-04:413, 04:415-04:442, 05:42, 05:46:01:01-05:46:01:02, 05:112, 06:02:72, 06:76:02, 07:01:74, 07:02:09, 07:125:01-07:125:02, 07:356, 07:531, 07:583, 07:723, 08:05, 08:21, 08:25, 08:137, 12:02:01-12:02:10, 12:02:12-12:02:27, 12:02:28 ^w , 12:02:30-12:03:03, 12:03:05-12:03:08, 12:03:10-12:03:12, 12:03:13 ^w , 12:03:14-12:03:23, 12:03:24 ^w , 12:03:25-12:03:33, 12:03:35-12:03:72, 12:04:02:01-12:04:02:02, 12:06-12:08, 12:10:01-12:16:01, 12:17-12:20, 12:22-12:32, 12:34-12:48, 12:50-12:97, 12:99:01-12:122, 12:124-12:187, 12:189-12:194, 12:195:02, 12:196-12:298, 12:300, 12:302-12:342Q, 14:90, 15:03, 15:16, 15:25, 15:75, 16:01:01:01-16:02:19, 16:06-16:28, 16:30N-16:32, 16:34, 16:36-16:39:02, 16:41, 16:43-16:47, 16:49-16:52, 16:54, 16:56-16:60, 16:62-16:65, 16:67, 16:69-16:77N, 16:79-16:81, 16:83-16:87, 16:89N-16:90, 16:92-16:102, 16:104-16:108, 16:111-16:123N, 16:125-16:139, 16:141-16:148, 16:151-16:181, 16:183-16:184, 17:01:04, B*67:02:01:01-67:02:01:02
14¹³	160 bp, 210 bp	800 bp	*01:04, 01:09:01-01:09:02, 01:160, 02:05:01-02:05:03, 02:17, 04:42:01-04:42:02, 04:220, 04:360, 06:02:01:01-06:02:01:60, 06:02:03-06:02:15, 06:02:17-06:02:42, 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, 06:102:01-06:122, 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, 06:318-06:325, 07:31:01-07:31:02, 07:125:01-07:125:02, 07:177, 07:356, 07:514, 07:531, 12:03:01:01-12:03:46, 12:03:48-12:07, 12:11-12:13:01:02, 12:15, 12:19, 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, 12:184-12:187, 12:189-12:192, 12:194-12:195:03, 12:197, 12:199, 12:201-12:203, 12:205-12:206, 12:209-12:211, 12:213, 12:215-12:216, 12:218, 12:220, 12:223, 12:225, 12:227, 12:229-12:230, 12:232N, 12:235, 12:237-12:238, 12:242, 12:244-12:246, 12:248-12:249, 12:253-12:254, 12:256-12:257, 12:259-12:260:02, 12:262, 12:264-12:267, 12:269, 12:271-12:274:01N, 12:276-12:278, 12:282-12:284, 12:286, 12:288-12:293, 12:295N, 12:297, 12:300-12:302, 12:305-12:306, 12:310-12:314, 12:316-12:326, 12:328, 12:330N-12:334, 12:337, 12:339-12:342Q, 14:15-14:16, 14:87, 16:04:01:01-16:04:01:03, 16:04:03-16:04:05, 16:29, 16:33, 16:35, 16:42, 16:48, 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
15	130 bp, 255 bp,	1070 bp	*01:02:68, 01:02:71, 01:168-01:169:02, 02:02:01-02:02:03, 02:02:06-02:13, 02:15-02:26:03, 02:28-02:40:02, 02:42-02:64, 02:66-02:86,



