

101.213-24 – including *Taq* pol., IFU-01.
101.213-24u – without *Taq* pol., IFU-02.

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

Lot No.: **4L6**

Lot-specific information
Olerup SSP[®] DQB1*02

Product number:	101.213-24 – including <i>Taq</i> polymerase 101.213-24u – without <i>Taq</i> polymerase
Lot number:	4L6
Expiry date:	2024-10-01
Number of tests:	24
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. 4L6.

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

**CHANGES COMPARED TO THE PREVIOUS OLERUP SSP[®]
DQB1*02 Lot (7H7)**

- The product documentation has been updated for new alleles of IMGT 3.40.0.
- The kit resolution focuses on common and well documented (CWD) alleles¹.

¹As described in section Uniquely Identified Alleles.

The DQB1*02 primer set, specificity and interpretation tables have been updated with the DQB1 alleles described since the previous *Olerup SSP[®] DQB1*02* lot (**Lot No. 7H7**) was made.

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

Well	5'-primer	3'-primer	rationale
1	-	Added	3'-primer added for the *02:01:34 allele.
18	Moved	-	5'-primer moved to mix 30 for improved HLA-specific amplification.
19	Added	-	5'-primer added from mix 26.
25	-	Added	3'-primer added for the allele *02:63.
26	Moved/Added	Removed/Added	5'-primer moved to mix 19, 3'-primer removed. Primer pair added for the *02:163N allele.
27	-	-	Control exchange for reducing tendency of primer oligomer formation.
29	-	Added	3'-primer added for *02:63.
30	Added	-	5'-primer added from mix 18.

Changes in revision R01 compared to R00:

1. Primer mix 7 does not amplify the DQB1*02:06, 02:48, 03:24, 03:79 and 05:196 alleles. The corrections above have been implemented in the Specificity and Interpretation tables.

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Well **32** 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'-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

DQB1*02 SSP subtyping

CONTENT

The primer set contains 5'- and 3'-primers for identifying the DQB1*02:01 to DQB1*02:171Q alleles.

Please note that DQB1 amplifications usually are somewhat less pronounced than e.g. DRB and DQA1 amplifications even when using the same DNA preparation and exactly the same experimental procedures.

PLATE LAYOUT

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

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	NC

The 32 well PCR plate is marked with 'DQB1*02' in silver/gray ink.

Well No. 1 is marked with the Lot No. '4L6'.

Wells 1 to 31 – DQB1*02 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 covered. Use a scalpel or a similar instrument to carefully cut the foil between the plates.

INTERPRETATION

Due to the sharing of sequence motifs between DQB1 alleles, non-DQB1*02 alleles will be amplified by some primer mixes. For further details see Specificity Table.

UNIQUELY IDENTIFIED ALLELES

All the DQB1*02 alleles, i.e. **DQB1*02:01 to DQB1*02:171Q**, recognized by the HLA Nomenclature Committee in April 2020^{1,2} will be amplified by the primers in the DQB1*02 subtyping kit.

The DQB1*02 kit enables separation of the confirmed DQB1*02 alleles as listed in the IMGT/HLA database 3.26.0. An HLA allele is listed as confirmed by IMGT/HLA

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if it has been sequenced by more than a single laboratory or from multiple sources.
Current allele confirmation status for DQB1*02 alleles is listed below.

The DQB1*02 kit also enables identification of many null and alternatively expressed alleles.

The following DQB1*02 alleles can be distinguished by the different sizes of the specific PCR product:

Alleles	Primer mix	Alleles	Primer mix
DQB1*02:07:01-02:07:02, 02:16	9	DQB1*02:21, 02:35	15
DQB1*02:09, 02:24	11	DQB1*02:27, 02:28	22
DQB1*02:18N, 02:34	14	DQB1*02:29, 02:58N	30
DQB1*02:20N, 02:22	16	DQB1*02:41, 02:53Q	23

¹HLA-DQB1 alleles listed on the IMGT/HLA web page 2020-April-20, release 3.40.0, 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>.

RESOLUTION IN HOMO- AND HETEROZYGOTES

Results file with resolution in DQB1*02 homo- and heterozygotes is available upon request.

