

101.708-24 – including *Taq* polymerase, IFU-01  
 101.708-24u – without *Taq* polymerase, IFU-02

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 “Instructions for Use” (IFU)

Lot No.: **43V**

Lot-specific information

**Olerup SSP® HLA-A-B-DR-DQ SSP Combi Tray**

**Product number:** 101.708-24 – including *Taq* pol.  
 101.708-24u – without *Taq* pol.  
**Lot number:** 43V  
**Expiry date:** 2016-August-01  
**Number of tests:** 24 tests  
**Number of wells per test:** 95 +1  
**Storage - pre-aliquoted primers:** dark at -20°C  
 - PCR Master Mix: -20°C  
 - Adhesive PCR seals RT  
 - Product Insert RT

**This Product Description is only valid for Lot No. 43V.**

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

**CHANGES COMPARED TO THE PREVIOUS OLERUP SSP®  
 HLA-A-B-DR-DQ SSP COMBI TRAY LOT (70S)**

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

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

The **HLA-A low resolution** specificity and interpretation tables have been updated for the HLA-A alleles described since the previous *Olerup SSP®* HLA-A-B-DR-DQ SSP Combi Tray lot was made (**Lot No. 70S**).

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

Well	5'-primer	3'-primer	rationale
3	-	Added	3'-primer added for improved resolution of the A*03:167 allele.

The **HLA-B low resolution** specificity and interpretation tables have been updated for the HLA-B alleles described since the previous *Olerup SSP®* HLA-A-B-DR-DQ SSP Combi Tray lot was made (**Lot No. 70S**).

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**Lot-specific information**

The HLA-B low primer set is unchanged compared to the previous lot.

The **HLA-DR low resolution** specificity and interpretation tables have been updated for the HLA-DRB alleles described since the previous *Olerup SSP*® HLA-A-B-DR-DQ SSP Combi Tray lot was made (**Lot No. 70S**).

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

Well	5'-primer	3'-primer	rationale
67	-	Added	3'-primer added for the DRB1*15:100 allele.
73	Added	Added	Increased yield of HLA-specific PCR product for the DRB1*07:22 allele, 3'-primer added for the DRB1*07:25 allele.
78	Added	-	5'-primer added for the DRB1*12:41 allele.
81	Added	Added	Primer pair added for the DRB1*14:141 allele.

The **DQ low resolution** specificity and interpretation tables have been updated for the HLA-DQB1 alleles described since the previous *Olerup SSP*® HLA-A-B-DR-DQ SSP Combi Tray lot was made (**Lot No. 43R**).

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

Well	5'-primer	3'-primer	rationale
88	Added	Added	5'-primer added for the DQB1*05:21 allele, 3'-primers added for the DQB1*05:03:10 and DQB1*05:34 alleles.
91	-	Added	3'-primer added for the DQB1*03:01:08 allele, Strength of control band has been optimized.
92	-	Added	Strength of control band has been optimized, 3'-primer added for the DQB1*03:02:10 allele.
93	-	-	Strength of control band has been optimized.
94	Exchanged	Added	5'-primers exchanged, 3'-primer added for the DQB1*04:09 and DQB1*03:01:08 alleles, Strength of control band has been optimized.
95	Added, modified	-	Strength of control band has been optimized, 5'-primer added for the DQB1*04:01:03 allele, 5'-primer modified for improved specificity.

Change in revision R01 compared to R00:

1. Primer mix 18 does not amplify the A\*74:07 allele, and primer mix 10 does not amplify the A\*31:03 and A\*66:15 alleles. This has been corrected in the Specificity and Interpretation tables.

The A\*32:01:14, 32:03, 32:38 and the A\*74:07 alleles give rise to identical amplification patterns with this lot of the HLA-A low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

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

PCR product sizes range from 75 to 430 base pairs.

The PCR product generated by the control primer pair is 430 base pairs.

Length of PCR product	105	200	105	80	75	80
<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>
	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>
<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>
	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>
<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>

<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

### HLA-A-B-DR-DQ SSP Combi Tray

#### CONTENT

The primer set contains 5'- and 3'-primers for grouping the HLA-A\*01:01 to A\*80:03 alleles into the corresponding serological groups A1 to A80.

The primer set contains 5'- and 3'-primers for grouping the B\*07:02 to B\*83:01 alleles into the corresponding serological groups B7 to B81 as well as primer pairs for recognizing the Bw4 and Bw6 sequence motifs.

The primer set contains 5'- and 3'-primers for grouping the DRB1\*01:01 to DRB1\*10:06 alleles into the corresponding serological groups DR1 to DR18 as well as primer pairs for recognizing the DRB3, DRB4 and DRB5 groups of alleles.

The primer set contains 5'- and 3'-primers for grouping the DQB1 alleles into the serological groups DQ2 to DQ9.

*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 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 PCR plate is marked with 'A-B-DR-DQ' in silver/gray ink.

Well No. 1 is marked with the Lot No. '43V'.

Wells 1 to 21 – HLA-A low resolution primers.

Wells 22 to 64 – HLA-B low resolution primers.

Wells 65 to 87 – HLA-DR low resolution primers.

Wells 88 to 95 – HLA-DQ low 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.

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**INTERPRETATION**

Only HLA-A alleles will be amplified by the 21 wells of the HLA-A low resolution primer set, **wells 1 to 21**, except that a few HLA-B alleles will be amplified by primer mixes 5 and 8. For further details see Specificity Table.

Only HLA-B alleles will be amplified by the 43 wells of the HLA-B low resolution, primer set, **wells 22 to 64**, except that a few HLA-A and HLA-C alleles will be amplified by primer mixes 24, 25, 27, 28, 29, 33, 37, 39, 40, 41, 45, 48, 49, 58, 59, 60, 62. For further details see Specificity Table.

Only HLA-DRB alleles will be amplified by the 23 wells the DR low resolution primer set, **wells 65 to 87**. Thus, the interpretation of DR low resolution typings is not influenced by other HLA class II genes.

Only the DQB1 alleles will be amplified by the 8 wells the DQ low resolution primer set, **wells 88 to 95**. Thus, the interpretation of DQ low resolution typings is not influenced the DQB2 and DQB3 genes.

**UNIQUELY IDENTIFIED ALLELES**

All the HLA-A alleles, i.e. **A\*01:01 to A\*80:03**, recognized by the HLA Nomenclature Committee in October 2013<sup>1,2</sup> will be amplified by the primers in the HLA-A low resolution primer set, **wells 1 to 21**. The HLA-A alleles will be grouped into their corresponding serological specificities<sup>3,4</sup>.

All the HLA-B alleles, i.e. **B\*07:02 to B\*83:01**, recognized by the HLA Nomenclature Committee in October 2013<sup>1,2</sup> will be amplified by the primers in the HLA-B low resolution primer set, **wells 22 to 64**. The HLA-B alleles will be grouped into their corresponding serological specificities<sup>3</sup>.

All the HLA-DRB1, -DRB3, -DRB4<sup>5</sup> and -DRB5 alleles, i.e. **DRB1\*01:01:01 to 10:06, DRB3\*01:01:02:01 to DRB3\*03:03, DRB4\*01:01:01:01 to DRB4\*01:08, DRB5\*01:01:01 to DRB5\*02:06**, recognized by the HLA Nomenclature Committee in October 2013<sup>1,2</sup> will be amplified by the primers in the DR low resolution primer set, **wells 65 to 87**. The HLA-DRB alleles will be grouped into their corresponding serological specificities<sup>3</sup>.

All the DQB1 alleles, i.e. **DQB1\*05:01:01:01 to 05:47, DQB1\*06:01:01 to 06:119, DQB1\*02:01:01 to 02:33, DQB1\*03:01:01:01 to 03:100 and DQB1\*04:01:01 to 04:17**, recognized by the HLA Nomenclature Committee in October 2013<sup>1,2</sup> will be amplified by the primers in the DQ low resolution primer set. The DQB1 alleles will be grouped into their corresponding serological specificities<sup>6</sup>, i.e.:

- DQ5(1) = DQB1\*05:01:01-05:05
- DQ6(1) = DQB1\*06:01:01-06:44
- DQ2 = DQB1\*02:01:01-02:05
- DQ3 = DQB1\*03:06, 03:10, 03:14
- DQ7(3) = DQB1\*03:01:01-03:01:06, 03:04, 03:09, 03:13, 03:16, 03:19
- DQ8(3) = DQB1\*03:02:01-03:02:05, 03:05:01-03:05:04, 03:07-03:08, 03:11, 03:18
- DQ9(3) = DQB1\*03:03:02:01-03:03:04, 03:12, 03:15, 03:17, 03:20
- DQ4 = DQB1\*04:01-04:02

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<sup>1</sup>HLA-A, HLA-B, HLA-DRB and HLA-DQB1 alleles listed on the IMGT/HLA web page 2013-October-11, release 3.14.0, [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>.

<sup>3</sup>The HLA-A, HLA-B, HLA-C HLA-DRB1, -DRB3, -DRB4 and -DRB5 and the DQB1 alleles will be grouped into their corresponding serological specificities, except that following alleles give rise to identical amplification patterns:

Alleles	Alleles
A*03:01:23, 03:08, 03:32, 03:36N, 03:57, 03:59, 03:72, 03:89, 03:107-03:108, 03:111, 03:142, 03:152, 03:172-03:173, A*24:924 A*03:88, A*11:130	B*41:09, 41:29, 45:02-45:03
A*23:01:01-23:13, 23:15-23:56, A*23:58, B*18:27 A*23:14:01-23:14:02, A*24:24, 24:71	B*51:104, 51:118N, 51:147, B*58:08:01-58:08:02 B*51:148, B*53:14
A*31:01:02-31:02, 31:05-31:28, 31:30-31:34, 31:36-31:40 31:42-31:79, A*33:53	B*53:30, B*57:45, 57:51 B*54:01:02, B*55:01:07, 55:02:01-55:02:06, 55:07, 55:10, 55:12, 55:16, 55:19, 55:26, 55:30, 55:35, 55:37, 55:39, 55:41-55:43, 55:47-55:48, 55:50, 55:57, 56:10
A*32:01:14, 32:03, 32:38, A*74:07	B*55:04, 55:08, 55:13, 55:23, 55:27, 55:32, 55:46, 55:49, B*56:01:05, 56:15, 56:18-56:19N, 56:22, 56:31-56:32
B*07:174, 07:202, B*81:02	B*57:01:01-57:01:04, 57:01:06-57:03:02, 57:05-57:06, 57:08, 57:10, 57:15-57:20, 57:22-57:23, 57:25-57:30, 57:32-57:44, 57:46, 57:48-57:50, 57:52-57:58, 57:60-57:68, B*58:36
B*08:26, 08:50, 08:62, 08:85, 08:94, B*42:07	B*57:01:01-57:01:04, 57:01:06-57:03:02, 57:05-57:06, 57:08, 57:10, 57:15-57:20, 57:22-57:23, 57:25-57:30, 57:32-57:44, 57:46, 57:48-57:50, 57:52-57:58, 57:60-57:68, B*58:36
B*13:04, 13:10, 13:21, 13:35, 13:59, 13:71, B*44:135, 44:158 B*14:08, B*39:25N, 39:30, 39:32-39:34, 39:43, 39:47, 39:50, 39:74, 39:82	DRB1*08:20, DRB1*13:18, 13:47, 13:55, 13:158, 13:164 DRB1*08:31, 08:41, DRB1*11:67
B*18:29, 18:72, 18:92, B*35:09:01-35:09:03, 35:18, 35:31-35:32:02, 35:37, 35:53N, 35:64:01-35:64:02, 35:68:01-35:68:02, 35:75, 35:88, 35:99, 35:118-35:119, 35:127, 35:151, 35:174, 35:205 and 35:234-35:235	DRB1*13:13, 13:119, 13:154, 13:156, DRB1*14:84, 14:116 14:144

<sup>4</sup>The A\*36 alleles will give rise to identical amplification patterns as some A\*01 alleles. These alleles can be separated by the A\*01 and A\*36 high resolution SSP primer sets. The A\*01:136 and the A\*11:94 and A\*11:112 alleles may be distinguished by the different sizes of the specific PCR products generated by primer mixes 1 and 10.

<sup>5</sup>The DRB4\*02:01N and DRB4\*03:01N null alleles will not be amplified by the DR low resolution primer set.

<sup>6</sup>The serological split of the DQB1\*05:05-05:47, DQB1\*06:06 to 06:07 alleles, the DQB1\*06:10, 06:13, 06:15-06:24 and 06:27 to 06:119, the DQB1\*02:04-02:33, the DQB1\*03:07-03:09 and 03:11-03:100 alleles and the DQB1:04:0301-04:17 alleles is not known. In this table we have used the expert-assigned serological grouping in Tissue Antigens (2009) 73:95-170, and also inferred the serological grouping from the naming of the sequence-defined allele.

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Lot-specific information  
**SPECIFICITY TABLE**

**HLA-A low resolution primer set**

**Specificities and sizes of the PCR products of the 21 primer mixes used for HLA-A low resolution SSP typing**

Primer Mix	Size of spec. PCR product <sup>1</sup>	Size of control band <sup>2</sup>	HLA-A serology <sup>3</sup>	Amplified HLA-A alleles <sup>4,5,6</sup>
1 <sup>6,7</sup>	120 bp, 145 bp, 225 bp	800 bp	A1, A36	*01:01:01:01-01:04N, 01:06-01:33, 01:35-01:142, 03:18, 03:135, 11:94, 11:112, 36:01-36:05
2 <sup>7</sup>	175 bp, 215 bp, 255 bp, 365 bp, 415 bp	800 bp	A2, A203, A210, A19, A28	*02:01:01:01-02:01:15, 02:01:17-02:01:19, 02:01:21-02:01:81, 02:01:83-02:22:02, 02:24:01-02:35:01, 02:35:03-02:47, 02:49-02:77, 02:78 <sup>w</sup> , 02:79:01-02:97:02, 02:99, 02:101:01-02:128, 02:130-02:454, 02:456
3 <sup>11</sup>	205 bp, 235 bp	1070 bp	A1, A3, A11, A32, A34, A36	*01:12, 01:19, 01:21, 01:126, 02:338, 03:01:01:01-03:17:02, 03:19-03:74, 03:76-03:94, 03:96-03:134, 03:136-03:175, 11:03, 11:20, 11:25, 11:60, 11:130, 11:158, 24:92, 32:04, 34:02:01-34:04, 34:07-34:10N, 36:02
4	190 bp	800 bp	A1, A2, A3, A11, A26, A30, A36, A68	*01:01:01:01-01:01:22, 01:01:24-01:01:47, 01:01:49-01:04N, 01:06-01:07, 01:09-01:11N, 01:13, 01:16N-01:18N, 01:20-01:29, 01:31N-01:33, 01:35-01:78, 01:80-01:98, 01:100-01:142, 02:78, 02:169, 03:12, 03:18, 03:88, 03:135, 11:01:01-11:27, 11:29-11:52Q, 11:54-11:158, 26:19, 26:72, 30:08, 36:04, 68:13:01, 68:66, 74:19
5 <sup>8,12</sup>	135 bp, 200 bp	800 bp	A9, A23, A24, A29, A80	*23:01:01-23:56, 23:58-23:60, 24:24, 24:71, 29:07, 29:49, 31:29, 80:01:01:01-80:03, <b>B*18:27</b>
6	175 bp, 205 bp	1070 bp	A2, A23, A24, A26, A33	*02:17:01 <sup>w</sup> -02:17:02 <sup>w</sup> , 11:139, 23:14:01-23:14:02, 24:02:01:01-24:11N, 24:13:01-24:13:02, 24:17-24:50, 24:54-24:56, 24:58-24:63, 24:66-24:91, 24:93, 24:95-24:113, 24:115-24:137, 24:139-24:187, 24:189-24:210, 24:212-24:221, 24:223-24:227, 24:229-24:252N, 26:16, 33:19, 68:45
7	165 bp, 200 bp	800 bp	A2/A28, A3, A10, A11, A25, A26, A32, A34, A66, A68, A69	*01:51, 02:55, 03:24, 03:50, 11:10, 25:01:01-25:16, 25:18-25:23, 26:01:01-26:06, 26:08-26:15, 26:17-26:18, 26:20-26:43:02, 26:45-26:63, 26:65-26:71N, 26:73-26:88, 26:90-26:91, 26:93-26:94, 29:28, 32:15, 33:51, 34:01:01-34:11, 66:01:01-66:19, 68:01:01:01-68:106, 69:01-69:02
8 <sup>6,9</sup>	75 bp	800 bp	A3, A25, A32	*25:01:01-25:23, 32:01:01-32:01:13, 32:01:15-32:02, 32:04, 32:06-32:37, 32:39-32:59, <b>B*07:81, B*08:52, B*18:67, B*38:41, B*53:05, B*53:16</b>
9 <sup>6,7</sup>	80 bp, 240 bp	800 bp	A10, A26, A43	*01:43, 01:51, 11:17, 11:40, 26:01:01-26:02:02, 26:04, 26:07:01-26:20, 26:22-26:29, 26:31-26:43:02, 26:45-26:77, 26:79-26:91, 26:93-26:94, 33:13, 33:48, 43:01, 68:84
10 <sup>6,7,8</sup>	80 bp, 175 bp,	1070 bp	A1, A11, A24, A26, A31, A34,	*01:13, 01:28, 01:136, 03:63, 03:88, 11:01:01-11:27, 11:29-11:52Q, 11:54-11:158, 24:19, 24:44,

