

101.231-24/04 – including *Taq* pol., IFU-01
101.231-24u/04u – without *Taq* pol., IFU-02

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

Lot No.: 3N5

Lot-specific information
Olerup SSP[®] DQA1

Product number:	101.231-24/04 – including <i>Taq</i> pol. 101.231-24u/04u – without <i>Taq</i> pol.
Lot number:	3N5
Expiry date:	2025-09-01
Number of tests:	24 tests – Product No. 101.231-24/24u 4 tests – Product No. 101.231-04/04u
Number of wells per test:	31+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. 3N5.

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

**CHANGES COMPARED TO THE PREVIOUS OLERUP SSP[®]
DQA1 Lot (7L8)**

- The product documentation has been updated for new alleles of IMGT 3.44.0.
- The kit resolution focuses on common and well documented (CWD) alleles¹.

¹As described in section Uniquely Identified Alleles.

The DQA1 primer set, specificity and interpretation tables have been updated for the DQA1 alleles described since the previous *Olerup SSP[®] DQA1* lot was made (Lot No. 7L8).

The DQA1 primer set is unchanged compared to the previous *Olerup SSP[®] DQA1* (Lot No. 7L8).

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

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

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

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

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



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PRODUCT DESCRIPTION

DQA1 SSP typing

CONTENT

The primer set contains 5'- and 3'-primers for identifying the DQA1*01:01 to DQA1*06:02 alleles.

PLATE LAYOUT

Each test consists of 32 PCR reactions in a 32 well cut PCR plate.

Note: This lot was manufactured using white plastic trays.

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	NC

The 32 well cut PCR plate is marked with ‘DQA1’, in silver/gray ink.

Well No. 1 is marked with the Lot No. ‘3N5’.

Wells 1 to 31 – DQA1 high resolution primers.

Well 32 – 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 heat-sealed with a PCR-compatible foil.

Please note: When removing each 32 well PCR plate, make sure that the remaining plates stay sealed. Use a scalpel or a similar instrument to carefully cut the foil between the plates.

INTERPRETATION

Only DQA1 alleles will be amplified by the DQA1 typing kit. Thus, the interpretation of DQA1 typings is not influenced by the DQA2 gene. For further details see Specificity Table.

UNIQUELY IDENTIFIED ALLELES

All the DQA1 alleles, i.e. **DQA1*01:01 to 01:65, DQA1*02:01 to DQA1*02:18, DQA1*03:01 to 03:20, DQA1*04:01 to DQA1*04:08, DQA1*05:01 to 05:38 and DQA1*06:01 to 06:02**, recognized by the HLA Nomenclature Committee in April 2021^{1,2,3} will be amplified by the primers in the DQA1 typing kit.

¹DQA1 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 DQA1 kit enables separation of DQA1 alleles as listed in the IMGT/HLA database 3.34.0.

RESOLUTION IN HOMO- AND HETEROZYGOTES

Results file with resolution in DQA1 homo- and heterozygotes is available upon request.



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Lot-specific information
SPECIFICITY TABLE

DQA1 SSP typing

Specificities and sizes of the PCR products of the 31+1 primer mixes used
for DQA1 SSP typing