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ALLELE CONFIRMATION STATUS

Allele	Status ¹	Allele	Status ¹	Allele	Status ¹
DQB1*02:01:01	Confirmed	DQB1*02:14:01	Confirmed	DQB1*02:53Q	Confirmed
DQB1*02:01:02	Unconfirmed	DQB1*02:14:02	Unconfirmed	DQB1*02:54	Confirmed
DQB1*02:01:03	Unconfirmed	DQB1*02:15	Unconfirmed	DQB1*02:55	Unconfirmed
DQB1*02:01:04	Confirmed	DQB1*02:16	Confirmed	DQB1*02:56	Unconfirmed
DQB1*02:01:05	Confirmed	DQB1*02:17	Confirmed	DQB1*02:57	Unconfirmed
DQB1*02:01:06	Unconfirmed	DQB1*02:18N	Confirmed	DQB1*02:58N	Unconfirmed
DQB1*02:01:07	Confirmed	DQB1*02:19	Confirmed	DQB1*02:59	Unconfirmed
DQB1*02:01:08	Confirmed	DQB1*02:20N	Confirmed	DQB1*02:60	Unconfirmed
DQB1*02:01:09	Unconfirmed	DQB1*02:21	Unconfirmed	DQB1*02:61	Unconfirmed
DQB1*02:01:10	Confirmed	DQB1*02:22	Unconfirmed	DQB1*02:62	Confirmed
DQB1*02:01:11	Confirmed	DQB1*02:23	Confirmed	DQB1*02:63	Unconfirmed
DQB1*02:01:12	Unconfirmed	DQB1*02:24	Unconfirmed	DQB1*02:64	Unconfirmed
DQB1*02:01:13	Unconfirmed	DQB1*02:25	Unconfirmed	DQB1*02:65	Unconfirmed
DQB1*02:01:14	Confirmed	DQB1*02:26	Confirmed	DQB1*02:66	Unconfirmed
DQB1*02:01:15	Unconfirmed	DQB1*02:27	Confirmed	DQB1*02:67N	Unconfirmed
DQB1*02:01:16	Unconfirmed	DQB1*02:28	Confirmed	DQB1*02:68	Unconfirmed
DQB1*02:01:17	Unconfirmed	DQB1*02:29	Confirmed	DQB1*02:69	Unconfirmed
DQB1*02:01:18	Unconfirmed	DQB1*02:30	Confirmed	DQB1*02:70	Unconfirmed
DQB1*02:01:19	Confirmed	DQB1*02:31	Unconfirmed	DQB1*02:71	Unconfirmed
DQB1*02:01:20	Confirmed	DQB1*02:32	Unconfirmed	DQB1*02:72	Unconfirmed
DQB1*02:01:21	Unconfirmed	DQB1*02:33	Confirmed	DQB1*02:73	Unconfirmed
DQB1*02:01:22	Unconfirmed	DQB1*02:34	Unconfirmed	DQB1*02:74	Unconfirmed
DQB1*02:01:23	Confirmed	DQB1*02:35	Unconfirmed	DQB1*02:75	Unconfirmed
DQB1*02:01:24	Unconfirmed	DQB1*02:36	Unconfirmed	DQB1*02:76	Unconfirmed
DQB1*02:02:01:01	Confirmed	DQB1*02:37	Unconfirmed	DQB1*02:77	Unconfirmed
DQB1*02:02:01:02	Unconfirmed	DQB1*02:38	Unconfirmed	DQB1*02:78	Unconfirmed
DQB1*02:02:02	Unconfirmed	DQB1*02:39	Unconfirmed		
DQB1*02:02:03	Unconfirmed	DQB1*02:40	Unconfirmed		
DQB1*02:03	Confirmed	DQB1*02:41	Confirmed		
DQB1*02:04	Unconfirmed	DQB1*02:42	Confirmed		
DQB1*02:05	Confirmed	DQB1*02:43	Unconfirmed		
DQB1*02:06	Unconfirmed	DQB1*02:44	Unconfirmed		
DQB1*02:07:01	Confirmed	DQB1*02:45	Unconfirmed		
DQB1*02:07:02	Unconfirmed	DQB1*02:46	Confirmed		
DQB1*02:08	Unconfirmed	DQB1*02:47	Unconfirmed		
DQB1*02:09	Unconfirmed	DQB1*02:48	Unconfirmed		
DQB1*02:10	Unconfirmed	DQB1*02:49	Unconfirmed		
DQB1*02:11	Unconfirmed	DQB1*02:50	Confirmed		
DQB1*02:12	Confirmed	DQB1*02:51	Confirmed		
DQB1*02:13	Unconfirmed	DQB1*02:52	Unconfirmed		

¹Allele status “confirmed” or “unconfirmed” as listed on the IMGT/HLA web page 2016-October-14, release 3.26.0, www.ebi.ac.uk/imgt/hla.