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	500 bp		A66	26:03:01-26:03:02, 26:06, 26:21, 26:78, 26:92, 34:01:01-34:08, 34:10N-34:11, 66:01:01, 66:04-66:11, 66:13-66:14, 66:17-66:19, 69:02, 80:02
<b>11<sup>6</sup></b>	125 bp, 185 bp	<b>800 bp</b>	A3, A10, A25, A26, A31, A34, A43, A66	*02:309, 02:454, 03:01:19, 11:11, 25:05-25:06, 26:09, 26:54, 26:91, 31:03-31:04, 34:01:01-34:11, 43:01, 66:02-66:03, 66:16
<b>12</b>	175 bp, 225 bp	1070 bp	A1, A2, A3, A10, A25, A26, A34, A43, A66	*01:01:56 <sup>w</sup> , 01:13, 02:34-02:35:03, 02:56:01-02:56:02, 02:62, 02:103, 02:135, 03:01:01:01-03:01:22, 03:01:24-03:07, 03:09-03:11N, 03:13-03:31, 03:33-03:35, 03:37-03:40, 03:42-03:56, 03:58, 03:60-03:71, 03:73-03:87, 03:90-03:106, 03:109-03:110, 03:112-03:141, 03:143-03:151, 03:153-03:171, 03:174-03:175, 25:01:01-25:05, 25:07-25:23, 26:01:01-26:01:20, 26:01:22-26:01:29, 26:02:01 <sup>w</sup> , 26:03:01-26:03:02, 26:05-26:08, 26:10-26:28, 26:29 <sup>w</sup> , 26:30-26:33, 26:35-26:43:02, 26:45-26:48, 26:49 <sup>w</sup> , 26:50-26:72, 26:74-26:77, 26:79-26:90, 26:92-26:94, 30:55, 34:08, 43:01, 66:01:01, 66:04-66:09, 66:10 <sup>w</sup> , 66:11-66:15, 66:17-66:19, 68:71, 74:13
<b>13<sup>6,7,10,12</sup></b>	80 bp, 115 bp, 200 bp, 240 bp, 460 bp	1070 bp	A26, A29, A31, A34,	*02:237, 02:309, 02:454, 03:95, 26:19, 26:22, 29:01:01:01-29:55, 31:03-31:04, 32:42, 34:04, 66:09
<b>14<sup>6,12</sup></b>	90 bp, 135 bp, 205 bp	1070 bp	A1, A30	*01:13, 01:28, 03:43, 03:82, 11:113, 30:01:01-30:04:02, 30:06-30:20, 30:22-30:78N, 31:35
<b>15</b>	240 bp, 380 bp	1070 bp	A24, A31, A32	*02:237, 03:95, 29:14, 31:01:02-31:79, 32:05, 33:53
<b>16</b>	140 bp, 180 bp	1070 bp	A29, A32	*01:95, 03:43, 03:82, 24:243, 29:13, 29:39, 31:35, 32:01:01-32:03, 32:05-32:59, 74:07
<b>17</b>	200 bp, 390 bp	1070 bp	A32, A33, A68, A74	*02:243:01-02:243:02, 29:48, 32:15, 33:01:01-33:01:07, 33:03:01-33:37, 33:39-33:52, 33:54-33:74N, 68:29, 74:04
<b>18</b>	340 bp, 375 bp	<b>800 bp</b>	A2, A19, A68, A74	*01:121, 02:65, 02:407, 02:449, 68:25, 74:01-74:06, 74:08-74:19
<b>19<sup>12</sup></b>	210 bp, 240 bp	<b>800 bp</b>	A2, A210, A25, A30, A68	*02:34-02:35:03, 02:46, 02:48, 02:56:01-02:56:02, 02:62, 02:70, 02:78, 02:103, 02:129, 25:05, 26:54, 68:01:01:01-68:106
<b>20<sup>6</sup></b>	65 bp, 240 bp, 375 bp	<b>800 bp</b>	A2, A26, A28, A32, A66, A68, A69	*02:55, 02:149, 02:243:01-02:243:02, 02:309, 23:57, 24:82, 26:22, 31:41, 32:06, 33:22, 66:06, 66:09, 68:29, 68:105, 69:01-69:02
<b>21<sup>6,12</sup></b>	75 bp, 160 bp, 240 bp, 495 bp	<b>800 bp</b>	A2, A26, A68, A80	*02:55, 03:41, 03:63, 03:75, 03:88, 11:130, 24:18, 24:204, 24:213, 26:03:01-26:03:02, 26:05-26:06, 26:21, 26:30, 26:78, 33:24, 36:02, 68:05, 68:15, 68:20, 80:01:01:01-80:01:01:02, 80:03

<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 HLA-A low resolution SSP typings.

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

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



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

<sup>3</sup>The serological reactivity of all HLA-A alleles is not known. The grouping of not serologically defined alleles is taken from Tissue Antigens 73, 95-170, 2009.

<sup>4</sup>For several HLA Class I alleles 1<sup>st</sup> and/or 4<sup>th</sup> 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>5</sup>Only HLA-A alleles will be amplified by the 21 wells of the HLA-A low resolution primer set, wells 1 to 21, except that a few HLA-B alleles will be amplified by primer mixes 5 and 8.

<sup>6</sup>HLA-specific PCR products shorter than 125 base pairs have a lower intensity and are less sharp than longer PCR products.

<sup>7</sup>The primer pairs in vials 1, 2, 9, 10 and 13 will in many samples give rise to two or three HLA-specific PCR fragments.

<sup>8</sup>Primer mix 5 may give rise to a lower yield of A\*23 alleles than the other A low primer mixes.

<sup>9</sup>Primer mix 8 may weakly amplify the A\*34 alleles.

<sup>10</sup>Primer mix 13 may give rise to a lower yield of HLA-specific PCR product than the other HLA-A low primer mixes.

<sup>11</sup>Primer mix 3 may faintly amplify the A\*30:04:01-30:04:02, 30:06, 30:17, 30:29, 30:46 and 30:77 alleles.

<sup>12</sup>Primer mixes 5, 9, 13, 14, 19 and 21 may have a tendency of giving rise to primer oligomer formation. ‘w’, might be weakly amplified.

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## SPECIFICITY TABLE

### HLA-B low resolution primer set

Specificities and sizes of the PCR products of the 43 primer mixes used for HLA-B low resolution SSP typing

Primer Mix	Size of spec. PCR product <sup>1</sup>	Size of control band <sup>2</sup>	HLA-B serol. <sup>3</sup>	Amplified HLA-B alleles <sup>4,5</sup>
<b>22<sup>10</sup></b>	285 bp	<b>800 bp</b>	7, 15, 37, 40, 41, 42, 48	*07:02:01-07:02:38, 07:03-07:06, 07:08-07:18:02, 07:20-07:32, 07:34-07:39, 07:41-07:52, 07:54-07:59, 07:61-07:76, 07:79-07:83, 07:85-07:99, 07:101-07:121, 07:123-07:138, 07:140-07:164, 07:166-07:192, 07:194-07:195, 07:199-07:204, 08:01:01-08:01:20, 08:01:22-08:05, 08:07-08:08N, 08:10-08:11, 08:13-08:15, 08:17-08:83, 08:85-08:88, 08:90-08:102, 08:104-08:106, 08:108-08:112, 35:66, 35:87, 37:07, 40:15-40:16, 40:30-40:32, 40:34, 40:45, 40:59, 40:80, 40:98, 40:137, 40:160:01-40:160:02, 41:02:01-41:02:05, 41:04, 41:10-41:11, 41:13, 41:18-41:19, 41:23-41:24, 41:27, 42:01:01-42:02, 42:05:01-42:07, 42:09-42:13, 42:15-42:20, 44:150, 44:166, 48:01:01-48:01:04, 48:05-48:12, 48:14-48:20, 48:22, 48:27-48:32, 53:15, 81:01-81:06
<b>23</b>	215 bp	1070 bp	8, 15, 44	*08:01:01-08:05, 08:07-08:25, 08:27-08:49, 08:51-08:61, 08:63-08:64, 08:66-08:84, 08:86N-08:93, 08:95-08:113, 15:142, 15:180, 35:218, 44:49, 44:156, 49:25, 51:68
<b>24</b>	140 bp, 235 bp	1070 bp	7, 8, 13, 15, 35, 40, 4005, 44, 46, 53, 57, 58	*07:20, 07:24, 07:60, 07:100, 07:131, 08:21, 08:25, 13:01:01-13:04, 13:06-13:08, 13:10-13:23, 13:25-13:38, 13:40-13:57, 13:59-13:66, 13:68-13:71, 15:07:01-15:07:02, 15:36 <sup>w</sup> , 15:45, 15:55, 15:68, 15:89 <sup>w</sup> , 15:126, 15:207, 35:05:01-35:05:03, 35:16-35:17:01, 35:22, 35:30, 35:51, 35:58, 35:72, 35:89, 35:97, 35:113-35:114, 35:125, 35:164, 35:199, 35:232, 40:05, 40:71, 40:174, 44:08 <sup>w</sup> , 44:54, 44:57 <sup>w</sup> , 44:60, 44:106, 44:110, 44:135, 44:158, 46:12, 51:64, 51:148, 53:14, 55:51, 58:18, <b>C*03:05, C*03:25, C*03:27, C*03:143, C*03:167</b>
<b>25<sup>7,8</sup></b>	130 bp, 265 bp	<b>800 bp</b>	13, 14, 15, 35, 40, 41, 44, 45, 47, 49, 50	*13:01:01-13:04, 13:06-13:13, 13:15-13:23, 13:25-13:57, 13:59-13:71, 14:01:01-14:02:08, 14:03-14:04, 14:07N, 14:09, 14:11-14:12, 14:14-14:36, 15:46, 15:53, 15:106, 15:212, 18:44:01-18:44:02, 35:46-35:47, 35:63, 35:154, 35:207, 35:217, 40:01:01-40:01:31, 40:07, 40:10:01-40:10:02, 40:14:01-40:16, 40:22N-40:23, 40:25, 40:30-40:34, 40:36, 40:38, 40:42-40:43, 40:45, 40:47-40:49, 40:51-40:55, 40:58-40:63, 40:65-40:67, 40:69, 40:72:01-40:73, 40:76-40:77, 40:79-40:81, 40:84, 40:87:01-40:88, 40:92, 40:100-40:102, 40:106, 40:108, 40:110, 40:112-40:114, 40:116-40:118N, 40:121, 40:123-40:126, 40:128-40:130:01, 40:132, 40:134-40:136, 40:139-40:141, 40:146-40:147, 40:150-40:156, 40:158, 40:160:01-40:160:02, 40:163-40:164, 40:166, 40:168, 40:171-40:172, 40:175, 40:178-40:179, 40:182-40:183, 40:186-40:188, 40:191-40:199, 40:204, 40:207-40:208, 40:212-40:213, 40:215-40:219, 40:221-40:223, 40:227-40:228, 40:231, 40:233-40:242, 40:245, 40:247, 40:249, 41:01-41:29, 44:02:01:01-44:03:06, 44:03:08-44:03:15, 44:03:17-44:03:18,

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<b>26<sup>8</sup></b>	185 bp, 235 bp	<b>800 bp</b>	14, 16, 27, 37, 38, 39, 47, 64, 67	*07:02:32, 07:197, 14:01:01-14:01:04, 14:07N-14:08, 14:10, 14:12, 14:14, 14:19, 14:26, 14:32, 27:01-27:05:15, 27:05:17-27:05:19, 27:05:21-27:06, 27:07:04-27:10, 27:12-27:13, 27:16-27:18, 27:20, 27:23, 27:26-27:27, 27:29, 27:31, 27:35-27:37, 27:39-27:42, 27:44-27:46, 27:48-27:61, 27:64N-27:69, 27:72-27:75, 27:77-27:80, 27:82-27:107, 37:02, 38:01:01-38:02:02, 38:02:04-38:03, 38:07-38:24, 38:26-38:32, 38:34N-38:45, 39:01:01:01-39:01:01:03, 39:01:03-39:01:08, 39:01:10-39:02:01, 39:03, 39:05:01-39:06:02, 39:07-39:09, 39:11, 39:14-39:15, 39:18, 39:19:02, 39:22, 39:24:01-39:39:01, 39:40:01N-39:44, 39:46-39:48, 39:50-39:62, 39:64-39:71, 39:73-39:75, 39:77, 39:79-39:82, 47:04-47:05, 48:21, 48:26, 67:01:01, 67:03
<b>27<sup>9</sup></b>	190 bp	<b>800 bp</b>	14, 35, 38, 39, 65	*07:28, 08:87, 14:02:01-14:02:02, 14:02:04-14:02:05, 14:02:07-14:06:02, 14:09, 14:11, 14:13, 14:15-14:18, 14:20, 14:22-14:23, 14:25, 14:27, 14:29-14:31, 14:33-14:37, 15:77, 15:189, 15:233, 35:26, 38:05, 38:33, 39:04, 44:16, 44:37:01-44:37:02, 44:64:01-44:64:02, 44:91, 44:132, 44:150, 52:26, 57:04, <b>A*23:31, A*24:106, C*07:231, C*16:10</b>
<b>28</b>	290 bp	<b>1070 bp</b>	15, 62, 63, 75, 76, 77, 46	*15:01:01:01-15:01:03, 15:01:06-15:02:06, 15:03:03, 15:04-15:08, 15:10:02-15:11:03, 15:11:05-15:15, 15:17:01:01-15:17:02, 15:19-15:21, 15:24:01-15:28, 15:30-15:36, 15:38:01-15:40, 15:42-15:46, 15:48, 15:50, 15:55-15:58, 15:60, 15:63, 15:65-15:66, 15:70-15:71, 15:73, 15:75-15:79N, 15:81-15:89, 15:92, 15:94N, 15:96-15:97, 15:101-15:102, 15:104-15:107, 15:109-15:113, 15:116-15:118, 15:120-15:122, 15:125-15:126, 15:128-15:129, 15:135-15:150, 15:152, 15:154-15:155, 15:157, 15:159-15:160, 15:162-15:172, 15:174-15:175, 15:177-15:179, 15:181N-15:185, 15:187-15:196, 15:199, 15:201-15:209N, 15:211, 15:213-15:219, 15:223-15:225, 15:227-15:228, 15:230-15:234, 15:236-15:237, 15:239-15:241, 15:244-15:251, 15:256-15:262N, 15:264-15:265, 15:267-15:273, 15:276-15:280, 15:283-15:289, 15:291, 46:01:01-46:43, <b>C*01:73, C*07:02:30, C*08:16:02</b>
<b>29</b>	165 bp, 220 bp, 285 bp, 330 bp	<b>1070 bp</b>	8, 15, 35, 37, 40, 41, 42, 44, 45, 51, 56, 57, 70, 71, 72	*08:01:01-08:05, 08:08N-08:13, 08:15-08:27, 08:29-08:36, 08:38-08:48, 08:50-08:73, 08:75-08:76, 08:78, 08:80-08:86N, 08:88, 08:90-08:106, 08:109-08:110, 08:112-08:113, 13:46, 15:03:01-15:03:04, 15:09-15:10:02, 15:18:01-15:18:05, 15:23, 15:29, 15:37, 15:46-15:47:02, 15:49, 15:51-15:54, 15:61-15:62, 15:64:01-15:64:02, 15:69, 15:72, 15:74, 15:80, 15:83, 15:90-15:91, 15:93, 15:98-15:99, 15:103, 15:106, 15:108, 15:114-15:115, 15:119, 15:123-15:124, 15:127, 15:131-15:134, 15:143, 15:151, 15:153, 15:156, 15:158, 15:161, 15:173, 15:176, 15:186, 15:197-15:198, 15:200, 15:210, 15:212, 15:220-15:221, 15:226N, 15:229, 15:235, 15:238, 15:242-15:243, 15:252-15:253, 15:255, 15:259, 15:263, 15:266, 15:274-15:275, 15:281-15:282, 15:290, 35:87, 37:12, 38:30, 40:12, 40:136,