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	555 bp		02:88-02:106, 02:108-02:114, 02:116-02:130, 02:132-02:163, 02:165N-02:186, 02:188-02:203, 03:07:01:01-03:07:02, 03:10, 03:15, 03:29, 03:45, 03:58, 03:86, 03:94, 03:163, 03:209, 03:268, 03:297, 03:302, 03:450, 03:461, 04:03:01:01-04:03:07, 04:06:01-04:06:03, 04:16, 04:37, 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, 04:299, 04:335, 04:337, 04:351:01-04:351:02, 04:357, 04:363, 04:381, 04:393, 04:400, 04:402, 05:01:01:01-05:01:64, 05:03-05:19, 05:21-05:42, 05:44:01-05:77, 05:79-05:112, 05:114-05:155, 05:157-05:199, 05:201, 05:203-05:255, 06:03:01-06:03:02, 06:76:01-06:76:02, 06:132:01-06:132:02, 08:10, 12:04:01-12:05:02, 12:09, 12:21, 12:33, 12:41, 12:60, 12:72, 12:135, 12:146, 12:154, 12:178, 14:45, 15:02:01:01-15:05:07, 15:05:09-15:06:03, 15:08:01-15:13:02, 15:15-15:19, 15:21-15:22, 15:24, 15:26-15:35, 15:37-15:42, 15:44:01-15:62, 15:64-15:84Q, 15:86-15:137, 15:139-15:143, 15:145N-15:157, 15:159-15:161, 15:163-15:180, 15:182-15:233, 16:02:01:01-16:02:19, 16:09, 16:12, 16:18-16:19, 16:25, 16:37, 16:46-16:48, 16:60, 16:63, 16:69-16:70, 16:74, 16:77N, 16:84, 16:88-16:91, 16:99, 16:101-16:104, 16:107-16:108, 16:115, 16:120-16:121, 16:123N, 16:132N-16:133, 16:136, 16:140, 16:143-16:145, 16:153, 16:155-16:156, 16:163, 16:166-16:167, 16:176, 16:179, 16:181, 16:184, 17:01:01:02-17:19, 17:21, 17:23-17:59, 18:09, B*15:277, B*15:430, B*35:222, B*42:22, B*46:84, B*54:38
16^{11,12}	160 bp, 260 bp, 445 bp	1070 bp	*01:67, 01:122, 01:125, 01:177, 03:155, 03:231, 03:351, 03:557, 04:11, 04:29, 04:36, 04:55, 04:114, 04:172, 07:64, 07:293, 07:402, 07:519, 08:74, 08:95, 08:163, 08:183, 12:55, 12:269, 14:02:01:01-14:11, 14:13-14:48, 14:50-14:107, 14:109, 14:111-14:128, 16:40, 16:53, 16:110, 16:113, 16:150, 16:170, A*29:86, A*30:62, A*31:187, A*33:63, B*08:249, B*18:64, B*35:183, B*35:252, B*35:502, B*39:114, B*39:140, B*40:138, B*41:59
17^{4,9}	110 bp, 325 bp	800 bp	*01:90, 01:101-01:102, 01:113, 01:116, 02:06:01-02:06:02, 02:23, 02:36:01-02:36:02, 02:68, 03:81, 03:175, 03:199, 03:245, 03:317, 03:388, 04:108, 04:112, 04:169, 04:178, 04:422, 05:36, 05:132, 05:215, 05:238, 06:89, 06:224, 07:01:74, 07:123:01-07:123:02, 07:173, 07:294, 07:626, 07:725, 07:775, 07:850, 08:113, 12:08, 12:15, 12:81, 12:113, 12:188, 12:208, 12:282, 12:287, 12:309, 14:92, 15:02:01:01-15:05:07, 15:05:09-15:13:02, 15:15-15:19, 15:21-15:24, 15:26-15:233, 16:20, 16:64, 16:70, 16:87, 16:109, 16:169
18¹¹	180 bp, 210 bp, 240 bp	1070 bp	*01:160, 02:13, 02:18, 02:33, 02:49, 02:75, 02:115, 02:180, 04:01:01:01-04:01:01:29, 04:01:01:31-04:01:22, 04:01:24-04:01:73, 04:01:74 ^w , 04:01:75-04:01:139, 04:03:01:01-04:07:01, 04:08-04:10, 04:12-04:20, 04:23-04:32, 04:34-04:106, 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, 04:284-04:413, 04:415-04:442, 05:17, 05:25, 05:42, 05:55, 05:68, 05:76, 05:79, 05:115, 05:134, 05:143, 06:02:72, 06:05, 06:31, 06:76:02, 06:118, 07:01:74, 07:02:09, 07:31:01-07:31:02, 07:125:02, 07:154, 07:177, 07:514, 07:583, 08:01:01:01-08:01:17, 08:01:19-08:01:32, 08:03:01:01-08:03:04, 08:06, 08:08:01-08:11, 08:14, 08:16:01-08:16:02, 08:20-08:22:01:02, 08:24, 08:26N, 08:28, 08:36N, 08:38, 08:40-08:42, 08:44, 08:46-08:47, 08:50, 08:56-08:61, 08:65, 08:72:01-08:72:02, 08:78-08:89N, 08:91, 08:95-08:99, 08:101-08:102, 08:105-08:106, 08:109, 08:117-08:119, 08:121N-08:122, 08:124, 08:127N-08:131, 08:133, 08:135-08:137, 08:141Q, 08:143-08:145, 08:147-08:149, 08:153-08:155, 08:157, 08:162-08:164, 08:168, 08:173N-08:176, 08:178, 08:186-08:190, 08:192-08:194,



