

101.221-12 – including *Taq* polymerase  
101.221-12u – without *Taq* polymerase

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“Instructions for Use” (IFU)

Lot No.: **7N3**

Lot-specific information

## **Olerup SSP<sup>®</sup> DQB1 high resolution for frequent alleles**

<b>Product number:</b>	<b>101.221-12 – including <i>Taq</i> polymerase 101.221-12u – without <i>Taq</i> polymerase</b>
<b>Lot number:</b>	<b>7N3</b>
<b>Expiry date:</b>	<b>2026-02-01</b>
<b>Number of tests:</b>	<b>12 tests</b>
<b>Number of wells per test:</b>	<b>95+ 1</b>
<b>Storage - pre-aliquoted primers:</b>	<b>dark at -20°C</b>
- PCR Master Mix:	<b>-20°C</b>
- Adhesive PCR seals	<b>RT</b>
- Product Insert	<b>RT</b>

### **This Product Description is only valid for Lot No. 7N3.**

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

### **CHANGES COMPARED TO THE PREVIOUS OLERUP SSP<sup>®</sup> DQB1 HIGH RESOLUTION LOT (5L5)**

- The product documentation has been updated for new alleles of IMGT 3.47.0.
- The kit resolution focuses on common and well documented (CWD) alleles<sup>1</sup>.

<sup>1</sup>As described in section Uniquely Identified Alleles.

The DQB1 high resolution primer set, specificity and interpretation tables have been updated with the DQB1 alleles described since the previous *Olerup SSP<sup>®</sup>* DQB1 high resolution lot was made (**Lot No. 5L5**).

<sup>1</sup>S. 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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The primers of the wells detailed below have been exchanged, added or modified compared to the previous lot.

Well	5'-primer	3'-primer	rationale
18	-	Added	3'-primer added for improved yield of the DQB1*03:24 allele.
39	-	Added	3'-primer added for improved yield of the DQB1*03:24 allele.
41	Added	-	5'-primer added for the DQB1*05:27 allele.
49	Added	-	5'-primer added for improved yield of the DQB1*06:103 allele.
57	Added	-	5'-primer added for improved yield of the DQB1*05:27 allele.

Changes in revision R01 compared to R00:

1. Primer mixes 40 and 49 do not amplify the DQB1\*03:196, 03:442 and DQB1\*06:323 alleles. This correction has been implemented in the Specificity and Interpretation tables.



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Well **96** contains Negative Control primer pairs, that will amplify the majority of the *Olerup* SSP<sup>®</sup> 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
<b>5'-primer<sup>1</sup></b>	<b>164</b>	<b>340</b>	<b>440</b>	<b>45</b>	<b>45</b>	<b>43</b>	<b>36</b>
	5'-CAC <sup>3'</sup>	5'-Agg <sup>3'</sup>	5'-TTA <sup>3'</sup>	5'-Tgg <sup>3'</sup>	5'-Tgg <sup>3'</sup>	5'-Tgg <sup>3'</sup>	5'-TAC <sup>3'</sup>
							<b>36</b>
							5'-TAT <sup>3'</sup>
<b>3'-primer<sup>2</sup></b>	<b>231</b>	<b>2<sup>nd</sup> I</b>	<b>507</b>	<b>59</b>	<b>58</b>	<b>57</b>	<b>47</b>
	5'-TgC <sup>3'</sup>	5'-AAA <sup>3'</sup>	5'-TTg <sup>3'</sup>	5'-CTC <sup>3'</sup>	5'-ggC <sup>3'</sup>	5'-CTC <sup>3'</sup>	5'-ACA <sup>3'</sup>
							<b>48</b>
							5'-gCA <sup>3'</sup>
							<b>48</b>
							5'-gCC <sup>3'</sup>
							<b>52</b>
							5'-TgT <sup>3'</sup>
<b>A*</b>	<b>+</b>	<b>+</b>	<b>+</b>				
<b>B*</b>	<b>+</b>	<b>+</b>	<b>+</b>				
<b>C*</b>	<b>+</b>	<b>+</b>	<b>+</b>				
<b>DRB1</b>				<b>+</b>	<b>+</b>		
<b>DRB3</b>				<b>+</b>	<b>+</b>		
<b>DRB5</b>				<b>+</b>			
<b>DQB1</b>					<b>+</b>		
<b>DPB1</b>						<b>+</b>	
<b>DQA1</b>							<b>+</b>

<sup>1</sup>The nucleotide position for HLA class I genes and the codon for HLA class II genes, in the 2<sup>nd</sup> or 3<sup>rd</sup> 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](http://www.ebi.ac.uk/imgt/hla) web site. The sequence of the 3 terminal nucleotides of the primer is given.

<sup>2</sup>The nucleotide position for HLA class I genes and the codon for HLA class II genes, in the 2<sup>nd</sup> or 3<sup>rd</sup> exon or the 2<sup>nd</sup> 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](http://www.ebi.ac.uk/imgt/hla) web site. The sequence of the 3 terminal nucleotides of the primer is given.



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Lot-specific information

## PRODUCT DESCRIPTION

### DQB1 SSP typing

#### CONTENT

The primer set contains 5'- and 3'-primers for identifying the DQB1\*02:01:01:01 to DQB1\*06:423N 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. ‘7N3’.

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 DQB1 alleles, i.e. **DQB1\*02:01:01:01 to 02:198, DQB1\* 03:01:01:01 to 03:478, DQB1\*04:01:01:01 to 04:90, DQB1\*05:01:01:01 to 05:294 and DQB1\* 06:01:01:01 to 06:423N**, recognized by the HLA Nomenclature Committee in January 2022<sup>1,2</sup> will be amplified by the primers in the DQB1 high resolution subtyping kit<sup>3</sup>.

The DQB1 high resolution kit enables separation of the confirmed DQB1 alleles as listed in the IMGT/HLA database 3.27.0. An HLA allele is listed as confirmed by IMGT/HLA if it has been sequenced by more than a single laboratory or from multiple sources. Current allele confirmation status for DQB1 alleles is listed below.

The DQB1 high resolution kit also enables identification of many null and alternatively expressed alleles.

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*04:36N, 04:43	54
DQB1*02:23, 02:28	68	DQB1*05:10, 05:23	54
DQB1*02:29, 02:31	69	DQB1*05:11:01-05:11:02, 05:20:02	58
DQB1*02:99, 02:106	54	DQB1*05:12, 05:159, 05:242, 05:246	54
DQB1*03:03:06, 03:40	12	DQB1*05:13, 05:24	59
DQB1*03:13, 03:47, 03:458	17	DQB1*05:17, 05:47, 05:287	54
DQB1*03:31, 03:87	35	DQB1*05:25, 05:112	34
DQB1*03:35, 03:246, 03:328	49	DQB1*06:02:19, 06:48:01- 06:48:02	62
DQB1*03:36, 03:51, 03:330	51	DQB1*06:31, 06:145	35
DQB1*03:46, 03:252, 03:271	50	DQB1*06:35, 06:45	35
DQB1*03:54, 03:438	13	DQB1*06:70, 06:76	80
DQB1*03:57, 03:353	12	DQB1*06:102N, 06:104	90
DQB1*03:115, 03:309	54	DQB1*06:109, 06:225	54
DQB1*03:116, 03:243, 03:317:01-03:317:02, 03:432	66	DQB1*06:110, 06:185	54
DQB1*03:143, 03:257	50	DQB1*06:151, 06:208	35
DQB1*04:05, 04:15	30	DQB1*06:188, 06:273	38
DQB1*04:32, 04:66	17		

<sup>1</sup>DQB1 alleles listed on the IMGT/HLA web page 2022-January-13, release 3.47.0, [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla).

<sup>2</sup>Alleles 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>.



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<sup>3</sup>The DQB1 high primer set cannot separate the following alleles. These alleles can be distinguished by the DQB1\*05 kit.

Alleles

DQB1\*05:03:14, 05:03:20, 05:43:01

ALLELE CONFIRMATION STATUS

Allele	Status <sup>1</sup>	Allele	Status <sup>1</sup>	Allele	Status <sup>1</sup>	Allele	Status <sup>1</sup>
DQB1*02:01:01	Confirmed	DQB1*02:04	Unconfirmed	DQB1*02:32	Unconfirmed	DQB1*02:62	Confirmed
DQB1*02:01:02	Unconfirmed	DQB1*02:05	Confirmed	DQB1*02:33	Confirmed	DQB1*02:63	Unconfirmed
DQB1*02:01:03	Unconfirmed	DQB1*02:06	Unconfirmed	DQB1*02:34	Unconfirmed	DQB1*02:64	Unconfirmed
DQB1*02:01:04	Confirmed	DQB1*02:07:01	Confirmed	DQB1*02:35	Unconfirmed	DQB1*02:65	Unconfirmed
DQB1*02:01:05	Confirmed	DQB1*02:07:02	Unconfirmed	DQB1*02:36	Unconfirmed	DQB1*02:66	Unconfirmed
DQB1*02:01:06	Unconfirmed	DQB1*02:08	Unconfirmed	DQB1*02:37	Unconfirmed	DQB1*02:67N	Unconfirmed
DQB1*02:01:07	Confirmed	DQB1*02:09	Unconfirmed	DQB1*02:38	Unconfirmed	DQB1*02:68	Unconfirmed
DQB1*02:01:08	Confirmed	DQB1*02:10	Unconfirmed	DQB1*02:39	Unconfirmed	DQB1*02:69	Unconfirmed
DQB1*02:01:09	Unconfirmed	DQB1*02:11	Unconfirmed	DQB1*02:40	Unconfirmed	DQB1*02:70	Unconfirmed
DQB1*02:01:10	Confirmed	DQB1*02:12	Confirmed	DQB1*02:41	Confirmed	DQB1*02:71	Unconfirmed
DQB1*02:01:11	Confirmed	DQB1*02:13	Unconfirmed	DQB1*02:42	Confirmed	DQB1*02:72	Unconfirmed
DQB1*02:01:12	Unconfirmed	DQB1*02:14:01	Confirmed	DQB1*02:43	Unconfirmed	DQB1*02:73	Unconfirmed
DQB1*02:01:13	Unconfirmed	DQB1*02:14:02	Unconfirmed	DQB1*02:44	Unconfirmed	DQB1*02:74	Unconfirmed
DQB1*02:01:14	Confirmed	DQB1*02:15	Unconfirmed	DQB1*02:45	Unconfirmed	DQB1*02:75	Unconfirmed
DQB1*02:01:15	Unconfirmed	DQB1*02:16	Confirmed	DQB1*02:46	Confirmed	DQB1*02:76	Unconfirmed
DQB1*02:01:16	Unconfirmed	DQB1*02:17	Confirmed	DQB1*02:47	Unconfirmed	DQB1*02:77	Unconfirmed
DQB1*02:01:17	Unconfirmed	DQB1*02:18N	Confirmed	DQB1*02:48	Unconfirmed	DQB1*02:78	Confirmed
DQB1*02:01:18	Unconfirmed	DQB1*02:19	Confirmed	DQB1*02:49	Unconfirmed	DQB1*02:79	Unconfirmed
DQB1*02:01:19	Confirmed	DQB1*02:20N	Confirmed	DQB1*02:50	Confirmed	DQB1*02:80	Unconfirmed
DQB1*02:01:20	Confirmed	DQB1*02:21	Unconfirmed	DQB1*02:51	Confirmed	DQB1*02:81	Unconfirmed
DQB1*02:01:21	Unconfirmed	DQB1*02:22	Unconfirmed	DQB1*02:52	Unconfirmed	DQB1*02:82	Unconfirmed
DQB1*02:01:22	Unconfirmed	DQB1*02:23	Confirmed	DQB1*02:53Q	Confirmed	DQB1*02:83	Unconfirmed
DQB1*02:01:23	Confirmed	DQB1*02:24	Unconfirmed	DQB1*02:54	Confirmed	DQB1*02:84	Unconfirmed
DQB1*02:01:24	Unconfirmed	DQB1*02:25	Unconfirmed	DQB1*02:55	Unconfirmed	DQB1*02:85	Unconfirmed
DQB1*02:02:01:01	Confirmed	DQB1*02:26	Confirmed	DQB1*02:56	Unconfirmed	DQB1*02:86	Unconfirmed
DQB1*02:02:01:02	Unconfirmed	DQB1*02:27	Confirmed	DQB1*02:57	Unconfirmed	DQB1*02:87	Unconfirmed
DQB1*02:02:02	Unconfirmed	DQB1*02:28	Confirmed	DQB1*02:58N	Unconfirmed	DQB1*02:88	Unconfirmed
DQB1*02:02:03	Unconfirmed	DQB1*02:29	Confirmed	DQB1*02:59	Unconfirmed		
DQB1*02:02:04	Unconfirmed	DQB1*02:30	Confirmed	DQB1*02:60	Unconfirmed		
DQB1*02:03	Confirmed	DQB1*02:31	Unconfirmed	DQB1*02:61	Unconfirmed		



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Allele	Status <sup>1</sup>	Allele	Status <sup>1</sup>	Allele	Status <sup>1</sup>	Allele	Status <sup>1</sup>
DQB1*03:01:01:01	Confirmed	DQB1*03:02:09	Confirmed	DQB1*03:16	Confirmed	DQB1*03:62	Confirmed
DQB1*03:01:01:02	Unconfirmed	DQB1*03:02:10	Confirmed	DQB1*03:17:01	Confirmed	DQB1*03:63	Confirmed
DQB1*03:01:01:03	Confirmed	DQB1*03:02:11	Confirmed	DQB1*03:17:02	Confirmed	DQB1*03:64	Confirmed
DQB1*03:01:01:04	Unconfirmed	DQB1*03:02:12	Confirmed	DQB1*03:18	Unconfirmed	DQB1*03:65	Confirmed
DQB1*03:01:01:05	Confirmed	DQB1*03:02:13	Confirmed	DQB1*03:19:01	Confirmed	DQB1*03:66N	Unconfirmed
DQB1*03:01:02	Unconfirmed	DQB1*03:02:14	Unconfirmed	DQB1*03:19:02	Unconfirmed	DQB1*03:67	Confirmed
DQB1*03:01:03	Confirmed	DQB1*03:02:15	Confirmed	DQB1*03:20	Unconfirmed	DQB1*03:68	Confirmed
DQB1*03:01:04	Confirmed	DQB1*03:02:16	Confirmed	DQB1*03:21	Unconfirmed	DQB1*03:69	Unconfirmed
DQB1*03:01:05	Unconfirmed	DQB1*03:02:17	Unconfirmed	DQB1*03:22	Unconfirmed	DQB1*03:70	Confirmed
DQB1*03:01:06	Unconfirmed	DQB1*03:02:18	Unconfirmed	DQB1*03:23:01	Unconfirmed	DQB1*03:71	Unconfirmed
DQB1*03:01:07	Unconfirmed	DQB1*03:02:19	Confirmed	DQB1*03:23:02	Unconfirmed	DQB1*03:72	Confirmed
DQB1*03:01:08	Confirmed	DQB1*03:02:20	Unconfirmed	DQB1*03:24	Unconfirmed	DQB1*03:73	Unconfirmed
DQB1*03:01:09	Unconfirmed	DQB1*03:02:21	Confirmed	DQB1*03:25:01	Confirmed	DQB1*03:74	Unconfirmed
DQB1*03:01:10	Unconfirmed	DQB1*03:02:22	Unconfirmed	DQB1*03:25:02	Unconfirmed	DQB1*03:75	Confirmed
DQB1*03:01:11	Unconfirmed	DQB1*03:02:23	Unconfirmed	DQB1*03:26	Confirmed	DQB1*03:76	Unconfirmed
DQB1*03:01:12	Unconfirmed	DQB1*03:02:24	Unconfirmed	DQB1*03:27	Confirmed	DQB1*03:77	Unconfirmed
DQB1*03:01:13	Unconfirmed	DQB1*03:03:02:01	Confirmed	DQB1*03:28	Unconfirmed	DQB1*03:78	Unconfirmed
DQB1*03:01:14	Confirmed	DQB1*03:03:02:02	Unconfirmed	DQB1*03:29	Unconfirmed	DQB1*03:79	Unconfirmed
DQB1*03:01:15	Unconfirmed	DQB1*03:03:02:03	Unconfirmed	DQB1*03:30	Unconfirmed	DQB1*03:80	Unconfirmed
DQB1*03:01:16	Unconfirmed	DQB1*03:03:02:04	Unconfirmed	DQB1*03:31	Unconfirmed	DQB1*03:81	Confirmed
DQB1*03:01:17	Confirmed	DQB1*03:03:03	Unconfirmed	DQB1*03:32	Unconfirmed	DQB1*03:82	Unconfirmed
DQB1*03:01:18	Unconfirmed	DQB1*03:03:04	Confirmed	DQB1*03:33	Unconfirmed	DQB1*03:83	Unconfirmed
DQB1*03:01:19	Unconfirmed	DQB1*03:03:05	Confirmed	DQB1*03:34	Unconfirmed	DQB1*03:84N	Unconfirmed
DQB1*03:01:20	Unconfirmed	DQB1*03:03:06	Unconfirmed	DQB1*03:35	Unconfirmed	DQB1*03:85	Unconfirmed
DQB1*03:01:21	Confirmed	DQB1*03:03:07	Confirmed	DQB1*03:36	Unconfirmed	DQB1*03:86	Unconfirmed
DQB1*03:01:22	Confirmed	DQB1*03:03:08	Confirmed	DQB1*03:37	Confirmed	DQB1*03:87	Unconfirmed
DQB1*03:01:23	Unconfirmed	DQB1*03:03:09	Unconfirmed	DQB1*03:38	Unconfirmed	DQB1*03:88	Unconfirmed
DQB1*03:01:24	Unconfirmed	DQB1*03:03:10	Unconfirmed	DQB1*03:39	Unconfirmed	DQB1*03:89	Unconfirmed
DQB1*03:01:25	Unconfirmed	DQB1*03:03:11	Confirmed	DQB1*03:40	Confirmed	DQB1*03:90N	Unconfirmed
DQB1*03:01:26	Unconfirmed	DQB1*03:03:12	Unconfirmed	DQB1*03:41	Unconfirmed	DQB1*03:91Q	Unconfirmed
DQB1*03:01:27	Confirmed	DQB1*03:03:13	Unconfirmed	DQB1*03:42	Unconfirmed	DQB1*03:92	Unconfirmed
DQB1*03:01:28	Unconfirmed	DQB1*03:04:01	Confirmed	DQB1*03:43	Unconfirmed	DQB1*03:93	Unconfirmed
DQB1*03:01:29	Unconfirmed	DQB1*03:04:02	Unconfirmed	DQB1*03:44	Confirmed	DQB1*03:94	Unconfirmed
DQB1*03:01:30	Unconfirmed	DQB1*03:04:03	Unconfirmed	DQB1*03:45	Confirmed	DQB1*03:95N	Unconfirmed
DQB1*03:01:31	Unconfirmed	DQB1*03:05:01	Confirmed	DQB1*03:46	Unconfirmed	DQB1*03:96	Unconfirmed
DQB1*03:01:32	Unconfirmed	DQB1*03:05:02	Unconfirmed	DQB1*03:47	Confirmed	DQB1*03:97	Unconfirmed
DQB1*03:01:33	Unconfirmed	DQB1*03:05:03	Confirmed	DQB1*03:48	Unconfirmed	DQB1*03:98	Unconfirmed
DQB1*03:01:34	Unconfirmed	DQB1*03:05:04	Unconfirmed	DQB1*03:49	Unconfirmed	DQB1*03:99Q	Unconfirmed
DQB1*03:01:35	Unconfirmed	DQB1*03:06	Unconfirmed	DQB1*03:50	Unconfirmed	DQB1*03:100	Unconfirmed
DQB1*03:01:36	Unconfirmed	DQB1*03:07	Unconfirmed	DQB1*03:51	Unconfirmed	DQB1*03:101	Unconfirmed
DQB1*03:01:37	Unconfirmed	DQB1*03:08	Unconfirmed	DQB1*03:52	Confirmed	DQB1*03:102	Confirmed
DQB1*03:02:01:01	Confirmed	DQB1*03:09	Confirmed	DQB1*03:53	Confirmed	DQB1*03:103	Unconfirmed
DQB1*03:02:01:02	Confirmed	DQB1*03:10:01	Unconfirmed	DQB1*03:54	Confirmed	DQB1*03:104	Unconfirmed
DQB1*03:02:02	Unconfirmed	DQB1*03:10:02	Confirmed	DQB1*03:55	Confirmed	DQB1*03:105	Confirmed
DQB1*03:02:03	Unconfirmed	DQB1*03:11	Confirmed	DQB1*03:56	Confirmed	DQB1*03:106	Confirmed
DQB1*03:02:04	Unconfirmed	DQB1*03:12	Unconfirmed	DQB1*03:57	Unconfirmed	DQB1*03:107	Unconfirmed
DQB1*03:02:05	Unconfirmed	DQB1*03:13	Confirmed	DQB1*03:58	Confirmed	DQB1*03:108	Unconfirmed
DQB1*03:02:06	Confirmed	DQB1*03:14:01	Unconfirmed	DQB1*03:59	Confirmed	DQB1*03:109	Confirmed
DQB1*03:02:07	Confirmed	DQB1*03:14:02	Confirmed	DQB1*03:60	Unconfirmed	DQB1*03:110	Unconfirmed
DQB1*03:02:08	Unconfirmed	DQB1*03:15	Unconfirmed	DQB1*03:61	Unconfirmed	DQB1*03:111	Unconfirmed