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<b>30</b> <sup>8,9,11</sup>	165 bp, 190 bp, 390 bp	1070 bp	15, 35, 40, 44, 51, 52, 56, 58, 62, 63, 70, 78	*13:62, 15:01:02, 15:09, 15:16:01-15:17:02, 15:67, 15:95, 15:162, 15:168, 15:177, 15:196, 15:208, 15:216, 15:222, 15:230, 15:243, 15:254, 15:268, 15:273, 15:277-15:278, 35:01:10, 35:04:02, 40:26, 40:28, 44:62, 49:18, 50:14, 51:01:01-51:01:03, 51:01:05-51:02:03, 51:02:05-51:09:02, 51:11N-51:12, 51:13:02-51:14, 51:16-51:23, 51:24:03-51:24:05, 51:26-51:33, 51:37-51:41N, 51:43-51:44N, 51:46, 51:48-51:61:02, 51:63-51:80, 51:82-51:91, 51:94-51:98N, 51:100-51:130, 51:132-51:142, 51:145-51:147, 51:149N-51:154, 52:01:01:01-52:01:04, 52:01:06-52:01:14, 52:01:16-52:13, 52:15-52:24, 52:26-52:32, 53:28, 56:05:01-56:06, 56:21, 58:08:01-58:08:02, 78:01:01-78:07
<b>31</b>	180 bp	<b>800 bp</b>	13, 15, 40, 55, 62, 70, 71, 72, 75	*07:78, 13:01:01-13:02:15, 13:07N-13:09, 13:11, 13:14-13:20, 13:22:01-13:23, 13:25, 13:27-13:34, 13:36-13:45, 13:47, 13:49N-13:50, 13:52, 13:54-13:58, 13:60-13:61, 13:63N-13:70, 40:48, 45:10, 49:07, 50:31, 54:26, 55:09, 55:22, 55:24
<b>32</b> <sup>6</sup>	105 bp, 195 bp	1070 bp	7, 8, 15, 27, 38, 39, 40, 44, 45, 48, 55, 72	*07:27, 07:50, 08:04, 08:17, 08:54, 08:110, 15:03:01-15:03:04, 15:47:01-15:47:02, 15:49, 15:54, 15:61-15:62, 15:64:01-15:64:02, 15:68-15:69, 15:91, 15:98, 15:103, 15:123, 15:127, 15:131-15:132, 15:151, 15:156, 15:158, 15:173, 15:210, 15:220, 15:235, 15:242, 15:253, 15:259, 15:266, 15:274, 15:281-15:282, 18:37, 27:18, 27:29, 37:28, 38:03, 39:02:01-39:02:02, 39:08, 39:13:01-39:13:02, 39:23, 39:39:01-39:39:02, 39:49, 40:12, 40:46, 40:93, 42:11, 44:10, 44:15, 44:18, 44:40, 44:44, 44:130, 44:140, 44:156, 45:01, 45:05-45:07, 45:11-45:14, 48:01:01-48:05, 48:07-48:30, 48:32, 49:20, 50:02, 52:16, 55:18, 82:01-82:03
<b>33</b>	195 bp	1070 bp	15, 35, 37, 38, 44, 45, 58, 76	*15:12, 15:14, 15:19, 15:91, 15:131, 15:161, 15:270, 18:54, 18:56, 35:45, 35:71, 37:01:01-37:09, 37:12-37:13, 37:15-37:21, 37:23-37:28, 37:30N-37:33N, 37:35-37:36, 37:38-37:42N, 38:17, 44:17, 44:43:01-44:43:02, 44:144, 45:09, 46:17, 53:22, 58:07, <b>A*24:174</b>
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<b>54</b>	430 bp	1070 bp	27, 40, 44, 45, 51, 52, 53, 57, 58, 59	*18:67, 27:02:01-27:02:02, 27:30, 27:53, 27:57, 27:62, 27:65N, 27:75, 27:77, 27:83, 27:95, 27:102, 37:34, 40:13, 40:19, 40:109, 40:117, 44:06, 44:25, 44:50:01, 44:95, 51:01:01-51:01:39, 51:01:41-51:24:05, 51:26-51:46, 51:48- 51:53, 51:55-51:77, 51:79-51:154, 52:01:01:01-52:19, 52:21-52:32, 53:01:01-53:02, 53:04-53:08:02, 53:10, 53:14- 53:30, 57:01:01-57:11, 57:13-57:68, 58:01:01-58:02, 58:04- 58:16:02, 58:18-58:29, 58:31N-58:48
<b>55<sup>8</sup></b>	145 bp	1070 bp	15, 35, 40, 41, 44, 45, 47, 50, 72	*07:133, 15:46, 15:53, 15:106, 15:143, 15:212, 18:48, 35:19, 35:47, 35:63, 35:154, 35:217, 39:69, 40:01:01- 40:11:02, 40:14:01-40:16, 40:18, 40:20, 40:22N-40:40, 40:42-40:45, 40:48-40:75, 40:77-40:92, 40:94-40:95, 40:97- 40:108, 40:111-40:116, 40:118N-40:136, 40:138-40:156, 40:158-40:184, 40:186-40:187, 40:189-40:200, 40:202- 40:207, 40:210-40:249, 41:01-41:04, 41:05 <sup>2</sup> , 41:06-41:25, 41:27-41:29, 44:09, 44:46, 44:75, 44:90, 44:129, 44:131, 45:01-45:14, 47:02, 47:03 <sup>w</sup> , 50:01:01-50:02, 50:04-50:05, 50:07-50:20, 50:31-50:34
<b>56</b>	300 bp	1070 bp	7, 8, 13, 15, 18, 27, 35, 37, 38, 39, 40, 41, 44, 45, 46, 47, 48, 49, 50, 52, 55, 57, 58, 62, 72, 76, 78	*07:54, 07:123, 08:17, 08:38, 08:54, 08:101, 13:01:01- 13:04, 13:06, 13:08-13:23, 13:25-13:35, 13:37-13:71, 15:01:01:01-15:01:04, 15:01:06-15:01:18, 15:01:20- 15:01:33, 15:03:01-15:07:02, 15:12, 15:14, 15:19-15:20, 15:24:01-15:27:03, 15:30, 15:32-15:36, 15:38:01-15:40, 15:42-15:43, 15:45-15:50, 15:53-15:54, 15:56-15:58, 15:60- 15:63, 15:65-15:66, 15:68-15:71, 15:73-15:75, 15:77- 15:79N, 15:81-15:87, 15:91-15:92, 15:94N, 15:96-15:98, 15:101-15:107, 15:109-15:111N, 15:113, 15:116-15:118, 15:122-15:123, 15:125-15:129, 15:131-15:132, 15:135- 15:138, 15:140-15:142, 15:145-15:147, 15:150-15:152, 15:154-15:160, 15:163-15:167, 15:169, 15:171-15:175, 15:178-15:179, 15:181N-15:185, 15:187-15:188, 15:190N, 15:192-15:193, 15:195, 15:199, 15:201-15:207, 15:210- 15:212, 15:217-15:220, 15:224-15:225, 15:227-15:228, 15:231-15:237, 15:239-15:245Q, 15:247-15:251, 15:253, 15:255-15:262N, 15:264, 15:266-15:267, 15:269-15:272N, 15:274, 15:276-15:282, 15:286-15:289, 18:12, 27:01-27:21, 27:24-27:91, 27:93-27:107, 35:10, 35:13, 35:16, 35:28, 35:63, 35:69, 35:80, 35:207, 35:226, 37:01:01-37:07, 37:09- 37:42N, 38:03-38:04, 38:25, 39:02:01-39:02:02, 39:08, 39:13:01-39:13:02, 39:22-39:23, 39:49, 40:01:01-40:07, 40:09-40:16, 40:18-40:24, 40:26-40:40, 40:42-40:67, 40:70- 40:105, 40:107-40:165, 40:167-40:231, 40:233-40:249, 41:01-41:29, 42:11, 44:02:01:01-44:02:21, 44:02:23- 44:05:04, 44:07-44:11, 44:13-44:170, 44:172-44:183, 45:01-45:14, 47:01:01:01-47:08, 48:01:01-48:05, 48:07- 48:15, 48:17-48:32, 49:01:01-49:25, 50:01:01-50:02, 50:04- 50:14, 50:16-50:20, 50:31-50:34, 52:01:01:01-52:32, 53:17:01-53:17:02, 53:28, 55:18, 55:34, 55:40, 78:05-78:06
<b>57<sup>8,9,12</sup></b>	160 bp, 330 bp	1070 bp	15, 37, 44, 54	*08:87, 44:02:01:01-44:02:29, 44:06, 44:08-44:09, 44:11- 44:12, 44:16, 44:19N-44:24, 44:27:01-44:27:02, 44:33- 44:34:02, 44:41:01-44:41:02, 44:44, 44:48-44:49, 44:52N- 44:53, 44:55, 44:59:01-44:59:02, 44:63, 44:66-44:68, 44:71- 44:74, 44:80, 44:83-44:84:02, 44:86-44:87, 44:89-44:91, 44:93, 44:95, 44:97, 44:99-44:102, 44:104, 44:106, 44:112- 44:113, 44:116, 44:118-44:119, 44:121, 44:126:01-44:127,



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<b>58</b>	180 bp, 210 bp	1070 bp	7, 13, 15, 18, 35, 39, 40, 45, 54, 55, 56, 59, 78	44:131-44:132, 44:137-44:138Q, 44:142, 44:145, 44:148-44:149N, 44:151-44:152, 44:162, 44:168-44:173, 44:176-44:177, 44:179, 54:01:01, 54:01:03-54:30, 83:01 *07:65, 13:06, 13:53, 14:37, 15:42, 15:86, 15:224, 18:04, 35:08:05, 35:42:02, 35:60, 35:185, 39:17, 39:63, 40:01:11, 40:58, 45:08, 46:18, 46:40, 54:01:01-54:02, 54:05N, 54:07-54:08N, 54:10, 54:12-54:13, 54:16-54:25, 54:27-54:30, 55:01:01-55:03, 55:05, 55:07, 55:10-55:12, 55:15-55:16, 55:18-55:19, 55:21, 55:25-55:26, 55:29-55:31, 55:33-55:45, 55:47-55:48, 55:50, 55:52-55:57, 55:59-55:60, 56:05:01, 56:06, 56:10, 56:23, 59:01:01:01-59:01:01:02, 59:05-59:06, 78:01:01-78:01:02, 78:02:02-78:03, 78:07, <b>C*15:02:04</b>
<b>59</b>	180 bp	1070 bp	13, 15, 40, 44, 45, 46, 49, 50, 51, 54, 56	*13:03, 13:48, 15:73, 40:71, 44:10, 44:15, 44:18, 44:140, 45:01, 45:04-45:07, 45:11-45:14, 46:11, 49:01:01-49:03, 49:06, 49:08-49:17, 49:19N-49:26, 50:01:01-50:02, 50:04-50:08, 50:10-50:13, 50:15-50:19, 50:32, 50:34, 51:15, 51:62, 51:106, 52:25, 54:03, 56:01:01-56:01:04, 56:01:06-56:02, 56:04, 56:07-56:08, 56:13-56:14, 56:16-56:17, 56:20:01-56:20:02, 56:24-56:30, 56:33-56:43, 59:04, 82:01-82:03, <b>C*03:19, C*03:102</b>
<b>60<sup>6,10</sup></b>	90 bp, 240 bp	<b>800 bp</b>	55, 57	*55:14, 57:01:01-57:44, 57:46-57:50, 57:52-57:68, 58:36, <b>C*06:72</b>
<b>61<sup>6</sup></b>	95 bp	1070 bp	7, 8, 18, 35, 37, 38, 39, 44, 51, 52, 53, 78	*07:65 <sup>w</sup> , 07:134 <sup>w</sup> , 08:32, 18:01:01:01-18:11, 18:13-18:15, 18:17N-18:36, 18:38-18:47, 18:49-18:65, 18:67-18:94N, 35:01:01:01-35:08:04, 35:08:06-35:09:03, 35:11:01-35:12:03, 35:14:01-35:15, 35:17:01-35:18, 35:20:01-35:24:02, 35:27, 35:29:01-35:45, 35:48, 35:50-35:62, 35:64:01-35:68:02, 35:70-35:72, 35:74-35:75, 35:76 <sup>w</sup> , 35:77-35:79, 35:81-35:153, 35:155-35:185, 35:187-35:190, 35:192-35:197, 35:199-35:206, 35:208-35:209, 35:211-35:216N, 35:218-35:225, 35:227-35:240, 37:08, 38:06-38:07, 39:19:01-39:19:02, 44:06, 51:01:01-51:24:05, 51:26-51:46, 51:48-51:103, 51:105-51:111, 51:113-51:117, 51:119-51:146, 51:148-51:154, 53:01:01-53:16, 53:18-53:27, 53:29, 53:31, 56:06 <sup>w</sup> , 78:01:01-78:04, 78:07
<b>62<sup>6,8,10</sup></b>	115 bp, 150 bp	1070 bp	15, 18, 27, 35, 39, 46, 54, 55, 56, 62, 73, 75, 76	*07:100, 13:31, 13:41, 15:01:01:01-15:01:04, 15:01:06-15:01:16, 15:01:18-15:01:30, 15:01:32-15:01:33, 15:04, 15:07:01-15:08, 15:11:01-15:12, 15:14-15:15, 15:19, 15:24:01-15:24:02, 15:26N-15:28, 15:30, 15:32, 15:34-15:35, 15:38:01-15:38:02, 15:43, 15:45-15:46, 15:50, 15:53-15:54, 15:56-15:58, 15:60, 15:63, 15:66, 15:68, 15:70-15:71, 15:73, 15:75-15:77, 15:79N, 15:81-15:82, 15:85, 15:87, 15:92, 15:94N, 15:96-15:97, 15:101-15:102, 15:104-15:105, 15:109-15:111N, 15:113, 15:117-15:118, 15:120, 15:122, 15:125-15:126, 15:128-15:129, 15:135, 15:137, 15:140, 15:142-15:149N, 15:152, 15:154, 15:157, 15:159-15:160, 15:163-15:167, 15:169, 15:171-15:172, 15:174-15:175, 15:178, 15:180-15:184, 15:187, 15:189-15:193, 15:201-15:203, 15:205-15:207, 15:209N, 15:211-15:212, 15:215, 15:217, 15:225, 15:227-15:228, 15:231-15:234, 15:236, 15:239, 15:241, 15:244-15:247, 15:251, 15:256-15:262N, 15:264, 15:267, 15:269-15:270, 15:272N, 15:276-15:280, 15:284-15:286, 18:19, 27:25, 27:75, 35:14:01-35:14:02, 35:43:01-35:44, 35:62, 35:67, 35:79, 35:86, 35:102, 35:117, 35:135, 35:163, 35:185, 35:213, 39:18, 39:36, 44:146, 46:01:01-46:02, 46:04-46:05, 46:07N,

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				46:09-46:10, 46:12, 46:14-46:17, 46:20, 46:22-46:24, 46:26-46:32, 46:34-46:42, 51:61:01-51:61:02, 52:21, 54:06, 55:21, 56:03, 56:43, 73:01-73:02, <b>A*26:68, A*68:56,</b> <b>C*02:56, C*06:20, C*12:50</b>
<b>63</b> <sup>15</sup>	360 bp	1070 bp	Bw4	
<b>64</b>	350 bp	1070 bp	Bw6	

<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 HLA-B low resolution SSP typings.