Primer Mix	Size of spec. PCR product ¹	Size of control band ²	Amplified DQA1 alleles ³
1⁷	145 bp	515 bp	*01:01:01:01-01:01:01:03, 01:01:01:05-01:01:11, 01:04:01:01-01:05:02, 01:07Q, 01:12, 01:18, 01:22, 01:26-01:27, 01:29, 01:34-01:35, 01:37, 01:43, 01:49, 01:53, 01:55-01:56, 01:59-01:61, 01:64
2⁶	170 bp	515 bp	*01:01:01:01-01:01:01:03, 01:01:01:05-01:02:10, 01:04:01:01-01:09, 01:11-01:13, 01:16N, 01:18-01:23, 01:25-01:29, 01:31-01:32, 01:34-01:43, 01:46, 01:48-01:49, 01:51-01:56, 01:58-01:64
3	145 bp	430 bp	*01:02:01:01-01:03:05, 01:06, 01:08-01:11, 01:13-01:17, 01:19-01:21, 01:23-01:25, 01:28, 01:30-01:33, 01:36, 01:38:01:01-01:42, 01:44-01:48, 01:50-01:52, 01:54, 01:57-01:58, 01:62-01:63, 01:65
4	170 bp	430 bp	*01:03:01:01-01:03:05, 01:10, 01:14-01:15N, 01:17, 01:24, 01:30, 01:33, 01:44-01:45, 01:47, 01:50, 01:57, 01:65
5	220 bp	430 bp	*01:03:02 [?] , 01:04:01:01-01:05:03, 01:06 [?] , 01:07Q, 01:08 [?] -01:09 [?] , 01:12, 01:13 [?] , 01:15N [?] , 01:17 [?] -01:18 [?] , 01:20 [?] , 01:22, 01:26 [?] , 01:28 [?] -01:29 [?] , 01:31 [?] -01:37 [?] , 01:39, 01:40Q [?] , 01:42 [?] , 01:46-01:47, 01:50 [?] , 01:52 [?] , 01:53, 01:55 [?] -01:56 [?] , 01:59 [?] -01:63 [?] , 01:64-01:65
6⁴	100 bp	430 bp	*01:04:01:01-01:04:03, 01:06 [?] , 01:07Q, 01:08 [?] -01:09 [?] , 01:13 [?] , 01:15N [?] , 01:18 [?] , 01:26 [?] , 01:29, 01:34 [?] -01:36 [?] , 01:42 [?] , 01:46 [?] -01:47 [?] , 01:50 [?] , 01:52 [?] , 01:53, 01:56 [?] , 01:60 [?] -01:62 [?] , 01:64
7^{4,5}	95 bp 135 bp	430 bp	*01:06 *05:08
8^{4,7}	65 bp	430 bp	*01:01:01:01-01:01:01:03, 01:01:01:05-01:02:03, 01:02:05-01:03:05, 01:04:03, 01:06 [?] , 01:08 [?] -01:09 [?] , 01:10-01:11, 01:13 [?] , 01:14, 01:15N [?] , 01:16N, 01:17 [?] -01:18 [?] , 01:19, 01:20 [?] , 01:21, 01:23-01:25, 01:26 [?] , 01:27, 01:28 [?] -01:29 [?] , 01:30, 01:31 [?] -01:37 [?] , 01:38:01:01-01:38:01:02, 01:40Q [?] , 01:41, 01:42 [?] , 01:43-01:52, 01:54-01:63, 02:01:01:01-02:05, 02:07-02:18, 03:01:01:01, 03:01:03-03:03:03, 03:04-03:20, 04:01:01:01-04:08, 05:01:01:01-05:01:02, 05:01:04-05:12, 05:14-05:38, 06:01:01:01-06:02
9	175 bp	430 bp	*02:01:01:01-02:05, 02:07-02:15, 02:17-02:18
10	185 bp	430 bp	*03:01:01:01, 03:01:03-03:20
11	215 bp	430 bp	*03:02:01:01-03:02:02, 03:07, 03:13, 03:18
12	225 bp	515 bp	*02:17, 03:02:01:01-03:04, 03:07-03:09, 03:11, 03:13-03:14, 03:17, 03:19-03:20
13	225 bp	515 bp	*01:01:01:01-01:01:01:03, 01:01:01:05-01:47, 01:49-01:65, 02:01:01:01-02:01:01:02, 02:01:03-02:05, 02:07-02:16, 02:18, 03:01:01:01, 03:01:03-03:01:06, 03:05 [?] , 03:06,