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DQB1*03:112	Unconfirmed	DQB1*03:152	Unconfirmed	DQB1*03:192	Unconfirmed	<b>DQB1*03:232</b>	<b>Confirmed</b>
<b>DQB1*03:113</b>	<b>Confirmed</b>	DQB1*03:153	Unconfirmed	DQB1*03:193	Unconfirmed	<b>DQB1*03:233</b>	<b>Confirmed</b>
<b>DQB1*03:114</b>	<b>Confirmed</b>	DQB1*03:154	Unconfirmed	DQB1*03:194	Unconfirmed	DQB1*03:234	Unconfirmed
DQB1*03:115	Unconfirmed	DQB1*03:155	Unconfirmed	<b>DQB1*03:195</b>	<b>Confirmed</b>	DQB1*03:235	Unconfirmed
DQB1*03:116	Unconfirmed	DQB1*03:156	Unconfirmed	<b>DQB1*03:196</b>	<b>Confirmed</b>	DQB1*03:236	Unconfirmed
DQB1*03:117	Unconfirmed	DQB1*03:157	Unconfirmed	<b>DQB1*03:197Q</b>	<b>Confirmed</b>	DQB1*03:237N	Unconfirmed
<b>DQB1*03:118N</b>	<b>Confirmed</b>	<b>DQB1*03:158</b>	<b>Confirmed</b>	DQB1*03:198	Unconfirmed	DQB1*03:238	Unconfirmed
<b>DQB1*03:119</b>	<b>Confirmed</b>	DQB1*03:159	Unconfirmed	<b>DQB1*03:199</b>	<b>Confirmed</b>	<b>DQB1*03:239</b>	<b>Confirmed</b>
DQB1*03:120	Unconfirmed	DQB1*03:160	Unconfirmed	<b>DQB1*03:200</b>	<b>Confirmed</b>	<b>DQB1*03:240</b>	<b>Confirmed</b>
DQB1*03:121	Unconfirmed	DQB1*03:161	Unconfirmed	<b>DQB1*03:201</b>	<b>Confirmed</b>	DQB1*03:241	Unconfirmed
DQB1*03:122	Unconfirmed	<b>DQB1*03:162</b>	<b>Confirmed</b>	DQB1*03:202	Unconfirmed	DQB1*03:242	Unconfirmed
DQB1*03:123	Unconfirmed	DQB1*03:163	Unconfirmed	DQB1*03:203	Unconfirmed	<b>DQB1*03:243</b>	<b>Confirmed</b>
DQB1*03:124	Unconfirmed	DQB1*03:164	Unconfirmed	<b>DQB1*03:204</b>	<b>Confirmed</b>	DQB1*03:244	Unconfirmed
DQB1*03:125	Unconfirmed	DQB1*03:165	Unconfirmed	<b>DQB1*03:205</b>	<b>Confirmed</b>	<b>DQB1*03:245</b>	<b>Confirmed</b>
DQB1*03:126	Unconfirmed	DQB1*03:166	Unconfirmed	DQB1*03:206	Unconfirmed	<b>DQB1*03:246</b>	<b>Confirmed</b>
DQB1*03:127	Unconfirmed	DQB1*03:167	Unconfirmed	<b>DQB1*03:207</b>	<b>Confirmed</b>	<b>DQB1*03:247</b>	<b>Confirmed</b>
DQB1*03:128	Unconfirmed	DQB1*03:168	Unconfirmed	DQB1*03:208	Unconfirmed	DQB1*03:248	Unconfirmed
DQB1*03:129	Unconfirmed	DQB1*03:169	Unconfirmed	DQB1*03:209	Unconfirmed	DQB1*03:249	Unconfirmed
<b>DQB1*03:130</b>	<b>Confirmed</b>	<b>DQB1*03:170</b>	<b>Confirmed</b>	DQB1*03:210	Unconfirmed	DQB1*03:250	Unconfirmed
DQB1*03:131	Unconfirmed	DQB1*03:171	Unconfirmed	<b>DQB1*03:211</b>	<b>Confirmed</b>	DQB1*03:251	Unconfirmed
<b>DQB1*03:132</b>	<b>Confirmed</b>	DQB1*03:172	Unconfirmed	<b>DQB1*03:212</b>	<b>Confirmed</b>	DQB1*03:252	Unconfirmed
DQB1*03:133	Unconfirmed	DQB1*03:173	Unconfirmed	DQB1*03:213N	Unconfirmed	DQB1*03:253	Unconfirmed
DQB1*03:134	Unconfirmed	DQB1*03:174	Unconfirmed	DQB1*03:214	Unconfirmed	DQB1*03:254	Unconfirmed
DQB1*03:135	Unconfirmed	DQB1*03:175	Unconfirmed	DQB1*03:215	Unconfirmed	DQB1*03:255	Unconfirmed
DQB1*03:136	Unconfirmed	DQB1*03:176	Unconfirmed	DQB1*03:216	Unconfirmed	DQB1*03:256	Unconfirmed
DQB1*03:137	Unconfirmed	<b>DQB1*03:177</b>	<b>Confirmed</b>	DQB1*03:217	Unconfirmed		
<b>DQB1*03:138</b>	<b>Confirmed</b>	DQB1*03:178	Unconfirmed	DQB1*03:218	Unconfirmed		
<b>DQB1*03:139</b>	<b>Confirmed</b>	DQB1*03:179	Unconfirmed	DQB1*03:219	Unconfirmed		
DQB1*03:140	Unconfirmed	DQB1*03:180	Unconfirmed	DQB1*03:220	Unconfirmed		
DQB1*03:141	Unconfirmed	DQB1*03:181	Unconfirmed	<b>DQB1*03:221</b>	<b>Confirmed</b>		
DQB1*03:142	Unconfirmed	DQB1*03:182	Unconfirmed	DQB1*03:222	Unconfirmed		
DQB1*03:143	Unconfirmed	DQB1*03:183	Unconfirmed	DQB1*03:223	Unconfirmed		
DQB1*03:144	Unconfirmed	<b>DQB1*03:184</b>	<b>Confirmed</b>	DQB1*03:224	Unconfirmed		
DQB1*03:145	Unconfirmed	DQB1*03:185	Unconfirmed	<b>DQB1*03:225</b>	<b>Confirmed</b>		
DQB1*03:146	Unconfirmed	DQB1*03:186	Unconfirmed	DQB1*03:226	Unconfirmed		
DQB1*03:147	Unconfirmed	DQB1*03:187	Unconfirmed	DQB1*03:227	Unconfirmed		
DQB1*03:148	Unconfirmed	<b>DQB1*03:188</b>	<b>Confirmed</b>	<b>DQB1*03:228</b>	<b>Confirmed</b>		
DQB1*03:149	Unconfirmed	DQB1*03:189	Unconfirmed	DQB1*03:229	Unconfirmed		
<b>DQB1*03:150</b>	<b>Confirmed</b>	DQB1*03:190	Unconfirmed	DQB1*03:230	Unconfirmed		
DQB1*03:151	Unconfirmed	<b>DQB1*03:191</b>	<b>Confirmed</b>	DQB1*03:231	Unconfirmed		





Product Insert

101.221-12 – including *Taq* polymerase  
 101.221-12u – without *Taq* polymerase

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 “Instructions for Use” (IFU)

Lot No.: **7N3**

Lot-specific information

Allele	Status <sup>1</sup>	Allele	Status <sup>1</sup>	Allele	Status <sup>1</sup>
<b>DQB1*04:01:01</b>	<b>Confirmed</b>	DQB1*04:04	Unconfirmed	DQB1*04:24	Unconfirmed
DQB1*04:01:02	Unconfirmed	DQB1*04:05	Unconfirmed	DQB1*04:25N	Unconfirmed
DQB1*04:01:03	Unconfirmed	DQB1*04:06	Unconfirmed	DQB1*04:26	Unconfirmed
DQB1*04:01:04	Unconfirmed	DQB1*04:07	Unconfirmed	<b>DQB1*04:27</b>	<b>Confirmed</b>
<b>DQB1*04:02:01:01</b>	<b>Confirmed</b>	DQB1*04:08	Unconfirmed	DQB1*04:28	Unconfirmed
DQB1*04:02:01:02	Unconfirmed	DQB1*04:09	Unconfirmed	DQB1*04:29	Unconfirmed
DQB1*04:02:01:03	Unconfirmed	DQB1*04:10	Unconfirmed	DQB1*04:30	Unconfirmed
DQB1*04:02:02	Unconfirmed	<b>DQB1*04:11</b>	<b>Confirmed</b>	DQB1*04:31	Unconfirmed
<b>DQB1*04:02:03</b>	<b>Confirmed</b>	<b>DQB1*04:12</b>	<b>Confirmed</b>	<b>DQB1*04:32</b>	<b>Confirmed</b>
<b>DQB1*04:02:04</b>	<b>Confirmed</b>	DQB1*04:13	Unconfirmed	<b>DQB1*04:33</b>	<b>Confirmed</b>
DQB1*04:02:05	Unconfirmed	DQB1*04:14	Unconfirmed	DQB1*04:34	Unconfirmed
DQB1*04:02:06	Unconfirmed	DQB1*04:15	Unconfirmed	DQB1*04:35	Unconfirmed
<b>DQB1*04:02:07</b>	<b>Confirmed</b>	DQB1*04:16	Unconfirmed	DQB1*04:36N	Unconfirmed
DQB1*04:02:08	Unconfirmed	DQB1*04:17	Unconfirmed	DQB1*04:37	Unconfirmed
<b>DQB1*04:02:09</b>	<b>Confirmed</b>	<b>DQB1*04:18</b>	<b>Confirmed</b>	DQB1*04:38	Unconfirmed
DQB1*04:02:10	Unconfirmed	DQB1*04:19	Unconfirmed	DQB1*04:39	Unconfirmed
<b>DQB1*04:02:11</b>	<b>Confirmed</b>	DQB1*04:20	Unconfirmed		
DQB1*04:02:12	Unconfirmed	DQB1*04:21	Unconfirmed		
DQB1*04:03:01	Unconfirmed	DQB1*04:22	Unconfirmed		
DQB1*04:03:02	Unconfirmed	DQB1*04:23	Unconfirmed		



**Product Insert**

**101.221-12 – including Taq polymerase**  
**101.221-12u – without Taq polymerase**

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**“Instructions for Use” (IFU)**

**Lot No.: 7N3**

**Lot-specific information**

Allele	Status <sup>1</sup>	Allele	Status <sup>1</sup>	Allele	Status <sup>1</sup>	Allele	Status <sup>1</sup>
DQB1*05:01:01:01	Confirmed	DQB1*05:03:12	Unconfirmed	DQB1*05:44	Confirmed	DQB1*05:92	Unconfirmed
DQB1*05:01:01:02	Unconfirmed	DQB1*05:03:13	Unconfirmed	DQB1*05:45	Unconfirmed	DQB1*05:93	Unconfirmed
DQB1*05:01:01:03	Confirmed	DQB1*05:03:14	Confirmed	DQB1*05:46	Unconfirmed	DQB1*05:94	Unconfirmed
DQB1*05:01:02	Unconfirmed	DQB1*05:03:15	Unconfirmed	DQB1*05:47	Unconfirmed	DQB1*05:95	Unconfirmed
DQB1*05:01:03	Unconfirmed	DQB1*05:03:16	Confirmed	DQB1*05:48	Unconfirmed	DQB1*05:96	Unconfirmed
DQB1*05:01:04	Confirmed	DQB1*05:03:17	Unconfirmed	DQB1*05:49	Confirmed	DQB1*05:97	Confirmed
DQB1*05:01:05	Confirmed	DQB1*05:04	Confirmed	DQB1*05:50	Unconfirmed	DQB1*05:98	Unconfirmed
DQB1*05:01:06	Unconfirmed	DQB1*05:05:01	Unconfirmed	DQB1*05:51	Confirmed	DQB1*05:99	Unconfirmed
DQB1*05:01:07	Unconfirmed	DQB1*05:05:02	Unconfirmed	DQB1*05:52	Confirmed	DQB1*05:100	Unconfirmed
DQB1*05:01:08	Confirmed	DQB1*05:06:01	Unconfirmed	DQB1*05:53	Unconfirmed	DQB1*05:101	Confirmed
DQB1*05:01:09	Unconfirmed	DQB1*05:06:02	Confirmed	DQB1*05:54	Unconfirmed	DQB1*05:102	Unconfirmed
DQB1*05:01:10	Unconfirmed	DQB1*05:07	Unconfirmed	DQB1*05:55	Unconfirmed	DQB1*05:103	Confirmed
DQB1*05:01:11	Unconfirmed	DQB1*05:08	Unconfirmed	DQB1*05:56	Unconfirmed	DQB1*05:104	Confirmed
DQB1*05:01:12	Unconfirmed	DQB1*05:09	Unconfirmed	DQB1*05:57	Confirmed	DQB1*05:105	Unconfirmed
DQB1*05:01:13	Unconfirmed	DQB1*05:10	Confirmed	DQB1*05:58	Unconfirmed	DQB1*05:106	Confirmed
DQB1*05:01:14	Unconfirmed	DQB1*05:11:01	Unconfirmed	DQB1*05:59	Unconfirmed	DQB1*05:107	Unconfirmed
DQB1*05:01:15	Unconfirmed	DQB1*05:11:02	Confirmed	DQB1*05:60	Unconfirmed	DQB1*05:108	Unconfirmed
DQB1*05:01:16	Unconfirmed	DQB1*05:12	Unconfirmed	DQB1*05:61	Unconfirmed	DQB1*05:109	Unconfirmed
DQB1*05:01:17	Unconfirmed	DQB1*05:13	Unconfirmed	DQB1*05:62	Unconfirmed	DQB1*05:110N	Unconfirmed
DQB1*05:01:18	Unconfirmed	DQB1*05:14	Unconfirmed	DQB1*05:63	Confirmed	DQB1*05:111	Confirmed
DQB1*05:01:19	Unconfirmed	DQB1*05:15	Unconfirmed	DQB1*05:64	Unconfirmed	DQB1*05:112	Confirmed
DQB1*05:01:20	Unconfirmed	DQB1*05:16	Unconfirmed	DQB1*05:65	Unconfirmed	DQB1*05:113	Unconfirmed
DQB1*05:01:21	Unconfirmed	DQB1*05:17	Unconfirmed	DQB1*05:66:01	Unconfirmed	DQB1*05:114	Unconfirmed
DQB1*05:01:22	Unconfirmed	DQB1*05:18	Confirmed	DQB1*05:66:02	Unconfirmed	DQB1*05:115	Unconfirmed
DQB1*05:01:23	Unconfirmed	DQB1*05:19	Confirmed	DQB1*05:67	Unconfirmed	DQB1*05:116	Unconfirmed
DQB1*05:02:01	Confirmed	DQB1*05:20	Confirmed	DQB1*05:68	Unconfirmed	DQB1*05:117	Unconfirmed
DQB1*05:02:02	Unconfirmed	DQB1*05:21	Unconfirmed	DQB1*05:69	Confirmed	DQB1*05:118	Unconfirmed
DQB1*05:02:03	Unconfirmed	DQB1*05:22	Unconfirmed	DQB1*05:70	Unconfirmed	DQB1*05:119	Unconfirmed
DQB1*05:02:04	Unconfirmed	DQB1*05:23	Confirmed	DQB1*05:71	Confirmed	DQB1*05:120	Unconfirmed
DQB1*05:02:05	Unconfirmed	DQB1*05:24	Unconfirmed	DQB1*05:72	Confirmed	DQB1*05:121	Unconfirmed
DQB1*05:02:06	Unconfirmed	DQB1*05:25	Unconfirmed	DQB1*05:73	Confirmed	DQB1*05:122	Unconfirmed
DQB1*05:02:07	Confirmed	DQB1*05:26	Confirmed	DQB1*05:74	Unconfirmed	DQB1*05:123	Unconfirmed
DQB1*05:02:08	Unconfirmed	DQB1*05:27	Confirmed	DQB1*05:75	Confirmed	DQB1*05:124	Unconfirmed
DQB1*05:02:09	Unconfirmed	DQB1*05:28	Confirmed	DQB1*05:76	Unconfirmed	DQB1*05:125	Unconfirmed
DQB1*05:02:10	Unconfirmed	DQB1*05:29	Unconfirmed	DQB1*05:77	Unconfirmed	DQB1*05:126	Unconfirmed
DQB1*05:02:11	Confirmed	DQB1*05:30	Unconfirmed	DQB1*05:78	Unconfirmed	DQB1*05:127	Unconfirmed
DQB1*05:02:12	Unconfirmed	DQB1*05:31	Unconfirmed	DQB1*05:79	Confirmed	DQB1*05:128N	Unconfirmed
DQB1*05:02:13	Unconfirmed	DQB1*05:32	Unconfirmed	DQB1*05:80	Confirmed	DQB1*05:129	Unconfirmed
DQB1*05:03:01:01	Confirmed	DQB1*05:33	Unconfirmed	DQB1*05:81	Unconfirmed	DQB1*05:130	Unconfirmed
DQB1*05:03:01:02	Unconfirmed	DQB1*05:34	Confirmed	DQB1*05:82	Unconfirmed	DQB1*05:131	Unconfirmed
DQB1*05:03:02	Confirmed	DQB1*05:35	Unconfirmed	DQB1*05:83	Unconfirmed	DQB1*05:132Q	Unconfirmed
DQB1*05:03:03	Unconfirmed	DQB1*05:36	Unconfirmed	DQB1*05:84	Unconfirmed	DQB1*05:133	Confirmed
DQB1*05:03:04	Unconfirmed	DQB1*05:37	Unconfirmed	DQB1*05:85	Unconfirmed	DQB1*05:134	Unconfirmed
DQB1*05:03:05	Unconfirmed	DQB1*05:38	Unconfirmed	DQB1*05:86	Unconfirmed	DQB1*05:135	Unconfirmed
DQB1*05:03:06	Unconfirmed	DQB1*05:39	Unconfirmed	DQB1*05:87Q	Unconfirmed	DQB1*05:136	Unconfirmed
DQB1*05:03:07	Unconfirmed	DQB1*05:40	Unconfirmed	DQB1*05:88	Confirmed	DQB1*05:137	Unconfirmed
DQB1*05:03:08	Confirmed	DQB1*05:41N	Unconfirmed	DQB1*05:89:01	Unconfirmed	DQB1*05:138	Unconfirmed
DQB1*05:03:09	Unconfirmed	DQB1*05:42	Unconfirmed	DQB1*05:89:02	Unconfirmed	DQB1*05:139	Unconfirmed
DQB1*05:03:10	Unconfirmed	DQB1*05:43:01	Confirmed	DQB1*05:90N	Unconfirmed	DQB1*05:140	Unconfirmed
DQB1*05:03:11	Unconfirmed	DQB1*05:43:02	Unconfirmed	DQB1*05:91	Unconfirmed	DQB1*05:141	Unconfirmed