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

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

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

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

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

<sup>3</sup> The serological reactivity of all HLA-B alleles is not known. The grouping of not serologically defined alleles is taken from Tissue Antigens 73, 95-170, 2009.

<sup>4</sup> For several HLA Class I alleles 1<sup>st</sup> and/or 4<sup>th</sup> 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>5</sup> Only HLA-B alleles will be amplified by the 43 wells of the HLA-B low resolution, primer set, wells 22 to 64, except that a few HLA-A and HLA-C alleles will be amplified by primer mixes 24, 25, 27, 28, 29, 33, 37, 39, 40, 41, 45, 48, 49, 58, 59, 60, 62.

<sup>6</sup> HLA-specific PCR products shorter than 125 base pairs have a lower intensity and are less sharp than longer PCR products.

<sup>7</sup> Primer mix 25 may give rise to a lower yield of HLA-specific PCR product than the other HLA-B low resolution primer mixes in B\*40, B\*41, B\*45, B\*49 and B\*50 alleles.

<sup>8</sup> Primer mixes 25, 26, 30, 41, 55, 57 and 62 may give rise to a lower yield of HLA-specific PCR product than the other HLA-B low resolution primer mixes.

<sup>9</sup> Primer mixes 27, 30, 40 and 57 may have tendencies of unspecific amplifications, most pronounced in primer mix 30.

<sup>10</sup> Primer mixes 22, 34, 35, 39, 40, 42, 60 and 62 have a tendency to giving rise to primer oligomer formation.

<sup>11</sup> The B\*15, B\*46, B\*57, B\*58 and C\*03 alleles may be faintly amplified by primer mix 30.

<sup>12</sup> Primer mix 57 may give rise to a lower yield of B\*54 alleles than the other B low primer mixes.

<sup>13</sup> The C\*17:01 to C\*17:04 alleles might be faintly amplified by primer mix 45.

<sup>14</sup> Primer mix 50 might generate a false band of about 800 base pairs. This band should be disregarded when interpreting HLA-B low resolution typings.

<sup>15</sup> The Bw4-associated HLA-A specificities A23, A24, A2403, A25 and A32 are not amplified by the primer pair in primer mix 63.

'w', might be weakly amplified.

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

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Lot-specific information  
**SPECIFICITY TABLE**

**DR low resolution primer set**

**Specificities and sizes of the PCR products of the 23 primer mixes used for DR low resolution SSP typing**

Primer Mix	Size of spec. PCR product <sup>1</sup>	Size of control band <sup>2</sup>	DR serology <sup>3</sup>	Amplified HLA-DRB alleles <sup>4</sup>
65 <sup>6,7</sup>	205 bp, 255 bp	515 bp	1	*01:01:01-01:02:08, 01:04-01:38, 01:40N-01:60
66	200 bp	430 bp	103	*01:03, 01:39N, 01:42
67 <sup>9</sup>	200 bp, 225 bp	430 bp	15	*15:01:01:01-15:100
68	210 bp	430 bp	16	*16:01:01-16:05:02, 16:07-16:24
69 <sup>5,6,11</sup>	120 bp, 220 bp	430 bp	3, 17, 18, 11	*03:01:01:01-03:75, 03:77-03:93, 11:07, 11:53, 11:103, 11:105, 11:107, 11:125, 15:25
70 <sup>5,11</sup>	80 bp, 210 bp	430 bp	3, 17, 11, 13, 14	*03:01:01:01-03:01:22, 03:04:01-03:06, 03:08-03:16, 03:18-03:20, 03:22-03:23, 03:25-03:26, 03:28, 03:30-03:31, 03:33-03:34, 03:36-03:37, 03:43-03:48, 03:50-03:52, 03:54-03:68N, 03:70-03:73, 03:75-03:86, 03:89, 03:91-03:93, 08:40, 11:02:01-11:03, 11:11:01-11:11:02, 11:14:01-11:14:02, 11:16, 11:20-11:21, 11:36, 11:40-11:41, 11:48, 11:59, 11:63, 11:65:01-11:65:02, 11:68, 11:70, 11:73, 11:76, 11:79-11:80, 11:83, 11:85-11:87, 11:93, 11:118, 11:122, 11:124, 11:127, 11:131-11:132, 11:135, 11:138-11:139, 11:142, 13:01:01-13:04, 13:08, 13:10, 13:15-13:17, 13:19-13:20, 13:22-13:24, 13:27-13:29, 13:31-13:41, 13:43, 13:45, 13:48, 13:51-13:54, 13:57, 13:59, 13:61:01-13:61:02, 13:63-13:66:02, 13:68-13:76, 13:78-13:81, 13:83-13:85, 13:87-13:99, 13:101-13:102, 13:104-13:107, 13:109, 13:111-13:117, 13:120-13:131, 13:133, 13:135, 13:137N-13:145, 13:147-13:149, 13:151-13:153, 13:155, 13:159, 13:162, 14:16, 14:19, 14:21, 14:82, 14:95, 14:109, 14:132, 14:137N
71 <sup>5</sup>	85 bp, 210 bp	430 bp	3, 18, 11, 13, 14	*03:02:01-03:03, 03:27, 03:29, 03:38, 03:53, 03:74, 03:88, 03:90, 11:13:01 <sup>w</sup> -11:13:02 <sup>w</sup> , 11:26, 11:34, 13:15, 13:19, 13:26:01-13:26:02, 13:44, 13:53, 13:57, 13:85-13:86, 13:104, 14:02-14:03:02, 14:06:01-14:06:02, 14:09, 14:12:01-14:13, 14:17-14:21, 14:24, 14:27, 14:29-14:30, 14:32:01 <sup>w</sup> -14:32:02 <sup>w</sup> , 14:33, 14:40-14:41, 14:47-14:49, 14:51, 14:63, 14:65 <sup>w</sup> , 14:67, 14:77-14:78, 14:80-14:81, 14:83, 14:85, 14:89, 14:94, 14:98, 14:102, 14:106, 14:108-14:109, 14:115, 14:119, 14:121, 14:135
72 <sup>5,6,7</sup>	100 bp, 175 bp	430 bp	3, 4	*04:01:01-04:05:11, 04:05:13-04:164
73	210 bp, 235 bp	430 bp	7, 13, 14	*07:01:01:01-07:01:07, 07:03-07:28, 12:22, 13:17, 13:116, 14:50

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<b>74<sup>6</sup></b>	170 bp, 215 bp, 250 bp	<b>515 bp</b>	8, 12, 14	*08:01:01-08:19, 08:21-08:54, 11:67, 12:04, 12:16:01-12:16:03, 12:22, 12:39, 14:11, 14:15, 14:68, 14:93
<b>75<sup>5,6</sup></b>	90 bp, 135 bp, 180 bp	430 bp	3, 9, 11	*03:08, 03:65, 09:01:02-09:20, 09:22, 11:07, 11:53, 11:103, 11:105, 11:107, 11:125
<b>76<sup>7</sup></b>	175 bp	430 bp	10	*03:76, 10:01:01-10:06, 11:59, 11:80, 11:83, 11:87, 11:135, 11:142, 13:27, 13:41, 13:71, 13:129
<b>77<sup>5,6</sup></b>	100 bp, 170 bp	430 bp	11, 3, 8	*03:08, 03:65, 08:31, 08:41, 11:01:01-11:70, 11:72- 11:149
<b>78<sup>5,6,9</sup></b>	85 bp, 110 bp	430 bp	12, 8	*08:32, 08:53, 12:01:01-12:43
<b>79<sup>7,8</sup></b>	215 bp	430 bp	6, 8, 11, 13, 14, 1403	*03:76, 08:20-08:21, 11:01:01-11:04:11, 11:06:01- 11:06:03, 11:08:01-11:12:02, 11:14:01-11:16, 11:18- 11:21, 11:23:01-11:25, 11:27:01-11:33, 11:35-11:51, 11:54:01-11:54:02, 11:56-11:66, 11:68, 11:70, 11:72- 11:81, 11:83-11:88, 11:90-11:97, 11:99-11:102:02, 11:106, 11:108-11:124, 11:126-11:135, 11:137- 11:142, 11:144-11:149, 13:01:01-13:02:01, 13:02:03- 13:08, 13:10-13:16, 13:18-13:43, 13:45-13:85, 13:87- 13:115, 13:117-13:128, 13:130-13:145, 13:147- 13:164, 14:03:01-14:03:02, 14:12:01-14:12:02, 14:16, 14:19, 14:21-14:22, 14:25, 14:27, 14:40, 14:53, 14:63, 14:67, 14:69, 14:74, 14:77-14:78, 14:84-14:85, 14:98, 14:102, 14:105, 14:109, 14:115- 14:116, 14:128, 14:135, 14:137N, 14:144, <b>DRB3*02:27</b>
<b>80<sup>6,7,8</sup></b>	195 bp, 225 bp	430 bp	13, 8, 11, 12, 14	*08:01:01-08:02:04, 08:04:01-08:09, 08:11, 08:16- 08:17, 08:20-08:22, 08:24, 08:26, 08:28, 08:31, 08:39, 08:41-08:44, 08:50, 08:52, 08:54, 11:01:01- 11:01:17, 11:01:20-11:06:03, 11:09-11:12:02, 11:14:01-11:16, 11:20-11:21, 11:23:01-11:25, 11:27:01-11:30, 11:32-11:33, 11:35-11:41, 11:43- 11:44, 11:46:01-11:51, 11:54:01-11:56, 11:58:01- 11:63, 11:65:01-11:70, 11:72, 11:74:01-11:78, 11:80- 11:88, 11:90-11:97, 11:99-11:102:02, 11:106, 11:108-11:118, 11:120-11:124, 11:126-11:129, 11:133-11:135, 11:137-11:142, 11:144-11:149, 12:02:01-12:02:05, 12:13, 12:15-12:16:03, 12:18- 12:21, 12:23, 12:26-12:27, 12:31N-12:33, 12:37, 12:42-12:43, 13:01:01-13:02:01, 13:02:03-13:02:09, 13:04-13:05:02, 13:07:01-13:09, 13:11:01-13:11:02, 13:14:01-13:24, 13:26:01-13:29, 13:31-13:32, 13:34- 13:36, 13:38-13:43, 13:45-13:55, 13:57, 13:59, 13:61:01-13:65, 13:67-13:76, 13:78-13:80, 13:83- 13:84, 13:87, 13:91-13:93, 13:96:01-13:100, 13:102- 13:109, 13:111-13:114, 13:116-13:117, 13:121, 13:123-13:132, 13:135-13:136, 13:138-13:150, 13:153, 13:155, 13:158-13:160, 13:162, 13:164, 14:15-14:16, 14:22, 14:24-14:25, 14:27, 14:37, 14:53, 14:73, 14:105, 14:128
<b>81<sup>11</sup></b>	175 bp, 240 bp	430 bp	3, 13, 14, 17, 6, 11	*03:01:01:01-03:01:05, 03:01:07-03:01:08, 03:01:10- 03:07, 03:09, 03:11:01-03:41, 03:43-03:45, 03:47- 03:63, 03:66-03:68N, 03:70-03:86, 03:88-03:91, 03:93, 08:20, 11:13:01-11:13:02, 11:149,