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19	225 bp, 250 bp, 290 bp	800 bp	*01:60, 02:40:01-02:40:02, 02:180, 04:58, 04:160:01-04:160:02, 04:368, 05:23, 05:62, 05:134, 05:143, 05:146, 05:151, 05:163, 05:206, 06:118, 08:07, 08:47, 08:104, 08:142, 08:185, 08:188, 12:14:01-12:14:02, 12:92, 12:176, 14:17, 15:25, 15:65, 15:201, 17:01:01:02-17:59
20	215 bp, 420 bp	800 bp	*01:02:01:01-01:20, 01:22-01:211N, 01:213, 03:58, 03:86, 03:94, 04:37, 04:230, 04:263, 04:397, 04:432, 04:442, 05:16, 05:85, 05:107, 05:241, 06:05-06:06:01:02, 06:17, 06:31, 06:79N, 06:204, 06:271, 07:07, 07:09, 07:39-07:40, 07:49, 07:76:01-07:76:02, 07:177, 07:210, 07:238, 07:247, 07:315, 07:328, 07:335, 07:403, 07:406, 07:563, 07:598, 08:12:01:01-08:12:01:02, 12:09, 12:24, 12:176, 12:333, 14:02:01:01-14:05, 14:07N, 14:10-14:14, 14:17-14:27, 14:29-14:52, 14:55-14:62, 14:64-14:76, 14:78-14:86, 14:88-14:89, 14:91, 14:93N-14:104, 14:106-14:128, 15:102, 16:04:01:01-16:04:01:03, 16:04:03-16:04:05, 16:29, 16:33, 16:42, 16:53, 16:55, 16:61, 16:66, 16:68, 16:78, 16:82, 16:88, 16:91, 16:109, 16:124, 16:149-16:150, 16:182, 18:01:01:01-18:14, B*07:239, B*14:03, B*58:02:02
21	325 bp, 380 bp	1070 bp	*01:03:01-01:03:02, 01:24, 01:34, 01:49:01-01:50, 01:55, 01:78, 01:131, 01:176, 02:22, 02:62, 02:118, 02:197, 03:03:01:01-03:04:89, 03:06:01-03:11:02, 03:14, 03:18:01-03:24, 03:26:01-03:26:02, 03:28-03:32, 03:34, 03:37:01-03:59, 03:61-03:70, 03:72-03:83, 03:85, 03:87:01-03:88, 03:90-03:93, 03:96, 03:98, 03:100-03:107, 03:109, 03:111-03:120, 03:122-03:131, 03:133-03:134, 03:136-03:138, 03:140:01:01-03:145, 03:147-03:153, 03:155-03:166, 03:168, 03:170-03:176, 03:179-03:189N, 03:191-03:193, 03:195-03:196, 03:202-03:215, 03:217-03:220, 03:223, 03:227-03:237, 03:239-03:244Q, 03:246-03:247, 03:250-03:257, 03:259-03:261, 03:262 ² , 03:263:01-03:263:03, 03:265N-03:270, 03:272-03:291, 03:293-03:295, 03:297, 03:303-03:314, 03:316N-03:325, 03:327-03:328, 03:331, 03:333-03:334, 03:336-03:337, 03:339-03:348, 03:351-03:364, 03:366N-03:370, 03:372:01-03:372:02, 03:374-03:385, 03:387-03:390, 03:392N-03:401, 03:404:01:01-03:405, 03:408-03:410, 03:413-03:424N, 03:426-03:428, 03:430, 03:432N-03:448Q, 03:450-03:451, 03:453-03:463N, 03:465-03:467, 03:469-03:472, 03:476-03:481, 03:483-03:488, 03:490-03:492, 03:495-03:496, 03:498-03:504, 03:506-03:531N, 03:533-03:535, 03:537-03:543, 03:545-03:546, 03:548, 03:550-03:554, 03:556-03:560N, 04:01:01:01-04:01:01:29, 04:01:01:31-04:01:15, 04:01:17-04:01:139, 04:03:01:01-04:20, 04:24-04:53, 04:55-04:71, 04:73-04:107, 04:109-04:334, 04:336-04:340, 04:342-04:359, 04:361-04:366, 04:368-04:438, 04:440-04:442, 05:01:01:01-05:01:50, 05:01:52-05:01:57, 05:01:59-05:01:64, 05:03, 05:05:01-05:21, 05:23-05:102, 05:104-05:106:02, 05:108-05:122, 05:124-05:131, 05:133-05:134, 05:136-05:146, 05:148-05:190, 05:192-05:206, 05:208N-05:214, 05:216:01:01-05:237, 05:239N-05:240, 05:242-05:251N, 05:253N-05:255, 06:09:01-06:09:02, 06:14, 06:35, 06:72, 06:143-06:144, 07:10, 07:28, 07:41, 07:43:01-07:43:02, 07:184, 07:196, 07:367, 07:536, 07:568, 07:857, 07:892, 08:01:01:01-08:08:02, 08:10, 08:12:01:01-08:47, 08:49-08:63, 08:65-08:82, 08:84-08:107, 08:109-08:112, 08:114-08:151,