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SPECIFICITY TABLE

DQB1*02 SSP subtyping

Specificities and sizes of the PCR products of the 31+1 primer mixes used for DQB1*02 SSP subtyping

Primer Mix	Size of spec. PCR product ¹	Size of control band ²	Amplified DQB1*02 alleles ³	Other amplified DQB1 alleles
1 ⁴	120 bp	515 bp	*02:01:01:01-02:02:12, 02:03:01 ^w , 02:04-02:16, 02:17 ^w , 02:18N-02:24, 02:26-02:39, 02:41-02:71, 02:73-02:76, 02:78-02:171Q	
2 ^{4,5}	85 bp	430 bp	*02:03:01-02:03:02, 02:77	
3 ⁵	145 bp	515 bp	*02:01:01:01-02:01:35, 02:01:37-02:01:38, 02:03:02-02:05, 02:07:01-02:09, 02:13-02:25, 02:27-02:47, 02:49, 02:51-02:61, 02:63, 02:66-02:79, 02:81-02:83, 02:85-02:88, 02:90-02:94, 02:96N, 02:98-02:109, 02:111-02:112, 02:114-02:115, 02:118-02:119, 02:123, 02:125, 02:128-02:130, 02:132N-02:136, 02:139-02:140, 02:148-02:149, 02:151-02:152, 02:154-02:155, 02:157-02:160, 02:163N-02:164, 02:166, 02:168, 02:170	*03:01:01:01-03:01:01:12, 03:01:01:14-03:23:03, 03:25:01-03:78, 03:80-03:96, 03:98-03:163, 03:166-03:318, 03:320-03:324, 03:326-03:328, 03:330-03:346, 03:348, 03:350-03:380, 03:382-03:428, 04:01:01:01-04:02:01:01, 04:02:01:04-04:43, 04:45-04:69, 04:72-04:77, 05:01:01:01-05:02:10, 05:02:12-05:13, 05:15-05:83, 05:85-05:195, 05:197-05:210, 05:212-05:248, 06:01:01:01-06:37, 06:39-06:85, 06:87-06:101, 06:105-06:217, 06:219, 06:221-06:226, 06:228-06:283, 06:285-06:349, 06:351-06:362, 06:364-06:365, 06:367-06:370
4	140 bp	430 bp	*02:02:01:01-02:03:01, 02:06, 02:10-02:12, 02:26, 02:50, 02:62, 02:64-02:65, 02:80, 02:84, 02:89:01-02:89:02, 02:95, 02:97, 02:110, 02:113, 02:116-02:117, 02:120-02:122, 02:124, 02:126-02:127, 02:131, 02:137-02:138, 02:141-02:147, 02:150, 02:153, 02:156, 02:161-02:162N, 02:165, 02:167N, 02:169, 02:171Q	
5 ⁴	95 bp 140 bp	430 bp	*02:23 *02:04, 02:37	

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	195 bp		*02:96N	
6	210 bp	430 bp	*02:05	*06:02:35
7	165 bp	430 bp	*02:19	
8	160 bp	430 bp	*02:10, 02:81	*03:49, 03:286, 03:402, 05:152, 06:359
9⁴	95 bp	430 bp	*02:16	
	195 bp		*02:07:01-02:07:02	
10	180 bp	430 bp	*02:08	
	230 bp		*02:12	
11⁴	95 bp	430 bp	*02:24	
	170 bp		*02:09	*03:330
12⁴	120 bp	430 bp	*02:11, 02:25	
	160 bp		*02:13, 02:30	
13⁴	120 bp	430 bp	*02:17, 02:32	
	215 bp		*02:38	
14	145 bp	430 bp	*02:18N, 02:54	
	220 bp		*02:34, 02:38	
15⁴	100 bp	515 bp	*02:21, 02:39	
	205 bp		*02:35	
16⁴	100 bp	430 bp	*02:22, 02:39	
	150 bp		*02:54	
	230 bp		*02:20N	
17	140 bp	430 bp	*02:26, 02:37, 02:48	*03:24, 03:79, 05:196
18⁴	90 bp	430 bp	*02:15	
19	100 bp	430 bp	*02:50	
	165 bp		*02:33, 02:36	
20	165 bp	430 bp	*02:14:01-02:14:02, 02:30, 02:36	
21⁴	100 bp	430 bp	*02:23, 02:31	
	130 bp		*02:40	
22⁴	90 bp	430 bp	*02:27	
	175 bp		*02:28	
23⁴	100 bp	430 bp	*02:53Q	
	255 bp		*02:41	*03:322
24	160 bp	430 bp	*02:51	
	200 bp		*02:42	
25	160 bp	430 bp	*02:51	
	195 bp		*02:63	
	220 bp		*02:46	
26⁴	95 bp	430 bp	*02:163N	
27	155 bp	515 bp	*02:62	
	210 bp		*02:72	
28	150 bp	430 bp	*02:64, 02:79	*03:21, 05:35, 05:182, 06:243, 06:255
29⁴	195 bp		*02:96N	
	65 bp	430 bp	*02:67N	
	225 bp		*02:63	*03:48
30⁴	110 bp	430 bp	*02:58N	
	185 bp		*02:29	
31⁴	75 bp	430 bp	*02:59, 02:80	*03:241, 05:163, 06:44, 06:47

