

101.221-12 – including *Taq* pol., IFU-01

101.221-12u – without *Taq* pol., IFU-02

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

Lot No.: **71V**

Lot-specific information

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Olerup SSP® DQB1 high resolution for frequent alleles

Product number: 101.221-12 – including *Taq* polymerase
101.221-12u – without *Taq* polymerase

Lot number: 71V

Expiry date: 2016-November-01

Number of tests: 12 tests

Number of wells per test: 95+ 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. 71V.

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 HIGH RESOLUTION LOT (60S)**

The format of the Product Insert and Worksheet have been changed.

Thirty-two wells have been added to DQB1 high, wells **65 to 96**.

The DQB1 high resolution specificity and interpretation tables have been updated with the DQB1 alleles described since the previous *Olerup SSP®* DQB1 high resolution lot was made (**Lot No. 60S**).

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

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

Well	5'-primer	3'-primer	rationale
4	-	Added	3'-primer added for the DQB1*03:50 allele.
6	-	-	Strength of control band has been optimized.
7	-	-	Strength of control band has been optimized.
8	-	-	Strength of control band has been optimized.
9	-	-	Strength of control band has been optimized.

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10	Added	Added	5'-primers added for the DQB1*02:25 and DQB1*02:26 alleles, 3'-primer added for the DQB1*03:58 allele.
11	Added	-	5'-primer added for the DQB1*03:53 and DQB1*03:62 alleles.
12	-	Added	3'-primer added for the DQB1*03:57 allele.
13	Added	-	5'-primer added for the DQB1*03:54 allele.
14	Added	-	5'-primer added for the DQB1*03:55 allele.
15	Added	-	5'-primer added for the DQB1*06:01:07 allele.
16	-	-	Strength of control band has been optimized.
18	Added	Added	5'-primers added for the DQB1*03:60 and DQB1*06:85, 3'-primer added for the DQB1*06:89 alleles.
19	-	-	Strength of control band has been optimized.
20	-	-	Strength of control band has been optimized.
21	Added	-	Strength of control band has been optimized, 5'-primer added for the DQB1*04:11 allele.
22	Added	-	Strength of control band has been optimized, 5'-primer added for the DQB1*04:14 allele.
25	-	Added	3'-primers added for the DQB1*05:03:06 and DQB1*05:03:07 alleles.
26	Added	Added	Strength of control band has been optimized, primers have been optimized for improved HLA-specific amplification, primer pairs added for the DQB1*02:17 and DQB1*02:32 alleles.
27	-	Added	3'-primer added for the DQB1*03:67 allele.
29	Added	-	5'-primer added for the DQB1*06:03:07 allele.
30	Added	-	5'-primers added for the DQB1*04:15 and DQB1*04:16 alleles.
31	Added	-	5'-primers added for the DQB1*06:03:07 allele.
32	-	Added	3'-primer added for the DQB1*06:04:06 allele.
34	Added	-	5'-primer added for the DQB1*05:25 allele.
35	Added	Added	5'-primer added for the DQB1*03:87 allele, 3'-primer added for the DQB1*03:48 allele.
36	-	Added	3'-primer added for the DQB1*03:68 allele.
37	Added	-	5'-primers added for the DQB1*05:21 and DQB1*05:39 alleles.
38	Added	-	5'-primer added for the DQB1*05:26 allele.
39	Added	Added	5'-primer added for the DQB1*03:52, 3'-primers added for the DQB1*03:52 and DQB1*04:13 alleles.
40	Added	-	5'-primers added for the DQB1*05:27 and DQB1*05:41N alleles.
42	Added	Added	5'-primer added for the DQB1*04:16, 3'-primer added for the DQB1*03:66N alleles.
43	Added	-	5'-primers added for the DQB1*03:71 and DQB1*06:100 alleles.
44	-	Added	3'-primer added for the DQB1*03:89 allele.
45	Added	-	5'-primer added for the DQB1*06:85 allele.
47	-	Added	Strength of control band has been optimized, 3'-primers added for the DQB1*06:72, DQB1*03:84N and DQB1*06:65 alleles.
48	Added	-	5'-primers added for the DQB1*03:85 alleles.
49	Added	Added	Primer pair added for the DQB1*02:33 allele, 5'-primer added for the DQB1*05:32 and DQB1*05:42 alleles.
50	Added	-	5'-primer added for the DQB1*03:80 allele.
51	Added	Added	5'-primers added for the DQB1*03:53 and DQB1*03:62 alleles, 3'-primers added for the DQB1*03:49 and DQB1*03:51 alleles.
52	Added	-	5'-primer added for the DQB1*06:98 allele.

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53	Added	-	5'-primer added for the DQB1*05:30 allele.
54	-	Added	3'-primers added for the DQB1*05:23 and DQB1*06:105 alleles.
56	-	Added	3'-primer added for the DQB1*03:83 allele.
57	-	-	Strength of control band has been optimized.
58	Added	Added	5'-primers added for the DQB1*05:28 and DQB1*05:30 alleles, 3'-primer added for the DQB1*03:56 allele.
59	Added	-	5'-primers added for the DQB1*05:24 and DQB1*06:54N alleles.
60	-	Added	3'-primers added for the DQB1*05:33 and DQB1*05:40 alleles.
61	Added	-	5'-primers added for the DQB1*05:34 and DQB1*05:40 alleles.
62	Added	Added	5'-primer added for the DQB1*03:75 allele, 3'-primers added for the DQB1*06:95 and DQB1*06:97 alleles.
63	-	Added	3'-primer added for the DQB1*03:86 alleles.
64	Moved, added	Moved, added	Negative Control moved to well 96, primer pairs added for the DQB1*02:16, DQB1*02:20N, DQB1*02:21 and DQB1*04:17 alleles.
65	New	New	New primer pair for the DQB1*02:21 allele.
66	New	New	New primer pairs for the DQB1*02:18N, DQB1*02:19 and DQB1*05:31 alleles.
67	New	New	New primer pairs for the DQB1*02:15, DQB1*02:27 and DQB1*02:30 alleles.
68	New	New	New primer pairs for the DQB1*02:23, DQB1*02:24, DQB1*02:27 and DQB1*02:28 alleles.
69	New	New	New primer pairs for the DQB1*02:24, DQB1*02:29 and DQB1*02:31 alleles.
70	New	New	New primer pair for the DQB1*03:61 allele.
71	New	New	New primer pairs for the DQB1*03:63, DQB1*03:76 and DQB1*05:36 alleles.
72	New	New	New primer pairs for the DQB1*03:64, DQB1*03:77 and DQB1*05:37 alleles.
73	New	New	New primer pairs for the DQB1*03:65, DQB1*03:78 and DQB1*03:81 alleles.
74	New	New	New primer pairs for the DQB1*05:19 and DQB1*05:22 alleles.
75	New	New	New primer pairs for the DQB1*05:20 and DQB1*06:55 alleles.
76	New	New	New primer pairs for the DQB1*06:53 and DQB1*06:54N alleles.
77	New	New	New primer pairs for the DQB1*06:60 and DQB1*06:61 alleles.
78	New	New	New primer pairs for the DQB1*06:62 and DQB1*06:64 alleles.
79	New	New	New primer pairs for the DQB1*06:65 and DQB1*06:93 alleles.
80	New	New	New primer pairs for the DQB1*06:70 and DQB1*06:76 alleles.
81	New	New	New primer pairs for the DQB1*06:71 and DQB1*06:96 alleles.
82	New	New	New primer pairs for the DQB1*06:73 and DQB1*06:77N alleles.
83	New	New	New primer pairs for the DQB1*06:74 and DQB1*06:78 alleles.
84	New	New	New primer pairs for the DQB1*06:75N and DQB1*06:80 alleles.