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			03:10, 03:12, 03:15, 03:16 [?] , 03:18, 04:01:01:01-04:01:01:09, 04:01:03-04:08, 05:01:01:01-05:01:02, 05:01:05-05:38, 06:01:01:01-06:02
14^{4,5}	125 bp	430 bp	*04:01:01:01-04:02, 04:04-04:08, 05:01:01:01-05:01:02, 05:01:04-05:33, 05:35-05:38
15⁵	165 bp	430 bp	*05:01:01:01-05:01:02, 05:01:04-05:09, 05:11-05:35, 05:37-05:38
	190 bp		*01:10, 01:42, 05:37
16⁴	95 bp	515 bp	*05:02, 05:07
17	200 bp	430 bp	*05:01:01:01-05:01:02, 05:01:04-05:01:06, 05:02 [?] , 05:04 [?] , 05:05:01:01-05:05:06, 05:08-05:20, 05:22-05:38
18	200 bp	430 bp	*05:02 [?] , 05:03:01:01-05:03:02, 05:04 [?] , 05:06:01:01-05:07
19⁴	120 bp 205 bp	430 bp	*01:15N *05:01:01:01-05:01:02, 05:01:04-05:03:02, 05:05:01:01-05:09, 05:11-05:38
20	135 bp	430 bp	*04:05, 05:04
21^{4,5}	100 bp	430 bp	*05:02 [?] , 05:04 [?] , 05:05:01:01-05:05:06, 05:08-05:09, 05:10 [?] , 05:11, 05:12 [?] , 05:13-05:14, 05:15N [?] -05:17N [?] , 05:20, 05:21 [?] -05:22 [?] , 05:24, 05:25 [?] -05:28 [?] , 05:29Q, 05:30 [?] , 05:32 [?] -05:35 [?] , 05:37 [?]
	210 bp		*01:09
22⁴	120 bp 215 bp	515 bp	*06:01:01:01-06:02 *02:02N
23⁴	85 bp	430 bp	*04:01:01:01-04:08, 06:01:01:01-06:02
24⁷	220 bp	430 bp	*01:01:01:01-01:01:01:03, 01:01:01:05-01:06:5, 02:01:01:01 ^w , 02:01:01:02-02:05, 02:07-02:18, 03:01:01:01, 03:01:03-03:20, 04:01:01:01-04:08, 05:01:01:01-05:01:02, 05:01:04-05:01:06, 05:02 [?] , 05:03:01:01-05:03:02, 05:04 [?] , 05:06:01:01-05:07, 05:10 [?] , 05:12, 05:15N-05:19, 05:21-05:23, 05:25-05:28, 05:30-05:38, 06:01:01:01-06:02
25⁴	80 bp 175 bp	430 bp	*05:09 *01:07Q, 01:13, 01:24, 01:43
26⁴	105 bp 160 bp 250 bp	430 bp	*01:16N *01:08, 04:02, 05:10, 06:02 *01:12
27^{4,6}	90 bp 135 bp	430 bp	*04:03N *01:11
28⁴	105 bp 200 bp	430 bp	*04:04 *01:14
29⁴	90 bp 120 bp	515 bp	*05:02 *03:04
30⁴	115 bp 215 bp	430 bp	*05:11 *05:06:01:01-05:06:01:03
31⁴	100 bp	430 bp	*01:01:01:01-01:01:01:03, 01:01:01:05-01:01:06, 01:01:08-01:01:11, 01:05:01:01-01:05:03, 01:06 [?] , 01:08 [?] -01:09 [?] , 01:12, 01:13 [?] , 01:15N [?] , 01:18 [?] , 01:22, 01:26 [?] , 01:27, 01:34 [?] -01:36 [?] , 01:37, 01:42 [?] , 01:43, 01:46 [?] -01:47 [?] , 01:49, 01:50 [?] , 01:52 [?] , 01:55, 01:56 [?] , 01:59, 01:60 [?] -01:62 [?] , 01:63
32⁸	-	-	Negative Control



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Lot-specific information

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 DQA1 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, e.g. the primers in wells 11, 12, 17, 18, 21, 23 and 27.

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 430 or 515 base pairs respectively, well distribution as outlined in the table. Well number 1 contains the longer, 515 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 DQA1 alleles 1st and/or 3rd 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 7, 14, 15 and 21 may have a tendency to giving rise to primer oligomer formation.

⁶Primer mixes 2 and 27 may have a tendency of unspecific amplification.

⁷Primer mixes 1, 8 and 24 may give rise to a lower yield of HLA-specific PCR product than the other DQA1 primer mixes.

⁸Primer mix 32 contains a negative control, which will amplify the majority of HLA amplicons as well as the amplicons generated by the control primer pairs matching the human growth hormone gene. HLA-specific PCR product sizes range from 75 to 200 base pairs and the PCR product generated by the HGH positive control primer pair is 200 base pairs.