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				13:01:01-13:16, 13:18-13:42, 13:44, 13:46-13:66:02, 13:68-13:102, 13:104-13:115, 13:117-13:121, 13:123-13:158, 13:161-13:164, 14:01:01-14:07:02, 14:08 <sup>?</sup> , 14:09-14:14, 14:15 <sup>?</sup> -14:16 <sup>?</sup> , 14:17-14:21, 14:22 <sup>?</sup> , 14:23:01, 14:23:02 <sup>?</sup> , 14:23:03-14:24, 14:25 <sup>?</sup> -14:26 <sup>?</sup> , 14:27, 14:28 <sup>?</sup> , 14:29-14:30, 14:31 <sup>?</sup> -14:32:03 <sup>?</sup> , 14:33, 14:34 <sup>?</sup> -14:35 <sup>?</sup> , 14:36-14:37, 14:38 <sup>?</sup> -14:39 <sup>?</sup> , 14:40-14:45, 14:47-14:48, 14:49 <sup>?</sup> -14:50 <sup>?</sup> , 14:51, 14:52 <sup>?</sup> -14:53 <sup>?</sup> , 14:54:01-14:54:02, 14:55 <sup>?</sup> , 14:56-14:57, 14:58 <sup>?</sup> , 14:59, 14:60 <sup>?</sup> -14:62 <sup>?</sup> , 14:63-14:65, 14:67, 14:68 <sup>?</sup> -14:76 <sup>?</sup> , 14:77-14:78, 14:79 <sup>?</sup> , 14:80-14:85, 14:86 <sup>?</sup> -14:88 <sup>?</sup> , 14:89, 14:90 <sup>?</sup> , 14:91, 14:92N <sup>?</sup> -14:93 <sup>?</sup> , 14:94-14:96, 14:97 <sup>?</sup> , 14:98, 14:99 <sup>?</sup> , 14:100, 14:101 <sup>?</sup> , 14:102-14:103, 14:104 <sup>?</sup> -14:105 <sup>?</sup> , 14:106, 14:107 <sup>?</sup> , 14:108-14:109, 14:110 <sup>?</sup> -14:114 <sup>?</sup> , 14:115-14:116, 14:117 <sup>?</sup> -14:120 <sup>?</sup> , 14:121, 14:122 <sup>?</sup> , 14:123, 14:124 <sup>?</sup> -14:126 <sup>?</sup> , 14:127:01-14:127:02, 14:128 <sup>?</sup> -14:133 <sup>?</sup> , 14:134-14:137N, 14:138 <sup>?</sup> -14:140 <sup>?</sup> , 14:141, 14:142 <sup>?</sup> -14:143 <sup>?</sup> , 14:144
<b>82<sup>5</sup></b>	100 bp, 140 bp, 155 bp	430 bp	14, 4, 8, 13	*04:62, 04:69, 04:73, 04:105:01-04:105:02, 04:122, 04:146, 08:08, 11:69, 11:82, 13:45, 14:01:01-14:01:02, 14:01:04, 14:04, 14:07:01-14:07:02, 14:10, 14:16, 14:22, 14:25-14:26, 14:28, 14:31-14:32:03, 14:35, 14:37-14:39, 14:49-14:50, 14:53-14:54:01, 14:55, 14:57-14:58, 14:60-14:62, 14:68-14:71, 14:73-14:76, 14:79, 14:82, 14:86-14:88, 14:90, 14:93, 14:99, 14:101, 14:104-14:105, 14:107, 14:110-14:114, 14:117-14:120, 14:122, 14:124-14:125, 14:128-14:129, 14:131, 14:137N-14:140, 14:142-14:143, <b>DRB4*01:03:01:02N</b>
<b>83<sup>5,6,7,10</sup></b>	110 bp, 135 bp, 170 bp	430 bp	14, 3, 9, 11, 12, 13, 15	*03:10, 09:01:02-09:01:05, 09:01:07-09:02:02, 09:04-09:20, 09:22, 11:13:01-11:13:02, 11:17, 11:52, 13:43, 13:159, 14:01:01-14:02, 14:04-14:11, 14:13-14:14, 14:16-14:18, 14:19 <sup>w</sup> , 14:20, 14:21 <sup>w</sup> , 14:22-14:23:04, 14:26, 14:28-14:36, 14:38-14:39, 14:41, 14:43-14:52, 14:54:01-14:57, 14:59-14:62, 14:64-14:65, 14:68, 14:70-14:76, 14:79-14:83, 14:86-14:88, 14:90-14:97, 14:99-14:101, 14:103-14:108, 14:109 <sup>w</sup> , 14:110-14:114, 14:117-14:127:02, 14:129-14:134, 14:137N-14:140, 14:142-14:143, 15:27, 15:34, 15:66
<b>84<sup>5,6</sup></b>	110 bp, 175 bp, 225 bp	430 bp	14, 3, 8, 11, 13, 15, 16	*03:10, 08:09, 08:20-08:21, 08:32, 08:35, 08:36:02, 08:53, 11:13:01-11:13:02, 11:17, 11:23:01-11:23:02, 11:25, 11:31, 11:45, 11:52, 11:55, 11:64, 11:89, 11:96, 11:119, 11:148, 13:13, 13:18, 13:43, 13:45, 13:47, 13:55, 13:119, 13:144, 13:146, 13:154, 13:156, 13:158-13:159, 13:164, 14:01:01-14:01:04, 14:03:01-14:05:04, 14:07:01-14:08, 14:10-14:12:02, 14:14-14:16, 14:18, 14:22-14:23:04, 14:25-14:28, 14:31-14:32:03, 14:34-14:36, 14:38-14:40, 14:42-14:45, 14:49-14:50, 14:53-14:65, 14:67-14:79, 14:81-14:82, 14:84-14:93, 14:95-14:97, 14:99-14:105, 14:107, 14:110-14:120, 14:122-14:140, 14:142-14:144, 15:21 <sup>w</sup> , 16:04 <sup>w</sup> , 16:18 <sup>w</sup>
<b>85<sup>6,11</sup></b>	160 bp, 240 bp	430 bp	52	*14:141, <b>DRB3*01:01:02:01-01:15, DRB3*02:01-02:29N, DRB3*03:01:01-03:03</b>
<b>86<sup>7,12</sup></b>	215 bp	430 bp	53	<b>DRB4*01:01:01:01-01:08</b>

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87	175 bp	430 bp	51	DRB5*01:01:01-01:14, DRB5*02:02-02:06
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<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 DR low resolution SSP typings.

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

Nonspecific amplifications, i.e. a ladder or a smear of bands, may sometimes be seen. GC-rich primers have a higher tendency of giving rise to nonspecific amplifications than other primers, e.g. the primers in wells 67, 72, 82, 83 and 84.

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 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. In the presence of a specific amplification the intensity of the control band often decreases.

<sup>3</sup>The serological reactivity of all DRB alleles is not known. The grouping of not serologically defined alleles is taken from Tissue Antigens 73, 95-170, 2009.

<sup>4</sup>For several DRB1 alleles 1<sup>st</sup> and/or 3<sup>rd</sup> 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>5</sup>Specific PCR fragments shorter than 125 base pairs have a lower intensity and are less sharp than longer PCR bands.

<sup>6</sup>Individual alleles can give rise to two differently sized specific PCR fragments in primer mixes 65 and 69, 72, 74, 75, 77, 78, 80 and 83 to 85.

<sup>7</sup>Primer mixes 65, 72, 76, 79, 80, 83 and 86 have a tendency to giving rise to primer oligomer formation.

<sup>8</sup>Primer mixes 79 and 80 may give rise to a lower yield of HLA-specific PCR product than the other DR low resolution primer mixes.

<sup>9</sup>Primer mixes 67 and 78 may have tendencies of unspecific amplifications.

<sup>10</sup>Primer mix 83 has a tendency of primer oligomer formation and also has an intense primer cloud due to the high number of primers present in the primer mix.

<sup>11</sup>Due to sharing of sequence motifs in codon 38, DRB3\*01:14 will also be amplified in primer mixes 69, 70 and 81 in addition to primer mix 85.

<sup>12</sup>The DRB4\*01:03:01:02N allele is amplified by primer mix 86, whereas the DRB4\*02:01N and DRB4\*03:01N null alleles are not amplified by this primer mix. 'w', might be weakly amplified.

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## SPECIFICITY TABLE

### DQ low resolution primer set

Specificities and sizes of the PCR products of the 8 primer mixes used for DQ low resolution SSP typing

Primer Mix	Size of spec. PCR product <sup>1</sup>	Size of control band <sup>2</sup>	DQ serology <sup>3</sup>	Amplified DQB1 alleles <sup>4</sup>
<b>88</b>	225 bp	<b>515 bp</b>	5	*05:01:01:01-05:47
<b>89<sup>6</sup></b>	220 bp, 275 bp	<b>515 bp</b>	1, 5, 6	*06:01:01-06:119
<b>90</b>	210 bp	430 bp	2	*02:01:01-02:33
<b>91<sup>7</sup></b>	220 bp	<b>515 bp</b>	3, 7	*03:01:01:01-03:01:21, 03:04, 03:09-03:10:01, 03:13-03:14:02, 03:16, 03:19, 03:21-03:22, 03:24, 03:27-03:29, 03:35-03:36, 03:42, 03:44, 03:46-03:60, 03:69, 03:71, 03:73, 03:75-03:77, 03:80, 03:82-03:84N, 03:92-03:94
<b>92<sup>7</sup></b>	130 bp	<b>515 bp</b>	6, 8	*03:02:01-03:02:12, 03:05:01-03:05:04, 03:07-03:08, 03:11, 03:18, 03:32, 03:37, 03:45, 03:61, 03:63-03:64, 03:66N-03:68, 03:70, 03:85, 06:29
<b>93<sup>7,8</sup></b>	135 bp	<b>515 bp</b>	2, 3, 4, 9	*02:03, 03:03:02:01-03:03:10, 03:06, 03:12, 03:15, 03:20, 03:25-03:26, 03:30-03:31, 03:33-03:34, 03:38-03:41, 03:43, 03:65, 03:74, 03:79, 03:86-03:91Q, 03:95N-03:99Q, 04:03:01-04:03:02, 06:03:10, 06:51:01, 06:66, 06:96
<b>94<sup>5,8,9</sup></b>	85 bp, 185 bp	<b>515 bp</b>	3, 7, 8, 9	*03:01:01:01-03:100, 04:01:03
<b>95<sup>7</sup></b>	160 bp, 205 bp	430 bp	4	*04:01:01-04:17
<b>96<sup>10</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 DQ low resolution SSP typings. When the primers in a primer mix can give rise to HLA-specific PCR products of more than one length this is indicated if the size difference is more than 20 base pairs. Size differences of 20 base pairs or less are not given. For high resolution SSP kits, the alleles listed are specified according to amplicon length.

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

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

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

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.

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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. In the presence of a specific amplification the intensity of the control band often decreases.

<sup>3</sup>The serological split of the DQB1\*05:05-05:26, DQB1\*06:06 to 06:07 alleles, the DQB1\*06:10, 06:13, 06:15-06:24 and 06:27 to 06:84, the DQB1\*02:04-02:29, the DQB1\*03:07-03:09 and 03:11-03:72 alleles and the DQB1:04:0301-04:12 alleles is not known. In this table we have used the expert-assigned serological grouping in Tissue Antigens (2009) 73:95-170, and also inferred the serological grouping from the naming of the sequence-defined allele.

<sup>4</sup>For several DQB1 alleles 1<sup>st</sup> and/or 3<sup>rd</sup> 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>5</sup>Specific PCR products shorter than 125 base pairs have a lower intensity and are less sharp than longer PCR products.

<sup>6</sup>Primer mix 89 has a tendency to giving rise to primer oligomer formation.

<sup>7</sup>Primer mixes 91, 92, 93 and 95 may give rise to a lower yield of HLA-specific PCR product than the other DQ low resolution primer mixes.

<sup>8</sup>Primer mixes 93 and 94 may have tendencies of unspecific amplifications.

<sup>9</sup>The primer pair in well 94 will in some samples give rise to two HLA-specific PCR fragments and may give rise to a lower yield of HLA-specific PCR product than the other DQ low primer mixes.

<sup>10</sup>Primer mix 96 contains a negative control, which will amplify more than 95% of HLA amplicons as well as the amplicons generated by control primer pairs. PCR product sizes range from 75 to 200 base pairs. The PCR product generated by the control primer pair is 430 base pairs.



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**HLA-A LOW PRIMER SPECIFICATION**

Well No.	1	2	3	4	5	6	7	8	9	10	11	12
Length of spec. PCR product	120	175	205	190	135	175	165	75	80	80	125	175
	225	255	235		200	205	200		240	175	185	225
		365								500		
		415										
Length of int. pos. control <sup>1</sup>	800	800	1070	800	800	1070	800	800	800	1070	800	1070
5'-primer(s) <sup>2</sup>	98	48	363	98	176	98	98	261	98	301	103	98
	5'-CTT 3'	5'-gCT 3'	5'-ATA 3'	5'-CTA 3'	5'-gCA 3'	5'-CTC 3'	5'-CTA 3'	5'-AAC 3'	5'-CTA 3'	5'-Cgg 3'	5'-CCT 3'	5'-CTT 3'
	103	78		413	368	368	102	266	261	302	415	423
	5'-CCT 3'	5'-TCT 3'		5'-CCg 3'	5'-gTT 3'	5'-gTT 3'	5'-ACA 3'	5'-ACg 3'	5'-AAC 3'	5'-ggA 3'	5'-ggT 3'	5'-gCT 3'
	123	106					413			385	423	
	5'-AgT 3'	5'-CCA 3'					5'-CCg 3'			5'-ggC 3'	5'-gCT 3'	
	363											
	5'-ATA 3'											
3'-primer(s) <sup>3</sup>	203	240	527	256	270	259	259	302	299	341	257	282
	5'-TCT 3'	5'-ggA 3'	5'-CCA 3'	5'-CTg 3'	5'-ACA 3'	5'-gTT 3'	5'-gTT 3'	5'-ggC 3'	5'-TCg 3'	5'-CgT 3'	5'-gCA 3'	5'-gAC 3'
	545	292	527	559	521	502	259			521	506	282
	5'-AgA 3'	5'-gTg 3'	5'-CCT 3'	5'-CCg 3'	5'-ggg 3'	5'-CTT 3'	5'-gTT 3'			5'-ggg 3'	5'-TgT 3'	5'-gAC 3'
			527		534	539	538				559	559
			5'-CCT 3'		5'-CgT 3'	5'-TCT 3'	5'-CCA 3'				5'-CTC 3'	5'-CCC 3'
			555								559	559
			5'-CCA 3'								5'-CgT 3'	5'-CCg 3'
			555								559	
			5'-gCA 3'								5'-CgC 3'	
Well No.	1	2	3	4	5	6	7	8	9	10	11	12

Well No.	13	14	15	16	17	18	19	20	21
Length of spec. PCR product	80	90	240	140	200	340	210	65	75
	115	135	380	180	390	375	240	240	160
	200	205						375	240
	240								495
	460								
Length of int. pos. control <sup>1</sup>	1070	1070	1070	1070	1070	800	800	800	800
5'-primer(s) <sup>2</sup>	98	203	41	180	41	302	78	28	176
	5'-CAC 3'	5'-gAA 3'	5'-CTT 3'	5'-TTT 3'	5'-CTT 3'	5'-ggA 3'	5'-TCT 3'	5'-TCg 3'	5'-gCA 3'
	219	362	355	203	98	341	106	261	261
	5'-gCA 3'	5'-ggT 3'	5'-CCg 3'	5'-gAA 3'	5'-CAC 3'	5'-ggA 3'	5'-CCA 3'	5'-AAC 3'	5'-AAC 3'
	238	363		418			2 <sup>nd</sup> I	502	341
	5'-AgA 3'	5'-ATA 3'		5'-AgC 3'			5'-CCT 3'	5'-CCC 3'	5'-ggA 3'
	355	363							355
	5'-CCg 3'	5'-ATA 3'							5'-CCC 3'
		363							
		5'-ATA 3'							
		369							
		5'-TAC 3'							
3'-primer(s) <sup>3</sup>	180	299	238	290	256	397	265	97	292
	5'-TCA 3'	5'-CCA 3'	5'-CCT 3'	5'-CAA 3'	5'-CCC 3'	5'-gAg 3'	5'-CCC 3'	5'-ggT 3'	5'-gTg 3'
	257	411	238	317	256		282	355	292
	5'-gCA 3'	5'-TCA 3'	5'-CCT 3'	5'-ggA 3'	5'-CTC 3'		5'-gAC 3'	5'-gAC 3'	5'-gTT 3'
	418	526	243	555	259		282	524	299
	5'-gTC 3'	5'-CCA 3'	5'-TCA 3'	5'-CCA 3'	5'-gTT 3'		5'-gAC 3'	5'-CAT 3'	5'-TCT 3'
	555		265				502		555
	5'-CCA 3'		5'-CCC 3'				5'-CTT 3'		5'-CCA 3'
			555				506		
			5'-CCA 3'				5'-TgT 3'		
Well No.	13	14	15	16	17	18	19	20	21

101.708-24 – including *Taq* polymerase, IFU-01  
 101.708-24u – without *Taq* polymerase, IFU-02

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 “Instructions for Use” (IFU)

Lot No.: **43V**

Lot-specific information

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

<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.