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85	New	New	New primer pairs for the DQB1*06:67 and DQB1*06:68 alleles.
86	New	New	New primer pairs for the DQB1*06:59 and DQB1*06:90 alleles.
87	New	New	New primer pairs for the DQB1*06:59, DQB1*06:87 and DQB1*06:91 alleles.
88	New	New	New primer pairs for the DQB1*06:57 and DQB1*06:81 alleles.
89	New	New	New primer pairs for the DQB1*06:83 and DQB1*06:101 alleles.
90	New	New	New primer pairs for the DQB1*06:86, DQB1*06:104 and DQB1*06:102N alleles.
91	New	New	New primer pair for the DQB1*05:43 allele.
92	New	New	New primer pairs for the DQB1*02:12 and DQB1*02:19 alleles.
93	New	New	New primer pairs for the DQB1*02:13 and DQB1*03:85 alleles.
94	New	New	New primer pair for improved resolution of the DQB1*03:69 allele.
95	New	New	New primer pair for the DQB1*02:22 allele.
96	Added	Added	Negative Control.

Change in revision R01 compared to R00:

1. Primer mix 51 may have tendencies of unspecific amplifications. A foot note has been added in the Specificity Table.

Change in revision R02 compared to R01:

1. Primer mix 52 does not amplify the DQB1*06:49 allele. This has been corrected in the Specificity and Interpretation tables.

Change in revision R03 compared to R02:

1. Primer mix 73 does not amplify the DQB1*03:78 allele. This has been corrected in the Specificity and Interpretation Tables.

Change in revision R04 compared to R03:

1. Primer mix 94 may give rise to a lower yield of HLA-specific PCR product than the other DQB1 primer mixes. A foot note has been added in the Specificity Table.

Change in revision R05 compared to R04:

1. Primer mix 41 does not amplify the DQB1*03:22 allele. This has been corrected in the Specificity and Interpretation Tables.

Change in revision R06 compared to R05:

1. Primer mix 2 may have a tendency of unspecific amplifications. A footnote has been added in the Specificity Table.

Change in revision R07 compared to R06:

1. Primer mix 12, 31 and 38 may have a tendency of unspecific amplifications. Footnotes have been added in the Specificity Table.

2. Primer mix 94 gives rise to pronounced lower yield of HLA-specific PCR product than the other DQB1 primer mixes. The foot note has been changed in the Specificity Table.

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Well **96** contains Negative Control primer pairs, that will amplify more than 95% of the *Olerup SSP®* HLA Class I, DRB, DQB1 and DPB1 amplicons as well as amplicons generated by a control primer pair.

PCR product sizes range from 75 to 430 base pairs.
The PCR product generated by the control primer pair is 430 base pairs.

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

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 SSP typing

CONTENT

The primer set contains 5'- and 3'-primers for identifying the DQB1*02:01:01 to DQB1*06:105 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 96 PCR reactions in a 96 well cut PCR plate.

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56
57	58	59	60	61	62	63	64
65	66	67	68	69	70	71	72
73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88
89	90	91	92	93	94	95	NC

The 96 well cut PCR plate is marked with ‘DQB1 “HIGH”’ in silver/gray ink.

Well No. 1 is marked with the Lot No. ‘71V’.

Wells 1 to 95 – DQB1 high resolution primers.

Well 96 – 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.

INTERPRETATION

Only DQB1 alleles will be amplified by the DQB1 high resolution for frequent alleles typing kit. Thus, the interpretation of DQB1 high resolution for frequent alleles typings is not influenced by the DQB2 or DQB3 genes or other HLA class II genes.

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UNIQUELY IDENTIFIED ALLELES

All the phenotypically different DQB1 alleles, i.e. **DQB1*02:01:01 to 02:33, DQB1*03:01:01:01 to 03:89, DQB1*04:01:01 to 04:17, DQB1*05:01:01:01 to 05:43 and DQB1*06:01:01 to 06:105**, recognized by the HLA Nomenclature Committee in July 2013^{1,2} will give rise to unique amplification patterns by the primers in the DQB1 high resolution for frequent alleles typing kit³.

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

Alleles	Primer mix	Alleles	Primer mix
DQB1*02:15, 02:30	67	DQB1*05:13, 05:24	59
DQB1*02:16, 02:20N	64	DQB1*06:35, 06:45	35
DQB1*02:23, 02:28	68	DQB1*06:48, 06:97	62
DQB1*02:29, 02:31	69	DQB1*06:70, 06:76	80
DQB1*03:31, 03:87	35	DQB1*06:73, 06:77N	82
DQB1*03:36, 03:51	51	DQB1*06:74, 06:78	83
DQB1*03:59, 03:71	43	DQB1*06:75, 06:80	84
DQB1*04:03:01, 04:12	42	DQB1*06:102N, 06:104	90
DQB1*04:05, 04:15	30		

The DQB1 typing kit cannot distinguish the following silent mutations: the DQB1*02:01:01-02:01:13 alleles, the DQB1*02:02:01-02:02:02 alleles, the DQB1*03:01:01:01-03:01:02, 03:01:05-03:01:07, 03:01:09-03:01:12, 03:01:14 and 03:01:16-03:01:20 alleles, the DQB1*03:01:03, 03:01:13 and 03:01:15 alleles, the DQB1*03:02:01-03:02:09 alleles, the DQB1*03:03:02:01-03:03:05 and 03:03:07 alleles, the DQB1*03:05:01-03:05:04 alleles, the DQB1*03:17:01-03:17:02 alleles, the DQB1*04:01:01-04:01:02 and 04:01:04 alleles, the DQB1*04:02:01-04:02:04 alleles, the DQB1*05:01:01:01-05:01:08 alleles, the DQB1*05:02:01 and 05:02:03-05:02:07 alleles, the DQB1*05:03:01:01-05:03:10 alleles, the DQB1*05:05:01-05:05:02 alleles, the DQB1*06:01:01, 06:01:03-06:01:06 and 06:01:08-06:01:09 alleles, the DQB1*06:01:02 and 06:01:07 alleles, the DQB1*06:02:01, 06:02:03, 06:02:06 and 06:02:08-06:02:10 alleles, the DQB1*06:03:01, 06:03:03, 06:03:05-06:03:07 alleles, the DQB1*06:03:04 and 06:03:08-06:03:09 alleles, the DQB1*06:04:01, 06:04:03-06:04:07 and 06:04:03, the DQB1*06:14:01-06:14:02 alleles and the DQB1*06:15:01-06:15:02 alleles.

¹DQB1 alleles listed on the IMGT/HLA web page 2013-July-25, release 3.13.1, 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>.

³This lot of the DQB1 typing kit cannot distinguish the DQB1*03:01:01:01-03:01:02, 03:01:05-03:01:07, 03:01:09-03:01:12, 03:01:14 and 03:01:16-03:01:20 alleles and the DQB1*03:22 alleles.

RESOLUTION IN HOMO- AND HETEROZYGOTES

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

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SPECIFICITY TABLE

DQB1 high resolution for frequent alleles SSP typing

Specificities and sizes of the PCR products of the 95+1 primer mixes used for DQB1 high resolution for frequent alleles SSP typing