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32 ⁶	-	-	Negative Control
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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 DQB1*02 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 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 DQB1 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 2 and 3 may have tendencies of unspecific amplifications.

⁶Primer mix 32 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.

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PRIMER SPECIFICATION

Well No.	1	2	3	4	5	6	7	8	9	10	11	12
Length of spec.	120	85	145	140	95	210	165	160	95	180	95	120
PCR product					140 195				195	230	170	160
Length of int. pos. control ¹	515	430	515	430	430	430	430	430	430	430	430	430
5'-primer(s) ²	30(185) 5'-AAg ^{3'}	57(266) 5'-TgA ^{3'}	135(500) 5'-TgA ^{3'}	102(400) 5'-TCT ^{3'}	26(173) 5'-TTT ^{3'}	21(159) 5'-ACA ^{3'}	30(185) 5'-AAg ^{3'}	102(400) 5'-TCT ^{3'}	30(185) 5'-AAg ^{3'}	30(185) 5'-AAg ^{3'}	36(204) 5'-gAT ^{3'}	16(142) 5'-gCA ^{3'}
					39(212) 5'-gCT ^{3'}		102(400) 5'-TCT ^{3'}				135(500) 5'-TgA ^{3'}	17(147) 5'-TTA ^{3'}
					118(449) 5'-CTA ^{3'}							30(184) 5'-gAg ^{3'}
					136(502) 5'-ACg ^{3'}							33(193) 5'-ATg ^{3'}
3'-primer(s) ³	57(266) 5'-CAg ^{3'}	71(309) 5'-CgT ^{3'}	170(604) 5'-gAC ^{3'}	135(500) 5'-ggC ^{3'}	57(266) 5'-Cgg ^{3'}	77(326) 5'-CCg ^{3'}	72(311) 5'-CCg ^{3'}	142(520) 5'-AAT ^{3'}	49(241) 5'-CgT ^{3'}	77(326) 5'-CCT ^{3'}	55(260) 5'-gCA ^{3'}	57(266) 5'-Cgg ^{3'}
	57(266) 5'-Cgg ^{3'}				170(604) 5'-gAC ^{3'}		170(604) 5'-gAT ^{3'}		81(338) 5'-Tgg ^{3'}	92(372) 5'-CgA ^{3'}	179(631) 5'-gCg ^{3'}	
	58(270) 5'-TCA ^{3'}								81(338) 5'-TCg ^{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.	120	145	100	100	140	90	165	165	100	90	100	160
PCR product	215	220	205	150 230		185			130	175	255	200
Length of int. pos. control ¹	430	430	515	430	430	430	430	430	430	430	430	430
5'-primer(s) ²	30(185) 5'-AAg ^{3'}	30(185) 5'-AAg ^{3'}	30(185) 5'-AAg ^{3'}	30(185) 5'-AAg ^{3'}	23(163) 5'-AgT ^{3'}	9(122) 5'-gTg ^{3'}	13(134) 5'-ggA ^{3'}	13(134) 5'-ggA ^{3'}	28(178) 5'-TgC ^{3'}	13(134) 5'-ggT ^{3'}	14(138) 5'-ATA ^{3'}	30(185) 5'-AAg ^{3'}
					26(173) 5'-TTT ^{3'}	41(217) 5'-TCC ^{3'}	20(154) 5'-ACT ^{3'}	17(147) 5'-TTA ^{3'}	38(209) 5'-CgC ^{3'}	41(217) 5'-TCT ^{3'}	66(292) 5'-..g ^{3'}	
					135(500) 5'-TgA ^{3'}			20(154) 5'-ACC ^{3'}	39(212) 5'-gCT ^{3'}			
								20(154) 5'-ACA ^{3'}				
3'-primer(s) ³	57(265) 5'-ggT ^{3'}	61(279) 5'-TTT ^{3'}	47(236) 5'-ggT ^{3'}	47(236) 5'-ggT ^{3'}	57(266) 5'-Cgg ^{3'}	57(266) 5'-Cgg ^{3'}	57(266) 5'-Cgg ^{3'}	57(266) 5'-Cgg ^{3'}	57(266) 5'-Cgg ^{3'}	57(266) 5'-Cgg ^{3'}	86(353) 5'-gCT ^{3'}	69(303) 5'-CTg ^{3'}
	58(268) 5'-ggT ^{3'}	66(294) 5'-ACT ^{3'}	51(248) 5'-gCC ^{3'}	51(248) 5'-gCA ^{3'}	170(604) 5'-gAT ^{3'}							83(343) 5'-gTg ^{3'}
	88(359) 5'-TgT ^{3'}	88(359) 5'-TgT ^{3'}	84(348) 5'-AAA ^{3'}	66(294) 5'-ACT ^{3'}								
		93(374) 5'-gCg ^{3'}		94(376) 5'-TCA ^{3'}								
Well No.	13	14	15	16	17	18	19	20	21	22	23	24