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			08:153-08:204, 08:206-08:225Q, 12:31:01-12:31:02, 12:44, 12:144, 12:233, 12:309, 14:54, 15:02:01:01-15:05:07, 15:05:09-15:05:17, 15:06:01-15:13:02, 15:15-15:19, 15:21, 15:23:01-15:36, 15:38-15:54, 15:56-15:57, 15:59-15:64, 15:66-15:71, 15:73-15:101, 15:103-15:124, 15:126-15:148, 15:150-15:189N, 15:191-15:224, 15:226-15:233, 16:45, 17:01:01:02-17:59, 18:01:01:01-18:13, B*73:01:01:01^w-73:02^w
22¹⁴	135 bp	800 bp	*01:169:02, 01:177, 02:02:13, 02:02:29, 02:02:38, 02:02:53, 03:02:01-03:02:09, 03:02:11-03:03:20, 03:03:22-03:03:50, 03:03:52-03:04:14, 03:04:16-03:04:24, 03:04:27-03:11:02, 03:13:01:01-03:17:02, 03:18:02-03:38:02, 03:40:01-03:64:01, 03:65-03:66, 03:67 ^w , 03:68-03:98, 03:100-03:117, 03:119:01-03:136, 03:138-03:143, 03:146-03:155, 03:157-03:165:02, 03:167-03:169Q, 03:171, 03:173-03:181, 03:183-03:194, 03:196-03:230, 03:232-03:247, 03:249-03:263:03, 03:265N-03:277N, 03:278 ^w , 03:279-03:294, 03:295 ^w , 03:296:01-03:323N, 03:325-03:341, 03:343, 03:345-03:453, 03:455-03:458, 03:460-03:478, 03:480-03:503, 03:505-03:529, 03:531N-03:561, 04:07:02, 04:32, 04:77, 04:265, 06:03:01, 06:132:01-06:132:02, 07:64, 07:96:01-07:96:02, 07:314:02, 07:402, 07:578, 07:756, 14:25, 15:02:10, 15:02:17, 15:43, 18:03, B*13:13:02, B*40:01:49-40:01:50, B*46:77
23¹⁰	160 bp, 230 bp	1070 bp	*04:14, 04:42:01-04:42:02, 04:68, 04:220, 05:112, 06:02:01:01-06:02:01:60, 06:02:03-06:02:92, 06:04:01-06:75, 06:78-06:131, 06:133-06:325, 07:01:01:01-07:01:02:10, 07:01:04-07:01:40, 07:01:41 ^w , 07:01:42-07:01:92, 07:01:94-07:02:07, 07:02:09-07:02:28, 07:02:30-07:02:40, 07:02:41 ^w , 07:02:42-07:02:90, 07:02:92-07:25, 07:27:01-07:32N, 07:35-07:38:02, 07:41-07:63, 07:65-07:91, 07:93:01-07:95, 07:97-07:138, 07:140:01-07:151, 07:153-07:155, 07:157-07:176, 07:178-07:209, 07:211-07:222, 07:223 ^w , 07:224-07:237, 07:239-07:245, 07:247-07:266, 07:268-07:294, 07:297-07:313, 07:315-07:316, 07:318-07:321, 07:323-07:334, 07:336-07:350N, 07:352-07:401, 07:403-07:404, 07:405:02-07:414, 07:415 ^w -07:416 ^w , 07:417-07:448, 07:450-07:492, 07:494Q-07:516, 07:518-07:577, 07:579-07:582Q, 07:584-07:713Q, 07:715:01-07:722, 07:725-07:755, 07:757-07:820N, 07:822-07:844, 07:846:01-07:869, 07:871-07:890, 07:892-07:893, 07:895-07:935, 07:937-07:944, 12:16:01-12:16:02, 12:147, 12:195:01-12:195:03, 12:217, 14:90, 15:75, 16:01:01:01-16:02:19, 16:06-16:28, 16:30N-16:32, 16:34, 16:36-16:39:02, 16:41, 16:43-16:47, 16:49-16:52, 16:54, 16:56-16:60, 16:62-16:65, 16:67, 16:69-16:77N, 16:79-16:81, 16:83-16:87, 16:89N-16:90, 16:92-16:102, 16:104-16:108, 16:111-16:123N, 16:125-16:139, 16:141-16:148, 16:151-16:181, 16:183-16:184, 17:20, 18:01:01:01-18:08, 18:10-18:14, A*24:64, A*24:96, A*24:106, A*24:174, B*08:16, B*08:123, B*08:145, B*57:129
24¹⁵	-	-	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 low resolution SSP typings.