Primer Mix	Size of spec. PCR product ¹	Size of control band ²	Amplified DQB1 alleles ³
1 ⁴	120 bp	515 bp	*02:01:01-02:02:02, 02:04-02:16, 02:18N-02:24, 02:26-02:33
2 ^{4,7}	85 bp	430 bp	*02:03
3 ⁶	145 bp	515 bp	*02:01:01-02:01:13, 02:04-02:05, 02:07-02:09, 02:13-02:33, 03:01:01-03:23, 03:25-03:72, 03:74-03:78, 03:80-03:89, 04:01:01-04:17, 05:01:01-05:13, 05:15-05:43, 06:01:01-06:37, 06:39-06:85, 06:87-06:101, 06:105
4	140 bp 185 bp	430 bp	*02:02:01-02:03, 02:06, 02:10-02:12 *03:28, 03:50
5	145 bp 180 bp	515 bp	*02:04 *05:06, 05:07
6 ^{5,6}	165 bp	515 bp	*03:01:01-03:01:07, 03:01:09-03:01:20, 03:04, 03:09, 03:13, 03:16, 03:19, 03:21-03:22, 03:24, 03:27-03:29, 03:35-03:36, 03:42, 03:44, 03:46-03:60, 03:69, 03:71, 03:74-03:78, 03:80, 03:82-03:84N, 04:09
7	220 bp	515 bp	*03:01:01-03:01:20, 03:04, 03:09-03:10:01, 03:13-03:14:02, 03:16, 03:19, 03:21-03:22, 03:24, 03:27-03:29, 03:35-03:36, 03:42, 03:44, 03:46-03:60, 03:69, 03:71, 03:75-03:77, 03:80, 03:82-03:84N
8 ⁶	135 bp	515 bp	*02:01:01-02:02:02, 02:04-02:16, 02:18N-02:33, 03:02:01-03:02:09, 03:07-03:08, 03:11, 03:18, 03:32, 03:37, 03:45, 03:62-03:64, 03:66N-03:68, 03:70, 03:81, 03:85, 06:29, 06:63
9 ⁶	175 bp 220 bp	515 bp	*03:02:01-03:03:07, 03:05:01-03:05:04, 03:06 [?] -03:08 [?] , 03:11 [?] -03:15 [?] , 03:17:01 [?] -03:18 [?] , 03:19, 03:20 [?] , 03:23 [?] , 03:25, 03:26 [?] , 03:30-03:32, 03:33 [?] -03:34 [?] , 03:37 [?] , 03:38-03:39, 03:40 [?] , 03:41, 03:43, 03:45, 03:48 [?] , 03:52 [?] -03:72 [?] , 03:74 [?] -03:78 [?] , 03:79, 03:81 [?] -03:82 [?] , 03:85-03:89, 04:01:01-04:17 *02:01:01-02:33, 03:02:01-03:03:07, 03:06-03:08, 03:11-03:12, 03:15, 03:18, 03:20, 03:23, 03:25-03:26, 03:30-03:34, 03:37-03:41, 03:43, 03:45, 03:62-03:68, 03:70, 03:74, 03:79, 03:81, 03:85-03:89, 04:03:01-04:03:02
10 ^{4,7}	125 bp 150 bp 175 bp	430 bp	*02:11, 02:25 *02:26, 03:04, 03:14:01-03:14:02, 03:80 *03:58
11 ⁴	95 bp 135 bp	430 bp	*03:20 *03:05:01-03:05:04, 03:17:01-03:17:02, 03:53, 03:61, 03:62 03:72, 04:09
12 ^{4,7}	65 bp 115 bp 135 bp 195 bp	430 bp	*03:40 *03:03:06, 03:06, 03:25, 04:01:03 *03:08, 06:02:02, 06:03:02 *03:57
13 ⁴	110 bp 145 bp 195 bp	430 bp	*03:15 *03:07, 03:16 *03:54

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14⁸	135 bp 175 bp 260 bp	430 bp	*03:09 *03:55 *03:11, 03:26
15	135 bp	430 bp	*03:10:01, 03:12, 03:14:01-03:14:02, 03:70, 06:01:01-06:01:06, 06:01:07, 06:01:08-06:01:10, 06:43, 06:54N-06:58, 06:98, 06:100-06:105 *03:27
16	250 bp 260 bp	515 bp	*03:01:01:01-03:01:07, 03:01:09-03:01:20, 03:04, 03:09-03:10:01, 03:12-03:14:02, 03:16, 03:19, 03:21-03:22, 03:24, 03:27-03:29, 03:35-03:36, 03:42, 03:44, 03:46-03:60, 03:70-03:71, 03:74-03:78, 03:80, 03:82-03:84N
17^{4,6,8}	110 bp 165 bp 205 bp 300 bp	430 bp	*06:23, 06:82, 06:99 *02:10, 03:13, 03:49 *03:28, 03:47 *06:34
18^{6,7}	130 bp 190 bp 220 bp 265 bp	430 bp	*03:24, 03:79 *03:60, 06:28, 06:56, 06:79, 06:89 *03:18 *06:85
19	135 bp	515 bp	*03:01:01:01-03:01:07, 03:01:09-03:15, 03:17:01-03:22, 03:24, 03:26-03:72, 03:74-03:89, 04:09
20⁷	130 bp	430 bp	*02:03, 03:01:01:01-03:01:02, 03:01:04-03:01:07, 03:01:09-03:01:12, 03:01:14, 03:01:16-03:01:20, 03:03:02:01-03:03:07, 03:06, 03:09-03:10:01, 03:12-03:13, 03:15-03:17:02, 03:19-03:24, 03:26-03:31, 03:33-03:36, 03:38-03:44, 03:46-03:60, 03:65, 03:69, 03:71-03:72, 03:74-03:79, 03:82-03:84N, 03:86-03:89, 04:09-04:10
21^{4,7}	125 bp 205 bp	515 bp	*04:11 *04:01:01-04:01:04, 04:05-04:08, 04:14-04:17
22	140 bp 205 bp	430 bp	*04:14 *04:02:01-04:03:01, 04:04, 04:09-04:13
23	135 bp	430 bp	*05:01:01:01-05:01:09, 05:07, 05:11:01-05:12, 05:18, 05:20, 05:22, 05:25, 05:27, 05:29-05:32
24⁴	120 bp	430 bp	*05:02:01-05:02:07, 05:05:01-05:05:02, 05:14, 05:17, 05:19, 05:26, 05:33-05:37
25⁴	100 bp	515 bp	*05:01:09, 05:02:02, 05:03:01:01-05:03:10, 05:06, 05:08-05:10, 05:13, 05:15-05:16, 05:24, 05:28, 05:38-05:42
26^{4,5}	120 bp	430 bp	*02:17, 02:32, 06:02:01-06:03:09, 06:05:01 [?] -06:07:01 [?] , 06:08:01 [?] -06:08:02 [?] , 06:09:02 [?] -06:11:02 [?] , 06:13:01 [?] -06:33 [?] , 06:35 [?] , 06:37 [?] , 06:39, 06:40 [?] , 06:44, 06:45 [?] -06:46 [?] , 06:47, 06:48 [?] -06:50 [?] , 06:53 [?] -06:83 [?] , 06:85 [?] , 06:87-06:88, 06:89 [?] -06:97 [?]
27	170 bp 210 bp	430 bp	*03:67 *06:01:01-06:02:10, 06:05:02 [?] -06:06 [?] , 06:10-06:11:02, 06:13:01-06:13:02, 06:16, 06:18-06:20, 06:24, 06:29, 06:33, 06:35, 06:37, 06:43, 06:45, 06:47-06:51:01, 06:53-06:57, 06:68, 06:70-06:84, 06:95-06:105
28	185 bp	430 bp	*04:10, 06:02:01-06:02:10, 06:14:01-06:16, 06:19-06:20, 06:23-06:24, 06:33, 06:37, 06:46-06:50, 06:68, 06:70-06:84, 06:95, 06:97
29	130 bp	430 bp	*06:02:07, 06:03:01-06:03:09, 06:07:01-06:07:02, 06:11:02, 06:14:01-06:14:02, 06:26N, 06:28, 06:30-06:32, 06:40-06:41, 06:44, 06:59-06:62, 06:64-06:65, 06:67, 06:87, 06:90-06:92
30^{4,5}	105 bp	430 bp	*04:15, 04:16