Allele	Status <sup>1</sup>
DQB1*05:142	Unconfirmed
DQB1*05:143	Unconfirmed



**Product Insert**

**101.221-12 – including Taq polymerase**  
**101.221-12u – without Taq polymerase**

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**“Instructions for Use” (IFU)**

**Lot No.: 7N3**

**Lot-specific information**

Allele	Status <sup>1</sup>	Allele	Status <sup>1</sup>	Allele	Status <sup>1</sup>	Allele	Status <sup>1</sup>
DQB1*06:01:01	Confirmed	DQB1*06:03:08	Unconfirmed	DQB1*06:13:02	Confirmed	DQB1*06:53:01	Confirmed
DQB1*06:01:02	Confirmed	DQB1*06:03:09	Confirmed	DQB1*06:14:01	Confirmed	DQB1*06:53:02	Unconfirmed
DQB1*06:01:03	Unconfirmed	DQB1*06:03:10	Unconfirmed	DQB1*06:14:02	Unconfirmed	DQB1*06:54N	Unconfirmed
DQB1*06:01:04	Unconfirmed	DQB1*06:03:11	Confirmed	DQB1*06:14:03	Confirmed	DQB1*06:55	Confirmed
DQB1*06:01:05	Unconfirmed	DQB1*06:03:12	Confirmed	DQB1*06:15:01	Unconfirmed	DQB1*06:56	Unconfirmed
DQB1*06:01:06	Unconfirmed	DQB1*06:03:13	Unconfirmed	DQB1*06:15:02	Confirmed	DQB1*06:57	Confirmed
DQB1*06:01:07	Unconfirmed	DQB1*06:03:14	Confirmed	DQB1*06:16	Unconfirmed	DQB1*06:58	Confirmed
DQB1*06:01:08	Confirmed	DQB1*06:03:15	Unconfirmed	DQB1*06:17	Unconfirmed	DQB1*06:59	Confirmed
DQB1*06:01:09	Unconfirmed	DQB1*06:03:16	Unconfirmed	DQB1*06:18:01	Unconfirmed	DQB1*06:60	Unconfirmed
DQB1*06:01:10	Confirmed	DQB1*06:03:17	Unconfirmed	DQB1*06:18:02	Unconfirmed	DQB1*06:61	Unconfirmed
DQB1*06:01:11	Unconfirmed	DQB1*06:03:18	Unconfirmed	DQB1*06:19:01	Unconfirmed	DQB1*06:62	Confirmed
DQB1*06:01:12	Unconfirmed	DQB1*06:03:19	Unconfirmed	DQB1*06:19:02	Unconfirmed	DQB1*06:63	Unconfirmed
DQB1*06:01:13	Confirmed	DQB1*06:03:20	Unconfirmed	DQB1*06:20	Unconfirmed	DQB1*06:64	Confirmed
DQB1*06:01:14	Confirmed	DQB1*06:03:21	Confirmed	DQB1*06:21	Confirmed	DQB1*06:65	Unconfirmed
DQB1*06:01:15	Unconfirmed	DQB1*06:03:22	Unconfirmed	DQB1*06:22:01	Unconfirmed	DQB1*06:66	Unconfirmed
DQB1*06:02:01:01	Confirmed	DQB1*06:03:23	Confirmed	DQB1*06:22:02	Confirmed	DQB1*06:67	Unconfirmed
DQB1*06:02:01:02	Confirmed	DQB1*06:03:24	Unconfirmed	DQB1*06:22:03	Confirmed	DQB1*06:68	Confirmed
DQB1*06:02:01:03	Unconfirmed	DQB1*06:03:25	Unconfirmed	DQB1*06:23	Unconfirmed	DQB1*06:69	Confirmed
DQB1*06:02:02	Unconfirmed	DQB1*06:03:26	Unconfirmed	DQB1*06:24	Unconfirmed	DQB1*06:70	Unconfirmed
DQB1*06:02:03	Unconfirmed	DQB1*06:04:01	Confirmed	DQB1*06:25	Confirmed	DQB1*06:71	Confirmed
DQB1*06:02:04	Confirmed	DQB1*06:04:02	Unconfirmed	DQB1*06:26N	Confirmed	DQB1*06:72	Unconfirmed
DQB1*06:02:05	Confirmed	DQB1*06:04:03	Unconfirmed	DQB1*06:27:01	Unconfirmed	DQB1*06:73	Unconfirmed
DQB1*06:02:06	Unconfirmed	DQB1*06:04:04	Unconfirmed	DQB1*06:27:02	Confirmed	DQB1*06:74	Confirmed
DQB1*06:02:07	Confirmed	DQB1*06:04:05	Unconfirmed	DQB1*06:28	Unconfirmed	DQB1*06:75N	Confirmed
DQB1*06:02:08	Unconfirmed	DQB1*06:04:06	Confirmed	DQB1*06:29	Unconfirmed	DQB1*06:76	Unconfirmed
DQB1*06:02:09	Unconfirmed	DQB1*06:04:07	Unconfirmed	DQB1*06:30	Unconfirmed	DQB1*06:77N	Confirmed
DQB1*06:02:10	Unconfirmed	DQB1*06:04:08	Unconfirmed	DQB1*06:31	Unconfirmed	DQB1*06:78	Confirmed
DQB1*06:02:11	Confirmed	DQB1*06:04:09	Unconfirmed	DQB1*06:32:01	Unconfirmed	DQB1*06:79:01	Confirmed
DQB1*06:02:12	Unconfirmed	DQB1*06:04:10	Unconfirmed	DQB1*06:32:02	Unconfirmed	DQB1*06:79:02	Unconfirmed
DQB1*06:02:13	Unconfirmed	DQB1*06:05:01	Confirmed	DQB1*06:33	Confirmed	DQB1*06:80	Unconfirmed
DQB1*06:02:14	Confirmed	DQB1*06:05:02	Unconfirmed	DQB1*06:34	Confirmed	DQB1*06:81	Confirmed
DQB1*06:02:15	Unconfirmed	DQB1*06:06	Unconfirmed	DQB1*06:35	Unconfirmed	DQB1*06:82	Unconfirmed
DQB1*06:02:16	Unconfirmed	DQB1*06:07:01	Confirmed	DQB1*06:36	Confirmed	DQB1*06:83	Unconfirmed
DQB1*06:02:17	Confirmed	DQB1*06:07:02	Confirmed	DQB1*06:37	Confirmed	DQB1*06:84	Confirmed
DQB1*06:02:18	Unconfirmed	DQB1*06:08:01	Confirmed	DQB1*06:38	Unconfirmed	DQB1*06:85	Unconfirmed
DQB1*06:02:19	Unconfirmed	DQB1*06:08:02	Unconfirmed	DQB1*06:39	Unconfirmed	DQB1*06:86	Unconfirmed
DQB1*06:02:20	Confirmed	DQB1*06:08:03	Unconfirmed	DQB1*06:40	Unconfirmed	DQB1*06:87	Unconfirmed
DQB1*06:02:21	Unconfirmed	DQB1*06:09:01:01	Confirmed	DQB1*06:41	Confirmed	DQB1*06:88	Confirmed
DQB1*06:02:22	Confirmed	DQB1*06:09:01:02	Unconfirmed	DQB1*06:42	Unconfirmed	DQB1*06:89	Unconfirmed
DQB1*06:02:23	Confirmed	DQB1*06:09:02	Confirmed	DQB1*06:43	Unconfirmed	DQB1*06:90	Confirmed
DQB1*06:02:24	Unconfirmed	DQB1*06:09:03	Unconfirmed	DQB1*06:44	Confirmed	DQB1*06:91	Unconfirmed
DQB1*06:02:25	Unconfirmed	DQB1*06:09:04	Unconfirmed	DQB1*06:45	Unconfirmed	DQB1*06:92	Confirmed
DQB1*06:02:26	Unconfirmed	DQB1*06:09:05	Unconfirmed	DQB1*06:46	Confirmed	DQB1*06:93	Confirmed
DQB1*06:03:01	Confirmed	DQB1*06:09:06	Confirmed	DQB1*06:47	Unconfirmed	DQB1*06:94	Confirmed
DQB1*06:03:02	Confirmed	DQB1*06:10	Confirmed	DQB1*06:48	Confirmed	DQB1*06:95	Unconfirmed
DQB1*06:03:03	Unconfirmed	DQB1*06:11:01	Confirmed	DQB1*06:49	Confirmed	DQB1*06:96	Unconfirmed
DQB1*06:03:04	Unconfirmed	DQB1*06:11:02	Confirmed	DQB1*06:50	Confirmed	DQB1*06:97	Unconfirmed
DQB1*06:03:05	Confirmed	DQB1*06:11:03	Unconfirmed	DQB1*06:51:01	Unconfirmed	DQB1*06:98	Unconfirmed
DQB1*06:03:06	Unconfirmed	DQB1*06:12	Unconfirmed	DQB1*06:51:02	Unconfirmed	DQB1*06:99:01	Unconfirmed
DQB1*06:03:07	Confirmed	DQB1*06:13:01	Unconfirmed	DQB1*06:52	Unconfirmed	DQB1*06:99:02	Unconfirmed



Product Insert

101.221-12 – including *Taq* polymerase  
 101.221-12u – without *Taq* polymerase

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 “Instructions for Use” (IFU)

Lot No.: **7N3**

Lot-specific information

Allele	Status <sup>1</sup>	Allele	Status <sup>1</sup>	Allele	Status <sup>1</sup>	Allele	Status <sup>1</sup>
DQB1*06:100	Unconfirmed	DQB1*06:139	Unconfirmed	DQB1*06:178	Unconfirmed	DQB1*06:216N	Unconfirmed
DQB1*06:101	Unconfirmed	DQB1*06:140	Unconfirmed	<b>DQB1*06:179N</b>	<b>Confirmed</b>	<b>DQB1*06:217</b>	<b>Confirmed</b>
DQB1*06:102N	Unconfirmed	DQB1*06:141	Unconfirmed	DQB1*06:180	Unconfirmed	<b>DQB1*06:218</b>	<b>Confirmed</b>
<b>DQB1*06:103</b>	<b>Confirmed</b>	DQB1*06:142	Unconfirmed	DQB1*06:181	Unconfirmed	DQB1*06:219	Unconfirmed
DQB1*06:104	Unconfirmed	DQB1*06:143	Unconfirmed	DQB1*06:182	Unconfirmed	DQB1*06:221	Unconfirmed
DQB1*06:105	Unconfirmed	DQB1*06:144N	Unconfirmed	DQB1*06:183	Unconfirmed	DQB1*06:222	Unconfirmed
<b>DQB1*06:106</b>	<b>Confirmed</b>	DQB1*06:145	Unconfirmed	<b>DQB1*06:184</b>	<b>Confirmed</b>	DQB1*06:223	Unconfirmed
<b>DQB1*06:107</b>	<b>Confirmed</b>	DQB1*06:146:01	Unconfirmed	DQB1*06:185	Unconfirmed	<b>DQB1*06:224</b>	<b>Confirmed</b>
DQB1*06:108	Unconfirmed	DQB1*06:146:02	Unconfirmed	DQB1*06:186	Unconfirmed	DQB1*06:225	Unconfirmed
DQB1*06:109	Unconfirmed	DQB1*06:147	Unconfirmed	<b>DQB1*06:187</b>	<b>Confirmed</b>	DQB1*06:226	Unconfirmed
DQB1*06:110	Unconfirmed	DQB1*06:148	Unconfirmed	<b>DQB1*06:188</b>	<b>Confirmed</b>	DQB1*06:227	Unconfirmed
<b>DQB1*06:111</b>	<b>Confirmed</b>	<b>DQB1*06:149</b>	<b>Confirmed</b>	DQB1*06:189	Unconfirmed	DQB1*06:228	Unconfirmed
DQB1*06:112N	Unconfirmed	DQB1*06:150	Unconfirmed	<b>DQB1*06:190:01</b>	<b>Confirmed</b>	DQB1*06:229	Unconfirmed
DQB1*06:113	Unconfirmed	DQB1*06:151	Unconfirmed	DQB1*06:190:02	Unconfirmed	DQB1*06:230	Unconfirmed
DQB1*06:114	Unconfirmed	DQB1*06:152	Unconfirmed	<b>DQB1*06:191</b>	<b>Confirmed</b>		
DQB1*06:115	Unconfirmed	<b>DQB1*06:153</b>	<b>Confirmed</b>	DQB1*06:192	Unconfirmed		
DQB1*06:116	Unconfirmed	DQB1*06:154	Unconfirmed	DQB1*06:193N	Unconfirmed		
<b>DQB1*06:117</b>	<b>Confirmed</b>	<b>DQB1*06:155</b>	<b>Confirmed</b>	<b>DQB1*06:194</b>	<b>Confirmed</b>		
DQB1*06:118:01	Unconfirmed	DQB1*06:156	Unconfirmed	DQB1*06:195	Unconfirmed		
<b>DQB1*06:118:02</b>	<b>Confirmed</b>	DQB1*06:157	Unconfirmed	DQB1*06:196	Unconfirmed		
DQB1*06:119	Unconfirmed	<b>DQB1*06:158N</b>	<b>Confirmed</b>	DQB1*06:197	Unconfirmed		
<b>DQB1*06:120</b>	<b>Confirmed</b>	DQB1*06:159	Unconfirmed	DQB1*06:198	Unconfirmed		
DQB1*06:121	Unconfirmed	DQB1*06:160	Unconfirmed	DQB1*06:199	Unconfirmed		
<b>DQB1*06:122</b>	<b>Confirmed</b>	DQB1*06:161	Unconfirmed	DQB1*06:200	Unconfirmed		
<b>DQB1*06:123</b>	<b>Confirmed</b>	<b>DQB1*06:162</b>	<b>Confirmed</b>	DQB1*06:201	Unconfirmed		
DQB1*06:124	Unconfirmed	<b>DQB1*06:163</b>	<b>Confirmed</b>	<b>DQB1*06:202</b>	<b>Confirmed</b>		
<b>DQB1*06:125</b>	<b>Confirmed</b>	<b>DQB1*06:164</b>	<b>Confirmed</b>	DQB1*06:203	Unconfirmed		
<b>DQB1*06:126</b>	<b>Confirmed</b>	DQB1*06:165	Unconfirmed	DQB1*06:204	Unconfirmed		
DQB1*06:127	Unconfirmed	DQB1*06:166	Unconfirmed	DQB1*06:205	Unconfirmed		
DQB1*06:128	Unconfirmed	DQB1*06:167	Unconfirmed	DQB1*06:206:01	Unconfirmed		
DQB1*06:129	Unconfirmed	DQB1*06:168	Unconfirmed	DQB1*06:206:02	Unconfirmed		
DQB1*06:130	Unconfirmed	<b>DQB1*06:169</b>	<b>Confirmed</b>	DQB1*06:207	Unconfirmed		
DQB1*06:131	Unconfirmed	<b>DQB1*06:170</b>	<b>Confirmed</b>	DQB1*06:208	Unconfirmed		
DQB1*06:132	Unconfirmed	<b>DQB1*06:171</b>	<b>Confirmed</b>	DQB1*06:209	Unconfirmed		
DQB1*06:133	Unconfirmed	<b>DQB1*06:172</b>	<b>Confirmed</b>	<b>DQB1*06:210</b>	<b>Confirmed</b>		
DQB1*06:134	Unconfirmed	DQB1*06:173	Unconfirmed	DQB1*06:211	Unconfirmed		
DQB1*06:135	Unconfirmed	DQB1*06:174	Unconfirmed	<b>DQB1*06:212</b>	<b>Confirmed</b>		
DQB1*06:136	Unconfirmed	DQB1*06:175	Unconfirmed	DQB1*06:213	Unconfirmed		
DQB1*06:137	Unconfirmed	DQB1*06:176	Unconfirmed	DQB1*06:214	Unconfirmed		
DQB1*06:138	Unconfirmed	DQB1*06:177	Unconfirmed	DQB1*06:215	Unconfirmed		

<sup>1</sup>Allele status “confirmed” or “unconfirmed” as listed on the IMGT/HLA web page 2017-January-20, release 3.27.0, [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla).

**RESOLUTION IN HOMO- AND HETEROZYGOTES**

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



Lot No.: 7N3

Lot-specific information

## 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 <sup>1</sup>	Size of control band <sup>2</sup>	Amplified DQB1 alleles <sup>3</sup>
1 <sup>4</sup>	120 bp	515 bp	*02:01:01:01-02:01:09, 02:01:11-02:01:13, 02:01:15-02:01:37, 02:01:39-02:02:10, 02:02:12-02:02:17, 02:04-02:16, 02:18N-02:24, 02:26-02:39, 02:41-02:71, 02:73-02:76, 02:78-02:179, 02:181-02:187, 02:189-02:198
2 <sup>4,7</sup>	85 bp	430 bp	*02:03:02, 02:77, 02:180
3 <sup>6</sup>	145 bp	515 bp	*02:01:01:01-02:01:09, 02:01:11-02:01:13, 02:01:15-02:01:35, 02:01:37-02:01:42, 02:02:15, 02:02:17-02:05, 02:07:01-02:09, 02:13-02:19, 02:21-02:25, 02:27-02:47, 02:49, 02:51-02:61, 02:63, 02:66-02:70, 02:72-02:79, 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, 02:173-02:174, 02:177N-02:178, 02:181-02:182, 02:184-02:186, 02:188-02:193, 02:196-02:198, 03:01:01:01-03:01:12, 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, 03:382-03:446, 03:448-03:469, 03:471-03:478, 04:01:01:01-04:02:01:01, 04:02:01:04-04:43, 04:45-04:69, 04:72-04:80, 04:82-04:90, 05:01:01:01-05:13, 05:15-05:83, 05:85-05:195, 05:197-05:210, 05:212-05:283N, 05:285-05:294, 06:01:01:01-06:02:46, 06:02:48-06:02:52, 06:02:54-06:37, 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, 06:367-06:386, 06:388-06:394N, 06:396-06:423N
4	140 bp	430 bp	*02:02:01:01-02:02:14, 02:02:16, 02:05 <sup>?</sup> , 02:06, 02:10-02:12, 02:13 <sup>?</sup> , 02:15 <sup>?</sup> -02:19 <sup>?</sup> , 02:20N, 02:21 <sup>?</sup> -02:25 <sup>?</sup> , 02:26, 02:28 <sup>?</sup> -02:47 <sup>?</sup> , 02:49 <sup>?</sup> , 02:50, 02:51 <sup>?</sup> -02:52 <sup>?</sup> , 02:54 <sup>?</sup> -02:56 <sup>?</sup> , 02:58N <sup>?</sup> , 02:60 <sup>?</sup> -02:61 <sup>?</sup> , 02:62, 02:64-02:65, 02:66 <sup>?</sup> -02:70 <sup>?</sup> , 02:71, 02:73 <sup>?</sup> -02:78 <sup>?</sup> , 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-02:172, 02:175-02:176N, 02:179-02:180, 02:183N, 02:187, 02:194N
	185 bp		*03:28, 03:50
5	155 bp	430 bp	*02:04, 02:108, 02:144, 03:22:01:01-03:22:02, 03:96, 03:251, 04:23, 05:103 <sup>w</sup> , 05:226, 05:231 <sup>w</sup> , 06:04:01:01 <sup>w</sup> -06:04:15 <sup>w</sup> , 06:04:17 <sup>w</sup> -06:05:02 <sup>w</sup> , 06:06 <sup>?</sup> , 06:07:01 <sup>w</sup> -06:07:02 <sup>w</sup> , 06:08:02 <sup>?</sup> -06:08:03 <sup>?</sup> , 06:09:01:01 <sup>w</sup> -06:09:12 <sup>w</sup> , 06:11:02 <sup>?</sup> -06:11:03 <sup>?</sup> , 06:12 <sup>w</sup> , 06:13:02 <sup>?</sup> -06:13:03 <sup>?</sup> , 06:15:01 <sup>?</sup> , 06:17 <sup>?</sup> -06:18:01 <sup>?</sup> , 06:18:02 <sup>w</sup> , 06:19:01 <sup>?</sup> , 06:21 <sup>w</sup> , 06:22:01 <sup>?</sup> -06:25 <sup>?</sup> , 06:27:01 <sup>?</sup> -06:27:02 <sup>?</sup> , 06:29 <sup>?</sup> -06:32:02 <sup>?</sup> , 06:34 <sup>w</sup> , 06:35 <sup>?</sup> , 06:36 <sup>w</sup> , 06:38 <sup>w</sup> , 06:40 <sup>?</sup> , 06:41:01:01 <sup>w</sup> -06:42 <sup>w</sup> , 06:45 <sup>?</sup> , 06:50 <sup>?</sup> ,