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

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

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

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



101.603-24/12 – including *Taq* pol., IFU-01
101.603-24u/12u – without *Taq* pol., IFU-02

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Lot-specific information

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

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

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

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

⁵Primer mix 2 will give rise to two specific PCR fragments for most C*02 alleles.

⁶Primer mix 4 will give rise to two specific PCR fragments for most C*03 alleles.

⁷Primer mix 9 will give rise to two specific PCR fragments for most C*07 alleles.

⁸Primer mix 10 will give rise to multiple specific PCR fragments for most C*08 alleles.

⁹Primer mix 17 will give rise to two specific PCR fragments for most C*15 alleles.

¹⁰Primer mixes 12 and 23 may have tendencies of unspecific amplifications.

¹¹Primer mixes 2, 16 and 18 have a tendency to giving rise to primer oligomer formation.

¹²Primer mixes 6, 10 and 16 may give rise to a lower yield of HLA-specific PCR product than the other HLA-C low Screening primer mixes.

¹³Primer mix 14 might faintly amplify most C*01 and the C*14 alleles.

¹⁴In primer mix 22 the positive control band may be weaker than for other HLA-C low resolution primer mixes.

¹⁵Primer mix 24 contains a negative control, which will amplify the majority of HLA amplicons as well as the amplicons generated by the control primer pairs matching the human growth hormone gene. HLA-specific PCR product sizes range from 75 to 200 base pairs and the PCR products generated by the HGH positive control primer pair is 200 base pairs.