Product Insert

101.221-12 – including *Taq* pol., IFU-01

101.221-12u – without *Taq* pol., IFU-02

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Lot-specific information

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	160 bp		*03:23, 06:03:01-06:03:03, 06:03:05-06:03:07, 06:04:02, 06:07:01, 06:08:01, 06:09:02, 06:11:01-06:11:02, 06:26N, 06:28, 06:30-06:32, 06:40-06:41, 06:44, 06:59-06:62, 06:64-06:65, 06:67, 06:90-06:92, 06:94
	245 bp		*03:06, 03:25, 04:04-04:05
31⁷	165 bp	515 bp	*06:02:07, 06:03:01-06:03:09, 06:08:01-06:08:02, 06:11:02-06:12, 06:14:01-06:14:02, 06:21, 06:26N, 06:28, 06:31, 06:40-06:41, 06:44, 06:59, 06:61, 06:63-06:65, 06:67, 06:87, 06:90-06:92
32	210 bp	515 bp	*06:04:01-06:04:07, 06:07:01-06:07:02, 06:17, 06:21, 06:25, 06:34, 06:36, 06:38-06:39, 06:52, 06:58, 06:69, 06:85-06:86, 06:89, 06:92-06:93
33⁷	170 bp	430 bp	*06:04:01-06:05:02, 06:06 ^w , 06:07:01-06:07:02, 06:09:01-06:09:03, 06:18, 06:22:02, 06:25, 06:27:01, 06:32, 06:34, 06:36, 06:38-06:39, 06:52, 06:58, 06:66, 06:69, 06:85-06:86, 06:88-06:89, 06:93-06:94
34⁴	95 bp 125 bp	430 bp	*05:07 *05:25, 06:04:01-06:05:01, 06:06, 06:08:01-06:09:03, 06:12, 06:17-06:18, 06:21, 06:22:02, 06:27:01, 06:34, 06:36, 06:38-06:39, 06:42, 06:52, 06:58, 06:69, 06:85-06:86, 06:88-06:89, 06:93
35⁷	160 bp 250 bp	515 bp	*03:27, 03:48, 03:87, 06:35, 06:53 *03:31, 06:05:01, 06:05:02 [?] -06:06 [?] , 06:20, 06:31, 06:45
36⁷	180 bp 210 bp	430 bp	*03:68 *06:05:01, 06:05:02 [?] -06:06 [?] , 06:09:01-06:09:03, 06:12, 06:15:01-06:15:02, 06:22:01-06:22:02, 06:42, 06:46, 06:66, 06:88, 06:94
37⁵	165 bp 190 bp	430 bp	*05:39 *05:21, 06:06
38^{4,6,7}	100 bp 130 bp 185 bp	430 bp	*05:38, 06:14:01-06:14:02, 06:69 *03:01:04, 05:08, 05:04, 05:18, 05:26, 06:01:10 *06:10
39^{4,7}	115 bp 180 bp	430 bp	*03:88 *03:29-03:30, 03:52, 03:72, 04:09, 04:13, 06:13:01-06:13:02, 06:16, 06:22:01-06:22:02, 06:29, 06:55, 06:69, 06:96
40⁴	95 bp 140 bp 195 bp	430 bp	*06:40 *03:21, 05:27, 05:35 *05:41N
41^{6,8}	185 bp 205 bp 300 bp	430 bp	*03:45, 06:17, 06:24, 06:30, 06:38, 06:42 *06:52
42^{4,6,7}	100 bp 140 bp 195 bp	515 bp	*03:41, 04:06, 04:12, 04:16 *03:66N, 06:10, 06:25 *02:08, 03:06, 03:25, 04:03:01-04:03:02
43^{4,6,7}	85 bp 110 bp 155 bp 185 bp 215 bp 240 bp 270 bp	515 bp	*03:59, 06:37 *06:37 *02:05, 06:100 *06:26N, 06:100 *06:26N *03:71, 06:33 *06:33
44⁴	115 bp 160 bp	430 bp	*03:42, 03:89 *06:02:01-06:02:04, 06:02:06-06:02:10, 06:10, 06:13:01, 06:14:01-06:16, 06:20, 06:23-06:24, 06:29, 06:33, 06:37,

Product Insert

101.221-12 – including *Taq* pol., IFU-01

101.221-12u – without *Taq* pol., IFU-02

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Lot-specific information

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Lot No.: 71V		Lot-specific information		www.olerup-ssp.com
				06:46-06:51:01, 06:68, 06:70-06:84, 06:96-06:97
45	135 bp	515 bp		*06:07:01-06:07:02, 06:15:01-06:15:02, 06:36 06:46, 06:66, 06:92
	260 bp			*06:85
46	160 bp	515 bp		*06:03:01-06:03:09, 06:08:01-06:08:02, 06:14:01-06:14:02, 06:21, 06:28, 06:31, 06:40-06:41, 06:44, 06:59, 06:61, 06:63-06:65, 06:67, 06:87, 06:90-06:92
	210 bp			*06:03:01-06:03:09, 06:08:01-06:08:02, 06:14:01-06:14:02, 06:27:01-06:28, 06:30-06:32, 06:40-06:41, 06:44, 06:59-06:65, 06:67, 06:87, 06:90-06:91
47^{4,5}	110 bp	430 bp		*03:42
	155 bp			*03:30, 03:72, 03:84N, 04:01:01-04:03:02, 04:06-04:08, 04:10, 04:12-04:14, 04:16-04:17, 05:38, 06:02:05, 06:19, 06:95
48	290 bp	430 bp		*06:02:04, 06:72
	170 bp			*03:32, 03:43, 04:07
	225 bp			*03:85
49⁴	110 bp	430 bp		*03:33, 05:32, 05:42
	155 bp			*02:33, 03:35, 05:14, 06:103
50	155 bp	430 bp		*03:80
	200 bp			*03:37, 03:38, 03:46
	240 bp			*02:14, 03:34
51⁷	130 bp	430 bp		*03:36, 03:39, 03:53, 03:62
	160 bp			*02:10, 03:49
	185 bp			*03:51
	245 bp			*02:06, 03:24, 03:79
	270 bp			*02:09
52⁴	95 bp	430 bp		*03:06 [?] -03:08 [?] , 03:11 [?] -03:15 [?] , 03:17:01 [?] -03:18 [?] , 03:19, 03:20 [?] , 03:23 [?] , 03:26 [?] , 03:37 [?] , 03:40 [?] , 03:48 [?] , 03:52 [?] -03:71 [?] , 03:74 [?] -03:78 [?] , 03:81 [?] -03:82 [?] , 04:08
	210 bp			*06:98
53	200 bp	430 bp		*05:09, 05:29-05:30
54⁴	110 bp	430 bp		*05:17, 05:23
	190 bp			*05:10, 05:12, 06:105
55^{4,5}	115 bp	515 bp		*06:04:01-06:04:07, 06:05:01 [?] -06:07:01 [?] , 06:07:02, 06:08:01 [?] -06:08:02 [?] , 06:09:01, 06:09:02 [?] -06:11:02 [?] , 06:12, 06:13:01 [?] -06:33 [?] , 06:34, 06:35 [?] , 06:36, 06:37 [?] , 06:38, 06:40 [?] , 06:41-06:42, 06:45 [?] -06:46 [?] , 06:48 [?] -06:50 [?] , 06:52, 06:53 [?] -06:83 [?] , 06:84, 06:85 [?] , 06:86, 06:89 [?] -06:97 [?]
56⁴	100 bp	430 bp		*06:44, 06:47
	220 bp			*06:43
	265 bp			*03:83
57⁵	185 bp	430 bp		*02:07, 03:01:01:01-03:01:20, 03:04, 03:06 [?] -03:08 [?] , 03:09-03:10:01, 03:11 [?] -03:15 [?] , 03:16, 03:17:01 [?] -03:18 [?] , 03:20 [?] , 03:21-03:22, 03:23 [?] , 03:24, 03:26 [?] , 03:27-03:29, 03:33 [?] -03:34 [?] , 03:35-03:36, 03:37 [?] , 03:40 [?] , 03:42, 03:44, 03:46-03:47, 03:48 [?] , 03:49-03:51, 03:52 [?] -03:71 [?] , 03:74 [?] -03:78 [?] , 03:80, 03:81 [?] -03:82 [?] , 03:83-03:84N
58	185 bp	430 bp		*03:56, 05:05:01-05:05:02, 05:11:01, 05:28
	205 bp			*05:30
59^{4,5}	95 bp	430 bp		*03:44, 05:13
	185 bp			*06:54N
	230 bp			*05:24
60	145 bp	430 bp		*05:40