**Product Insert**

**101.221-12 – including *Taq* polymerase**  
**101.221-12u – without *Taq* polymerase**

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			06:51:02 <sup>?</sup> , 06:52 <sup>w</sup> , 06:53:01 <sup>?</sup> -06:54N <sup>?</sup> , 06:56 <sup>?</sup> -06:57:01 <sup>?</sup> , 06:58 <sup>w</sup> , 06:59 <sup>?</sup> -06:61 <sup>?</sup> , 06:63 <sup>?</sup> -06:67 <sup>?</sup> , 06:69:01 <sup>?</sup> -06:74 <sup>?</sup> , 06:76 <sup>?</sup> , 06:79:02 <sup>?</sup> -06:83 <sup>?</sup> , 06:84:01:01 <sup>w</sup> -06:84:01:02 <sup>w</sup> , 06:85 <sup>?</sup> , 06:89 <sup>?</sup> , 06:91 <sup>?</sup> , 06:93 <sup>?</sup> -06:97 <sup>?</sup> , 06:118:01 <sup>w</sup> , 06:118:02 <sup>?</sup> -06:121 <sup>?</sup> , 06:123 <sup>?</sup> -06:124 <sup>?</sup> , 06:126 <sup>?</sup> , 06:128 <sup>?</sup> , 06:129 <sup>w</sup> , 06:131 <sup>?</sup> -06:141 <sup>?</sup> , 06:142 <sup>w</sup> , 06:143 <sup>?</sup> -06:147 <sup>?</sup> , 06:149 <sup>?</sup> -06:153:01 <sup>?</sup> , 06:154 <sup>?</sup> -06:163 <sup>?</sup> , 06:164 <sup>w</sup> , 06:165 <sup>?</sup> -06:170 <sup>?</sup> , 06:171 <sup>w</sup> , 06:172 <sup>?</sup> -06:184 <sup>?</sup> , 06:186 <sup>w</sup> , 06:189 <sup>w</sup> , 06:190:01 <sup>?</sup> -06:199 <sup>?</sup> , 06:201 <sup>?</sup> -06:204 <sup>?</sup> , 06:206:01 <sup>?</sup> , 06:206:02 <sup>w</sup> , 06:207 <sup>?</sup> -06:208 <sup>?</sup> , 06:210 <sup>?</sup> -06:215 <sup>?</sup> , 06:217 <sup>w</sup> , 06:229 <sup>?</sup> -06:236 <sup>?</sup> , 06:238 <sup>?</sup> , 06:241 <sup>?</sup> , 06:244 <sup>?</sup> , 06:246 <sup>?</sup> -06:247 <sup>?</sup> , 06:249 <sup>?</sup> , 06:252N <sup>?</sup> , 06:254 <sup>w</sup> , 06:260 <sup>?</sup> , 06:261 <sup>w</sup> , 06:263 <sup>?</sup> , 06:265 <sup>w</sup> -06:267 <sup>w</sup> , 06:268 <sup>?</sup> , 06:275 <sup>w</sup> , 06:277 <sup>?</sup> , 06:280 <sup>w</sup> -06:283 <sup>w</sup> , 06:287 <sup>w</sup> -06:288 <sup>w</sup> , 06:291 <sup>w</sup> -06:292 <sup>w</sup> , 06:299 <sup>w</sup> , 06:301 <sup>w</sup> , 06:303N <sup>w</sup> , 06:313 <sup>w</sup> , 06:318 <sup>w</sup> -06:319 <sup>w</sup> , 06:320 <sup>?</sup> , 06:325 <sup>w</sup> , 06:332 <sup>w</sup> , 06:339 <sup>w</sup> , 06:343 <sup>w</sup> , 06:348 <sup>w</sup> -06:349 <sup>w</sup> , 06:351 <sup>w</sup> , 06:353 <sup>w</sup> , 06:358 <sup>w</sup> , 06:361 <sup>w</sup> , 06:368 <sup>?</sup> , 06:369 <sup>w</sup> , 06:371 <sup>?</sup> , 06:374 <sup>?</sup> , 06:375 <sup>w</sup> , 06:378 <sup>?</sup> -06:379N <sup>?</sup> , 06:381 <sup>w</sup> , 06:385 <sup>w</sup> -06:386 <sup>w</sup> , 06:389 <sup>?</sup> , 06:393 <sup>?</sup> , 06:398 <sup>w</sup> , 06:407 <sup>w</sup> , 06:414N <sup>w</sup> , 06:420 <sup>w</sup> -06:421 <sup>w</sup> , 06:423N <sup>?</sup> *05:06:01-05:06:02, 05:07, 05:50 *05:106 *05:03:02, 05:51, 05:119, 05:125, 06:06 <sup>?</sup> , 06:129, 06:146:01, 06:241
<b>6</b>	180 bp 210 bp 260 bp 165 bp	<b>515 bp</b>	*02:152, 03:01:01:01-03:01:01:12, 03:01:01:14-03:01:07, 03:01:09-03:01:33, 03:01:35-03:01:54, 03:04:01:01-03:04:04, 03:09, 03:13, 03:16, 03:19:01:01-03:19:05, 03:21-03:22:02, 03:24, 03:27-03:29, 03:35-03:36, 03:42, 03:44, 03:46-03:60, 03:69, 03:71, 03:73-03:78, 03:80, 03:82-03:84N, 03:92-03:94, 03:101-03:103, 03:108, 03:113-03:116, 03:118N-03:122, 03:127-03:131, 03:134-03:135, 03:139-03:140, 03:142-03:144, 03:147-03:148, 03:150-03:152, 03:157-03:160, 03:162-03:167, 03:169-03:173, 03:182, 03:184, 03:188, 03:191-03:194, 03:196-03:198:02, 03:201-03:202, 03:206-03:208, 03:216, 03:218-03:219, 03:231-03:232, 03:235-03:236, 03:241-03:243, 03:246, 03:252-03:257, 03:260, 03:264, 03:266-03:268, 03:271, 03:275-03:276N, 03:281, 03:284-03:286, 03:288, 03:290-03:294, 03:297, 03:302-03:303N, 03:305-03:307, 03:309, 03:311-03:312, 03:314, 03:317:01-03:318, 03:326-03:331, 03:338N, 03:340N-03:342, 03:347, 03:350, 03:353, 03:355, 03:358N, 03:360-03:361, 03:366, 03:370, 03:372-03:373, 03:376N-03:378, 03:380-03:382, 03:385N, 03:387, 03:389-03:391, 03:394, 03:396, 03:399N-03:401, 03:404, 03:407N-03:408, 03:417-03:421, 03:423-03:428, 03:430-03:432, 03:434-03:436, 03:438-03:439, 03:448-03:449, 03:451, 03:454-03:455, 03:458, 03:460, 03:465, 03:467-03:470, 03:472-03:473N, 03:475-03:476, 04:09
<b>7</b>	220 bp	<b>515 bp</b>	*03:01:01:01-03:01:01:12, 03:01:01:14-03:01:33, 03:01:35-03:01:54, 03:04:01:01-03:04:04, 03:09-03:10:03, 03:13-03:14:02, 03:16, 03:19:01:01-03:19:05, 03:21-03:22:02, 03:24, 03:27-03:29, 03:35-03:36, 03:42, 03:44, 03:46-03:60, 03:69, 03:71, 03:73, 03:75-03:77, 03:80, 03:82-03:84N, 03:92-03:94, 03:101-03:103, 03:108, 03:114-03:116, 03:118N-03:122, 03:127-03:131, 03:133-03:135, 03:138-03:140, 03:142-03:144, 03:147-03:148, 03:150, 03:152, 03:157-03:160, 03:162-03:167, 03:169-03:173, 03:180, 03:182-03:183, 03:186-03:188, 03:191-03:198:02, 03:201-03:202, 03:206-03:208, 03:216, 03:218-03:219, 03:231-03:232, 03:235-03:236, 03:241-03:243, 03:246, 03:252-03:257, 03:260, 03:264, 03:266-03:268, 03:271, 03:275-03:276N, 03:281, 03:284-03:286, 03:288, 03:290-03:294,



Product Insert

101.221-12 – including *Taq* polymerase  
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			03:297, 03:302-03:303N, 03:305-03:307, 03:309, 03:311-03:312, 03:317:01-03:318, 03:326-03:331, 03:338N, 03:340N-03:342, 03:347, 03:350, 03:353-03:355, 03:358N, 03:360-03:361, 03:366, 03:370, 03:372-03:373, 03:376N-03:378, 03:380-03:381, 03:385N, 03:387, 03:389-03:391, 03:394, 03:396, 03:399N-03:401, 03:404, 03:407N-03:408, 03:417-03:421, 03:423-03:428, 03:430-03:432, 03:434-03:436, 03:438-03:439, 03:448-03:449, 03:451, 03:454-03:455, 03:458, 03:460, 03:465, 03:467-03:470, 03:472-03:476
<b>8<sup>6</sup></b>	135 bp	<b>515 bp</b>	*02:01:01:01-02:01:09, 02:01:11-02:01:13, 02:01:15-02:01:27, 02:01:29-02:01:37, 02:01:39-02:02:10, 02:02:12-02:02:17, 02:04-02:16, 02:18N-02:36, 02:38-02:76, 02:78-02:94, 02:96N-02:115, 02:117-02:146, 02:148-02:171Q, 02:173-02:179, 02:182-02:187, 02:189-02:198, 03:02:01:01-03:02:35, 03:07-03:08, 03:11, 03:18, 03:32, 03:37, 03:45:01-03:45:02, 03:62-03:64, 03:66N-03:68, 03:70, 03:81, 03:85, 03:106-03:107, 03:125, 03:146, 03:153, 03:161, 03:174-03:175, 03:178-03:179, 03:184-03:185, 03:189-03:190, 03:199, 03:203-03:205, 03:210-03:211, 03:213N-03:215, 03:220-03:221, 03:223-03:225, 03:228-03:229, 03:233, 03:237N, 03:240, 03:245, 03:247, 03:251, 03:261, 03:263:01:01-03:263:01:02, 03:265, 03:269N, 03:273-03:274, 03:277-03:279, 03:287, 03:289, 03:295-03:296, 03:298-03:301, 03:308, 03:310N, 03:315, 03:320-03:324, 03:333-03:334N, 03:339N, 03:343-03:345, 03:348-03:349, 03:352, 03:362, 03:364, 03:367-03:369, 03:371, 03:379, 03:383, 03:386, 03:388, 03:392, 03:403N, 03:409-03:410, 03:412-03:413, 03:415-03:416, 03:422N, 03:429, 03:433, 03:437, 03:440N-03:442, 03:444, 03:446-03:447, 03:450, 03:452, 03:456-03:457, 03:459, 03:462-03:464, 03:466, 03:471, 06:03:13, 06:29, 06:63, 06:123, 06:139, 06:320, 06:337 *06:171
	225 bp		
<b>9</b>	175 bp	<b>515 bp</b>	*03:02:01:01-03:02:33, 03:02:35-03:03:28, 03:05:01-03:05:05, 03:06 <sup>2</sup> -03:07 <sup>2</sup> , 03:08, 03:11, 03:14:01 <sup>2</sup> -03:15 <sup>2</sup> , 03:17:01 <sup>2</sup> -03:18 <sup>2</sup> , 03:19:01:01-03:19:05, 03:20 <sup>2</sup> , 03:23:01 <sup>2</sup> , 03:23:02, 03:23:03 <sup>2</sup> , 03:25:01, 03:25:02 <sup>2</sup> -03:26 <sup>2</sup> , 03:30-03:32, 03:33 <sup>2</sup> -03:34 <sup>2</sup> , 03:37-03:41, 03:43, 03:45:01-03:45:02, 03:48 <sup>2</sup> , 03:52 <sup>2</sup> -03:54 <sup>2</sup> , 03:56 <sup>2</sup> -03:67 <sup>2</sup> , 03:68, 03:69 <sup>2</sup> -03:70 <sup>2</sup> , 03:71-03:72, 03:74 <sup>2</sup> -03:78 <sup>2</sup> , 03:79, 03:81 <sup>2</sup> -03:82 <sup>2</sup> , 03:85-03:91Q, 03:95N-03:100, 03:101 <sup>2</sup> -03:104 <sup>2</sup> , 03:105, 03:106 <sup>2</sup> -03:112 <sup>2</sup> , 03:117, 03:118N <sup>2</sup> , 03:120 <sup>2</sup> -03:131 <sup>2</sup> , 03:132, 03:133 <sup>2</sup> -03:135 <sup>2</sup> , 03:136, 03:137 <sup>2</sup> , 03:138, 03:140 <sup>2</sup> -03:149 <sup>2</sup> , 03:150, 03:151 <sup>2</sup> -03:163 <sup>2</sup> , 03:165 <sup>2</sup> -03:167 <sup>2</sup> , 03:168, 03:170 <sup>2</sup> -03:171 <sup>2</sup> , 03:173 <sup>2</sup> -03:179 <sup>2</sup> , 03:180-03:181, 03:183 <sup>2</sup> , 03:184, 03:185 <sup>2</sup> , 03:187, 03:188 <sup>2</sup> -03:189 <sup>2</sup> , 03:190, 03:192 <sup>2</sup> -03:194 <sup>2</sup> , 03:195, 03:199-03:200, 03:201 <sup>2</sup> -03:205 <sup>2</sup> , 03:207 <sup>2</sup> -03:210 <sup>2</sup> , 03:211, 03:212 <sup>2</sup> -03:221 <sup>2</sup> , 03:222, 03:223 <sup>2</sup> -03:228 <sup>2</sup> , 03:229, 03:230 <sup>2</sup> , 03:232 <sup>2</sup> -03:238 <sup>2</sup> , 03:239, 03:240 <sup>2</sup> , 03:244 <sup>2</sup> , 03:245, 03:247-03:248, 03:250-03:251, 03:255 <sup>2</sup> -03:262 <sup>2</sup> , 03:263:01:01-03:263:01:02, 03:265, 03:267 <sup>2</sup> -03:270 <sup>2</sup> , 03:272, 03:273 <sup>2</sup> -03:275 <sup>2</sup> , 03:277, 03:278 <sup>2</sup> , 03:279-03:280, 03:282N-03:283, 03:286-03:287, 03:289, 03:295-03:296, 03:298-03:301, 03:304, 03:308, 03:310N, 03:313, 03:315-03:316, 03:319-03:324, 03:332-03:337, 03:339N, 03:343-03:346, 03:348-03:349, 03:351 <sup>2</sup> -03:353 <sup>2</sup> , 03:356N <sup>2</sup> , 03:357N, 03:359 <sup>2</sup> , 03:362-03:365, 03:367-03:369, 03:371, 03:374-03:376N, 03:379, 03:381-03:384, 03:386, 03:387 <sup>2</sup> , 03:388, 03:392-03:395, 03:398, 03:401-03:403N, 03:405-03:406, 03:409-03:416, 03:422N, 03:425 <sup>2</sup> , 03:429, 03:433 <sup>2</sup> ,



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10 <sup>4,7</sup>	120 bp 145 bp	430 bp	*02:11, 02:25 *02:26, 03:04:01:01-03:04:04, 03:14:01-03:14:02, 03:80, 03:138, 03:318, 03:327, 03:443, 03:474, 06:246 *03:58
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12 <sup>4,7</sup>	65 bp 105 bp	430 bp	*03:40, 03:353 *03:03:06, 03:06, 03:25:01-03:25:02, 03:234, 03:239, 04:01:03, 04:02:16, 04:03:03 *03:08, 03:119, 03:137, 03:194, 06:02:02, 06:03:02, 06:03:34, 06:210 *03:57
13 <sup>4,6</sup>	140 bp 195 bp 110 bp 145 bp 190 bp	430 bp	*03:15 *02:62, 03:07, 03:16, 03:438 *02:196, 03:54, 03:162, 03:183, 03:204, 03:223, 03:233, 03:351, 04:35
14	135 bp 175 bp 260 bp	430 bp	*03:09, 05:56 *03:55, 03:250 *03:11, 03:26, 03:244
15	140 bp	430 bp	*03:10:01-03:10:02:02, 03:12, 03:14:01-03:14:02, 03:70, 03:179, 03:183, 03:195, 03:474, 06:01:01:01-06:01:31, 06:06 <sup>?</sup> , 06:43, 06:54N-06:58, 06:98, 06:99:02-06:105, 06:108, 06:120, 06:132, 06:140, 06:153:01-06:153:02, 06:157, 06:167-06:168, 06:177, 06:181, 06:194, 06:205, 06:209, 06:214, 06:229, 06:239, 06:243, 06:245-06:247, 06:251, 06:257-06:258, 06:260, 06:263, 06:268, 06:274, 06:277, 06:285, 06:302, 06:305, 06:307, 06:309-06:310, 06:312, 06:321,