101.213-24 – including *Taq* pol., IFU-01.
101.213-24u – without *Taq* pol., IFU-02.

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Lot No.: **4L6**

Lot-specific information

Well No.	25	26	27	28	29	30	31
Length of spec.	160	95	155	150	65	110	75
PCR product	195		210	195	255	185	
	220						
Length of int.	430	430	515	430	430	430	430
pos. control ¹							
5'-primer(s) ²	30(185)	-29(12)	30(185)	118(449)	9(122)	9(122)	174(618)
	5' -AAG 3'	5' -AAA 3'	5' -AAA 3'	5' -CTA 3'	5' -gTA 3'	5' -gTg 3'	5' -CAA 3'
			48(239)	133(493)		35(199)	
			5' -CCA 3'	5' -TTT 3'		5' -gAT 3'	
3'-primer(s) ³	69(303)	-11(67)	86(353)	170(604)	16(144)	57(266)	185(650)
	5' -CTg 3'	5' -CTA 3'	5' -gCT 3'	5' -gAC 3'	5' -AAC 3'	5' -Cgg 3'	5' -Cgg 3'
	81(338)				81(338)		
	5' -TgC 3'				5' -TgC 3'		
	89(362)						
	5' -TCT 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.

101.213-24 – including *Taq* pol., IFU-01.
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Lot No.: **4L6**

Lot-specific information

CELL LINE VALIDATION SHEET																			
DQB1*02 SSP subtyping kit ²																			
				Well															
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
				202023101	202023102	202023103	202023104	202023105	202023106	202023107	202023108	202023109	202023110	202023111	202023112	202023113	202023114	202023115	202023116
IHCW cell line ¹		DQB1																	
			Production No.																
1	9001 SA	*05:01		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
2	9280 LK707	*06:01	*02:02	+	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-
3	9011 E4181324	*06:01		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
4	9275 GU373	*02:01		+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
5	9009 KAS011	*05:02		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
6	9353 SM	*03:02	*06:01	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
7	9020 QBL	*02:01		+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
8	9025 DEU	*03:01		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
9	9026 YAR	*03:02		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
10	9107 LKT3	*04:01		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
11	9051 PITOUT	*02:02		+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
12	9052 DBB	*03:03		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
13	9004 JESTHOM	*05:01		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
14	9071 OLGA	*04:02		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
15	9075 DKB	*03:03		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
16	9037 SWEIG007	*03:01		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
17	9282 CTM3953540	*02:01	*06:03	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
18	9257 32367	*06:02	*02:02	+	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-
19	9038 BM16	*03:01		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
20	9059 SLE005	*06:04		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
21	9064 AMALA	*03:01		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
22	9056 KOSE	*05:03	*06:04	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
23	9124 IHL	*05:03	*06:01	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
24	9035 JBUSH	*03:01		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
25	9049 IBW9	*02:02		+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
26	9285 WT49	*02:01		+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
27	9191 CH1007	*04:01	*05:01	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
28	9320 BEL5GB	*02:02	*03:01	+	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-
29	9050 MOU	*02:02		+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
30	9021 RSH	*04:02		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
31	9019 DUCAF	*02:01		+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
32	9297 HAG	*03:01		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
33	9098 MT14B	*03:02		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
34	9104 DHIF	*03:01		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
35	9302 SSTO	*03:05		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
36	9024 KT17	*03:02		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
37	9065 HHKB	*06:03		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
38	9099 LZL	*03:01		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
39	9315 CML	*02:01	*03:01	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
40	9134 WHONP199	*02:02	*03:03	+	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-
41	9055 H0301	*06:09		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
42	9066 TAB089	*06:01		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
43	9076 T7526	*03:03		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
44	9057 TEM	*05:03		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
45	9239 SHJO	*02:02		+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
46	9013 SCHU	*06:02		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
47	9045 TUBO	*03:01		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
48	9303 TER-ND	*05:01		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-