Product Insert

101.221-12 – including *Taq* pol., IFU-01

101.221-12u – without *Taq* pol., IFU-02

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Lot No.: **71V**

Lot-specific information

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	180 bp		*05:15, 05:33
61	145 bp	430 bp	*05:40
	210 bp		*05:16, *05:34
62	135 bp	430 bp	*03:75
	160 bp		*06:95, 06:97
	225 bp		*03:30, 03:72, 06:05:02, 06:15:01-06:15:02, 06:22:01-06:22:02, 06:37, 06:48, 06:51:01, 06:69
63	180 bp	430 bp	*06:50
	220 bp		*03:86
64^{4,6}	100 bp	430 bp	*02:16, 02:21
	160 bp		*04:17
	230 bp		*02:20N
65⁴	105 bp	430 bp	*02:21
66	135 bp	430 bp	*02:18N, 05:31
	165 bp		*02:19
67⁴	90 bp	430 bp	*02:15, 02:27
	160 bp		*02:30
68⁴	95 bp	430 bp	*02:23, 02:24, 02:27
	175 bp		*02:28
69⁴	100 bp	430 bp	*02:24, 02:31
	185 bp		*02:29
70⁴	75 bp	430 bp	*03:61
71^{4,6}	125 bp	430 bp	*05:36
	165 bp		*03:63, 03:76
72	135 bp	430 bp	*05:37
	165 bp		*03:64, 03:77
73⁴	90 bp	430 bp	*03:65
	225 bp		*03:81
74⁴	120 bp	430 bp	*05:19, 05:22
75⁷	165 bp	430 bp	*05:20, 06:06 [?] , 06:55, 06:58
76	145 bp	430 bp	*03:10:01, 03:12, 03:14:02, 03:70, 06:01:01, 06:01:03-06:01:06, 06:01:08-06:01:10, 06:43, 06:53-06:57, 06:98, 06:100, 06:102N-06:105
	185 bp		*06:54N
77⁷	185 bp	430 bp	*06:60-06:61
78⁴	100 bp	430 bp	*06:64
	170 bp		*06:62
79⁴	90 bp	430 bp	*06:65
	125 bp		*06:93
80⁴	105 bp	430 bp	*06:70
	180 bp		*06:76
81	175 bp	430 bp	*03:30, 03:72, 04:09, 06:29, 06:71, 06:96
82	170 bp	430 bp	*06:77N
	280 bp		*06:73
83	165 bp	430 bp	*06:78
	260 bp		*06:74
84⁴	120 bp	430 bp	*06:80
	195 bp		*06:75N
85	175 bp	430 bp	*06:67
	210 bp		*06:68
86⁴	105 bp	430 bp	*06:59

Product Insert

101.221-12 – including *Taq* pol., IFU-01

101.221-12u – without *Taq* pol., IFU-02

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Lot No.: 71V	Lot-specific information			www.olerup-ssp.com
	180 bp		*06:90	
87 ⁴	90 bp	430 bp	*03:08, 06:29, 06:63, 06:87, 06:96	
	115 bp		*06:59, 06:91	
88	215 bp	430 bp	*06:57, 06:81	
89	150 bp	430 bp	*06:101	
	260 bp		*06:83	
90	130 bp	430 bp	*06:102N	
	250 bp		*06:86, 06:104	
91 ⁴	70 bp	430 bp	*05:43, 06:51:01, 06:66, 06:96, 06:99	
92	165 bp	430 bp	*02:19	
	230 bp		*02:12	
93	165 bp	430 bp	*02:13	
	225 bp		*03:85	
94 ^{5,7}	165 bp	430 bp	*03:02:01-03:03:07, 03:05:01-03:08, 03:11, 03:15, 03:17:01-03:18, 03:20, 03:26, 03:30 ^w , 03:31-03:34, 03:37-03:41, 03:43, 03:45, 03:61-03:69, 03:72 ^w , 03:79, 03:81, 03:85-03:89, 04:09 ^w , 06:29 ^w , 06:63, 06:66, 06:87, 06:96 ^w	
95 ⁴	105 bp	430 bp	*02:22	
96 ⁹	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 DQB1 high resolution 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 6, 26, 30, 37, 47, 55, 57, 59 and 94 may give rise to a lower yield of HLA-specific PCR product than the other DQB1 primer mixes, most pronounced are primer mixes 26, 55 and 94.

⁶Primer mixes 3, 8, 17, 18, 38, 41, 42, 43, 64 and 71 have a tendency to giving rise to primer oligomer formation.

⁷Primer mixes 2, 10, 12, 18, 20, 21, 31, 33, 35, 36, 38, 39, 42, 43, 51, 75, 77 and 94 may have tendencies of unspecific amplifications.

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101.221-12 – including *Taq* pol., IFU-01101.221-12u – without *Taq* pol., IFU-02Visit www.olerup-ssp.com for
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Lot-specific information

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⁸In primer mixes 14, 17 and 41 the positive control band may be weaker than for other DQB1*high primer mixes.

⁹Primer mix 96 contains a negative control, which will amplify more than 95% of HLA amplicons as well as the amplicons generated by control primer pairs. PCR product sizes range from 75 to 200 base pairs. The PCR product generated by the control primer pair is 430 base pairs.

'?', nucleotide sequence information not available for the primer matching sequence.

'w', might be weakly amplified.

Product Insert

101.221-12 – including *Taq* pol., IFU-01

101.221-12u – without *Taq* pol., IFU-02

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Lot No.: 71V

Lot-specific information

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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	120	85	145	140	145	165	220	135	175	125	95	65
				185	180				220	150	135	115
										175		135
												195
Length of int. pos. control ¹	515	430	515	430	515	515	515	515	515	430	430	430
5'-primer(s) ²	30(185) 5'-AAg ^{3'}	57(266) 5'-TgA ^{3'}	135(500) 5'-TgA ^{3'}	26(173) 5'-TTA ^{3'}	39(212) 5'-gCA ^{3'}	45(230) 5'-ggA ^{3'}	26(173) 5'-TTA ^{3'}	26(173) 5'-TCT ^{3'}	26(173) 5'-TCT ^{3'}	22(163) 5'-AgT ^{3'}	23(164) 5'-gCA ^{3'}	38(210) 5'-gCA ^{3'}
			101(400) 5'-TCT ^{3'}	40(216) 5'-TTg ^{3'}				139(514) 5'-CAA ^{3'}	26(173) 5'-TTA ^{3'}	26(173) 5'-ggg ^{3'}		
				135(502) 5'-ACg ^{3'}						29(184) 5'-gAg ^{3'}	37(208) 5'-ACA ^{3'}	
										32(193) 5'-ATg ^{3'}		
3'-primer(s) ³	57(266) 5'-Cgg ^{3'}	71(309) 5'-CgT ^{3'}	169(604) 5'-gAC ^{3'}	76(325) 5'-CgC ^{3'}	86(353) 5'-ACg ^{3'}	86(353) 5'-gCT ^{3'}	86(353) 5'-gCT ^{3'}	57(266) 5'-Cgg ^{3'}	86(353) 5'-gCT ^{3'}	57(266) 5'-Cgg ^{3'}	55(260) 5'-gCg ^{3'}	45(232) 5'-CAA ^{3'}
	57(266) 5'-CAg ^{3'}		135(500) 5'-ggC ^{3'}	169(604) 5'-gAC ^{3'}			86(353) 5'-gTT ^{3'}	57(266) 5'-CAg ^{3'}	185(650) 5'-CgA ^{3'}	71(308) 5'-ggC ^{3'}		62(282) 5'-CTA ^{3'}
			145(532) 5'-ggT ^{3'}									69(304) 5'-CCC ^{3'}
												89(362) 5'-TCA ^{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	110	135	135	260	110	130	135	130	125	140	135	120
	145	175	250		165	190			205	205		
		195	260		205	220						
					300	265						
Length of int. pos. control ¹	430	430	430	515	430	430	515	430	515	430	430	430
5'-primer(s) ²	34(197) 5'-CCA ^{3'}	13(136) 5'-gCC ^{3'}	12(132) 5'-AAA ^{3'}	13(134) 5'-ggC ^{3'}	26(173) 5'-ggg ^{3'}	13(134) 5'-ggA ^{3'}	55(260) 5'-gCC ^{3'}	57(266) 5'-TgA ^{3'}	23(164) 5'-gCT ^{3'}	23(164) 5'-gCg ^{3'}	26(173) 5'-ggg ^{3'}	29(184) 5'-gAC ^{3'}
	49(242) 5'-ggT ^{3'}	40(217) 5'-TCC ^{3'}	13(134) 5'-ggC ^{3'}		26(173) 5'-TTA ^{3'}	26(175) 5'-TTC ^{3'}			48(241) 5'-ggA ^{3'}	23(164) 5'-gCg ^{3'}		
	55(260) 5'-gCA ^{3'}	135(500) 5'-TgA ^{3'}			101(400) 5'-TCT ^{3'}	38(209) 5'-CgT ^{3'}				43(226) 5'-ACA ^{3'}		
	63(285) 5'-Agg ^{3'}					38(211) 5'-CAT ^{3'}						
						139(514) 5'-CAA ^{3'}						
3'-primer(s) ³	86(353) 5'-gCT ^{3'}	86(353) 5'-gCT ^{3'}	45(230) 5'-CCC ^{3'}	86(353) 5'-gCT ^{3'}	48(240) 5'-gCg ^{3'}	86(353) 5'-gCT ^{3'}	86(353) 5'-gCT ^{3'}	86(353) 5'-gCT ^{3'}	77(327) 5'-ACg ^{3'}	77(327) 5'-ACg ^{3'}	57(266) 5'-CAA ^{3'}	56(265) 5'-gCT ^{3'}
		167(596) 5'-CAT ^{3'}	82(343) 5'-gTg ^{3'}		67(296) 5'-ggT ^{3'}	86(353) 5'-ACC ^{3'}						
					76(325) 5'-CgC ^{3'}	87(356) 5'-ggA ^{3'}						
					84(349) 5'-CAT ^{3'}	169(604) 5'-gAT ^{3'}						
					141(520) 5'-AAT ^{3'}							
					188(661) 5'-CCA ^{3'}							
Well No.	13	14	15	16	17	18	19	20	21	22	23	24