Abbreviations

w: may be weakly amplified.

?: nucleotide sequence information not available for the primer matching sequence.



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PRIMER SPECIFICATION

Well No.	1	2	3	4	5	6	7	8	9	10	11	12
Length of spec. PCR product	145	170	145	170	220	100	95	65	175	185	215	225
Length of int. pos. control ¹	515	515	430	430	430	430	430	430	430	430	430	515
5'-primer(s) ²	34(169) 5'-Agg 3'	25(143) 5'-gTA 3'	34(169) 5'-AgC 3'	25(143) 5'-gTT 3'	-8(49) 5'-CCA 3'	199(664) 5'-gCA 3'	25(143) 5'-gTA 3'	-8(49) 5'-CCg 3'	7(90) 5'-CAC 3'	7(90) 5'-CAT 3'	-6(53) 5'-gAC 3'	99(366) 5'-CCC 3'
							107(389) 5'-CAT 3'					
3'-primer(s) ³	69(274) 5'-TgC 3'	69(274) 5'-TgC 3'	69(274) 5'-TgC 3'	69(274) 5'-TgC 3'	1 st I 5'-TTT 3'	218(722) 5'-CTT 3'	44(199) 5'-AgC 3'	2(74) 5'-TgT 3'	52(224) 5'-TgT 3'	55(232) 5'-TCT 3'	1 st I 5'-TTT 3'	160(548) 5'-CAT 3'
							139(485) 5'-AgA 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	225	125	165	95	200	200	120	135	100	120	85	220
Length of int. pos. control ¹	515	430	430	515	430	430	430	430	430	515	430	430
5'-primer(s) ²	99(366) 5'-CCC 3'	25(143) 5'-gTA 3'	34(169) 5'-AgC 3'	59(245) 5'-CCg 3'	107(389) 5'-CAT 3'	107(389) 5'-CAT 3'	21(131) 5'-TCC 3'	21(131) 5'-TCT 3'	-14(31) 5'-ggA 3'	25(143) 5'-gTT 3'	32(165) 5'-gAC 3'	up ⁴ 5'-ACT 3'
				189(634) 5'-CTA 3'				26(146) 5'-CAT 3'	103(377) 5'-ggA 3'			
3'-primer(s) ³	160(548) 5'-CAg 3'	53(226) 5'-TTg 3'	75(293) 5'-gAC 3'	75(293) 5'-gAC 3'	160(547) 5'-AgC 3'	160(547) 5'-AgA 3'	48(212) 5'-gCT 3'	52(223) 5'-TCT 3'	1 st I 5'-TgC 3'	52(223) 5'-TCT 3'	47(208) 5'-ACA 3'	-14(31) 5'-ggC 3'
	160(548) 5'-CAg 3'		84(319) 5'-AgT 3'	208(691) 5'-gCA 3'			75(293) 5'-gAC 3'		160(548) 5'-CAg 3'	86(327) 5'-TTg 3'		
Well No.	13	14	15	16	17	18	19	20	21	22	23	24



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Well No.	25	26	27	28	29	30	31
Length of spec.	80	105	90	105	90	115	100
PCR product	175	160	135	200	120	215	
		250					
Length of int.	430	430	430	430	515	430	430
pos. control ¹							
5'-primer(s) ²	-14(31) 5'-ggA 3'	34(169) 5'-AgC 3'	53(226) 5'-gAT 3'	15(114) 5'-TTC 3'	59(245) 5'-CCg 3'	102(373) 5'-CAg 3'	199(664) 5'-gCg 3'
	34(169) 5'-Agg 3'	99(366) 5'-CCC 3'	186(626) 5'-TCT 3'	153(526) 5'-gTC 3'	99(366) 5'-CCC 3'	194(650) 5'-Agg 3'	
	34(169) 5'-AgC 3'	101(372) 5'-ACg 3'					
3'-primer(s) ³	1(70) 5'-TTT 3'	55(234) 5'-CT 3'	69(274) 5'-TgT 3'	69(274) 5'-TgC 3'	75(293) 5'-gAC 3'	160(547) 5'-AgA 3'	218(722) 5'-CTT 3'
	79(304) 5'-gCA 3'	77(298) 5'-AAC 3'	218(722) 5'-CTT 3'	174(591) 5'-TCg 3'	126(447) 5'-TTT 3'	218(722) 5'-CTC 3'	
		134(470) 5'-CAg 3'					
		138(482) 5'-TgA 3'					
		139(484) 5'-gCg 3'					
		169(574) 5'-CTg 3'					
Well No.	25	26	27	28	29	30	31