### HLA-B LOW PRIMER SPECIFICATION

Well No.	22	23	24	25	26	27	28	29	30	31	32	33
Length of spec. PCR product	285	215	140	130	185	190	290	165	165	180	105	195
			235	265	235			220	190		195	
								285	390			
								330				
Length of int. pos. control <sup>1</sup>	800	1070	1070	800	800	800	1070	1070	1070	800	1070	1070
5'-primer(s) <sup>2</sup>	355	97	209	103	103	103	45	45	45	420	206	142
	5'-TCA 3'	5'-TCg 3'	5'-ggC 3'	5'-CCg 3'	5'-CCT 3'	5'-CCg 3'	5'-ggA 3'	5'-ggA 3'	5'-ggA 3'	5'-TTA 3'	5'-AgA 3'	5'-TCT 3'
	363		363	103	103	418		357	435		420	419
	5'-AgC 3'		5'-AgC 3'	5'-CCg 3'	5'-CCT 3'	5'-Agg 3'		5'-Tgg 3'	5'-AAA 3'		5'-TTA 3'	5'-gTC 3'
			363	361	363			412				
			5'-AgC 3'	5'-AgT 3'	5'-AAT 3'			5'-ATA 3'				
3'-primer(s) <sup>3</sup>	603	272	309	193	246	246	165	206	266	559	272	301
	5'-gTg 3'	5'-Tgg 3'	5'-gTg 3'	5'-CgT 3'	5'-TAT 3'	5'-TAT 3'	5'-Tgg 3'	5'-CCT 3'	5'-TCC 3'	5'-CTC 3'	5'-Tgg 3'	5'-gTC 3'
	605	272	312	193	246	572		538	559		572	301
	5'-gCT 3'	5'-TgA 3'	5'-gCC 3'	5'-CgT 3'	5'-TAT 3'	5'-gCC 3'		5'-gTC 3'	5'-CAg 3'		5'-gCg 3'	5'-gTC 3'
			559	583	559			603	583			570
			5'-CAg 3'	5'-gTg 3'	5'-CTC 3'			5'-gTg 3'	5'-gTg 3'			5'-CCg 3'
												572
												5'-gCg 3'
Well No.	22	23	24	25	26	27	28	29	30	31	32	33

101.708-24 – including *Taq* polymerase, IFU-01

101.708-24u – without *Taq* polymerase, IFU-02

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Lot No.: **43V**

Lot-specific information

Well No.	34	35	36	37	38	39	40	41	42	43	44	45
Length of spec.	105	115	80	150	140	60	210	170	110	395	160	180
PCR product	395	150				245					425	
	435					400						
Length of int. pos. control <sup>1</sup>	1070	1070	1070	<b>800</b>	1070	1070	<b>800</b>	<b>800</b>	1070	1070	1070	1070
5'-primer(s) <sup>2</sup>	45	161	167	355	206	45	142	409	246	44	44	355
	5'-ggA 3'	5'-Cgg 3'	5'-gCT 3'	5'-TCA 3'	5'-gAC 3'	5'-ggA 3'	5'-TCT 3'	5'-ggC 3'	5'-gAA 3'	5'-ggC 3'	5'-ggC 3'	5'-TCA 3'
	540					368	368	420			357	363
	5'-gAC 3'					5'-gTT 3'	5'-gTC 3'	5'-TTA 3'			5'-Tgg 3'	5'-Agg 3'
						557						
						5'-ggA 3'						
3'-primer(s) <sup>3</sup>	272	234	204	463	302	259	311	544	317	272	302	499
	5'-TgC 3'	5'-TCT 3'	5'-TCT 3'	5'-gCT 3'	5'-ggC 3'	5'-gTT 3'	5'-ggg 3'	5'-ggT 3'	5'-ggA 3'	5'-TgC 3'	5'-ggC 3'	5'-ggA 3'
	309	272			312	259	311				302	
	5'-ATC 3'	5'-TgA 3'			5'-AgT 3'	5'-gTT 3'	5'-ggg 3'				5'-ggT 3'	
	605	272				266	538				477	
	5'-gCT 3'	5'-Tgg 3'				5'-TCC 3'	5'-gTC 3'				5'-gCg 3'	
						272						
						5'-Tgg 3'						
						292						
						5'-gTA 3'						
						572						
						5'-gCg 3'						
Well No.	34	35	36	37	38	39	40	41	42	43	44	45

Well No.	46	47	48	49	50	51	52	53	54	55	56	57
Length of spec.	105	325	80	130	90	90	145	120	430	145	300	160
PCR product			115	270	410	175	430	210				330
			160									
			195									
			225									
			260									
Length of int. pos. control <sup>1</sup>	1070	<b>800</b>	1070	<b>800</b>	1070	1070	1070	<b>800</b>	1070	1070	1070	1070
5'-primer(s) <sup>2</sup>	540	1 <sup>st</sup> I	355	209	41	209	48	357	49	206	1 <sup>st</sup> I	15
	5'-gAC 3'	5'-CAg 3'	5'-TCA 3'	5'-ggC 3'	5'-CTg 3'	5'-ggC 3'	5'-gCC 3'	5'-Tgg 3'	5'-CAg 3'	5'-gAA 3'	5'-CAg 3'	5'-gCA 3'
			418	209	368	363	206					418
			5'-Agg 3'	5'-ggg 3'	5'-gTT 3'	5'-AgC 3'	5'-gAA 3'					5'-Agg 3'
			499	355								
			5'-TCT 3'	5'-TCA 3'								
3'-primer(s) <sup>3</sup>	603	282	538	299	282	259	309	435	309	311	259	175
	5'-gTg 3'	5'-gCC 3'	5'-gTC 3'	5'-TCA 3'	5'-gCC 3'	5'-gTT 3'	5'-ATC 3'	5'-TCT 3'	5'-ATC 3'	5'-ggT 3'	5'-CTC 3'	5'-CCg 3'
	605		572	583	418	499		527			259	538
	5'-gCT 3'		5'-gCg 3'	5'-gTg 3'	5'-gTC 3'	5'-ggA 3'		5'-CCT 3'			5'-CTC 3'	5'-gTC 3'
			573								262	
			5'-AgT 3'								5'-TgC 3'	
Well No.	46	47	48	49	50	51	52	53	54	55	56	57

101.708-24 – including *Taq* polymerase, IFU-01

101.708-24u – without *Taq* polymerase, IFU-02

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Lot No.: **43V**

Lot-specific information

Well No.	58	59	60	61	62	63	64
Length of spec. PCR product	180	180	90	95	115	360	350
Length of int. pos. control <sup>1</sup>	1070	1070	800	1070	1070	1070	1070
5'-primer(s) <sup>2</sup>	141	420	209	206	165	1 <sup>st</sup>	1 <sup>st</sup>
	5'-ATT 3'	5'-TTA 3'	5'-ggC 3'	5'-gAC 3'	5'-ACC 3'	5'-CAG 3'	5'-CAG 3'
	420		209		463		
	5'-TTA 3'		5'-ggA 3'		5'-TgA 3'		
			362				
			5'-ggT 3'				
3'-primer(s) <sup>3</sup>	311	559	256	259	272	317	311
	5'-ggT 3'	5'-CAG 3'	5'-CCC 3'	5'-gTT 3'	5'-TgC 3'	5'-ggA 3'	5'-ggT 3'
	559		259		538		
	5'-CgT 3'		5'-CTT 3'		5'-CCA 3'		
			263				
			5'-gTT 3'				
			559				
			5'-CgT 3'				
Well No.	58	59	60	61	62	63	64

<sup>1</sup>The internal positive control primer pairs amplify segments of the human growth hormone gene. The internal positive control bands are 1070 or 800 base pairs respectively, well distribution as outlined in the table. Well number 22 contains the shorter, 800 bp, internal positive control band. The well distribution of the internal controls can help in orientation of the kit on gel photo, as well as allow for kit identification. In the presence of a specific amplification the intensity of the control band often decreases.

<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.

101.708-24 – including *Taq* polymerase, IFU-01  
 101.708-24u – without *Taq* polymerase, IFU-02

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Lot No.: 43V

Lot-specific information

**DR LOW PRIMER SPECIFICATION**

Well No.	65	66	67	68	69	70	71	72	73	74	75	76
Length of spec. PCR product	205	200	200	210	120	80	85	100	210	170	90	175
	255		225		220	210	210	175	235	215	135	
										250	180	
Length of int. pos. control <sup>1</sup>	515	430	430	430	430	430	430	430	430	515	430	430
5'-primer(s) <sup>2</sup>	12(124) 5'-A.T 3'	14(129) 5'-gAA 3'	13(126) 5'-Agg 3'	13(126) 5'-Agg 3'	13(125) 5'-gTC 3'	13(125) 5'-gTC 3'	13(125) 5'-gTC 3'	13(125) 5'-ACA 3'	13(127) 5'-ATA 3'	15(133) 5'-gTT 3'	26(165) 5'-TAT 3'	26(164) 5'-gTA 3'
	14(129) 5'-gAA 3'		13(126) 5'-AAg 3'	13(126) 5'-AAg 3'	47(227) 5'-gTT 3'	15(133) 5'-gTT 3'		13(125) 5'-ACC 3'	13(127) 5'-ATA 3'	15(133) 5'-gTT 3'	58(261) 5'-gAg 3'	30(178) 5'-gCg 3'
								13(125) 5'-ATA 3'	13(127) 5'-gTA 3'			
								13(125) 5'-gTC 3'	15(133) 5'-gTT 3'			
3'-primer(s) <sup>3</sup>	66(286) 5'-gAg 3'	66(286) 5'-gAT 3'	66(286) 5'-gAT 3'	66(286) 5'-gAA 3'	73(305) 5'-ggC 3'	26(164) 5'-ggT 3'	28(171) 5'-CTC 3'	32(184) 5'-gTg 3'	70(298) 5'-CTC 3'	58(260) 5'-CCT 3'	57(257) 5'-CgA 3'	73(307) 5'-CgC 3'
	66(286) 5'-gAg 3'		69(295) 5'-CTg 3'	66(286) 5'-gAg 3'	73(305) 5'-ggC 3'	71(299) 5'-gCT 3'	69(295) 5'-CTg 3'	58(260) 5'-Cgg 3'	73(305) 5'-ggC 3'	73(307) 5'-CAg 3'	73(305) 5'-ggC 3'	
	66(286) 5'-gAT 3'		69(295) 5'-Tg 3'	70(297) 5'-CTg 3'	74(308) 5'-CCC 3'				77(317) 5'-AAT 3'	86(344) 5'-CAC 3'	77(319) 5'-CAC 3'	
	70(297) 5'-CTg 3'		70(298) 5'-CgC 3'	71(301) 5'-ggC 3'					77(319) 5'-CAC 3'			
	71(299) 5'-gCg 3'		71(299) 5'-gCT 3'						77(319) 5'-CAA 3'			
	77(317) 5'-AgT 3'		73(305) 5'-ggC 3'									
	86(344) 5'-CCA 3'		77(317) 5'-AgT 3'									
Well No.	65	66	67	68	69	70	71	72	73	74	75	76

Well No.	77	78	79	80	81	82	83	84	85	86	87
Length of spec. PCR product	100	85	215	195	175	100	110	110	160	215	175
	170	110		225	240	140	135	175	240		
						155	170	225			
Length of int. pos. control <sup>1</sup>	430	430	430	430	430	430	430	430	430	430	430
5'-primer(s) <sup>2</sup>	13(125) 5'-gTC 3'	12(124) 5'-Cgg 3'	10(116) 5'-gCT 3'	10(116) 5'-gCT 3'	13(125) 5'-gTC 3'	1 <sup>st</sup> I 5'-CAA 3'	26(164) 5'-gTA 3'	13(125) 5'-gTC 3'	10(116) 5'-gCT 3'	28(170) 5'-gAT 3'	13(125) 5'-gTA 3'
	15(133) 5'-gTC 3'	15(133) 5'-gTT 3'	12(122) 5'-TAT 3'	12(122) 5'-TAT 3'	114(429) 5'-CTg 3'	37(197) 5'-gTT 3'	34(189) 5'-CAg 3'	34(189) 5'-CAg 3'	10(116) 5'-gCT 3'		
	38(200) 5'-CgT 3'		13(125) 5'-gTC 3'	13(125) 5'-gTC 3'		37(197) 5'-gTA 3'		36(196) 5'-AgC 3'	37(199) 5'-TCC 3'		
				15(133) 5'-gTT 3'							
				15(133) 5'-gTC 3'							
3'-primer(s) <sup>3</sup>	58(260) 5'-CCT 3'	29(175) 5'-gTg 3'	69(295) 5'-gTC 3'	66(286) 5'-gAA 3'	58(260) 5'-Cgg 3'	42(213) 5'-TCA 3'	57(257) 5'-CAg 3'	57(257) 5'-CAg 3'	51(239) 5'-CCC 3'	86(346) 5'-CTC 3'	57(258) 5'-gCg 3'
	58(260) 5'-CCT 3'	37(199) 5'-CAg 3'	71(299) 5'-gCT 3'	70(298) 5'-CgC 3'	58(260) 5'-CAg 3'	57(257) 5'-CAg 3'	69(295) 5'-CTg 3'	59(265) 5'-gTg 3'	77(317) 5'-AAT 3'	86(346) 5'-CTT 3'	58(260) 5'-CCT 3'
	58(260) 5'-CCT 3'		71(299) 5'-ACT 3'	70(298) 5'-CTC 3'	181(630) 5'-CTT 3'	70(298) 5'-CgC 3'	70(296) 5'-TCC 3'	70(296) 5'-TCC 3'			
								73(307) 5'-CAg 3'			
Well No.	77	78	79	80	81	82	83	84	85	86	87

101.708-24 – including *Taq* polymerase, IFU-01

101.708-24u – without *Taq* polymerase, IFU-02

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**Lot No.: 43V**

**Lot-specific information**

<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 65 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.

**DQ LOW PRIMER SPECIFICATION**

Well No.	88	89	90	91	92	93	94	95
Length of spec.	225	220	210	220	130	135	85	160
PCR product		275					185	205
Length of int. pos. control <sup>1</sup>	515	515	430	515	515	515	515	430
5'-primer(s) <sup>2</sup>	25(170) 5'-gCA 3'	9(122) 5'-gTT 3'	29(184) 5'-gAg 3'	26(173) 5'-TTA 3'	28(179) 5'-gAC 3'	26(173) 5'-TCT 3'	38(210) 5'-gCA 3'	23(164) 5'-gCT 3'
	26(173) 5'-ggg 3'	24(169) 5'-TgT 3'	30(185) 5'-AAg 3'		28(179) 5'-gAC 3'		71(309) 5'-ACC 3'	38(210) 5'-gCg 3'
		26(173) 5'-TTA 3'					71(309) 5'-ACC 3'	
		26(173) 5'-TCT 3'						
3'-primer(s) <sup>3</sup>	87(356) 5'-ggT 3'	86(353) 5'-ACg 3'	86(353) 5'-gCT 3'	86(353) 5'-gCT 3'	57(266) 5'-Cgg 3'	57(266) 5'-CgT 3'	86(353) 5'-gCT 3'	77(327) 5'-ACg 3'
	87(356) 5'-ggT 3'	86(353) 5'-ACC 3'		86(354) 5'-AgT 3'	57(266) 5'-CAg 3'		86(354) 5'-AgT 3'	
	88(361) 5'-CCT 3'	86(354) 5'-TAT 3'						
Well No.	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 88 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.