Product Insert

101.221-12 – including *Taq* pol., IFU-01

101.221-12u – without *Taq* pol., IFU-02

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“Instructions for Use” (IFU)

Lot No.: **71V**

Lot-specific information

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Well No.	25	26	27	28	29	30	31	32	33	34	35	36
Length of spec. PCR product	100	120	170	185	130	105	165	210	170	95	160	180
			210			160				125	250	210
						245						
Length of int. pos. control ¹	515	430	430	430	430	430	515	515	430	430	515	430
5'-primer(s) ²	29(184) 5'-gAC 3'	30(185) 5'-AAg 3'	29(184) 5'-gAT 3'	9(122) 5'-gTT 3'	27(177) 5'-gTA 3'	9(122) 5'-gTA 3'	27(177) 5'-gTA 3'	29(184) 5'-gAC 3'	27(177) 5'-gTA 3'	27(177) 5'-gTA 3'	13(136) 5'-gCC 3'	29(184) 5'-gAT 3'
		130(485) 5'-CCg 3'	29(184) 5'-gAT 3'		29(184) 5'-gAC 3'	52(251) 5'-gCT 3'	29(184) 5'-gAC 3'			30(185) 5'-ACC 3'	45(230) 5'-ggA 3'	
						59(272) 5'-CgT 3'				39(212) 5'-gCA 3'	115(442) 5'-TgA 3'	
											146(533) 5'-CCA 3'	
3'-primer(s) ³	47(237) 5'-CgA 3'	56(265) 5'-ggT 3'	73(314) 5'-CCT 3'	57(266) 5'-CAT 3'	57(266) 5'-CAT 3'	48(240) 5'-gCg 3'	69(304) 5'-CCC 3'	86(353) 5'-ACC 3'	69(304) 5'-CCT 3'	57(266) 5'-CAA 3'	81(338) 5'-TgC 3'	76(324) 5'-gTT 3'
	47(237) 5'-CgA 3'	57(268) 5'-ggT 3'	86(353) 5'-ACg 3'			77(327) 5'-ACg 3'		86(354) 5'-TAT 3'			82(343) 5'-gTg 3'	86(353) 5'-ACC 3'
	50(246) 5'-gTg 3'	154(558) 5'-AAA 3'									86(353) 5'-ACC 3'	
											87(356) 5'-ggA 3'	
											185(650) 5'-CgA 3'	
Well No.	25	26	27	28	29	30	31	32	33	34	35	36
Well No.	37	38	39	40	41	42	43	44	45	46	47	48
Length of spec. PCR product	165	100	115	95	185	100	85	115	135	160	110	170
	190	130	180	140	205	140	110	160	260	210	155	225
		185		195	300	195	155				290	
							185					
							215					
							240					
							270					
Length of int. pos. control ¹	430	430	430	430	430	515	515	430	515	515	430	430
5'-primer(s) ²	25(170) 5'-gCA 3'	9(122) 5'-gTT 3'	8(121) 5'-TgC 3'	30(187) 5'-ACg 3'	26(173) 5'-TCT 3'	26(173) 5'-TCT 3'	10(126) 5'-CAT 3'	9(122) 5'-gTT 3'	13(134) 5'-ggA 3'	29(184) 5'-gAC 3'	9(122) 5'-gTT 3'	123(464) 5'-CTT 3'
	27(177) 5'-gTA 3'	23(166) 5'-gCT 3'	9(122) 5'-gTT 3'	118(449) 5'-CTA 3'	98(389) 5'-CAT 3'	54(259) 5'-ggT 3'	11(129) 5'-TTA 3'	139(514) 5'-CAA 3'	57(266) 5'-TgA 3'		139(514) 5'-CAA 3'	140(517) 5'-CTA 3'
	33(195) 5'-AAg 3'	29(184) 5'-gAT 3'	139(514) 5'-CAA 3'	132(493) 5'-TTT 3'	130(485) 5'-CCA 3'	59(272) 5'-CgT 3'	28(181) 5'-CCT 3'		154(558) 5'-ACT 3'			141(520) 5'-gCC 3'
		135(500) 5'-TgA 3'		139(512) 5'-gAT 3'	133(494) 5'-TCA 3'		38(210) 5'-gTg 3'					144(529) 5'-CCg 3'
							38(211) 5'-TgA 3'					
							62(282) 5'-AAg 3'					
3'-primer(s) ³	74(317) 5'-CCg 3'	27(177) 5'-gTT 3'	55(260) 5'-gCg 3'	48(240) 5'-gCg 3'	70(307) 5'-ggC 3'	44(229) 5'-CCA 3'	77(326) 5'-CCg 3'	48(240) 5'-gCg 3'	86(353) 5'-ACC 3'	69(304) 5'-CCC 3'	47(237) 5'-CgA 3'	185(650) 5'-CgA 3'
		29(184) 5'-gTg 3'	55(260) 5'-gCg 3'	169(604) 5'-gAC 3'	74(318) 5'-AAg 3'	56(265) 5'-gCT 3'	86(353) 5'-ACg 3'	162(583) 5'-CAC 3'	186(653) 5'-CCg 3'	86(353) 5'-ACg 3'	49(244) 5'-CAT 3'	
		56(265) 5'-gCT 3'	57(266) 5'-CAA 3'		185(650) 5'-Cgg 3'	61(278) 5'-TCT 3'		166(595) 5'-ACA 3'			91(369) 5'-TTT 3'	
		167(596) 5'-CAT 3'	59(274) 5'-gTT 3'			77(326) 5'-CCT 3'					162(583) 5'-CAC 3'	
			164(589) 5'-gTg 3'			77(327) 5'-ACg 3'					175(622) 5'-CTA 3'	
			182(641) 5'-ggC 3'									
			187(656) 5'-ACA 3'									
Well No.	37	38	39	40	41	42	43	44	45	46	47	48



Product Insert

101.221-12 – including *Taq* pol., IFU-01

101.221-12u – without *Taq* pol., IFU-02

Visit www.olerup-ssp.com for
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Lot No.: 71V