Abbreviations

w: might be weakly amplified.

? nucleotide sequence of the primer matching region not known.



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Lot-specific information

PRIMER SPECIFICATION

Well No.	1	2	3	4	5	6	7	8	9	10	11	12
Length of spec.	90	130	250	85	280	135	165	125	245	110	155	100
PCR product	150	200	280	170		330	390	355	425	165	255	155
	210	270		210			445			390	340	220
		300		275								
Length of int.	800	800	800	1070	800	800	1070	800	800	800	1070	800
pos. control ¹												
5'-primer(s) ²	89	47	105	98	105	47	1 st I	28	47	1 st I	1 st I	361
	5'-gAA ^{3'}	5'-Agg ^{3'}	5'-gCT ^{3'}	5'-CTT ^{3'}	5'-gCT ^{3'}	5'-Agg ^{3'}	5'-CgA ^{3'}	5'-TCA ^{3'}	5'-Agg ^{3'}	5'-CgA ^{3'}	5'-CgA ^{3'}	5'-AgT ^{3'}
	89	89	134	355		112	176	2 nd I	648	176	419	419
	5'-gAA ^{3'}	5'-gAA ^{3'}	5'-CCA ^{3'}	5'-TCA ^{3'}		5'-CCT ^{3'}	5'-gCA ^{3'}	5'-CCA ^{3'}	5'-CAC ^{3'}	5'-gCA ^{3'}	5'-gTC ^{3'}	5'-gTC ^{3'}
	89	2 nd I		419		118	527			527		
	5'-gAA ^{3'}	5'-CCA ^{3'}		5'-gTC ^{3'}		5'-CCA ^{3'}	5'-TgA ^{3'}			5'-TAC ^{3'}		
	98	703		459								
	5'-CTT ^{3'}	5'-CTA ^{3'}		5'-gAT ^{3'}								
	368											
	5'-gTg ^{3'}											
3'-primer(s) ³	142	176	343	142	343	201	302	213	302	302	118	474
	5'-TgA ^{3'}	5'-ACT ^{3'}	5'-C ^{3'}	5'-TgA ^{3'}	5'-T ^{3'}	5'-CTT ^{3'}	5'-ggT ^{3'}	5'-Cgg ^{3'}	5'-ggC ^{3'}	5'-ggC ^{3'}	5'-gCT ^{3'}	5'-gCA ^{3'}
	201	559	343	589		218	307	409	853	595	218	477
	5'-CTT ^{3'}	5'-CTC ^{3'}	5'-g ^{3'}	5'-CTT ^{3'}		5'-gCT ^{3'}	5'-CCA ^{3'}	5'-ATg ^{3'}	5'-CAT ^{3'}	5'-CCC ^{3'}	5'-gCT ^{3'}	5'-gCA ^{3'}
	201	861					3 rd I	412			302	538
	5'-CTC ^{3'}	5'-TCg ^{3'}					5'-gCA ^{3'}	5'-gTC ^{3'}			5'-ggT ^{3'}	5'-gCA ^{3'}
	538							420			304	
	5'-CCg ^{3'}							5'-gCT ^{3'}			5'-CAA ^{3'}	
											539	
											5'-TCT ^{3'}	
Well No.	1	2	3	4	5	6	7	8	9	10	11	12