101.213-24 – including *Taq* pol., IFU-01.
101.213-24u – without *Taq* pol., IFU-02.

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Lot No.: **4L6**

Lot-specific information

CELL LINE VALIDATION SHEET																		
DQB1*02 SSP subtyping kit ²																		
				Well														
				17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
				202023117	202023118	202023119	202023120	202023121	202023122	202023123	202023124	202023125	202023126	202023127	202023128	202023129	202023130	202023131
			Production No.															
IHWC cell line ¹			DQB1															
1	9001	SA	*05:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	9280	LK707	*06:01	*02:02	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	9011	E4181324	*06:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	9275	GU373	*02:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	9009	KAS011	*05:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	9353	SM	*03:02	*06:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	9020	QBL	*02:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	9025	DEU	*03:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	9026	YAR	*03:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	9107	LKT3	*04:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	9051	PITOUT	*02:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	9052	DBB	*03:03		-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	9004	JESTHOM	*05:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	9071	OLGA	*04:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	9075	DKB	*03:03		-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	9037	SWEIG007	*03:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	9282	CTM3953540	*02:01	*06:03	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	9257	32367	*06:02	*02:02	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	9038	BM16	*03:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	9059	SLE005	*06:04		-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	9064	AMALA	*03:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	9056	KOSE	*05:03	*06:04	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	9124	IHL	*05:03	*06:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	9035	JBUSH	*03:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	9049	IBW9	*02:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	9285	WT49	*02:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	9191	CH1007	*04:01	*05:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	9320	BEL5GB	*02:02	*03:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	9050	MOU	*02:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	9021	RSH	*04:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-
31	9019	DUCAF	*02:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	9297	HAG	*03:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	9098	MT14B	*03:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-
34	9104	DHIF	*03:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-
35	9302	SSTO	*03:05		-	-	-	-	-	-	-	-	-	-	-	-	-	-
36	9024	KT17	*03:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-
37	9065	HHKB	*06:03		-	-	-	-	-	-	-	-	-	-	-	-	-	-
38	9099	LZL	*03:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-
39	9315	CML	*02:01	*03:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40	9134	WHONP199	*02:02	*03:03	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41	9055	H0301	*06:09		-	-	-	-	-	-	-	-	-	-	-	-	-	-
42	9066	TAB089	*06:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-
43	9076	T7526	*03:03		-	-	-	-	-	-	-	-	-	-	-	-	-	-
44	9057	TEM	*05:03		-	-	-	-	-	-	-	-	-	-	-	-	-	-
45	9239	SHJO	*02:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-
46	9013	SCHU	*06:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-
47	9045	TUBO	*03:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-
48	9303	TER-ND	*05:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-



101.213-24 – including *Taq* pol., IFU-01.
101.213-24u – without *Taq* pol., IFU-02.

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Lot No.: **4L6**

Lot-specific information

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

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

No DNAs carrying the alleles to be amplified by primer solutions 5 to 31 were available.

The specificities of the primers in primer solutions 6, 11 and 15 to 17 were tested by separately adding one 5'-primer, respectively one 3'-primer.

In primer solutions 5, 12, 18 to 23, 27, 28, 30 and 31 it was only possible to test the 3'-primers, the 5'-primers were not possible to test.

In primer solutions 7 to 10, 13, 14, 24, 25, 26 and 29 it was only possible to test the 5'-primers, the 3'-primers were not possible to test.

In primer solutions 11 and 17 one or two 5'-primers were not possible to test, and in primer solutions 1, 3, 11 and 15 to 17 one, two or three 3'-primers were not possible to test.

101.213-24 – including *Taq* pol., IFU-01.
101.213-24u – without *Taq* pol., IFU-02.

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Lot No.: **4L6**

Lot-specific information

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