Lot-specific information

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Well No.	49	50	51	52	53	54	55	56	57	58	59	60
Length of spec.	110	155	130	95	200	110	115	100	185	185	95	145
PCR product	155	200 240	160 185 245 270	210 260		190		220 265		205	185 230	180
Length of int. pos. control ¹	430	430	430	430	430	430	515	430	430	430	430	430
5'-primer(s) ²	19(154) 5'-ACT 3'	19(154) 5'-ACA 3'	23(164) 5'-gCA 3'	13(134) 5'-ggT 3'	30(187) 5'-ACC 3'	26(173) 5'-ggg 3'	130(485) 5'-CCA 3'	13(134) 5'-ggC 3'	30(185) 5'-AAg 3'	30(187) 5'-ACC 3'	13(134) 5'-ggC 3'	29(184) 5'-gAC 3'
	128(481) 5'-AAA 3'	29(184) 5'-gAC 3'	23(166) 5'-gCA 3'	30(185) 5'-ATg 3'	36(205) 5'-Agg 3'	135(500) 5'-TgA 3'		154(558) 5'-ACT 3'	139(514) 5'-CAA 3'	37(208) 5'-ACA 3'	13(136) 5'-gCC 3'	
	133(494) 5'-TCA 3'	30(187) 5'-ACg 3'	101(400) 5'-TCT 3'	167(596) 5'-gCA 3'						38(210) 5'-gCA 3'		
	146(533) 5'-CCg 3'	36(204) 5'-gAC 3'								38(210) 5'-gCg 3'		
	146(535) 5'-CCT 3'	48(239) 5'-CCA 3'										
3'-primer(s) ³	57(266) 5'-Cgg 3'	86(353) 5'-gCT 3'	55(260) 5'-gCg 3'	86(353) 5'-ACg 3'	86(353) 5'-ACg 3'	51(248) 5'-gCT 3'	154(558) 5'-AAA 3'	73(314) 5'-CCA 3'	81(338) 5'-Tgg 3'	82(343) 5'-gTC 3'	32(191) 5'-TAC 3'	65(290) 5'-CCC 3'
	169(604) 5'-gAC 3'		55(260) 5'-gCg 3'	185(650) 5'-CgA 3'		77(328) 5'-CAA 3'		88(359) 5'-TgA 3'	185(650) 5'-Cgg 3'	86(353) 5'-ACg 3'	61(279) 5'-TTT 3'	74(317) 5'-CCA 3'
			127(477) 5'-TTC 3'			157(566) 5'-ggg 3'		174(618) 5'-ACT 3'			76(323) 5'-TgC 3'	80(335) 5'-gTT 3'
			141(520) 5'-AAT 3'			182(642) 5'-ggT 3'						
			149(544) 5'-gTC 3'			185(652) 5'-CAT 3'						
			169(604) 5'-gAT 3'									
			178(631) 5'-gCg 3'									
Well No.	49	50	51	52	53	54	55	56	57	58	59	60

Well No.	61	62	63	64	65	66	67	68	69	70	71	72
Length of spec.	145	135	180	100	105	135	90	95	100	75	125	135
PCR product	210	160 225	220	160 230		165	160	175	185		165	165
Length of int. pos. control ¹	430	430	430	430	430	430	430	430	430	430	430	430
5'-primer(s) ²	29(184) 5'-gAC 3'	9(122) 5'-gTT 3'	29(184) 5'-gAT 3'	30(185) 5'-AAg 3'	30(185) 5'-AAg 3'	30(185) 5'-AAg 3'	17(147) 5'-TTA 3'	13(134) 5'-ggT 3'	9(122) 5'-gTg 3'	55(260) 5'-gCC 3'	44(227) 5'-CgC 3'	41(219) 5'-gAg 3'
		38(209) 5'-CgA 3'		146(533) 5'-CCT 3'		140(517) 5'-CCA 3'	40(217) 5'-TCC 3'	36(204) 5'-gAT 3'	36(204) 5'-gAT 3'		46(235) 5'-TgA 3'	48(239) 5'-TCC 3'
							40(217) 5'-TCT 3'	39(212) 5'-gCT 3'	38(209) 5'-CgC 3'		135(501) 5'-gAT 3'	135(501) 5'-gAT 3'
								40(217) 5'-TCT 3'				
3'-primer(s) ³	65(290) 5'-CCC 3'	45(232) 5'-CAA 3'	75(322) 5'-gTg 3'	48(241) 5'-CgT 3'	51(248) 5'-gCC 3'	61(279) 5'-TTT 3'	57(266) 5'-Cgg 3'	57(266) 5'-Cgg 3'	57(266) 5'-Cgg 3'	66(294) 5'-ATg 3'	86(353) 5'-gCT 3'	86(353) 5'-gCT 3'
	82(341) 5'-AgC 3'	49(244) 5'-CAT 3'	90(365) 5'-AgT 3'	51(248) 5'-gCC 3'		72(311) 5'-CCg 3'					163(585) 5'-gTT 3'	166(595) 5'-ACA 3'
	88(361) 5'-CCT 3'	69(304) 5'-CCT 3'		93(376) 5'-TCA 3'		169(604) 5'-gAC 3'						
				185(650) 5'-CgA 3'								
Well No.	61	62	63	64	65	66	67	68	69	70	71	72



Product Insert

101.221-12 – including *Taq* pol., IFU-01

101.221-12u – without *Taq* pol., IFU-02

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Lot No.: 71V

Lot-specific information

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Well No.	73	74	75	76	77	78	79	80	81	82	83	84
Length of spec.	90	120	165	145	185	100	90	105	175	170	165	120
PCR product	225			185		170	125	180		280	260	195
Length of int.	430	430	430	430	430	430	430	430	430	430	430	430
pos. control ¹												
5'-primer(s) ²	22(163) 5'-AgA 3'	26(173) 5'-ggg 3'	13(134) 5'-ggC 3'	13(134) 5'-ggC 3'	27(177) 5'-gTA 3'	27(177) 5'-gTA 3'	27(177) 5'-gTA 3'	9(122) 5'-gTT 3'	9(122) 5'-gTT 3'	9(122) 5'-gTT 3'	9(122) 5'-gTT 3'	9(122) 5'-gTT 3'
		26(173) 5'-TTT 3'	19(154) 5'-ACC 3'									
	70(306) 5'-AgC 3'											
3'-primer(s) ³	86(353) 5'-gCT 3'	49(242) 5'-CCT 3'	57(266) 5'-CAA 3'	47(237) 5'-CgA 3'	75(322) 5'-gTg 3'	47(238) 5'-gCA 3'	43(224) 5'-Cgg 3'	31(188) 5'-Agg 3'	52(253) 5'-CTT 3'	52(253) 5'-CTA 3'	50(247) 5'-CgA 3'	36(203) 5'-ACC 3'
		54(257) 5'-gCT 3'		61(279) 5'-TTT 3'	77(326) 5'-CCA 3'	71(308) 5'-ggA 3'	55(260) 5'-gCA 3'	55(262) 5'-AgA 3'	55(260) 5'-gCg 3'	88(359) 5'-CgA 3'	82(341) 5'-AgC 3'	60(276) 5'-CAC 3'
Well No.	73	74	75	76	77	78	79	80	81	82	83	84

Well No.	85	86	87	88	89	90	91	92	93	94	95
Length of spec.	175	105	90	215	150	130	70	165	165	165	105
PCR product	210	180	115		260	250		230	225		
Length of int.	430	430	430	430	430	430	430	430	430	430	430
pos. control ¹											
5'-primer(s) ²	14(137) 5'-CAC 3'	23(166) 5'-gCA 3'	45(230) 5'-ggC 3'	26(174) 5'-TAC 3'	13(136) 5'-gCg 3'	101(400) 5'-TCT 3'	47(237) 5'-TAC 3'	30(185) 5'-AAg 3'	15(142) 5'-gCA 3'	13(134) 5'-ggg 3'	30(185) 5'-AAg 3'
	24(169) 5'-TgT 3'	47(238) 5'-ACA 3'	47(238) 5'-ACA 3'	30(187) 5'-ACT 3'	49(242) 5'-ggA 3'			123(464) 5'-CTT 3'			
			55(260) 5'-gCC 3'								
3'-primer(s) ³	69(304) 5'-CCC 3'	69(304) 5'-CCC 3'	69(304) 5'-CCC 3'	86(353) 5'-ACg 3'	86(353) 5'-ACg 3'	131(488) 5'-ACT 3'	56(265) 5'-gTC 3'	72(311) 5'-CCg 3'	57(266) 5'-Cgg 3'	55(260) 5'-gCg 3'	51(248) 5'-gCA 3'
						172(611) 5'-AgA 3'		92(372) 5'-CgA 3'	185(650) 5'-CgA 3'		
Well No.	85	86	87	88	89	90	91	92	93	94	95

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.