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Lot-specific information

Well No.	13	14	15	16	17	18	19	20	21	22	23
Length of spec.	120	160	130	160	110	180	225	215	325	135	160
PCR product	250	210	255	260	325	210	250	420	380		230
			555	445		240	290				
Length of int.	800	800	1070	1070	800	1070	800	800	1070	800	1070
pos. control ¹											
5'-primer(s) ²	201	97	98	85	201	201	2 nd I	47	355	105	97
	5'-CCA 3'	5'-TCg 3'	5'-CTA 3'	5'-CCg 3'	5'-CCA 3'	5'-CCA 3'	5'-CCA 3'	5'-Agg 3'	5'-TCA 3'	5'-gCT 3'	5'-TCg 3'
	218	361	368	98	409	2 nd I		117	412	112	97
	5'-ggA 3'	5'-AgT 3'	5'-gTg 3'	5'-CTC 3'	5'-ggC 3'	5'-CCA 3'		5'-CCT 3'	5'-ATA 3'	5'-CCT 3'	5'-TTg 3'
	2 nd I			98		361		361		459	361
	5'-CCA 3'			5'-CTT 3'		5'-AgT 3'		5'-AgT 3'		5'-gAT 3'	5'-AgT 3'
				98							418
				5'-CAC 3'							5'-Agg 3'
				194							419
				5'-CgT 3'							5'-gTC 3'
				527							419
				5'-TgA 3'							5'-gTT 3'
3'-primer(s) ³	289	218	312	311	270	341	512	289	3 rd I	201	213
	5'-AgC 3'	5'-gCT 3'	5'-AgT 3'	5'-ggT 3'	5'-TAg 3'	5'-CgT 3'	5'-CCA 3'	5'-AgT 3'	5'-CTC 3'	5'-CTC 3'	5'-Cgg 3'
	289	527	312	317	3 rd I	343	538	302		559	289
	5'-AgC 3'	5'-CCg 3'	5'-AgT 3'	5'-CgT 3'	5'-CTC 3'	5'-T 3'	5'-gTC 3'	5'-ggT 3'		5'-CTC 3'	5'-AgC 3'
	291	538	361	3 rd I		343	580	527			289
	5'-TCg 3'	5'-CCA 3'	5'-CCA 3'	5'-gCA 3'		5'-g 3'	5'-TCC 3'	5'-CCg 3'			5'-AgC 3'
	539	538	459			527		538			539
	5'-TCT 3'	5'-gCA 3'	5'-AgA 3'			5'-CCg 3'		5'-CCg 3'			5'-TCT 3'
						527		540			
						5'-CCg 3'		5'-CTT 3'			
						527					
						5'-CCg 3'					
						527					
						5'-CCg 3'					
						530					
						5'-CCA 3'					
Well No.	13	14	15	16	17	18	19	20	21	22	23

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.



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Lot No.: **4N2**

Lot-specific information

CELL LINE VALIDATION SHEET																				
HLA-C low resolution screening SSP primer set ²																				
				Well																
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
				Prod. No.:	202128801	202128802	202133903	202128804	202128805	202128806	202128807	202128808	202128809	202128810	202128811	202128812	202128813	202128814	202133915	202128816
	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	-	-	-	-	-	+	-	-	-	-	+	-	+	-	-	-



101.603-24/12 – including **Taq** pol., IFU-01
101.603-24u/12u – without **Taq** pol., IFU-02

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Lot No.: **4N2**

Lot-specific information

CELL LINE VALIDATION SHEET											
HLA-C low resolution screening SSP primer set ²											
				Well							
				17	18	19	20	21	22	23	
				Prod. No.:	202128817	202128818	202133919	202133920	202128821	202128822	202133923
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		-	-	-	-	+	+	-
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	-	+	-	-	+	-	+



101.603-24/12 – including *Taq* pol., IFU-01
101.603-24u/12u – without *Taq* pol., IFU-02

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

Lot No.: **4N2**

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.

One or more 5'-primers and 3'-primers in primer solutions 1, 2, 4, 7, 14 to 16, 20 and 22 were tested by separately adding one, two or three additional 3'-primers, and one or two additional 5'-primers respectively. One or more 3'-primers in primer solutions 8, 11, 18 and 19 were tested by separately adding one or two additional 5'-primers. In addition, one or more 5'-primers in primer solutions 6, 13 and 23 were tested by separately adding one additional 3'-primer. In primer solutions 1, 16 and 23 one or two 5'-primer was not possible to be tested, and in primer solutions 3, 7, 11 to 16, 18 and 20 one or two 3'-primers were not possible to be tested.



101.603-24/12 – including *Taq* pol., IFU-01
101.603-24u/12u – without *Taq* pol., IFU-02

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Lot No.: **4N2**

Lot-specific information

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