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	195 bp		*02:42, 02:78
	245 bp		*03:27, 03:82
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<b>17<sup>4,6</sup></b>	110 bp	430 bp	*05:03:12, 05:43:02, 06:23, 06:82, 06:99:01, 06:156, 06:162, 06:169, 06:233, 06:340, 06:389
	155 bp		*02:10, 02:81, 03:13, 03:49:01:01-03:49:01:02, 03:286, 03:402, 03:471, 04:32, 05:152, 06:359, 06:381, 06:396
	175 bp		*03:28, 03:232
	215 bp		*03:47
	300 bp		*02:154, 03:458, 04:66, 05:250, 05:280, 06:34
<b>18<sup>4,6,7</sup></b>	80 bp	430 bp	*03:188
	135 bp		*03:24, 03:79, 03:282N, 03:447, 04:81
	185 bp		*03:60, 03:73, 03:112, 03:118N, 03:226, 03:237N, 03:371, 04:30, 05:73, 05:98, 05:116, 06:28, 06:56, 06:79:01-06:79:02, 06:144N
	220 bp		*03:18, 06:393
	260 bp		*02:36
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<b>21<sup>4,5,7</sup></b>	125 bp 205 bp	<b>515 bp</b>	*04:11 *04:01:01:01-04:01:05, 04:05-04:08, 04:14-04:17, 04:27, 04:38, 04:42, 04:61-04:62, 04:69, 04:71, 04:73N-04:74, 04:90
<b>22</b>	140 bp 205 bp	430 bp	*04:14 *03:132, 04:02:01:01, 04:02:01:04-04:02:07, 04:02:09-04:02:21, 04:03:01, 04:04, 04:09-04:13, 04:18-04:19, 04:21-04:37, 04:39-04:41N, 04:43-04:47, 04:49-04:60, 04:63-04:68N, 04:70, 04:72, 04:75-04:89
<b>23</b>	135 bp	430 bp	*05:01:01:01-05:01:45, 05:07, 05:11:01-05:12, 05:18:01-05:18:02, 05:20:01-05:20:02, 05:22, 05:25, 05:27, 05:29-05:32, 05:44-05:45, 05:48-05:49, 05:51, 05:54-05:55, 05:61-05:63, 05:68-05:76, 05:80-05:81, 05:84, 05:88-05:89:02, 05:92-05:93, 05:95, 05:99, 05:103-05:104, 05:107, 05:110N-05:112, 05:114-05:115, 05:120, 05:122, 05:124, 05:126-05:128N, 05:133, 05:137-05:139, 05:141, 05:144, 05:148, 05:150-05:152, 05:154-05:160, 05:162-05:164, 05:166-05:169, 05:171, 05:173, 05:176-05:177, 05:180, 05:182-05:185N, 05:187-05:188, 05:190, 05:193-05:195, 05:197, 05:215N-05:217, 05:219, 05:223, 05:225-05:226, 05:228, 05:230, 05:232, 05:234, 05:237, 05:240, 05:242, 05:246, 05:248-05:249, 05:252, 05:255-05:256, 05:261, 05:263, 05:266-05:272, 05:275, 05:279, 05:283N, 05:285-05:286, 05:288, 05:290-05:292, 06:325, 06:389
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<b>25<sup>4</sup></b>	100 bp	<b>515 bp</b>	*03:226, 03:272, 04:28, 05:01:09-05:01:10, 05:02:02, 05:02:18, 05:03:01:01-05:03:11, 05:03:13, 05:03:15-05:03:19, 05:03:21-05:03:23, 05:03:25-05:03:28, 05:06:01-05:06:02, 05:08-05:10, 05:13, 05:15-05:16, 05:24, 05:28, 05:38-05:42, 05:50, 05:56, 05:58, 05:60, 05:64, 05:66:01-05:67, 05:78, 05:85, 05:91, 05:96, 05:98, 05:101,



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27	170 bp 210 bp	430 bp	*03:67, 03:311 *06:01:01:01-06:02:58, 06:05:02 <sup>?</sup> -06:06 <sup>?</sup> , 06:10-06:11:04, 06:13:01-06:13:03, 06:16, 06:18:01-06:20, 06:24, 06:29, 06:33, 06:35, 06:37, 06:43, 06:45, 06:47-06:51:02, 06:53:01-06:57:02, 06:68, 06:70-06:84:01:02, 06:95-06:109, 06:111-06:117, 06:120, 06:122-06:127, 06:130-06:132, 06:136-06:140, 06:147, 06:150-06:153:02, 06:157, 06:159, 06:161, 06:163, 06:166-06:167, 06:173-06:179N, 06:181-06:183, 06:188, 06:192, 06:197-06:198, 06:200-06:201, 06:205, 06:208-06:209, 06:211, 06:213-06:216N, 06:219, 06:224-06:229, 06:232-06:233, 06:235-06:237, 06:240, 06:242-06:243, 06:245-06:247, 06:249, 06:251, 06:255-06:258, 06:260, 06:262-06:264, 06:268,



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<b>30<sup>4,5,6</sup></b>	65 bp 105 bp 150 bp 205 bp	430 bp	*02:67N *04:15-04:16 *03:23:01, 05:03:12, 05:43:02, 06:03:01:01-06:03:03, 06:03:05-06:03:07, 06:03:11-06:03:25, 06:03:27-06:03:33, 06:03:35-06:03:44, 06:04:02, 06:07:01, 06:08:01, 06:09:02, 06:11:01:01-06:11:03, 06:26N, 06:28, 06:30-06:32:01, 06:40-06:41:01:03, 06:44, 06:59-06:62, 06:64-06:65, 06:67, 06:90-06:92:02, 06:94, 06:110, 06:118:01, 06:118:03, 06:128, 06:133-06:134, 06:141, 06:143-06:145, 06:148, 06:154, 06:161, 06:165, 06:169-06:170, 06:184-06:185, 06:187, 06:191, 06:195-06:196, 06:199, 06:203, 06:210, 06:218, 06:221-06:223, 06:230, 06:234, 06:238, 06:248, 06:250, 06:253, 06:259, 06:272, 06:276, 06:279, 06:316, 06:327-06:329, 06:331, 06:334, 06:336, 06:345N-06:346, 06:350, 06:352, 06:360, 06:362, 06:365, 06:367, 06:371, 06:385, 06:391-06:394N, 06:396, 06:399-06:400, 06:403, 06:410, 06:423N *04:20, 04:27



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<b>31<sup>7</sup></b>	165 bp	<b>515 bp</b>	*06:02:07, 06:03:01:01-06:03:18, 06:03:20-06:03:44, 06:08:01-06:08:03, 06:11:02-06:12, 06:14:01-06:14:03, 06:21, 06:26N, 06:28, 06:31, 06:40-06:41:01:03, 06:44, 06:59, 06:61, 06:63-06:65, 06:67, 06:87, 06:90-06:92:02, 06:110, 06:128, 06:133-06:134, 06:141, 06:143-06:145, 06:148, 06:154, 06:165, 06:170, 06:184-06:185, 06:187, 06:190:01-06:191, 06:195-06:196, 06:199, 06:203, 06:206:01-06:206:02, 06:210, 06:218, 06:221-06:223, 06:230, 06:234, 06:238, 06:244, 06:248, 06:250, 06:253, 06:259, 06:269, 06:272, 06:275, 06:278-06:279, 06:316, 06:319, 06:327-06:329, 06:331, 06:334, 06:336, 06:345N-06:346, 06:350, 06:352, 06:360, 06:362, 06:365, 06:367, 06:371, 06:373, 06:378, 06:385, 06:391-06:394N, 06:396, 06:399-06:400, 06:403, 06:410, 06:423N
<b>32</b>	210 bp	<b>515 bp</b>	*06:04:01:01-06:04:21, 06:07:01-06:07:02, 06:17, 06:21, 06:25, 06:34, 06:36, 06:38-06:39, 06:52, 06:58, 06:69:01-06:69:02, 06:85-06:86, 06:89, 06:92:02-06:93, 06:135, 06:149, 06:155, 06:158N, 06:160, 06:164, 06:172, 06:180, 06:193N, 06:202, 06:204, 06:217, 06:231, 06:252N, 06:254, 06:261, 06:265-06:267, 06:280, 06:283, 06:288, 06:291-06:292, 06:301, 06:303N, 06:313, 06:318, 06:320, 06:332, 06:343, 06:349, 06:351, 06:361, 06:369, 06:375, 06:381, 06:385, 06:387, 06:407, 06:414N
<b>33<sup>4,7</sup></b>	110 bp 170 bp	430 bp	*03:133, 03:199-03:200, 03:462 *06:04:01:01-06:05:02, 06:06 <sup>w</sup> , 06:07:01-06:07:02, 06:09:01:01-06:09:03, 06:09:05-06:09:12, 06:18:01-06:18:02, 06:22:02, 06:25, 06:27:01-06:27:02, 06:32:01-06:32:02, 06:34, 06:36, 06:38-06:39, 06:52, 06:58, 06:66, 06:69:01, 06:85-06:86, 06:88:01:01-06:89, 06:93-06:94, 06:118:01-06:118:02, 06:118:04, 06:121, 06:129, 06:135, 06:142, 06:155, 06:158N, 06:160, 06:164, 06:168, 06:171-06:172, 06:180, 06:186, 06:189, 06:193N, 06:202, 06:204, 06:207, 06:217, 06:241, 06:252N, 06:254, 06:261, 06:265-06:267, 06:280-06:283, 06:287-06:288, 06:291-06:292, 06:299, 06:303N, 06:313, 06:318, 06:320, 06:339, 06:343, 06:348-06:349, 06:351, 06:353, 06:358, 06:361, 06:368-06:369, 06:375, 06:381, 06:387, 06:398, 06:407, 06:414N, 06:420
<b>34<sup>4</sup></b>	95 bp 120 bp	430 bp	*05:07 *03:259, 05:25, 05:75, 06:04:01:01-06:05:01, 06:06, 06:08:01-06:09:12, 06:12-06:13:03, 06:17-06:18:02, 06:21-06:22:03, 06:27:01-06:27:02, 06:34, 06:36, 06:38-06:39, 06:42, 06:52, 06:58, 06:69:01-06:69:02, 06:85-06:86, 06:88:01:01-06:89, 06:93, 06:119, 06:121, 06:129, 06:135, 06:142, 06:149, 06:155, 06:158N, 06:160, 06:164, 06:171, 06:180, 06:186, 06:189, 06:193N, 06:202, 06:204, 06:206:01-06:207, 06:217, 06:231, 06:241, 06:252N, 06:254, 06:261, 06:265-06:267, 06:280-06:283, 06:287-06:288, 06:291-06:292, 06:299, 06:301, 06:313, 06:318-06:319, 06:339, 06:343, 06:348-06:349, 06:351, 06:353, 06:358, 06:361, 06:368-06:369, 06:375, 06:381, 06:387, 06:398, 06:407, 06:414N, 06:417, 06:420
	180 bp		*05:112



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35 <sup>4,6,7</sup>	85 bp 155 bp 215 bp 255 bp	515 bp	*05:103, 05:231 *03:27, 03:48, 03:87, 06:35, 06:53:01-06:53:02, 06:145, 06:208 *05:101, 05:145, 06:151, 06:212, 06:260 *03:31, 05:73, 05:80, 05:98, 05:116, 06:05:01, 06:05:02-06:06 <sup>?</sup> , 06:20, 06:31, 06:45, 06:156
36 <sup>4,7</sup>	95 bp 155 bp 180 bp 210 bp	430 bp	*03:90N *06:164 *03:68 *06:05:01, 06:05:02 <sup>?</sup> -06:06 <sup>?</sup> , 06:09:01:01-06:09:12, 06:12, 06:15:01-06:15:02, 06:22:01-06:22:03, 06:42, 06:46, 06:66, 06:88:01:01-06:88:01:02, 06:94, 06:118:01-06:119, 06:121, 06:142, 06:189, 06:207, 06:212 <sup>w</sup> , 06:275, 06:281-06:282, 06:287, 06:299, 06:339, 06:348, 06:353, 06:358, 06:386, 06:420
37 <sup>5</sup>	130 bp 165 bp 185 bp	430 bp	*02:152, 05:63 *05:39 *05:21, 06:06, 06:149, 06:276
38 <sup>4,6</sup>	100 bp  130 bp  185 bp 235 bp	430 bp	*04:28, 05:38, 05:62, 05:79, 05:119-05:121, 05:156, 06:14:01-06:14:03, 06:69:01-06:69:02, 06:156, 06:162, 06:168, 06:194, 06:206:01-06:206:02, 06:244, 06:269, 06:278, 06:368 *05:04, 05:08, 05:18:01-05:18:02, 05:26, 05:52, 05:77, 05:132Q, 05:146, 05:262, 06:221, 06:254 <sup>w</sup> , 06:273 *04:33, 05:79, 06:10, 06:130, 06:188, 06:214 *04:33
39 <sup>4,7</sup>	115 bp 140 bp 180 bp	430 bp	*03:88, 05:111 *03:24, 03:79, 03:165, 03:447, 04:81 *03:29-03:30, 03:52, 03:72, 03:100, 03:132, 03:179, 03:191, 03:215, 03:270, 03:474, 04:09, 04:13, 04:63, 04:75, 05:62, 05:120, 06:13:01-06:13:03, 06:16, 06:22:01-06:22:03, 06:29, 06:55, 06:69:01-06:69:02, 06:96:01-06:96:02, 06:119, 06:139, 06:202, 06:206:01-06:206:02, 06:209, 06:247, 06:322:01-06:322:03, 06:337, 06:368, 06:389, 06:417
40 <sup>4,7</sup>	110 bp 150 bp	430 bp	*03:245, 05:45, 05:201, 06:40 *02:64, 02:79, 02:108, 02:144, 03:21-03:22:02, 03:96, 03:251, 03:452, 04:23, 05:35, 05:103 <sup>w</sup> , 05:182, 05:226, 05:231 <sup>w</sup> , 05:259, 06:04:01:01 <sup>w</sup> -06:04:15 <sup>w</sup> , 06:04:17 <sup>w</sup> -06:05:02 <sup>w</sup> , 06:06 <sup>?</sup> , 06:07:01 <sup>w</sup> -06:07:02 <sup>w</sup> , 06:08:02 <sup>?</sup> -06:08:03 <sup>?</sup> , 06:09:01:01 <sup>w</sup> -06:09:12 <sup>w</sup> , 06:11:02 <sup>?</sup> -06:11:03 <sup>?</sup> , 06:12 <sup>w</sup> , 06:13:02 <sup>?</sup> -06:13:03 <sup>?</sup> , 06:15:01 <sup>?</sup> , 06:17 <sup>?</sup> -06:18:01 <sup>?</sup> , 06:18:02 <sup>w</sup> , 06:19:01 <sup>?</sup> , 06:21 <sup>w</sup> , 06:22:01 <sup>?</sup> -06:25 <sup>?</sup> , 06:27:01 <sup>?</sup> -06:27:02 <sup>?</sup> , 06:29 <sup>?</sup> -06:32:02 <sup>?</sup> , 06:34 <sup>w</sup> , 06:35 <sup>?</sup> , 06:36 <sup>w</sup> , 06:38 <sup>w</sup> , 06:40 <sup>?</sup> , 06:41:01:01 <sup>w</sup> -06:42 <sup>w</sup> , 06:45 <sup>?</sup> , 06:50 <sup>?</sup> , 06:51:02 <sup>?</sup> , 06:52 <sup>w</sup> , 06:53:01 <sup>?</sup> -06:54N <sup>?</sup> , 06:56 <sup>?</sup> -06:57:01 <sup>?</sup> , 06:58 <sup>w</sup> , 06:59 <sup>?</sup> -06:61 <sup>?</sup> , 06:63 <sup>?</sup> -06:67 <sup>?</sup> , 06:69:01 <sup>?</sup> -06:74 <sup>?</sup> , 06:76 <sup>?</sup> , 06:79:02 <sup>?</sup> -06:83 <sup>?</sup> , 06:84:01:01 <sup>w</sup> -06:84:01:02 <sup>w</sup> , 06:85 <sup>?</sup> , 06:89 <sup>?</sup> , 06:91 <sup>?</sup> , 06:93 <sup>?</sup> -06:97 <sup>?</sup> , 06:118:01 <sup>w</sup> , 06:118:02 <sup>?</sup> -06:121 <sup>?</sup> , 06:123 <sup>?</sup> -06:124 <sup>?</sup> , 06:126 <sup>?</sup> , 06:128 <sup>?</sup> , 06:129 <sup>w</sup> , 06:131 <sup>?</sup> -06:141 <sup>?</sup> , 06:142 <sup>w</sup> , 06:143 <sup>?</sup> -06:147 <sup>?</sup> , 06:149 <sup>?</sup> -06:153:01 <sup>?</sup> , 06:154 <sup>?</sup> -06:163 <sup>?</sup> , 06:164 <sup>w</sup> , 06:165 <sup>?</sup> -06:170 <sup>?</sup> , 06:171 <sup>w</sup> , 06:172 <sup>?</sup> -06:184 <sup>?</sup> , 06:186 <sup>w</sup> , 06:189 <sup>w</sup> , 06:190:01 <sup>?</sup> -06:199 <sup>?</sup> , 06:201 <sup>?</sup> -06:204 <sup>?</sup> , 06:206:01 <sup>?</sup> , 06:206:02 <sup>w</sup> , 06:207 <sup>?</sup> -06:208 <sup>?</sup> , 06:210 <sup>?</sup> -06:215 <sup>?</sup> , 06:217 <sup>w</sup> , 06:229 <sup>?</sup> -06:236 <sup>?</sup> , 06:238 <sup>?</sup> , 06:241 <sup>?</sup> , 06:243, 06:244 <sup>?</sup> , 06:246 <sup>?</sup> -06:247 <sup>?</sup> , 06:249 <sup>?</sup> , 06:252N <sup>?</sup> , 06:254 <sup>w</sup> , 06:255, 06:260 <sup>?</sup> , 06:261 <sup>w</sup> , 06:263 <sup>?</sup> , 06:265 <sup>w</sup> -06:267 <sup>w</sup> , 06:268 <sup>?</sup> , 06:275 <sup>w</sup> , 06:277 <sup>?</sup> , 06:280 <sup>w</sup> -06:283 <sup>w</sup> , 06:287 <sup>w</sup> -06:288 <sup>w</sup> , 06:291 <sup>w</sup> -06:292 <sup>w</sup> , 06:299 <sup>w</sup> , 06:301 <sup>w</sup> , 06:303N <sup>w</sup> , 06:313 <sup>w</sup> , 06:318 <sup>w</sup> -06:319 <sup>w</sup> , 06:320 <sup>?</sup> , 06:325 <sup>w</sup> , 06:332 <sup>w</sup> , 06:339 <sup>w</sup> , 06:343 <sup>w</sup> , 06:348 <sup>w</sup> -06:349 <sup>w</sup> , 06:351 <sup>w</sup> , 06:353 <sup>w</sup> , 06:358 <sup>w</sup> , 06:361 <sup>w</sup> , 06:368 <sup>?</sup> , 06:369 <sup>w</sup> , 06:371 <sup>?</sup>



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	205 bp		06:374 <sup>?</sup> , 06:375 <sup>w</sup> , 06:378 <sup>?</sup> -06:379N <sup>?</sup> , 06:381 <sup>w</sup> , 06:385 <sup>w</sup> -06:386 <sup>w</sup> , 06:389 <sup>?</sup> , 06:393 <sup>?</sup> , 06:398 <sup>w</sup> , 06:407 <sup>w</sup> , 06:414N <sup>w</sup> , 06:420 <sup>w</sup> -06:421 <sup>w</sup> , 06:423N <sup>?</sup> *02:96N, 05:41N, 05:90N, 05:133
<b>41<sup>6</sup></b>	155 bp 190 bp 230 bp 265 bp 300 bp	430 bp	*03:213N *03:45:01, 03:228, 03:420, 05:27, 06:17, 06:24, 06:30, 06:38, 06:42 *02:47, 03:212 *06:127 *06:52
<b>42<sup>4,6,7</sup></b>	105 bp 135 bp  160 bp 190 bp 230 bp	<b>515 bp</b>	*03:41, 03:224, 04:06, 04:12, 04:16 *03:25:01-03:25:02, 03:66N, 03:234, 03:239, 04:03:01-04:03:03, 06:10, 06:25, 06:130, 06:193N *03:213N, 04:18 *02:08, 03:06, 03:25:01, 03:230, 04:03:01-04:03:03, 05:79 *04:18
<b>43<sup>4,6,7</sup></b>	85 bp 110 bp 155 bp 185 bp 215 bp 240 bp 270 bp	<b>515 bp</b>	*03:59, 06:37, 06:374 *06:37, 06:374 *02:05, 03:204, 06:100 *06:26N, 06:100 *06:26N *03:71, 06:33, 06:143, 06:351 *06:33, 06:143
<b>44<sup>4</sup></b>	120 bp 165 bp	430 bp	*03:42, 03:89, 03:164, 04:44 *03:94, 03:191, 04:02:07, 04:09, 05:62, 06:02:01:01-06:02:04, 06:02:06-06:02:58, 06:10, 06:13:01-06:16, 06:20, 06:22:01-06:24, 06:29, 06:33, 06:37, 06:46-06:51:02, 06:68-06:84:01:02, 06:96:01- 06:97, 06:106-06:107, 06:109, 06:111-06:117, 06:119, 06:122, 06:124- 06:127, 06:130, 06:136-06:138, 06:146:01-06:147, 06:150-06:151, 06:156, 06:159, 06:161-06:162, 06:166, 06:173-06:175, 06:178- 06:179N, 06:182-06:183, 06:188, 06:192, 06:198, 06:200-06:201, 06:206:01-06:206:02, 06:208, 06:211, 06:213, 06:215-06:216N, 06:219, 06:224-06:228, 06:232, 06:235-06:237, 06:240, 06:242, 06:249, 06:255-06:256, 06:262, 06:264, 06:270:02-06:271, 06:273, 06:284, 06:286, 06:289-06:290, 06:293-06:298, 06:300, 06:304N, 06:306N, 06:308N, 06:311, 06:314-06:315, 06:317N, 06:324, 06:326, 06:333, 06:335, 06:338, 06:341N, 06:344, 06:347, 06:355-06:357, 06:363-06:364, 06:366, 06:368, 06:370, 06:374, 06:376, 06:379N- 06:380, 06:383N-06:384, 06:386, 06:388-06:390, 06:395, 06:397N, 06:401-06:402, 06:404-06:406, 06:408-06:409, 06:411-06:413, 06:416Q-06:417, 06:422N
<b>45</b>	130 bp  155 bp 225 bp 260 bp	<b>515 bp</b>	*06:07:01-06:07:02, 06:15:01-06:15:02, 06:36, 06:46, 06:66, 06:92:02, 06:118:01-06:118:04, 06:172, 06:216N, 06:224, 06:275, 06:385- 06:386 *06:164 *06:212 *06:85