101.704-48/12 – including *Taq* pol., IFU-01  
101.704-48u/12u – without *Taq* pol., IFU-02

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Lot No.: **13V**

Lot-specific information

CELL LINE VALIDATION SHEET																			
HLA-A low resolution primer set <sup>2</sup>																			
				Well															
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
				Lot No.:	201329701	201329702	201329703	201329704	201329706	201329707	201329708	201329709	201329710	201329711	201329712	201329713	201329714	201329715	201329716
	IHWC cell line <sup>1</sup>	A*	A*																
1	9001 SA	*24:02		-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	
2	9280 LK707	*02:01		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	
3	9011 E4181324	*01:01		+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	
4	9275 GU373	*30:01		-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	
5	9009 KAS011	*01:01		+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	
6	9353 SM	*02:01	*26:03	-	+	-	-	-	-	+	-	-	+	-	+	-	-	-	
7	9020 QBL	*26:01		-	-	-	-	-	-	+	-	+	-	-	+	-	-	-	
8	9025 DEU	*31:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	
9	9026 YAR	*26:01		-	-	-	-	-	-	+	-	+	-	-	+	-	-	-	
10	9107 LKT3	*24:02		-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	
11	9051 PITOUT	*29:02		-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	
12	9052 DBB	*02:01		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	
13	9004 JESTHOM	*02:01		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	
14	9071 OLGA	*31:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
15	9075 DKB	*24:02		-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	
16	9037 SWEIG007	*29:02		-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	
17	9282 CTM3953540	*03:01	*80:01	-	-	+	-	+	-	-	-	-	-	-	+	-	-	-	
18	9257 32367	*33:03	*74:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
19	9038 BM16	*02:01		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	
20	9059 SLE005	*02:01		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	
21	9064 AMALA	*02:17		-	+	-	-	-	W	-	-	-	-	-	-	-	-	-	
22	9056 KOSE	*02:01		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	
23	9124 IHL	*02:01	*34:01	-	+	-	-	-	-	+	-	-	+	+	-	-	-	-	
24	9035 JBUSH	*32:01		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	
25	9049 IBW9	*33:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
26	9285 WT49	*02:05		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	
27	9191 CH1007	*24:10	*29:01	-	-	-	-	-	+	-	-	-	-	-	-	+	-	-	
28	9320 BEL5GB	*02:01	*29:02	-	+	-	-	-	-	-	-	-	-	-	-	+	-	-	
29	9050 MOU	*29:02		-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	
30	9021 RSH	*30:01	*68:02	-	-	-	-	-	-	+	-	-	-	-	-	-	+	+	
31	9019 DUCAF	*30:02		-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	
32	9297 HAG	*02:01		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	
33	9098 MT14B	*31:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
34	9104 DHIF	*31:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
35	9302 SSTO	*32:01		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	
36	9024 KT17	*02:06	*11:01	-	+	-	+	-	-	-	-	-	+	-	-	-	-	-	
37	9065 HHKB	*03:01		-	-	+	-	-	-	-	-	-	-	-	+	-	-	-	
38	9099 LZL	*02:17		-	+	-	-	-	W	-	-	-	-	-	-	-	-	-	
39	9315 CML	*01:01	*03:01	+	-	+	+	-	-	-	-	-	-	-	+	-	-	-	
40	9134 WHONP199	*02:07	*30:01	-	+	-	-	-	-	-	-	-	-	-	-	-	+	+	
41	9055 H0301	*03:01		-	-	+	-	-	-	-	-	-	-	-	+	-	-	-	
42	9066 TAB089	*02:07		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	
43	9076 T7526	*02:06	*02:07	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	
44	9057 TEM	*66:01		-	-	-	-	-	-	+	-	-	+	-	+	-	-	-	
45	9239 SHJO	*23:01	*24:02	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	
46	9013 SCHU	*03:01		-	-	+	-	-	-	-	-	-	-	-	+	-	-	-	
47	9045 TUBO	*02:16	*03:01	-	+	+	-	-	-	-	-	-	-	-	+	-	-	-	
48	9303 TER-ND	*02:01	*11:01	-	+	-	+	-	-	-	-	-	+	-	-	-	-	-	

101.708-24 – including *Taq* polymerase, IFU-01  
 101.708-24u – without *Taq* polymerase, IFU-02

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Lot No.: **43V**

Lot-specific information

CELL LINE VALIDATION SHEET										
HLA-A low resolution primer set										
				Lot No.:	Well					
					16	17	18	19	20	21
					201329717	201329718	201329719	201329720	201329721	201329723
	IHWC cell line	A*	A*							
1	9001 SA	*24:02			-	-	-	-	-	-
2	9280 LK707	*02:01			-	-	-	-	-	-
3	9011 E4181324	*01:01			-	-	-	-	-	-
4	9275 GU373	*30:01			-	-	-	-	-	-
5	9009 KAS011	*01:01			-	-	-	-	-	-
6	9353 SM	*02:01	*26:03		-	-	-	-	-	+
7	9020 QBL	*26:01			-	-	-	-	-	-
8	9025 DEU	*31:01			-	-	-	-	-	-
9	9026 YAR	*26:01			-	-	-	-	-	-
10	9107 LKT3	*24:02			-	-	-	-	-	-
11	9051 PITOUT	*29:02			-	-	-	-	-	-
12	9052 DBB	*02:01			-	-	-	-	-	-
13	9004 JESTHOM	*02:01			-	-	-	-	-	-
14	9071 OLGA	*31:01			-	-	-	-	-	-
15	9075 DKB	*24:02			-	-	-	-	-	-
16	9037 SWEIG007	*29:02			-	-	-	-	-	-
17	9282 CTM3953540	*03:01	*80:01		-	-	-	-	-	+
18	9257 32367	*33:03	*74:01		-	+	+	-	-	-
19	9038 BM16	*02:01			-	-	-	-	-	-
20	9059 SLE005	*02:01			-	-	-	-	-	-
21	9064 AMALA	*02:17			-	-	-	-	-	-
22	9056 KOSE	*02:01			-	-	-	-	-	-
23	9124 IHL	*02:01	*34:01		-	-	-	-	-	-
24	9035 JBUSH	*32:01			+	-	-	-	-	-
25	9049 IBW9	*33:01			-	+	-	-	-	-
26	9285 WT49	*02:05			-	-	-	-	-	-
27	9191 CH1007	*24:10	*29:01		-	-	-	-	-	-
28	9320 BEL5GB	*02:01	*29:02		-	-	-	-	-	-
29	9050 MOU	*29:02			-	-	-	-	-	-
30	9021 RSH	*30:01	*68:02		-	-	-	+	-	-
31	9019 DUCAF	*30:02			-	-	-	-	-	-
32	9297 HAG	*02:01			-	-	-	-	-	-
33	9098 MT14B	*31:01			-	-	-	-	-	-
34	9104 DHIF	*31:01			-	-	-	-	-	-
35	9302 SSTO	*32:01			+	-	-	-	-	-
36	9024 KT17	*02:06	*11:01		-	-	-	-	-	-
37	9065 HHKB	*03:01			-	-	-	-	-	-
38	9099 LZL	*02:17			-	-	-	-	-	-
39	9315 CML	*01:01	*03:01		-	-	-	-	-	-
40	9134 WHONP199	*02:07	*30:01		-	-	-	-	-	-
41	9055 H0301	*03:01			-	-	-	-	-	-
42	9066 TAB089	*02:07			-	-	-	-	-	-
43	9076 T7526	*02:06	*02:07		-	-	-	-	-	-
44	9057 TEM	*66:01			-	-	-	-	-	-
45	9239 SHJO	*23:01	*24:02		-	-	-	-	-	-
46	9013 SCHU	*03:01			-	-	-	-	-	-
47	9045 TUBO	*02:16	*03:01		-	-	-	-	-	-
48	9303 TER-ND	*02:01	*11:01		-	-	-	-	-	-

<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.



101.708-24 – including *Taq* polymerase, IFU-01

101.708-24u – without *Taq* polymerase, IFU-02

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**Lot No.: 43V**

**Lot-specific information**

<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.

Additional 5'- and 3'-primers in primer solutions 4, 6, 7, 11, 13 to 16 and 19 to 21 were tested by separately adding one 3'-primer, respectively one 5'-primer. Additional 5'-primers in primer solution 1 and 18 were tested by separately adding one 3'-primer. Additional 3'-primers in primer solutions 3 and 17 were tested by separately adding one 5'-primer.

In primer solutions 2, 10, 11 and 14 one or two 5'-primers were not possible to test, and in primer solutions 3, 5, 7, 11, 12, 15 and 17 one 3'-primer was not possible to test.

101.708-24 – including *Taq* polymerase, IFU-01  
 101.708-24u – without *Taq* polymerase, IFU-02

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Lot No.: **43V**

Lot-specific information

<b>CELL LINE VALIDATION SHEET</b>																							
<b>HLA-B low resolution SSP kit<sup>2</sup></b>																							
					<b>Well</b>																		
					22	23	24	25	26	27	28	29	30	31	32	33	34	35	36				
					Prod. No.:	201321848	201329802	201329803	201329804	201329805	201329806	201329807	201329808	201329809	201329810	201329811	201329813	201329814	201329815	201329816			
<b>IHWC cell line<sup>1</sup></b>		<b>B*</b>																					
1	9001	SA	*07:02		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
2	9280	LK707	*52:01	*73:01	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-			
3	9011	E4181324	*52:01		-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-			
4	9275	GU373	*15:10	*53:01	-	-	-	-	-	-	-	-	+	-	+	-	-	+	-	-			
5	9009	KAS011	*37:01		-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-			
6	9353	SM	*39:01	*51:01	-	-	-	-	+	-	-	-	+	-	-	-	-	-	-	-			
7	9020	QBL	*18:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-			
8	9025	DEU	*35:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
9	9026	YAR	*38:01		-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-			
10	9107	LKT3	*54:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
11	9051	PITOUT	*44:03		-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-			
12	9052	DBB	*57:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
13	9004	JESTHOM	*27:05		-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	+			
14	9071	OLGA	*15:01	*15:20	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-			
15	9075	DKB	*40:01		-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-			
16	9037	SWEIG007	*40:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
17	9282	CTM3953540	*08:01	*55:01	+	+	-	-	-	-	-	-	+	-	-	-	-	-	-	-			
18	9257	32367	*14:01	*56:01	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-			
19	9038	BM16	*18:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-			
20	9059	SLE005	*40:01		-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-			
21	9064	AMALA	*15:01		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-			
22	9056	KOSE	*35:03		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
23	9124	IHL	*40:02	*56:02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
24	9035	JBUSH	*38:01		-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-			
25	9049	IBW9	*14:02		-	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-			
26	9285	WT49	*58:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
27	9191	CH1007	*07:05	*51:01	+	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-			
28	9320	BEL5GB	*44:02	*44:03	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-			
29	9050	MOU	*44:03		-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-			
30	9021	RSH	*42:01		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-			
31	9019	DUCAF	*18:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-			
32	9297	HAG	*41:02		-	-	-	+	-	-	-	+	-	-	-	-	-	-	-	-			
33	9098	MT14B	*40:01		-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-			
34	9104	DHIF	*38:01		-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-			
35	9302	SSTO	*44:02		-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-			
36	9024	KT17	*15:01	*35:01	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-			
37	9065	HHKB	*07:02		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
38	9099	LZL	*15:01		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-			
39	9315	CML	*08:01	*27:05	-	+	-	-	+	-	-	+	-	-	-	-	-	-	-	+			
40	9134	WHONP199	*13:02	*46:01	-	-	+	+	-	-	+	-	-	+	-	-	-	-	-	-			
41	9055	H0301	*14:02		-	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-			
42	9066	TAB089	*46:01		-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-			
43	9076	T7526	*46:01		-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-			
44	9057	TEM	*38:01		-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-			
45	9239	SHJO	*42:01	*50:01	-	-	-	+	-	-	-	+	-	-	-	-	-	-	-	-			
46	9013	SCHU	*07:02		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
47	9045	TUBO	*51:01		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-			
48	9303	TER-ND	*35:01	*44:03	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-			

101.708-24 – including *Taq* polymerase, IFU-01  
 101.708-24u – without *Taq* polymerase, IFU-02

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Lot No.: **43V**

Lot-specific information

<b>CELL LINE VALIDATION SHEET</b>																							
<b>HLA-B low resolution SSP kit<sup>2</sup></b>																							
					Well																		
					37	38	39	40	41	42	43	44	45	46	47	48	49	50					
					Prod. No.:	201329817	201329818	201329819	201329820	201329821	201329822	201329823	201329824	201329825	201329827	201329828	201329829	201329831	201329832				
IHC cell line <sup>1</sup>		B*																					
1	9001	SA	*07:02		-	-	-	+	-	-	-	+	-	-	+	-	-	-	-				
2	9280	LK707	*52:01	*73:01	-	-	-	-	-	-	-	+	-	-	+	-	-	-	-				
3	9011	E4181324	*52:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
4	9275	GU373	*15:10	*53:01	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-				
5	9009	KAS011	*37:01		+	-	-	+	-	-	-	-	-	-	-	+	-	-	-				
6	9353	SM	*39:01	*51:01	-	-	-	-	+	-	+	+	-	-	-	-	-	-	-				
7	9020	QBL	*18:01		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-				
8	9025	DEU	*35:01		+	+	-	-	-	-	-	-	-	-	-	-	-	-	-				
9	9026	YAR	*38:01		-	-	-	-	-	+	+	-	-	-	-	-	-	-	-				
10	9107	LKT3	*54:01		-	-	-	-	-	-	-	-	-	-	+	-	-	-	+				
11	9051	PITOUT	*44:03		+	-	-	-	-	-	-	-	-	-	-	-	+	-	-				
12	9052	DBB	*57:01		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
13	9004	JESTHOM	*27:05		-	-	-	-	-	-	-	-	-	-	+	-	-	-	+				
14	9071	OLGA	*15:01	*15:20	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-				
15	9075	DKB	*40:01		-	-	-	-	-	-	-	+	+	-	-	-	-	-	-				
16	9037	SWEIG007	*40:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
17	9282	CTM3953540	*08:01	*55:01	-	-	-	-	-	-	-	+	-	+	+	-	-	-	+				
18	9257	32367	*14:01	*56:01	-	-	-	-	-	-	+	+	-	-	+	-	-	-	+				
19	9038	BM16	*18:01		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-				
20	9059	SLE005	*40:01		-	-	-	-	-	-	-	+	+	-	-	-	-	-	-				
21	9064	AMALA	*15:01		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-				
22	9056	KOSE	*35:03		+	+	-	-	-	-	-	-	-	-	-	-	-	-	-				
23	9124	IHL	*40:02	*56:02	-	-	-	-	-	-	-	-	-	-	+	-	-	-	+				
24	9035	JBUSH	*38:01		-	-	-	-	+	+	+	-	-	-	-	-	-	-	-				
25	9049	IBW9	*14:02		-	-	-	-	-	-	+	+	-	-	-	-	-	-	-				
26	9285	WT49	*58:01		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
27	9191	CH1007	*07:05	*51:01	-	-	-	-	-	-	-	+	-	-	+	-	-	-	-				
28	9320	BEL5GB	*44:02	*44:03	+	-	-	-	-	-	-	-	-	-	-	-	+	-	-				
29	9050	MOU	*44:03		+	-	-	-	-	-	-	-	-	-	-	+	-	-	-				
30	9021	RSH	*42:01		-	-	-	-	-	-	-	+	-	+	+	-	-	-	-				
31	9019	DUCAF	*18:01		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-				
32	9297	HAG	*41:02		-	-	-	-	-	-	-	+	-	+	-	-	-	-	-				
33	9098	MT14B	*40:01		-	-	-	-	-	-	-	+	+	-	-	-	-	-	-				
34	9104	DHIF	*38:01		-	-	-	-	+	+	+	-	-	-	-	-	-	-	-				
35	9302	SSTO	*44:02		+	-	-	-	-	-	-	-	-	-	-	+	-	-	-				
36	9024	KT17	*15:01	*35:01	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-				
37	9065	HHKB	*07:02		-	-	-	-	-	-	-	+	-	-	+	-	-	-	-				
38	9099	LZL	*15:01		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-				
39	9315	CML	*08:01	*27:05	-	-	-	-	-	-	-	+	-	+	+	-	-	-	+				
40	9134	WHONP199	*13:02	*46:01	-	-	-	-	-	-	-	-	-	-	+	-	-	-	+				
41	9055	H0301	*14:02		-	-	-	-	-	-	+	+	-	-	-	-	-	-	-				
42	9066	TAB089	*46:01		-	-	-	-	-	-	-	-	-	-	+	-	-	+	-				
43	9076	T7526	*46:01		-	-	-	-	-	-	-	-	-	-	+	-	-	+	-				
44	9057	TEM	*38:01		-	-	-	-	+	+	+	-	-	-	-	-	-	-	-				
45	9239	SHJO	*42:01	*50:01	-	-	-	-	-	-	-	+	-	+	+	-	-	-	-				
46	9013	SCHU	*07:02		-	-	-	-	-	-	-	+	-	-	+	-	-	-	-				
47	9045	TUBO	*51:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
48	9303	TER-ND	*35:01	*44:03	+	+	-	-	-	-	-	-	-	-	-	+	-	-	-				

101.708-24 – including *Taq* polymerase, IFU-01  
 101.708-24u – without *Taq* polymerase, IFU-02

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 “Instructions for Use” (IFU)