¹The internal positive control primer pairs amplify segments of the human growth hormone gene. The internal positive control bands are 430 or 515 base pairs respectively, well distribution as outlined in the table. Well number 1 contains the longer, 515 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.

⁴Primer located upstream of the 1st exon.



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CELL LINE VALIDATION SHEET																				
DQA1 SSP typing kit ²																				
					Well															
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
				Prod. No.:	202016901	201905202	201905203	201905204	201905205	201905206	201905207	201905208	201905209	201905210	201905211	201905212	201905213	201905214	201905215	201905216
	IHWC cell line ¹		DQA1*																	
1	9001	SA	*01:01		+	+	-	-	-	-	-	+	-	-	-	-	+	-	-	-
2	9280	LK707	*01:03	*03:03	-	-	+	+	-	-	-	+	-	+	-	+	+	-	-	-
3	9011	E4181324	*01:03		-	-	+	+	-	-	-	+	-	-	-	-	+	-	-	-
4	9275	GU373	*05:01		-	-	-	-	-	-	-	+	-	-	-	-	+	+	+	-
5	9009	KAS011	*01:02		-	+	+	-	-	-	-	+	-	-	-	-	+	-	-	-
6	9353	SM	*01:03	*03:01	-	-	+	+	-	-	-	+	-	+	-	-	+	-	-	-
7	9020	QBL	*05:01		-	-	-	-	-	-	-	+	-	-	-	-	+	+	+	-
8	9025	DEU	*03		-	-	-	-	-	-	-	+	-	+	-	-	+	-	-	-
9	9026	YAR	*03:01		-	-	-	-	-	-	-	+	-	+	-	-	+	-	-	-
10	9107	LKT3	*03:03		-	-	-	-	-	-	-	+	-	+	-	+	-	-	-	-
11	9051	PITOUT	*02:01		-	-	-	-	-	-	-	+	+	-	-	-	+	-	-	-
12	9052	DBB	*02:01		-	-	-	-	-	-	-	+	+	-	-	-	+	-	-	-
13	9004	JESTHOM	*01:01		+	+	-	-	-	-	-	+	-	-	-	-	+	-	-	-
14	9071	OLGA	*04:01		-	-	-	-	-	-	-	+	-	-	-	-	+	+	-	-
15	9075	DKB	*03:02		-	-	-	-	-	-	-	+	-	+	+	+	-	-	-	-
16	9037	SWEIG007	*05:05		-	-	-	-	-	-	-	+	-	-	-	-	+	+	+	-
17	9282	CTM3953540	*01:03	*05:01	-	-	+	+	-	-	-	+	-	-	-	-	+	+	+	-