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Lot No.	Allele	Product	Allele	Product	Product Insert
46	160 bp	515 bp			*06:03:01:01-06:03:14, 06:03:16-06:03:18, 06:03:20-06:03:44, 06:08:01-06:08:03, 06:14:01-06:14:03, 06:21, 06:28, 06:31, 06:40-06:41:01:03, 06:44, 06:59, 06:61, 06:63-06:65, 06:67, 06:87, 06:90-06:92:02, 06:110, 06:128, 06:133-06:134, 06:141, 06:143-06:145, 06:148, 06:154, 06:170, 06:184-06:185, 06:187, 06:190:01-06:191, 06:195-06:196, 06:199, 06:203, 06:206:01-06:206:02, 06:210, 06:218, 06:221-06:223, 06:230, 06:234, 06:238, 06:244, 06:248, 06:250, 06:253, 06:259, 06:269, 06:272, 06:278-06:279, 06:316, 06:327-06:329, 06:331, 06:334, 06:336, 06:345N-06:346, 06:350, 06:352, 06:360, 06:362, 06:365, 06:367, 06:371, 06:373, 06:378, 06:385, 06:391-06:394N, 06:396, 06:399-06:400, 06:403, 06:410, 06:423N
	210 bp				*06:03:01:01-06:03:10, 06:03:12-06:03:44, 06:08:01-06:08:03, 06:14:01-06:14:03, 06:27:01-06:28, 06:30-06:32:02, 06:40-06:41:01:03, 06:44, 06:59-06:65, 06:67, 06:87, 06:90-06:91, 06:110, 06:128, 06:133-06:134, 06:141, 06:143-06:145, 06:148, 06:154, 06:168, 06:170, 06:184-06:185, 06:187, 06:190:01-06:191, 06:195-06:196, 06:206:01-06:206:02, 06:210, 06:218, 06:221-06:223, 06:230, 06:234, 06:238, 06:244, 06:248, 06:250, 06:253, 06:259, 06:269, 06:272, 06:276, 06:278-06:279, 06:316, 06:327-06:329, 06:331, 06:334, 06:336, 06:345N-06:346, 06:350, 06:352, 06:360, 06:362, 06:365, 06:367-06:368, 06:371, 06:373, 06:378, 06:391-06:394N, 06:396, 06:399-06:400, 06:403, 06:410, 06:423N
47 <sup>4,5</sup>	110 bp	430 bp			*03:42
	155 bp				*03:30, 03:72, 03:84N, 03:98, 03:100, 03:132, 03:215, 04:01:01:01-04:02:01:01, 04:02:01:04-04:03:03, 04:06-04:10, 04:12-04:14, 04:16-04:36N, 04:38-04:72, 04:74-04:90, 05:38, 05:119, 06:02:05, 06:02:16, 06:13:02, 06:14:03, 06:19:01-06:19:02, 06:22:01-06:22:02, 06:69:01-06:69:02, 06:95, 06:119, 06:123 <sup>w</sup> , 06:139, 06:152, 06:206:02, 06:322:01-06:322:03, 06:337, 06:368
48	170 bp	430 bp			*03:32, 03:43, 04:07
	225 bp				*03:85
49 <sup>4,6</sup>	105 bp	430 bp			*03:33, 03:328, 04:56, 05:32, 05:42, 05:45, 05:201, 05:281, 06:228
	140 bp				*02:169, 03:319, 03:347, 04:70, 05:14, 05:84, 05:87Q, 05:132Q, 05:211, 06:103, 06:284, 06:350
	165 bp				*02:33, 02:41, 03:35, 03:315, 03:322
	240 bp				*03:246, 06:310
50 <sup>4</sup>	130 bp	430 bp			*03:130, 03:271, 03:282N
	155 bp				*03:80, 03:139, 03:257
	190 bp				*03:37, 03:162, 03:183, 03:223, 03:233, 03:252, 03:351
	210 bp				*03:38:01-03:38:02, 03:46, 03:201, 03:277
	240 bp				*02:14:01:01-02:14:02, 03:34, 03:143, 04:67
51 <sup>4,7</sup>	125 bp	515 bp			*03:36, 03:39, 03:53, 03:62, 03:149
	160 bp				*02:10, 02:81, 03:49:01:01-03:49:01:02, 03:286, 03:402, 03:471, 05:152, 06:359, 06:381, 06:396
	185 bp				*03:51, 03:287
	245 bp				*03:447
	270 bp				*02:09, 03:330
52 <sup>4</sup>	95 bp	430 bp			*03:06 <sup>?</sup> -03:07 <sup>?</sup> , 03:14:01 <sup>?</sup> -03:15 <sup>?</sup> , 03:17:01 <sup>?</sup> -03:18 <sup>?</sup> , 03:19:01:01-03:19:05, 03:20 <sup>?</sup> , 03:23:01 <sup>?</sup> , 03:23:03 <sup>?</sup> , 03:25:02 <sup>?</sup> -03:26 <sup>?</sup> , 03:48 <sup>?</sup> , 03:52 <sup>?</sup> -03:54 <sup>?</sup> , 03:56 <sup>?</sup> -03:67 <sup>?</sup> , 03:69 <sup>?</sup> -03:70 <sup>?</sup> , 03:71, 03:74 <sup>?</sup> -03:78 <sup>?</sup> , 03:81 <sup>?</sup> -03:82 <sup>?</sup> , 03:101 <sup>?</sup> -03:104 <sup>?</sup> , 03:106 <sup>?</sup> -03:112 <sup>?</sup> , 03:118N <sup>?</sup> ,





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53	220 bp 130 bp	430 bp	*03:162, 03:183, 03:223, 03:233, 03:351, 06:153:01-06:153:02, 06:247, 06:340 *02:51 *02:07:02, 05:09, 05:29-05:30, 06:252N
54 <sup>4</sup>	160 bp 195 bp 110 bp 150 bp	430 bp	*05:17, 05:23, 05:242 *02:106, 03:115, 03:368, 04:43, 05:246, 05:287, 06:109-06:110, 06:269 *02:99, 03:249, 03:309, 03:312, 05:10, 05:12, 05:47, 05:71, 05:159, 06:105, 06:185, 06:225, 06:407 *04:36N
55 <sup>4,5</sup>	245 bp 115 bp	430 bp	*06:04:01:01-06:05:02, 06:06 <sup>2</sup> , 06:07:01-06:07:02, 06:08:02 <sup>2</sup> -06:08:03 <sup>2</sup> , 06:09:01:01-06:09:02, 06:09:03 <sup>2</sup> , 06:09:04, 06:09:05 <sup>2</sup> -06:09:06 <sup>2</sup> , 06:09:07-06:09:12, 06:11:02 <sup>2</sup> -06:11:03 <sup>2</sup> , 06:12, 06:13:02 <sup>2</sup> -06:13:03 <sup>2</sup> , 06:14:03 <sup>2</sup> -06:15:01 <sup>2</sup> , 06:17 <sup>2</sup> -06:18:01 <sup>2</sup> , 06:18:02, 06:19:01 <sup>2</sup> , 06:21, 06:22:01 <sup>2</sup> -06:25 <sup>2</sup> , 06:27:01 <sup>2</sup> -06:27:02 <sup>2</sup> , 06:29 <sup>2</sup> -06:32:02 <sup>2</sup> , 06:34, 06:35 <sup>2</sup> , 06:36, 06:38, 06:40 <sup>2</sup> , 06:41:01:01-06:42, 06:45 <sup>2</sup> , 06:50 <sup>2</sup> , 06:51:02 <sup>2</sup> , 06:52, 06:53:01 <sup>2</sup> -06:54N <sup>2</sup> , 06:56 <sup>2</sup> -06:57:01 <sup>2</sup> , 06:58, 06:59 <sup>2</sup> -06:61 <sup>2</sup> , 06:63 <sup>2</sup> -06:67 <sup>2</sup> , 06:69:01 <sup>2</sup> -06:74 <sup>2</sup> , 06:76 <sup>2</sup> , 06:79:02 <sup>2</sup> -06:83 <sup>2</sup> , 06:84:01:01-06:84:01:02, 06:85 <sup>2</sup> , 06:86, 06:89 <sup>2</sup> , 06:91 <sup>2</sup> , 06:93 <sup>2</sup> -06:97 <sup>2</sup> , 06:118:01, 06:118:02 <sup>2</sup> -06:121 <sup>2</sup> , 06:123 <sup>2</sup> -06:124 <sup>2</sup> , 06:126 <sup>2</sup> , 06:128 <sup>2</sup> , 06:129, 06:131 <sup>2</sup> -06:141 <sup>2</sup> , 06:142, 06:143 <sup>2</sup> -06:147 <sup>2</sup> , 06:149 <sup>2</sup> -06:153:01 <sup>2</sup> , 06:154 <sup>2</sup> -06:163 <sup>2</sup> , 06:164, 06:165 <sup>2</sup> -06:170 <sup>2</sup> , 06:171, 06:172 <sup>2</sup> -06:184 <sup>2</sup> , 06:186, 06:189, 06:190:01 <sup>2</sup> -06:199 <sup>2</sup> , 06:201 <sup>2</sup> -06:204 <sup>2</sup> , 06:206:01 <sup>2</sup> , 06:206:02, 06:207 <sup>2</sup> -06:208 <sup>2</sup> , 06:210 <sup>2</sup> -06:215 <sup>2</sup> , 06:217, 06:229 <sup>2</sup> -06:236 <sup>2</sup> , 06:238 <sup>2</sup> , 06:241 <sup>2</sup> , 06:244 <sup>2</sup> , 06:246 <sup>2</sup> -06:247 <sup>2</sup> , 06:249 <sup>2</sup> , 06:252N <sup>2</sup> , 06:254, 06:260 <sup>2</sup> , 06:261, 06:263 <sup>2</sup> , 06:265-06:267, 06:268 <sup>2</sup> , 06:275, 06:277 <sup>2</sup> , 06:280-06:283, 06:287-06:288, 06:291-06:292, 06:299, 06:301, 06:303N, 06:313, 06:318-06:319, 06:320 <sup>2</sup> , 06:325, 06:332, 06:339, 06:343, 06:348-06:349, 06:351, 06:353, 06:358, 06:361, 06:368 <sup>2</sup> , 06:369, 06:371 <sup>2</sup> , 06:374 <sup>2</sup> , 06:375, 06:378 <sup>2</sup> -06:379N <sup>2</sup> , 06:381, 06:385-06:387, 06:389 <sup>2</sup> , 06:393 <sup>2</sup> , 06:398, 06:407, 06:414N, 06:420, 06:423N <sup>2</sup>
56 <sup>4</sup>	100 bp 140 bp 185 bp 220 bp 265 bp	430 bp	*06:44, 06:47 *03:177, 06:224 *03:114, 03:197Q *06:43 *03:83
57 <sup>5</sup>	150 bp 185 bp	430 bp	*02:54 *02:07:01, 03:01:01:01-03:01:01:12, 03:01:01:14-03:01:35, 03:01:37-03:01:54, 03:04:01:01-03:04:04, 03:06 <sup>2</sup> -03:07 <sup>2</sup> , 03:09-03:10:03, 03:12-03:13, 03:14:01 <sup>2</sup> -03:15 <sup>2</sup> , 03:16, 03:17:01 <sup>2</sup> -03:18 <sup>2</sup> , 03:20 <sup>2</sup> , 03:21-03:22:02, 03:23:01 <sup>2</sup> , 03:23:03 <sup>2</sup> , 03:24, 03:25:02 <sup>2</sup> -03:26 <sup>2</sup> , 03:27-03:29,



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<b>58</b>	145 bp 180 bp  215 bp 250 bp	430 bp	*03:119, 03:228, 06:17, 06:24, 06:30, 06:42 *03:56, 05:05:01-05:05:02, 05:11:01-05:11:02, 05:28, 05:66:01-05:66:02, 05:240, 06:06 <sup>?</sup> , 06:129, 06:146:01, 06:241 *03:119, 03:228, 05:30, 06:17, 06:24, 06:30, 06:42 *03:56, 05:03:02, 05:20:02, 05:51-05:52, 05:119, 05:125, 06:06 <sup>?</sup> , 06:129, 06:146:01, 06:241
<b>59<sup>4,5</sup></b>	100 bp 190 bp 220 bp	430 bp	*03:44, 05:13, 05:117, 05:169 *03:114, 06:54N *05:24, 05:101, 05:145
<b>60<sup>4</sup></b>	110 bp 150 bp 180 bp	430 bp	*05:88 *05:40, 05:69, 05:153 *05:15, 05:33, 05:49
<b>61<sup>4,7</sup></b>	110 bp 150 bp 215 bp	430 bp	*05:88 *05:40, 05:69, 05:153 *05:16, 05:34, 05:44, 05:73, 05:98, 05:116, 05:128N, 05:130, 06:156, 06:162, 06:169
<b>62<sup>4,5</sup></b>	90 bp 140 bp 165 bp 225 bp	430 bp	*03:205, 03:214, 05:110N *03:75, 06:97, 06:158N *05:62, 06:02:19, 06:13:03, 06:79:02, 06:95 *03:30, 03:72, 03:100, 03:215, 06:15:01-06:15:02, 06:22:01-06:22:03, 06:37, 06:48:01-06:48:02, 06:51:01-06:51:02, 06:69:01-06:69:02, 06:139, 06:368, 06:417
<b>63<sup>4</sup></b>	95 bp 180 bp 220 bp	430 bp	*03:240 *06:50 *03:86
<b>64<sup>4,6,7</sup></b>	100 bp 160 bp 230 bp	430 bp	*02:16, 02:21 *02:51, 03:276N, 03:395, 04:17 *02:20N
<b>65<sup>4</sup></b>	115 bp 220 bp	430 bp	*02:21, 02:32, 05:36, 06:326 *02:46



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<b>66<sup>4</sup></b>	110 bp 125 bp  165 bp 205 bp 255 bp	<b>515 bp</b>	*03:116, 03:432, 05:57 *02:17-02:18N, 03:317:01-03:317:02, 05:31, 05:46, 05:108, 06:111, 06:265 *02:19 *02:96N, 05:41N, 05:90N, 05:133 *02:126, 03:243
<b>67<sup>4</sup></b>	100 bp 155 bp	430 bp	*02:15, 02:27, 02:58N *02:26, 02:30
<b>68<sup>4</sup></b>	100 bp 175 bp	430 bp	*02:23-02:24, 02:27 *02:28
<b>69<sup>4</sup></b>	105 bp 140 bp 185 bp	430 bp	*02:24, 02:31, 02:58N *03:225 *02:29
<b>70<sup>4</sup></b>	75 bp	430 bp	*03:61, 03:221, 03:408, 06:209
<b>71<sup>4,6</sup></b>	50 bp 135 bp 160 bp 235 bp	<b>515 bp</b>	*03:188 *03:63, 03:76, 03:139, 03:168, 03:211 *03:118N, 03:237N, 06:144N *03:146, 03:207, 06:195
<b>72<sup>5</sup></b>	145 bp 180 bp 210 bp 270 bp	430 bp	*03:64, 05:37, 05:104, 06:218, 06:250 *02:50, 03:77, 03:118N, 03:237N *03:99Q, 03:201, 03:269N *03:150
<b>73<sup>4</sup></b>	90 bp 125 bp 160 bp 200 bp 225 bp 270 bp	430 bp	*02:53Q, 03:65 *03:23:01-03:23:02, 03:217, 03:355, 04:10 *03:211 *03:269N *02:116, 03:78, 03:81, 03:159 *03:150
<b>74<sup>4</sup></b>	115 bp 140 bp 185 bp	430 bp	*05:19, 05:22 *04:25N, 05:97, 05:143 *05:71
<b>75<sup>4,7</sup></b>	115 bp 155 bp 175 bp 205 bp	430 bp	*05:75 *03:102, 05:20:01 *03:197Q, 05:122, 06:06?, 06:55, 06:58, 06:202, 06:247 *03:194, 06:122, 06:148, 06:161, 06:278, 06:302, 06:412
<b>76</b>	150 bp	430 bp	*03:01:38, 03:04:02, 03:10:01, 03:12, 03:14:02, 03:70, 03:179, 03:195, 03:474, 06:01:01-06:01:06, 06:01:08-06:01:32, 06:43, 06:53:01-06:57:02, 06:98-06:105, 06:108, 06:120, 06:132, 06:140, 06:153:01-06:153:02, 06:157, 06:167-06:168, 06:177, 06:181, 06:194, 06:205, 06:209, 06:214, 06:229, 06:239, 06:243, 06:245-06:247, 06:251, 06:257-06:258, 06:260, 06:263, 06:268, 06:274, 06:277, 06:285, 06:302, 06:305, 06:307, 06:309-06:310, 06:312, 06:321, 06:323, 06:330N, 06:342, 06:359, 06:377, 06:382, 06:415, 06:418-06:419, 06:421 *06:54N
<b>77<sup>4</sup></b>	185 bp 95 bp 120 bp 190 bp	430 bp	*06:155 *06:190:01-06:190:02 *06:60-06:61
<b>78<sup>4</sup></b>	95 bp 130 bp 170 bp	430 bp	*03:217, 03:275, 06:64 *03:232, 03:283, 06:94, 06:170, 06:190:01-06:190:02 *06:62