Product Insert

101.221-12 – including *Taq* pol., IFU-01

Visit www.olerup-ssp.com for

101.221-12u – without *Taq* pol., IFU-02

“Instructions for Use” (IFU)

Lot No.: 71V

Lot-specific information

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CELL LINE VALIDATION SHEET																			
DQB1 high resolution primer set ²																			
				Well															
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
				201324101	201185002	201185003	201434704	201210205	201434706	201434707	201434708	201434709	201434710	201434711	201434712	201434713	201434714	201434715	201434716
	IHWC cell line ¹		DQB1																
1	9001 SA		*05:01	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
2	9280 LK707		*06:01	+	-	+	+	-	-	-	+	+	-	-	-	-	-	+	-
3	9011 E4181324		*06:01	-	-	+	-	-	-	-	-	-	-	-	-	-	-	+	-
4	9275 GU373		*02:01	+	-	+	-	-	-	-	+	+	-	-	-	-	-	-	-
5	9009 KAS011		*05:02	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
6	9353 SM		*03:02	-	-	+	-	-	-	-	+	+	-	-	-	-	-	+	-
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	+	-	+	-	-	-	-	+	+	-	-	-	-	-	-	-
18	9257 32367		*06:02	+	-	+	+	-	-	-	+	+	-	-	-	-	-	-	-
19	9038 BM16		*03:01	-	-	+	-	-	+	+	-	-	-	-	-	-	-	-	+
20	9059 SLE005		*06:04	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
21	9064 AMALA		*03:01	-	-	+	-	-	+	+	-	-	-	-	-	-	-	-	+
22	9056 KOSE		*05:03	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
23	9124 IHL		*05:03	-	-	+	-	-	-	-	-	-	-	-	-	-	-	+	-
24	9035 JBUSH		*03:01	-	-	+	-	-	+	+	-	-	-	-	-	-	-	-	+
25	9049 IBW9		*02:02	+	-	-	+	-	-	-	+	+	-	-	-	-	-	-	-
26	9285 WT49		*02:01	+	-	+	-	-	-	-	+	+	-	-	-	-	-	-	-
27	9191 CH1007		*04:01	-	-	+	-	-	-	-	-	+	-	-	-	-	-	-	-
28	9320 BEL5GB		*02:02	+	-	+	+	-	+	+	+	+	-	-	-	-	-	-	+
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	+	-	+	-	-	+	+	+	+	-	-	-	-	-	-	+
40	9134 WHONP199		*02:02	+	-	+	+	-	-	-	+	+	-	-	-	-	-	-	-
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	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-



Product Insert

101.221-12 – including *Taq* pol., IFU-01

Visit www.olerup-ssp.com for

101.221-12u – without *Taq* pol., IFU-02

“Instructions for Use” (IFU)

Lot No.: 71V

Lot-specific information

www.olerup-ssp.com

CELL LINE VALIDATION SHEET																			
DQB1 high resolution primer set ²																			
				Well															
				17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
				201321417	201434718	201434719	201434720	201434721	201434722	201185023	201185024	201434725	201434726	201434727	201185028	201434729	201434730	201434731	201434732
	IHWC 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		-	-	-	-	-	-	+	-	-	-	-	-	-	-	-



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“Instructions for Use” (IFU)

Lot No.: 71V

Lot-specific information

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CELL LINE VALIDATION SHEET					DQB1 high resolution primer set ²															
					Well															
					33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
					201185033	201434734	201434735	201434736	201434737	201434738	201434739	201434740	201321441	201434742	201434743	201434744	201434745	201185046	201434747	201434748
	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			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



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“Instructions for Use” (IFU)

Lot No.: 71V

Lot-specific information

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CELL LINE VALIDATION SHEET																			
DQB1 high resolution primer set ²																			
			Well																
			49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	
			201434749	201434750	201434751	201434752	201434753	201434754	201210255	201434756	201434757	201434758	201434759	201434760	201434761	201434762	201434763	201434764	
	IHWC 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 OLG A	*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		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	



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Lot-specific information

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CELL LINE VALIDATION SHEET																			
DQB1 high resolution primer set ²																			
			Well																
			65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	
			201434765	201434766	201434767	201434768	201434769	201434770	201434771	201434772	201434773	201434774	201434775	201434776	201434777	201434778	201434779	201434780	
		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		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	



Product Insert

101.221-12 – including *Taq* pol., IFU-01

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101.221-12u – without *Taq* pol., IFU-02

“Instructions for Use” (IFU)

Lot No.: **71V**

Lot-specific information

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CELL LINE VALIDATION SHEET																			
DQB1 high resolution primer set ²																			
			Production No.	Well															
				81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	
				201434781	201434782	201434783	201434784	201434785	201434786	201434787	201434788	201434789	201434790	201330822	201434792	201434793	201434794	201434795	
	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		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
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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		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

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.



Product Insert

101.221-12 – including *Taq* pol., IFU-01101.221-12u – without *Taq* pol., IFU-02Visit www.olerup-ssp.com for
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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 2, 5, 12 to 14, 17, 18, 37 to 43, 45, 48 to 51, 53, 54, 56, 58 to 75, 77 to 93 and 95 were available.

The specificities of the primers in primer solutions 2, 12, 14, 17, 18, 37 to 39, 41, 42, 45, 50, 51, 53, 58, 62, 64, 66, 70, 71, 72, 75, 81, 87 and 91, were tested by separately adding additional 5'-primers, respectively additional 3'-primers.

In primer solution 5, 13, 40, 43, 48, 49, 67, 68, 69, 73, 85, 86, 88, 89 and 93 it was only possible to test the 3'-primers, the 5'-primers were not possible to test.

In primer solution 54, 56, 59 to 61, 63, 65, 74, 77 to 80, 82 to 84, 90, 92 and 95 it was only possible to test the 5'-primers, the 3'-primers were not possible to test.

In primer solutions 10, 11, 14, 15, 18, 21, 22, 30, 34, 35, 37, 38, 39, 41, 42, 45, 50, 51, 52, 53, 58, 62, 64, 66, 71, 72, 75, 87 one to four 5'-primers were not possible to test.

In primer solutions 1, 4, 7, 8, 10, 12, 14, 15, 17, 18, 25, 26, 27, 32, 35, 36, 38, 39, 41, 42, 44, 45, 47, 51, 57, 58, 62, 64, 66, 71, 72, 76, 81, one to four 3'-primers were not possible to test.

Additional primers in primer solutions 4, 26, 30, 35, 44, 46, 47, 52 and 57 were tested by separately adding one additional 5'-primer, respectively one additional 3'-primer.

Product Insert

101.221-12 – including *Taq* pol., IFU-01

101.221-12u – without *Taq* pol., IFU-02

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101.221-12 – including *Taq* pol., IFU-01

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Lot-specific information

www.olerup-ssp.com**ADDRESSES:****Manufacturer:****Olerup SSP AB**, Franzengatan 5, SE-112 51 Stockholm, Sweden.**Tel:** +46-8-717 88 27**Fax:** +46-8-717 88 18**E-mail:** info-ssp@olerup.com**Web page:** <http://www.olerup-ssp.com>**Distributed by:****Olerup GmbH**, Löwengasse 47 / 6, AT-1030 Vienna, Austria.**Tel:** +43-1-710 15 00**Fax:** +43-1-710 15 00 10**E-mail:** support-at@olerup.com**Web page:** <http://www.olerup.com>**Olerup Inc.**, 901 S. Bolmar St., Suite R, West Chester, PA 19382**Tel:** 1-877-OLERUP1**Fax:** 610-344-7989**E-mail:** info.us@olerup.com**Web page:** <http://www.olerup.com>For information on *Olerup* SSP distributors worldwide, contact **Olerup GmbH.**