18	9257	32367	*01:02	*03:03	-	+	+	-	-	-	-	+	-	+	-	+	+	-	-	-
19	9038	BM16	*05:05		-	-	-	-	-	-	-	+	-	-	-	-	+	+	+	-
20	9059	SLE005	*01:02		-	+	+	-	-	-	-	+	-	-	-	-	+	-	-	-
21	9064	AMALA	*05:03		-	-	-	-	-	-	-	+	-	-	-	-	+	+	+	-
22	9056	KOSE	*01:02	*01:04	+	+	+	-	-	+	-	+	-	-	-	-	+	-	-	-
23	9124	IHL	*01:03	*01:04	+	+	+	+	-	+	-	+	-	-	-	-	+	-	-	-
24	9035	JBUSH	*05:05		-	-	-	-	-	-	-	+	-	-	-	-	+	+	+	-
25	9049	IBW9	*02:01		-	-	-	-	-	-	-	+	+	-	-	-	+	-	-	-
26	9285	WT49	*05:01		-	-	-	-	-	-	-	+	-	-	-	-	+	+	+	-
27	9191	CH1007	*03:03	*01:05	+	+	-	-	+	-	-	+	-	+	-	+	+	-	-	-
28	9320	BEL5GB	*02:01	*03:03	-	-	-	-	-	-	-	+	+	+	-	+	+	-	-	-
29	9050	MOU	*02:01		-	-	-	-	-	-	-	+	+	-	-	-	+	-	-	-
30	9021	RSH	*04:01		-	-	-	-	-	-	-	+	-	-	-	-	+	+	-	-
31	9019	DUCAF	*05:01		-	-	-	-	-	-	-	+	-	-	-	-	+	+	+	-
32	9297	HAG	*05:05		-	-	-	-	-	-	-	+	-	-	-	-	+	+	+	-
33	9098	MT14B	*03:01		-	-	-	-	-	-	-	+	-	+	-	-	+	-	-	-
34	9104	DHIF	*05:05		-	-	-	-	-	-	-	+	-	-	-	-	+	+	+	-
35	9302	SSTO	*03:01		-	-	-	-	-	-	-	+	-	+	-	-	+	-	-	-
36	9024	KT17	*03:01		-	-	-	-	-	-	-	+	-	+	-	-	+	-	-	-
37	9065	HHKB	*01:03		-	-	+	+	-	-	-	+	-	-	-	-	+	-	-	-
38	9099	LZL	*05:03		-	-	-	-	-	-	-	+	-	-	-	-	+	+	+	-
39	9315	CML	*03:03	*05:01	-	-	-	-	-	-	-	+	-	+	-	+	+	+	+	-
40	9134	WHONP199	*02:01	*03:02	-	-	-	-	-	-	-	+	+	+	+	+	+	-	-	-
41	9055	H0301	*01:02		-	+	+	-	-	-	-	+	-	-	-	-	+	-	-	-
42	9066	TAB089	*01:03		-	-	+	+	-	-	-	+	-	-	-	-	+	-	-	-
43	9076	T7526	*03:02		-	-	-	-	-	-	-	+	-	+	+	+	-	-	-	-
44	9057	TEM	*01:04		+	+	-	-	-	+	-	-	-		-	-	+	-	-	-
45	9239	SHJO	*02:01	*03:03	-	-	+	+	-	-	-	+	-	+	-	+	+	-	-	-
46	9013	SCHU	*01:02		-	+	+	-	-	-	-	+	-	-	-	-	+	-	-	-
47	9045	TUBO	*05:05		-	-	-	-	-	-	-	+	-	-	-	-	+	+	+	-
48	9303	TER-ND	*01:01		+	+	-	-	-	-	-	+	-	-	-	-	+	-	-	-