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<b>79<sup>4,7</sup></b>	90 bp 125 bp 200 bp	430 bp	*06:65 *06:93 *06:116, 06:187
<b>80<sup>4,7</sup></b>	105 bp 175 bp 290 bp	430 bp	*06:70 *06:76, 06:163 *06:02:04, 06:72
<b>81<sup>4,5</sup></b>	120 bp 170 bp	430 bp	*03:95N, 03:210 *03:30, 03:72, 03:100, 03:132, 03:158, 03:170, 03:215, 04:09, 04:63, 04:75, 06:29, 06:71, 06:96:01-06:96:02, 06:139, 06:163, 06:322:01- 06:322:03, 06:337
<b>82</b>	170 bp 230 bp 280 bp	430 bp	*06:77N *03:132, 06:107 *06:73
<b>83<sup>4</sup></b>	115 bp 165 bp 235 bp 260 bp 290 bp	430 bp	*04:46N, 05:185N *06:78 *06:107 *06:74 *06:02:04, 06:72
<b>84<sup>4</sup></b>	115 bp 195 bp	430 bp	*06:80, 06:217 *06:75N, 06:106
<b>85</b>	135 bp 180 bp 215 bp 265 bp	430 bp	*06:184 *06:67, 06:174, 06:191 *06:68, 06:112N *06:127
<b>86<sup>4</sup></b>	95 bp 130 bp  180 bp 220 bp	430 bp	*06:59, 06:90, 06:150, 06:191 *06:99:01-06:99:03, 06:112N, 06:210, 06:233, 06:244, 06:252N, 06:269-06:270:01, 06:278 *06:90, 06:191 *06:112N, 06:233, 06:244, 06:269-06:270:01, 06:278, 06:302
<b>87<sup>4</sup></b>	105 bp  140 bp	430 bp	*03:08, 03:137, 03:194, 06:29, 06:59, 06:63, 06:87, 06:91, 06:96:01- 06:96:02, 06:150, 06:322:01-06:322:03, 06:337 *06:179N, 06:184
<b>88<sup>4</sup></b>	110 bp 215 bp	430 bp	*06:125 *06:57:01, 06:81
<b>89<sup>4</sup></b>	110 bp 150 bp 185 bp 260 bp	430 bp	*06:125 *06:101 *06:144N *06:83
<b>90<sup>4</sup></b>	105 bp 130 bp 175 bp 240 bp	430 bp	*04:41N *06:102N *03:247, 03:285 *03:97, 03:117, 03:329, 03:349, 03:381, 06:86, 06:104, 06:117, 06:343, 06:366
<b>91<sup>4</sup></b>	70 bp  100 bp 185 bp	430 bp	*03:03:28, 03:10:02:01-03:10:03, 03:38:02, 03:183, 04:02:07 <sup>w</sup> , 05:03:14, 05:03:20, 05:43:01, 05:131, 05:276, 06:01:12, 06:02:43, 06:03:33, 06:51:01, 06:66, 06:96:01, 06:99:01, 06:118:04, 06:172, 06:322:01 *06:01:12, 06:51:01-06:51:02, 06:99:01, 06:142 *03:158
<b>92<sup>4</sup></b>	105 bp 120 bp	430 bp	*02:22 *02:32



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	155 bp		*02:19, 02:54
	190 bp		*02:78
	230 bp		*02:12
<b>93<sup>4</sup></b>	95 bp	430 bp	*03:91Q
	170 bp		*02:13, 02:41, 03:322
	225 bp		*03:85
<b>94<sup>7</sup></b>	170 bp	430 bp	*02:01:34, 02:57, 02:77, 02:141, 02:180 <sup>w</sup> , 03:02:01:01-03:03:14, 03:03:16-03:03:28, 03:05:01-03:08, 03:11, 03:15, 03:17:01-03:18, 03:20, 03:26, 03:30 <sup>w</sup> , 03:31-03:34, 03:37-03:41, 03:43, 03:45:01-03:45:02, 03:61-03:69, 03:72 <sup>w</sup> , 03:79, 03:81, 03:85-03:91Q, 03:95N-03:99Q, 03:100 <sup>w</sup> , 03:104-03:107, 03:110-03:113, 03:117, 03:123-03:126, 03:132 <sup>w</sup> , 03:136-03:138, 03:141, 03:145, 03:149, 03:153, 03:155-03:156, 03:161, 03:168, 03:172 <sup>w</sup> , 03:174-03:178, 03:180-03:181, 03:184-03:185, 03:189-03:190, 03:199-03:200, 03:203-03:205, 03:209-03:213N, 03:215 <sup>w</sup> , 03:220-03:230, 03:233, 03:237N-03:238, 03:240, 03:244-03:245, 03:247-03:251, 03:258, 03:262-03:263:01:02, 03:265, 03:269N, 03:272-03:274, 03:277-03:280, 03:282N-03:283, 03:287, 03:289, 03:295-03:296, 03:298-03:301, 03:304, 03:308, 03:310N, 03:313, 03:315-03:316, 03:319-03:324, 03:333, 03:336-03:337, 03:339N, 03:343-03:346, 03:348-03:349, 03:351-03:352, 03:356N-03:357N, 03:359, 03:362-03:365, 03:367-03:369, 03:371, 03:374-03:375N, 03:379, 03:382-03:384, 03:386, 03:388, 03:392-03:393, 03:395, 03:397-03:398, 03:402-03:403N, 03:405-03:406, 03:409-03:416, 03:422N, 03:429, 03:433, 03:437, 03:440N-03:442, 03:444-03:447, 03:452-03:453, 03:456-03:457, 03:459, 03:461-03:464, 03:466, 03:471, 03:477-03:478, 04:09 <sup>w</sup> , 04:63 <sup>w</sup> , 04:75 <sup>w</sup> , 05:131, 05:276, 06:29 <sup>w</sup> , 06:63, 06:66, 06:87, 06:96:01 <sup>w</sup> -06:96:02 <sup>w</sup> , 06:139 <sup>w</sup> , 06:172, 06:320, 06:322:01 <sup>w</sup> -06:322:03 <sup>w</sup> , 06:337 <sup>w</sup>
<b>95<sup>4</sup></b>	95 bp	430 bp	*03:105-03:106, 03:109, 03:120
	120 bp		*05:04, 05:52, 05:77, 05:132Q, 05:146, 05:262
<b>96<sup>9</sup></b>	-	-	<b>Negative Control</b>

<sup>1</sup>Alleles 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.

<sup>2</sup>The 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



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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.

<sup>3</sup>For 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.

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

<sup>5</sup>Primer mixes 21, 26, 30, 37, 47, 55, 57, 59, 62, 72 and 81 may give rise to a lower yield of HLA-specific PCR product than the other DQB1 primer mixes, most pronounced for primer mix 55.

<sup>6</sup>Primer mixes 3, 8, 13, 17, 18, 30, 35, 38, 41, 42, 43, 49, 64 and 71 have a tendency to giving rise to primer oligomer formation.

<sup>7</sup>Primer mixes 2, 10, 12, 18, 20, 21, 31, 33, 35, 36, 39, 40, 42, 43, 51, 61, 64, 75, 79, 80 and 94 may have tendencies of unspecific amplifications, most pronounced for primer mix 75.

<sup>8</sup>Primer mix 20 may give rise to a long unspecific amplification product. This band should be disregarded when interpreting the typing results.

<sup>9</sup>Primer mix 96 contains a negative control, which will amplify the majority of HLA amplicons as well as the amplicons generated by the control primer pairs matching the human growth hormone gene. HLA-specific PCR product sizes range from 75 to 200 base pairs and the PCR product generated by the HGH positive control primer pair is 200 base pairs.

Abbreviations

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

w: might be weakly amplified.



**Product Insert**

**101.221-12 – including *Taq* polymerase**  
**101.221-12u – without *Taq* polymerase**

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**Lot No.: 7N3**

**Lot-specific information**

**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	155	165	220	135	175	120	95	65
				185	180			225	220	145	130	105
					210					175		140
					260							195
Length of int. pos. control <sup>1</sup>	515	430	515	430	430	515	515	515	515	430	430	430
5'-primer(s) <sup>2</sup>	30(185) 5'-AAg 3'	57(266) 5'-TgA 3'	135(500) 5'-TgA 3'	26(173) 5'-TTA 3'	14(136) 5'-gCA 3'	45(230) 5'-ggA 3'	26(173) 5'-TTA 3'	26(173) 5'-TCT 3'	26(173) 5'-TCT 3'	23(163) 5'-AgT 3'	23(164) 5'-gCA 3'	38(208) 5'-ACT 3'
				102(400) 5'-TCT 3'	39(212) 5'-gCA 3'			140(514) 5'-CAA 3'	26(173) 5'-TTA 3'	26(173) 5'-ggg 3'	38(210) 5'-gCA 3'	
					40(214) 5'-gCC 3'				30(184) 5'-gAg 3'	38(208) 5'-ACA 3'		
					40(216) 5'-TTg 3'				33(193) 5'-ATg 3'			
					113(435) 5'-AAA 3'							
					130(485) 5'-CCA 3'							
					136(502) 5'-ACg 3'							
3'-primer(s) <sup>3</sup>	57(266) 5'-Cgg 3'	71(309) 5'-CgT 3'	170(604) 5'-gAC 3'	77(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'	46(232) 5'-CAA 3'
	57(266) 5'-CAg 3'		170(604) 5'-gAC 3'	135(500) 5'-ggC 3'	170(604) 5'-gAC 3'		86(353) 5'-gTT 3'	57(266) 5'-CAg 3'	185(650) 5'-CgA 3'	71(308) 5'-ggC 3'		56(263) 5'-CAA 3'
	57(266) 5'-Cgg 3'			146(532) 5'-ggT 3'				57(266) 5'-Cgg 3'				62(282) 5'-CTA 3'
	58(270) 5'-TCA 3'							58(270) 5'-TCA 3'				70(304) 5'-CCC 3'
								87(355) 5'-gTg 3'				75(320) 5'-CCC 3'
												89(362) 5'-TCA 3'
Well No.	1	2	3	4	5	6	7	8	9	10	11	12



**Product Insert**

**101.221-12 – including *Taq* polymerase**  
**101.221-12u – without *Taq* polymerase**

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**Lot No.: 7N3**

**Lot-specific information**

Well No.	13	14	15	16	17	18	19	20	21	22	23	24
Length of spec.	110	135	140	260	110	80	135	130	125	140	135	115
PCR product	145	175	195		155	135			205	205		215
	190	260	245		175	185						
					215	220						
					300	260						
Length of int.	430	430	430	515	430	430	515	430	515	430	430	430
pos. control <sup>1</sup>												
5'-primer(s) <sup>2</sup>	34(197) 5'-CCA 3'	14(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'	30(184) 5'-gAC 3'
	37(205) 5'-AgA 3'	41(217) 5'-TCC 3'	13(134) 5'-ggC 3'		26(173) 5'-TTA 3'	27(175) 5'-TTC 3'			24(166) 5'-gCT 3'	23(164) 5'-gCg 3'	26(173) 5'-ggg 3'	
	37(205) 5'-Agg 3'	135(500) 5'-TgA 3'	30(185) 5'-AAG 3'		102(400) 5'-TCT 3'	37(207) 5'-TAA 3'			49(241) 5'-ggA 3'	44(226) 5'-ACA 3'		
	48(239) 5'-CCA 3'					38(209) 5'-CgT 3'						
	49(242) 5'-ggT 3'					39(211) 5'-CAT 3'						
	55(260) 5'-gCA 3'					55(259) 5'-g.C 3'						
	63(285) 5'-Agg 3'					74(316) 5'-CgA 3'						
						140(514) 5'-CAA 3'						
3'-primer(s) <sup>3</sup>	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'	52(251) 5'-gCA 3'
		166(594) 5'-CgA 3'	79(332) 5'-TgT 3'		62(282) 5'-CTT 3'	87(356) 5'-ggA 3'						57(265) 5'-gCT 3'
		167(596) 5'-CAT 3'	83(343) 5'-gTg 3'		67(296) 5'-ggT 3'	170(604) 5'-gAT 3'						58(270) 5'-TCC 3'
					71(308) 5'-ggA 3'							88(358) 5'-gCC 3'
					77(325) 5'-CgC 3'							
					85(349) 5'-CAT 3'							
					142(520) 5'-AAT 3'							
					189(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* polymerase  
 101.221-12u – without *Taq* polymerase

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Lot No.: **7N3**

Lot-specific information

Well No.	25	26	27	28	29	30	31	32	33	34	35	36
Length of spec.	100	115	170	190	130	65	165	210	110	95	85	95
PCR product	125		210			105			170	120	155	155
	220					150				180	215	180
						205					255	210
						235						
Length of int.	515	430	430	430	430	430	515	515	430	430	515	430
pos. control <sup>1</sup>												
5'-primer(s) <sup>2</sup>	30(184) 5'-gAC 3'	130(485) 5'-CCg 3'	30(184) 5'-gAT 3'	9(122) 5'-gTT 3'	27(177) 5'-gTA 3'	9(122) 5'-gTA 3'	27(177) 5'-gTA 3'	30(184) 5'-gAC 3'	27(177) 5'-gTA 3'	10(126) 5'-CAC 3'	14(136) 5'-gCC 3'	30(184) 5'-gAT 3'
			30(184) 5'-gAT 3'		30(184) 5'-gAC 3'	15(140) 5'-gTA 3'	30(184) 5'-gAC 3'	30(184) 5'-gAC 3'	44(226) 5'-ACA 3'	27(177) 5'-gTA 3'	25(170) 5'-gCA 3'	48(239) 5'-CCA 3'
					30(184) 5'-gAC 3'	22(160) 5'-CCA 3'	30(184) 5'-gAC 3'		48(239) 5'-TCA 3'	28(179) 5'-gAC 3'	45(230) 5'-ggA 3'	
						24(166) 5'-gCT 3'				30(185) 5'-ACC 3'	116(442) 5'-TgA 3'	
						52(251) 5'-gCT 3'				32(190) 5'-TCC 3'	146(533) 5'-CCA 3'	
						59(272) 5'-CgT 3'				39(212) 5'-gCA 3'		
3'-primer(s) <sup>3</sup>	47(237) 5'-CgA 3'	154(558) 5'-AAA 3'	73(314) 5'-CCT 3'	57(266) 5'-CAT 3'	57(266) 5'-CAT 3'	16(144) 5'-AAC 3'	70(304) 5'-CCC 3'	86(353) 5'-ACC 3'	70(304) 5'-CCT 3'	57(266) 5'-CAA 3'	71(307) 5'-ggA 3'	48(238) 5'-Cg 3'
	47(237) 5'-CgA 3'		86(353) 5'-ACg 3'	58(270) 5'-TCC 3'	58(270) 5'-TCA 3'	48(240) 5'-gCg 3'	70(304) 5'-CCC 3'	86(354) 5'-TAT 3'			81(338) 5'-TgC 3'	76(324) 5'-gTT 3'
	50(246) 5'-gTg 3'		86(354) 5'-AAT 3'			77(327) 5'-ACg 3'					83(343) 5'-gTg 3'	86(353) 5'-ACC 3'
	57(266) 5'-CgT 3'		86(354) 5'-AAA 3'								86(353) 5'-ACC 3'	
	88(358) 5'-gCC 3'										87(356) 5'-ggA 3'	
	92(370) 5'-CTA 3'										130(485) 5'-ACT 3'	
											185(650) 5'-CgA 3'	
Well No.	25	26	27	28	29	30	31	32	33	34	35	36



Product Insert

101.221-12 – including *Taq* polymerase  
101.221-12u – without *Taq* polymerase

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Lot No.: 7N3

Lot-specific information

Well No.	37	38	39	40	41	42	43	44	45	46	47	48
Length of spec.	130	100	115	110	155	105	85	120	130	160	110	170
PCR product	165	130	140	150	190	135	110	165	155	210	155	225
	185	185	180	205	230	160	155		225			
		235			265	190	185		260			
					300	230	215					
							240					
							270					
Length of int.	430	430	430	430	430	515	515	430	515	515	430	430
pos. control <sup>1</sup>												
5'-primer(s) <sup>2</sup>	25(170) 5'-gCA 3'	8(118) 5'-TCA 3'	9(121) 5'-TgC 3'	31(187) 5'-ACg 3'	26(173) 5'-TCT 3'	8(118) 5'-TCA 3'	10(126) 5'-CAT 3'	9(122) 5'-gTT 3'	13(134) 5'-ggA 3'	30(184) 5'-gAC 3'	9(122) 5'-gTT 3'	123(464) 5'-CTT 3'
	27(177) 5'-gTA 3'	9(121) 5'-TgC 3'	9(122) 5'-gTT 3'	112(432) 5'-CAA 3'	98(389) 5'-CAT 3'	15(140) 5'-gTA 3'	11(129) 5'-TTA 3'	140(514) 5'-CAA 3'	25(170) 5'-gCA 3'	30(184) 5'-gAC 3'	140(514) 5'-CAA 3'	141(517) 5'-CTA 3'
	33(195) 5'-AAg 3'	9(122) 5'-gTT 3'	15(140) 5'-gTA 3'	118(449) 5'-CTA 3'	110(426) 5'-AAA 3'	26(173) 5'-TCT 3'	29(181) 5'-CCT 3'		48(239) 5'-CCA 3'			142(520) 5'-gCC 3'
	45(230) 5'-ggA 3'	24(166) 5'-gCT 3'	33(193) 5'-ATT 3'	130(485) 5'-CCA 3'	133(494) 5'-TCA 3'	55(259) 5'-ggT 3'	37(205) 5'-AgA 3'		57(266) 5'-TgA 3'			145(529) 5'-CCg 3'
		30(184) 5'-gAT 3'	140(514) 5'-CAA 3'	133(493) 5'-TTT 3'	139(512) 5'-gAT 3'	59(272) 5'-CgT 3'	38(210) 5'-gTg 3'		154(558) 5'-ACT 3'			
		135(501) 5'-gAT 3'		145(530) 5'-CAT 3'			39(211) 5'-TgA 3'					
				151(547) 5'-ACA 3'			62(282) 5'-AAg 3'					
3'-primer(s) <sup>3</sup>	74(317) 5'-CCg 3'	27(177) 5'-gTT 3'	55(260) 5'-gCg 3'	48(240) 5'-gCg 3'	64(286) 5'-CTA 3'	45(229) 5'-CCA 3'	77(326) 5'-CCg 3'	47(236) 5'-ggT 3'	86(353) 5'-ACC 3'	70(304) 5'-CCC 3'	47(237) 5'-CgA 3'	185(650) 5'-CgA 3'
		30(184) 5'-gTg 3'	55(260) 5'-gCg 3'	170(604) 5'-gAC 3'	71(307) 5'-ggC 3'	56(263) 5'-CAA 3'	86(353) 5'-ACg 3'	48(240) 5'-gCg 3'	185(650) 5'-CgT 3'	86(353) 5'-ACg 3'	47(237) 5'-CTA 3'	
		57(265) 5'-gCT 3'	57(266) 5'-CAA 3'		74(318) 5'-AAg 3'	57(265) 5'-gCT 3'		49(241) 5'-TgC 3'	186(653) 5'-CCg 3'		47(237) 5'-Cgg 3'	
		74(316) 5'-CgC 3'	60(274) 5'-gTT 3'		89(361) 5'-CgC 3'	61(278) 5'-TCT 3'		163(583) 5'-CAC 3'	186(654) 5'-TAA 3'		48(240) 5'-gCg 3'	
		167(596) 5'-CAT 3'	165(589) 5'-ggT 3'		185(650) 5'-Cgg 3'	64(286) 5'-CTA 3'		167(595) 5'-ACA 3'			50(244) 5'-CAT 3'	
		179(632) 5'-ggT 3'	170(604) 5'-gAT 3'			77(326) 5'-CCT 3'		170(604) 5'-gAA 3'			163(583) 5'-CAC 3'	
		179(633) 5'-AgT 3'	172(611) 5'-AgC 3'			77(327) 5'-ACg 3'		174(617) 5'-CgC 3'			176(622) 5'-CTA 3'	
			182(641) 5'-ggC 3'					184(647) 5'-Tgg 3'			179(632) 5'-ggT 3'	
			184(647) 5'-Tgg 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* polymerase  
101.221-12u – without *Taq* polymerase

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Lot No.: 7N3

Lot-specific information

Well No.	49	50	51	52	53	54	55	56	57	58	59	60
Length of spec.	105	130	125	95	130	110	115	100	150	145	100	110
PCR product	140	155	160	220	160	150		140	185	180	190	150
	165	190	185		195	190		185		215	220	180
	240	210	245			245		220		250		
		240	270					265				
Length of int. pos. control <sup>1</sup>	430	430	515	430	430	430	430	430	430	430	430	430
5'-primer(s) <sup>2</sup>	14(138)	20(154)	23(164)	13(134)	15(140)	26(173)	130(485)	13(134)	30(185)	14(136)	13(134)	30(184)
	5'-ATA 3'	5'-ACA 3'	5'-gCA 3'	5'-ggT 3'	5'-g.g 3'	5'-ggg 3'	5'-CCA 3'	5'-ggC 3'	5'-AAg 3'	5'-gCA 3'	5'-ggC 3'	5'-gAC 3'
	20(154)	20(154)	24(166)	23(163)	30(185)	135(500)		28(179)	139(512)	20(154)	14(136)	
	5'-ACT 3'	5'-ACC 3'	5'-gCA 3'	5'-AgT 3'	5'-AAg 3'	5'-TgA 3'		5'-gAC 3'	5'-gAT 3'	5'-ACA 3'	5'-gCC 3'	
	104(406)	27(175)	102(400)	30(185)	31(187)			154(558)	140(514)	31(187)		
	5'-CAC 3'	5'-ATA 3'	5'-TCT 3'	5'-ATg 3'	5'-ACC 3'			5'-ACT 3'	5'-CAA 3'	5'-ACC 3'		
	129(481)	30(184)		167(596)	37(205)					38(208)		
	5'-AAA 3'	5'-gAC 3'		5'-gCA 3'	5'-Agg 3'					5'-ACA 3'		
	133(494)	30(184)								38(210)		
	5'-TCA 3'	5'-gAC 3'								5'-gCg 3'		
	133(494)	31(187)								38(210)		
	5'-TCA 3'	5'-ACg 3'								5'-gCA 3'		
	139(511)	36(204)										
	5'-...A 3'	5'-gAC 3'										
	139(512)	37(205)										
	5'-gAT 3'	5'-Agg 3'										
	146(533)	48(239)										
	5'-CCg 3'	5'-CCA 3'										
	147(535)	48(239)										
	5'-CCT 3'	5'-CCC 3'										
	151(547)	55(259)										
	5'-ACA 3'	5'-g.C 3'										
		58(268)										
		5'-ACT 3'										
3'-primer(s) <sup>3</sup>	57(266)	86(353)	55(260)	86(353)	66(294)	51(248)	154(558)	60(274)	66(294)	71(307)	32(191)	52(251)
	5'-Cgg 3'	5'-gCT 3'	5'-gCg 3'	5'-ACg 3'	5'-ACT 3'	5'-gCT 3'	5'-AAA 3'	5'-gTA 3'	5'-ACT 3'	5'-ggC 3'	5'-TAC 3'	5'-gCA 3'
	170(604)		55(260)	185(650)	69(303)	74(316)		64(287)	81(338)	75(320)	61(279)	65(290)
	5'-gAC 3'		5'-gCg 3'	5'-CgA 3'	5'-CTg 3'	5'-Cgg 3'		5'-TCC 3'	5'-Tgg 3'	5'-CCC 3'	5'-TTT 3'	5'-CCC 3'
			127(477)		81(338)	78(328)		73(314)	185(650)	83(343)	64(287)	70(304)
			5'-TTC 3'		5'-TCg 3'	5'-CAA 3'		5'-CCA 3'	5'-Cgg 3'	5'-gTC 3'	5'-TCC 3'	5'-CCT 3'
			142(520)		86(353)	94(376)		88(359)		86(353)	71(307)	72(311)
			5'-AAT 3'		5'-ACg 3'	5'-TCA 3'		5'-TgA 3'		5'-ACg 3'	5'-ggA 3'	5'-CCT 3'
			150(544)			157(566)		174(618)			76(323)	74(317)
			5'-gTC 3'			5'-ggg 3'		5'-ACT 3'			5'-TgC 3'	5'-CCA 3'
			170(604)			168(599)		185(650)				80(335)
			5'-gAT 3'			5'-CTT 3'		5'-CgT 3'				5'-gTT 3'
			179(631)			175(619)						
			5'-gCg 3'			5'-CAT 3'						
						182(642)						
						5'-ggT 3'						
						186(652)						
						5'-CAT 3'						
Well No.	49	50	51	52	53	54	55	56	57	58	59	60



Product Insert

101.221-12 – including *Taq* polymerase  
101.221-12u – without *Taq* polymerase

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Lot No.: 7N3

Lot-specific information

Well No.	61	62	63	64	65	66	67	68	69	70	71	72
Length of spec.	110	90	95	100	115	110	100	100	105	75	50	145
PCR product	150	140	180	160	220	125	155	175	140		135	180
	215	165	220	230		165			185		160	210
		225				205					235	270
						255						
Length of int. pos. control <sup>1</sup>	430	430	430	430	430	515	430	430	430	430	515	430
5'-primer(s) <sup>2</sup>	30(184) 5'-gAC 3'	9(122) 5'-gTT 3'	30(184) 5'-gAT 3'	1st I 5'-... 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'	13(133) 5'-AgA 3'	10(125) 5'-CCg 3'
		34(196) 5'-ACT 3'		30(185) 5'-AAg 3'	135(501) 5'-gAT 3'	99(391) 5'-CAA 3'	23(163) 5'-AgT 3'	36(204) 5'-gAT 3'	24(166) 5'-gCC 3'		37(207) 5'-TAA 3'	27(175) 5'-ATA 3'
		38(209) 5'-CgA 3'		146(533) 5'-CCT 3'		112(432) 5'-CAA 3'	35(199) 5'-gAT 3'	39(212) 5'-gCT 3'	35(199) 5'-gAT 3'		44(227) 5'-CgC 3'	32(192) 5'-..T 3'
		52(251) 5'-gCT 3'				118(449) 5'-CTA 3'	41(217) 5'-TCT 3'	41(217) 5'-TCT 3'	36(204) 5'-gAT 3'		47(235) 5'-TgA 3'	34(196) 5'-ACT 3'
						141(517) 5'-CCA 3'	41(217) 5'-TCC 3'		38(209) 5'-CgC 3'		47(235) 5'-TgC 3'	37(207) 5'-TAA 3'
						145(530) 5'-CAA 3'					48(239) 5'-CCC 3'	38(208) 5'-TCA 3'
						147(535) 5'-CCg 3'					74(316) 5'-CgA 3'	41(219) 5'-gAg 3'
												48(239) 5'-TCC 3'
												135(501) 5'-gAT 3'
3'-primer(s) <sup>3</sup>	52(251) 5'-gCA 3'	46(232) 5'-CAA 3'	48(238) 5'-CCA 3'	1st I 5'-CCT 3'	51(248) 5'-gCC 3'	58(268) 5'-ggT 3'	57(266) 5'-Cgg 3'	57(266) 5'-Cgg 3'	57(266) 5'-Cgg 3'	66(294) 5'-ATg 3'	77(326) 5'-CCg 3'	86(353) 5'-gCT 3'
	65(290) 5'-CCC 3'	49(241) 5'-TgC 3'	76(322) 5'-gTg 3'	49(241) 5'-CgT 3'	57(265) 5'-ggT 3'	61(279) 5'-TTT 3'						167(595) 5'-ACA 3'
	70(304) 5'-CCT 3'	50(244) 5'-CAT 3'	90(365) 5'-AgT 3'	51(248) 5'-gCC 3'	89(362) 5'-TCT 3'	72(311) 5'-CCg 3'						172(610) 5'-ggC 3'
	82(341) 5'-AgC 3'	70(304) 5'-CCT 3'		69(303) 5'-CTg 3'	163(585) 5'-gTT 3'	170(604) 5'-gAC 3'						
	87(356) 5'-ggA 3'			94(376) 5'-TCA 3'								
	89(361) 5'-CCT 3'			185(650) 5'-CgA 3'								
	92(370) 5'-CTA 3'											
Well No.	61	62	63	64	65	66	67	68	69	70	71	72



**Product Insert**

**101.221-12 – including *Taq* polymerase**  
**101.221-12u – without *Taq* polymerase**

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**Lot No.: 7N3**

**Lot-specific information**

Well No.	73	74	75	76	77	78	79	80	81	82	83	84
Length of spec.	90	115	115	150	95	95	90	105	120	170	115	115
PCR product	125	140	155	185	120	130	125	175	170	230	165	195
	160	185	175		190	170	200	290		280	235	
	200		205								260	
	225										290	
	270											
Length of int.	430	430	430	430	430	430	430	430	430	430	430	430
pos. control <sup>1</sup>												
5'-primer(s) <sup>2</sup>	10(125) 5'-CCg <sup>3'</sup>	26(173) 5'-ggg <sup>3'</sup>	13(134) 5'-ggC <sup>3'</sup>	13(134) 5'-ggC <sup>3'</sup>	27(177) 5'-gTA <sup>3'</sup>	27(177) 5'-gTA <sup>3'</sup>	27(177) 5'-gTA <sup>3'</sup>	9(122) 5'-gTT <sup>3'</sup>	8(119) 5'-CgC <sup>3'</sup>	9(122) 5'-gTT <sup>3'</sup>	9(122) 5'-gTT <sup>3'</sup>	9(122) 5'-gTT <sup>3'</sup>
	23(163) 5'-AgA <sup>3'</sup>		15(140) 5'-gTA <sup>3'</sup>			38(210) 5'-gCA <sup>3'</sup>	100(394) 5'-TgT <sup>3'</sup>		9(122) 5'-gTT <sup>3'</sup>		102(400) 5'-TCT <sup>3'</sup>	154(558) 5'-ACT <sup>3'</sup>
	26(173) 5'-TTT <sup>3'</sup>		20(154) 5'-ACC <sup>3'</sup>				105(411) 5'-AgC <sup>3'</sup>		16(142) 5'-gCC <sup>3'</sup>			
	34(196) 5'-ACT <sup>3'</sup>		32(190) 5'-TCC <sup>3'</sup>						29(182) 5'-CAA <sup>3'</sup>			
	47(235) 5'-TgC <sup>3'</sup>											
	57(267) 5'-gAT <sup>3'</sup>											
	66(292) 5'-..g <sup>3'</sup>											
	70(306) 5'-AgC <sup>3'</sup>											
3'-primer(s) <sup>3</sup>	86(353) 5'-gCT <sup>3'</sup>	49(242) 5'-CCT <sup>3'</sup>	52(250) 5'-CgC <sup>3'</sup>	47(237) 5'-CgA <sup>3'</sup>	46(233) 5'-ACC <sup>3'</sup>	48(238) 5'-gCA <sup>3'</sup>	43(224) 5'-Cgg <sup>3'</sup>	31(188) 5'-Agg <sup>3'</sup>	52(251) 5'-gCA <sup>3'</sup>	53(253) 5'-CTA <sup>3'</sup>	51(247) 5'-CgA <sup>3'</sup>	36(203) 5'-ACC <sup>3'</sup>
		54(257) 5'-gCT <sup>3'</sup>	57(266) 5'-CAA <sup>3'</sup>	53(254) 5'-CCT <sup>3'</sup>	53(254) 5'-CCA <sup>3'</sup>	53(254) 5'-CCA <sup>3'</sup>	55(260) 5'-gCA <sup>3'</sup>	52(251) 5'-gCA <sup>3'</sup>	53(253) 5'-CTT <sup>3'</sup>	70(304) 5'-CCT <sup>3'</sup>	74(317) 5'-ACC <sup>3'</sup>	59(271) 5'-CTT <sup>3'</sup>
		58(268) 5'-ggT <sup>3'</sup>	60(274) 5'-gTA <sup>3'</sup>	61(279) 5'-TTT <sup>3'</sup>	76(322) 5'-gTg <sup>3'</sup>	59(271) 5'-CTT <sup>3'</sup>	154(558) 5'-AAA <sup>3'</sup>	56(262) 5'-AgA <sup>3'</sup>	55(260) 5'-gCg <sup>3'</sup>	74(317) 5'-ACC <sup>3'</sup>	82(341) 5'-AgC <sup>3'</sup>	60(276) 5'-CAC <sup>3'</sup>
		59(271) 5'-CTA <sup>3'</sup>	70(304) 5'-CCC <sup>3'</sup>		77(326) 5'-CCA <sup>3'</sup>	71(308) 5'-ggA <sup>3'</sup>		91(369) 5'-TTT <sup>3'</sup>		88(359) 5'-CgA <sup>3'</sup>	91(369) 5'-TTT <sup>3'</sup>	178(629) 5'-TgC <sup>3'</sup>
		74(316) 5'-Cgg <sup>3'</sup>									126(472) 5'-CTA <sup>3'</sup>	
Well No.	73	74	75	76	77	78	79	80	81	82	83	84



Product Insert

101.221-12 – including *Taq* polymerase  
101.221-12u – without *Taq* polymerase

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Lot No.: **7N3**

Lot-specific information

Well No.	85	86	87	88	89	90	91	92	93	94	95
Length of spec.	135	95	105	110	110	105	70	105	95	170	95
PCR product	180	130	140	215	150	130	100	120	170		120
	215	180			185	175	185	155	225		
	265	220			260	240		190			
								230			
Length of int.	430	430	430	430	430	430	430	430	430	430	430
pos. control <sup>1</sup>											
5'-primer(s) <sup>2</sup>	10(124) 5'-TCT 3'	9(121) 5'-TgC 3'	34(196) 5'-ACT 3'	26(174) 5'-TAC 3'	14(136) 5'-gCg 3'	102(400) 5'-TCT 3'	8(119) 5'-CgC 3'	30(185) 5'-AAG 3'	14(138) 5'-ATA 3'	10(126) 5'-CAA 3'	30(184) 5'-gAT 3'
	14(137) 5'-CAC 3'	10(124) 5'-TCT 3'	39(212) 5'-gCA 3'	31(187) 5'-ACT 3'	37(207) 5'-TAA 3'		47(237) 5'-TAC 3'		16(142) 5'-gCA 3'	13(134) 5'-ggg 3'	71(309) 5'-ACC 3'
	24(167) 5'-CgA 3'	15(140) 5'-g.g 3'	45(230) 5'-ggC 3'	63(285) 5'-Agg 3'	49(242) 5'-ggA 3'				123(464) 5'-CTT 3'		
	25(169) 5'-TgT 3'	24(166) 5'-gCA 3'	48(238) 5'-ACA 3'		63(285) 5'-Agg 3'				167(595) 5'-AgA 3'		
	39(212) 5'-gCA 3'	24(167) 5'-CgA 3'	55(260) 5'-gCC 3'								
	110(426) 5'-AAA 3'	38(208) 5'-ACT 3'									
		48(238) 5'-ACA 3'									
3'-primer(s) <sup>3</sup>	70(304) 5'-CCC 3'	38(209) 5'-gCg 3'	70(304) 5'-CCC 3'	87(356) 5'-ggA 3'	86(353) 5'-ACg 3'	123(465) 5'-ggC 3'	57(265) 5'-gTC 3'	51(248) 5'-gCA 3'	57(266) 5'-Cgg 3'	55(260) 5'-gCg 3'	57(265) 5'-gCT 3'
	185(650) 5'-Cgg 3'	70(304) 5'-CCC 3'				131(488) 5'-ACT 3'	66(294) 5'-ATg 3'	57(265) 5'-ggT 3'	185(650) 5'-CgA 3'	57(266) 5'-Cgg 3'	87(355) 5'-gAC 3'
						146(532) 5'-ggC 3'		66(294) 5'-ACT 3'			88(358) 5'-gCC 3'
						167(596) 5'-CAA 3'		72(311) 5'-CCg 3'			93(374) 5'-gCA 3'
						167(596) 5'-CAA 3'		79(332) 5'-TgT 3'			
						172(611) 5'-AgA 3'		92(372) 5'-CgA 3'			
Well No.	85	86	87	88	89	90	91	92	93	94	95

<sup>1</sup>The 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.

<sup>2</sup>The nucleotide position matching the specificity-determining 3'-end of the primer is given. Nucleotide numbering as on the [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla) web site. The sequence of the 3 terminal nucleotides of the primer is given.

<sup>3</sup>The 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](http://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* polymerase  
101.221-12u – without *Taq* polymerase

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**Lot No.: 7N3**

Lot-specific information

<b>CELL LINE VALIDATION SHEET</b>																			
<b>DQB1 high resolution primer set<sup>2</sup></b>																			
				<b>Well</b>															
				<b>33</b>	<b>34</b>	<b>35</b>	<b>36</b>	<b>37</b>	<b>38</b>	<b>39</b>	<b>40</b>	<b>41</b>	<b>42</b>	<b>43</b>	<b>44</b>	<b>45</b>	<b>46</b>	<b>47</b>	<b>48</b>
				201907733	201907734	201907735	201907736	201907737	201907738	202137439	202137440	202137441	201907742	201907743	201907744	201907745	202024246	201907747	201907748
	<b>IHW C cell line<sup>1</sup></b>	<b>DQB1</b>	<b>Production No.</b>																
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		+	+	-	-	-	-	-	W	-	-	-	-	-	-	-	-
21	9064 AMALA	*03:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	9056 KOSE	*05:03	*06:04	+	+	-	-	-	-	-	W	-	-	-	-	-	-	-	-
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 polymerase  
101.221-12u – without Taq polymerase

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Lot No.: **7N3**

Lot-specific information

CELL LINE VALIDATION SHEET																				
DQB1 high resolution primer set <sup>2</sup>																				
				Production No.	Well															
					49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
					202137449	202024250	202024251	201907752	201907753	201907754	201907755	201907756	202137457	201907758	201907759	201907760	201907761	201907762	201907763	201907764
	IHWC cell line <sup>1</sup>		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* polymerase  
 101.221-12u – without *Taq* polymerase

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Lot No.: **7N3**

**Lot-specific information**

		<b>CELL LINE VALIDATION SHEET</b>																
		<b>DQB1 high resolution primer set<sup>2</sup></b>																
		IHWC cell line <sup>1</sup>	DQB1	Production No.	Well													
81	82				83	84	85	86	87	88	89	90	91	92	93	94	95	
		201907781	202024282	202024283	201907784	201907785	201907786	202137487	201907788	201907789	201907790	201907791	201907792	201907793	201907794	202024295		
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 SСТО	*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* polymerase**  
**101.221-12u – without *Taq* polymerase**

Visit [www.caredx.com](http://www.caredx.com) for  
**“Instructions for Use” (IFU)**

**Lot No.: 7N3**

**Lot-specific information**

<sup>1</sup>The 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.

<sup>2</sup>The 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, 5, 12 to 14, 17, 18, 37 to 39, 41, 42, 45, 50, 51, 53, 58, 61, 62, 64, 66, 70, 72, 73, 75, 79, 81, 86, 87, 91 and 95 were tested by separately adding additional 5'-primers, and additional 3'-primers accordingly.

In primer solutions 40, 43, 48, 49, 67 to 69, 71, 85, 88, 89 and 93 it was only possible to test the 3'-primers, the 5'-primers were not possible to be tested.

In primer solutions 54, 56, 59, 60, 63, 65, 74, 77, 78, 80, 82 to 84, 90 and 92 it was only possible to test the 5'-primers, the 3'-primers were not possible to be tested.

In primer solutions 5, 10 to 15, 18, 21 to 23, 30, 33 to 39, 41, 42, 45, 50 to 53, 57, 58, 62, 64, 66, 72, 73, 75, 79, 81, 86, 87, 91 and 94 one or more 5'-primers were not possible to be tested.

In primer solutions 1, 3, 4, 7, 8, 10, 12, 14, 15, 17, 18, 24, 25, 27 to 32, 35, 36, 38, 39, 41, 42, 44, 45, 47, 51, 53, 57, 58, 61, 62, 64, 66, 72, 75, 76, 79, 81, 94 and 95 one or more 3'-primers were not possible to be tested.

In addition, one or more 3'- and/or 5'- primers in primer solutions 4, 15, 25, 29 to 32, 34, 35, 44, 46, 47, 52, 57 and 76 were tested by separately adding additional 5'-primers and/or 3'-primers.



**101.221-12 – including *Taq* polymerase**

**101.221-12u – without *Taq* polymerase**

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**Lot No.: 7N3**

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