101.231-24/04 – including *Taq* pol., IFU-01
101.231-24u/04u – without *Taq* pol., IFU-02

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Lot No.: **3N5**

Lot-specific information

CELL LINE VALIDATION SHEET																			
DQA1 SSP typing kit ²																			
					Well														
					17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
				Prod. No.:	201905217	201905218	201905219	201905220	201905221	201905222	201905223	201905224	201905225	201905226	201905227	201905228	202026729	201905230	201905231
	IHWC cell line ¹		DQA1*																
1	9001	SA	*01:01		-	-	-	-	-	-	-	+	-	-	-	-	-	-	+
2	9280	LK707	*01:03	*03:03	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
3	9011	E4181324	*01:03		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
4	9275	GU373	*05:01		+	-	+	-	-	-	-	+	-	-	-	-	-	-	-
5	9009	KAS011	*01:02		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
6	9353	SM	*01:03	*03:01	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
7	9020	QBL	*05:01		+	-	+	-	-	-	-	+	-	-	-	-	-	-	-
8	9025	DEU	*03		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
9	9026	YAR	*03:01		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
10	9107	LKT3	*03:03		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
11	9051	PITOUT	*02:01		-	-	-	-	-	-	-	W	-	-	-	-	-	-	-
12	9052	DBB	*02:01		-	-	-	-	-	-	-	W	-	-	-	-	-	-	-
13	9004	JESTHOM	*01:01		-	-	-	-	-	-	-	+	-	-	-	-	-	-	+
14	9071	OLGA	*04:01		-	-	-	-	-	-	-	+	+	-	-	-	-	-	-
15	9075	DKB	*03:02		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
16	9037	SWEIG007	*05:05		+	-	+	-	+	-	-	-	-	-	-	-	-	-	-
17	9282	CTM3953540	*01:03	*05:01	+	-	+	-	-	-	-	+	-	-	-	-	-	-	-
18	9257	32367	*01:02	*03:03	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
19	9038	BM16	*05:05		+	-	+	-	+	-	-	-	-	-	-	-	-	-	-
20	9059	SLE005	*01:02		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
21	9064	AMALA	*05:03		-	+	+	-	-	-	-	+	-	-	-	-	-	-	-
22	9056	KOSE	*01:02	*01:04	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
23	9124	IHL	*01:03	*01:04	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
24	9035	JBUSH	*05:05		+	-	+	-	+	-	-	-	-	-	-	-	-	-	-
25	9049	IBW9	*02:01		-	-	-	-	-	-	-	W	-	-	-	-	-	-	-
26	9285	WT49	*05:01		+	-	+	-	-	-	-	+	-	-	-	-	-	-	-
27	9191	CH1007	*03:03	*01:05	-	-	-	-	-	-	-	+	-	-	-	-	-	-	+
28	9320	BEL5GB	*02:01	*03:03	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
29	9050	MOU	*02:01		-	-	-	-	-	-	-	W	-	-	-	-	-	-	-
30	9021	RSH	*04:01		-	-	-	-	-	-	-	+	+	-	-	-	-	-	-
31	9019	DUCAF	*05:01		+	-	+	-	-	-	-	+	-	-	-	-	-	-	-
32	9297	HAG	*05:05		+	-	+	-	+	-	-	-	-	-	-	-	-	-	-
33	9098	MT14B	*03:01		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
34	9104	DHIF	*05:05		+	-	+	-	+	-	-	-	-	-	-	-	-	-	-
35	9302	SSTO	*03:01		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
36	9024	KT17	*03:01		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
37	9065	HHKB	*01:03		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
38	9099	LZL	*05:03		-	+	+	-	-	-	-	+	-	-	-	-	-	-	-
39	9315	CML	*03:03	*05:01	+	-	+	-	-	-	-	+	-	-	-	-	-	-	-
40	9134	WHONP199	*02:01	*03:02	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
41	9055	H0301	*01:02		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
42	9066	TAB089	*01:03		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
43	9076	T7526	*03:02		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
44	9057	TEM	*01:04		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
45	9239	SHJO	*02:01	*03:03	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
46	9013	SCHU	*01:02		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
47	9045	TUBO	*05:05		+	-	+	-	+	-	-	-	-	-	-	-	-	-	-
48	9303	TER-ND	*01:01		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-

101.231-24/04 – including *Taq* pol., IFU-01
101.231-24u/04u – without *Taq* pol., IFU-02

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Lot No.: **3N5**

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 16, 20 and 26 to 29 were available. The specificities of the primers in primer solutions 16 and 29 were tested by separately adding one 5'-primer, and one 3'-primer accordingly. In primer solution 26 the 5'-primers were tested by adding three additional 3'-primers, while the 3'-primers were not possible to be tested. In primer solutions 20, 27 and 28 the 3'-primers were tested by adding one or two additional 5'-primers, while the 5'-primers were not possible to be tested. In primer solutions 16, 21, 29 and 30, one 5'-primer was not possible to be tested, and in primer solutions 7, 16, 19, 22, 25 and 29 one 3'-primer was not possible to be tested.

In addition, one or more primers in primer solutions 7, 21, 25 and 30 were tested by separately adding one 5'-primer or one 3'-primer.



101.231-24/04 – including *Taq* pol., IFU-01
 101.231-24u/04u – without *Taq* pol., IFU-02

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 “Instructions for Use” (IFU)

Lot No.: **3N5**

Lot-specific information

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For information on CareDx distributors worldwide, contact **CareDx AB**.