Lot No.: **43V**

Lot-specific information

CELL LINE VALIDATION SHEET																		
HLA-B low resolution SSP kit <sup>2</sup>																		
				Well														
				51	52	53	54	55	56	57	58	59	60	61	62	63	64	
				Prod. No.:	201329833	201329834	201329835	201329836	201329837	201329838	201329839	201329840	201329841	201329842	201329844	201329845	201329846	201329847
IHC cell line <sup>1</sup>		B*																
1	9001	SA	*07:02		-	-	-	-	-	-	-	-	-	-	-	-	-	+
2	9280	LK707	*52:01	*73:01	-	-	+	+	-	+	-	-	-	-	-	-	-	+
3	9011	E4181324	*52:01		-	-	+	+	-	+	-	-	-	-	-	-	-	+
4	9275	GU373	*15:10	*53:01	-	-	-	+	-	-	-	-	-	-	+	-	+	+
5	9009	KAS011	*37:01		-	-	-	-	-	+	-	-	-	-	-	-	+	-
6	9353	SM	*39:01	*51:01	-	-	+	+	-	-	-	-	-	-	+	-	+	+
7	9020	QBL	*18:01		-	-	-	-	-	-	-	-	-	-	+	-	-	+
8	9025	DEU	*35:01		-	-	-	-	-	-	-	-	-	-	+	-	-	+
9	9026	YAR	*38:01		-	-	-	-	-	-	-	-	-	-	-	-	+	-
10	9107	LKT3	*54:01		-	-	-	-	-	-	+	+	-	-	-	-	-	+
11	9051	PITOUT	*44:03		-	-	-	-	-	+	-	-	-	-	-	-	+	-
12	9052	DBB	*57:01		-	-	-	+	-	-	-	-	-	+	-	-	+	-
13	9004	JESTHOM	*27:05		-	-	-	-	-	+	-	-	-	-	-	-	+	-
14	9071	OLGA	*15:01	*15:20	-	-	-	-	-	+	-	-	-	-	-	+	-	+
15	9075	DKB	*40:01		-	-	-	-	+	+	-	-	-	-	-	-	-	+
16	9037	SWEIG007	*40:02		-	-	-	-	+	+	-	-	-	-	-	-	-	+
17	9282	CTM3953540	*08:01	*55:01	-	-	+	-	-	-	-	+	-	-	-	-	-	+
18	9257	32367	*14:01	*56:01	-	-	-	-	-	-	-	-	+	-	-	-	-	+
19	9038	BM16	*18:01		-	-	-	-	-	-	-	-	-	-	+	-	-	+
20	9059	SLE005	*40:01		-	-	-	-	+	+	-	-	-	-	-	-	-	+
21	9064	AMALA	*15:01		-	-	-	-	-	+	-	-	-	-	-	+	-	+
22	9056	KOSE	*35:03		-	-	-	-	-	-	-	-	-	-	+	-	-	+
23	9124	IHL	*40:02	*56:02	-	-	-	-	+	+	-	-	+	-	-	-	-	+
24	9035	JBUSH	*38:01		-	-	-	-	-	-	-	-	-	-	-	-	+	-
25	9049	IBW9	*14:02		-	-	-	-	-	-	-	-	-	-	-	-	-	+
26	9285	WT49	*58:01		-	-	-	+	-	-	-	-	-	-	-	-	-	+
27	9191	CH1007	*07:05	*51:01	-	-	+	+	-	-	-	-	-	-	+	-	+	+
28	9320	BEL5GB	*44:02	*44:03	-	-	-	-	-	+	+	-	-	-	-	-	+	-
29	9050	MOU	*44:03		-	-	-	-	-	+	-	-	-	-	-	-	+	-
30	9021	RSH	*42:01		-	-	-	-	-	-	-	-	-	-	-	-	-	+
31	9019	DUCAF	*18:01		-	-	-	-	-	-	-	-	-	-	+	-	-	+
32	9297	HAG	*41:02		-	-	-	-	+	+	-	-	-	-	-	-	-	+
33	9098	MT14B	*40:01		-	-	-	-	+	+	-	-	-	-	-	-	-	+
34	9104	DHIF	*38:01		-	-	-	-	-	-	-	-	-	-	-	-	+	-
35	9302	SSTO	*44:02		-	-	-	-	-	+	+	-	-	-	-	-	+	-
36	9024	KT17	*15:01	*35:01	-	-	-	-	-	+	-	-	-	-	+	+	-	+
37	9065	HHKB	*07:02		-	-	-	-	-	-	-	-	-	-	-	-	-	+
38	9099	LZL	*15:01		-	-	-	-	+	-	-	-	-	-	-	+	-	+
39	9315	CML	*08:01	*27:05	-	-	-	-	-	+	-	-	-	-	-	-	+	+
40	9134	WHONP199	*13:02	*46:01	-	-	-	-	-	+	-	-	-	-	+	+	+	+
41	9055	H0301	*14:02		-	-	-	-	-	-	-	-	-	-	-	-	-	+
42	9066	TAB089	*46:01		-	-	-	-	-	-	-	-	-	-	-	+	-	+
43	9076	T7526	*46:01		-	-	-	-	-	-	-	-	-	-	-	+	-	+
44	9057	TEM	*38:01		-	-	-	-	-	-	-	-	-	-	-	-	+	-
45	9239	SHJO	*42:01	*50:01	-	-	+	-	+	+	-	-	+	-	-	-	-	+
46	9013	SCHU	*07:02		-	-	-	-	-	-	-	-	-	-	-	-	-	+
47	9045	TUBO	*51:01		-	-	+	+	-	-	-	-	-	-	+	-	+	-
48	9303	TER-ND	*35:01	*44:03	-	-	-	-	-	+	-	-	-	-	+	-	+	+

<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.

101.708-24 – including *Taq* polymerase, IFU-01

101.708-24u – without *Taq* polymerase, IFU-02

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“Instructions for Use” (IFU)

**Lot No.: 43V**

**Lot-specific information**

<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.

Additional 5'-primers and 3'-primers in primer solutions 24, 27, 34, 39, 48, 49 and 58 were tested by separately adding one additional 3'-primer, respectively one additional 5'-primer. Additional 3'-primers in primer solutions 23, 29, 32, 33, 35, and 38 were tested by separately adding one additional 5'-primer. Additional 5'-primers in primer solutions 22, 41 and 45 were tested by separately adding one additional 3'-primer.

In primer mixes 49 and 60 one 5'-primer was not possible to test, and in primer mixes 24, 48, 56 and 60 one or two 3'-primer was not possible to test.

101.708-24 – including *Taq* polymerase, IFU-01  
 101.708-24u – without *Taq* polymerase, IFU-02

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 “Instructions for Use” (IFU)

Lot No.: **43V**

Lot-specific information

CELL LINE VALIDATION SHEET																				
DR low resolution primer set <sup>2</sup>																				
				Well																
				65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	
				Prod. No.:	201326701	201326702	201331603	201326704	201326705	201326706	201326707	201326708	201326709	201326710	201326711	201326712	201326713	201331614	201326715	201326716
IHCW cell line <sup>1</sup>		DRB1																		
1	9001 SA	*01:01		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	9280 LK707	*15:02	*04:05	-	-	+	-	-	-	-	-	+	-	-	-	-	-	-	-	-
3	9011 E4181324	*15:02		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	9275 GU373	*03:01		-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-
5	9009 KAS011	*16:01		-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
6	9353 SM	*04:07	*08:03	-	-	-	-	-	-	-	-	+	-	+	-	-	-	-	-	-
7	9020 QBL	*03:01		-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-
8	9025 DEU	*04:01		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
9	9026 YAR	*04:02		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
10	9107 LKT3	*04:05		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
11	9051 PITOUT	*07:01		-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
12	9052 DBB	*07:01		-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
13	9004 JESTHOM	*01:01		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	9071 OLGA	*08:02		-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	+
15	9075 DKB	*09:01		-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
16	9037 SWEIG007	*11:01		-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	+	+
17	9282 CTM3953540	*03:01	*13:01	-	-	-	-	+	+	-	-	-	-	-	-	-	-	+	+	+
18	9257 32367	*09:01	*11:01	-	-	-	-	-	-	-	-	-	-	-	+	-	+	-	+	+
19	9038 BM16	*12:01		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
20	9059 SLE005	*13:02		-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	+	+
21	9064 AMALA	*14:02		-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
22	9056 KOSE	*13:02	*14:01	-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	+	+
23	9124 IHL	*08:03	*14:14	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
24	9035 JBUSH	*11:01		-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	+	+
25	9049 IBW9	*07:01		-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
26	9285 WT49	*03:01		-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-
27	9191 CH1007	*04:05	*10:01	-	-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-
28	9320 BEL5GB	*04:16	*07:01	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-
29	9050 MOU	*07:01		-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
30	9021 RSH	*03:02		-	-	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-
31	9019 DUCAF	*03:01		-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-
32	9297 HAG	*13:03		-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	-	-
33	9098 MT14B	*04:04		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
34	9104 DHIF	*11:01		-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	+	+
35	9302 SSTO	*04:03		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
36	9024 KT17	*04:03	*04:06	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
37	9065 HHKB	*13:01		-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	+	+
38	9099 LZL	*14:02		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
39	9315 CML	*03:01	*04:01	-	-	-	-	+	+	-	+	-	-	-	-	-	-	-	-	-
40	9134 WHONP199	*07:01	*09:01	-	-	-	-	-	-	-	-	-	+	-	+	-	-	-	-	-
41	9055 H0301	*13:02		-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	+
42	9066 TAB089	*08:03		-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
43	9076 T7526	*09:01		-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
44	9057 TEM	*14:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45	9239 SHJO	*07:01		-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
46	9013 SCHU	*15:01		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
47	9045 TUBO	*11:04	*12:01	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+
48	9303 TER-ND	*01:03		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

101.708-24 – including *Taq* polymerase, IFU-01  
 101.708-24u – without *Taq* polymerase, IFU-02

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 “Instructions for Use” (IFU)

Lot No.: 43V

Lot-specific information

CELL LINE VALIDATION SHEET									
DR low resolution primer set <sup>3</sup>									
			Well <sup>2</sup>						
			81	82	83	84	85	86	87
			Prod. No.:						
			201326717	201326718	201326719	201326720	201326729	201326730	201326731
	IHWC cell line <sup>1</sup>	DRB1							
1	9001 SA	*01:01	-	-	-	-	-	-	-
2	9280 LK707	*15:02 *04:05	-	-	-	-	-	+	+
3	9011 E4181324	*15:02	-	-	-	-	-	-	+
4	9275 GU373	*03:01	+	-	-	-	+	-	-
5	9009 KAS011	*16:01	-	-	-	-	-	-	+
6	9353 SM	*04:07 *08:03	-	-	-	-	-	+	-
7	9020 QBL	*03:01	+	-	-	-	+	-	-
8	9025 DEU	*04:01	-	-	-	-	-	+	-
9	9026 YAR	*04:02	-	-	-	-	-	+	-
10	9107 LKT3	*04:05	-	-	-	-	-	+	-
11	9051 PITOUT	*07:01	-	-	-	-	-	+	-
12	9052 DBB	*07:01	-	+	-	-	-	+	-
13	9004 JESTHOM	*01:01	-	-	-	-	-	-	-
14	9071 OLGA	*08:02	-	-	-	-	-	-	-
15	9075 DKB	*09:01	-	-	+	-	-	+	-
16	9037 SWEIG007	*11:01	-	-	-	-	+	-	-
17	9282 CTM3953540	*03:01 *13:01	+	-	-	-	+	-	-
18	9257 32367	*09:01 *11:01	-	-	+	-	+	+	-
19	9038 BM16	*12:01	-	-	-	-	+	-	-
20	9059 SLE005	*13:02	+	-	-	-	+	-	-
21	9064 AMALA	*14:02	+	-	+	-	+	-	-
22	9056 KOSE	*13:02 *14:01	+	+	+	+	+	-	-
23	9124 IHL	*08:03 *14:14	+	-	+	+	+	-	-
24	9035 JBUSH	*11:01	-	-	-	-	+	-	-
25	9049 IBW9	*07:01	-	-	-	-	-	+	-
26	9285 WT49	*03:01	+	-	-	-	+	-	-
27	9191 CH1007	*04:05 *10:01	-	-	-	-	-	+	-
28	9320 BEL5GB	*04:16 *07:01	-	-	-	-	-	+	-
29	9050 MOU	*07:01	-	-	-	-	-	+	-
30	9021 RSH	*03:02	+	-	-	-	+	-	-
31	9019 DUCAF	*03:01	+	-	-	-	+	-	-
32	9297 HAG	*13:03	+	-	-	-	+	-	-
33	9098 MT14B	*04:04	-	-	-	-	-	+	-
34	9104 DHIF	*11:01	-	-	-	-	+	-	-
35	9302 SSTO	*04:03	-	-	-	-	-	+	-
36	9024 KT17	*04:03 *04:06	-	-	-	-	-	+	-
37	9065 HHKB	*13:01	+	-	-	-	+	-	-
38	9099 LZL	*14:02	+	-	+	-	+	-	-
39	9315 CML	*03:01 *04:01	+	-	-	-	+	+	-
40	9134 WHONP199	*07:01 *09:01	-	-	+	-	-	+	-
41	9055 H0301	*13:02	+	-	-	-	+	-	-
42	9066 TAB089	*08:03	-	-	-	-	-	-	-
43	9076 T7526	*09:01	-	-	+	-	-	+	-
44	9057 TEM	*14:01	-	+	+	+	+	-	-
45	9239 SHJO	*07:01	-	-	-	-	+	+	-
46	9013 SCHU	*15:01	-	-	-	-	-	-	+
47	9045 TUBO	*11:04 *12:01	-	-	-	-	+	-	-
48	9303 TER-ND	*01:03	-	-	-	-	-	-	-

<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 DRB4\*01:03:01:02N allele is amplified by primer mix 82 in the DBB/9052 cell line.

101.708-24 – including *Taq* polymerase, IFU-01

101.708-24u – without *Taq* polymerase, IFU-02

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“Instructions for Use” (IFU)

**Lot No.: 43V**

#### Lot-specific information

<sup>3</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.

Additional 5'- and 3'-primers in primer solutions 73, 75 and 82 were tested by separately adding one 3'-primer, respectively one 5'-primer.

Additional 5'-primers in primer solutions 70, 76, 79 and 80 were tested by separately adding one 3'-primer.

Additional 3'-primers in primer solutions 65, 67, 68, 74 and 84 were tested by separately adding one 5'-primer.

One, two or three of the 5'-primers in primer solution 65, 67, 68, 72 to 74, 77 to 80 and 84 were not possible to test. One or two of the 3'-primers in primer solution 65, 67, 68, 73, 77, 79 and 86 were not possible to test.



101.708-24 – including *Taq* polymerase, IFU-01  
 101.708-24u – without *Taq* polymerase, IFU-02

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 “Instructions for Use” (IFU)

Lot No.: **43V**

Lot-specific information

CELL LINE VALIDATION SHEET												
DQ low resolution primer set <sup>2</sup>												
				Well								
				88	89	90	91	92	93	94	95	
				201328001	201323102	201323103	201331704	201331705	201331706	201331707	201331708	
				Production No.								
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	CTM 3953540	*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	+	-	-	-	-	-	-	-	

<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.

101.708-24 – including *Taq* polymerase, IFU-01

101.708-24u – without *Taq* polymerase, IFU-02

Visit [www.olerup-ssp.com](http://www.olerup-ssp.com) for

“Instructions for Use” (IFU)

**Lot No.: 43V**

**Lot-specific information**

<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.

One additional 5'-primer in primer solutions 89 and 94 were tested by separately adding one additional 3'-primer.

In primer mixes 88, 89 and 90 one 5'-primer was not possible to test, and in primer mixes 88, 89, 91, 92 and 94 one or two 3'-primers were not possible to test.

101.708-24 – including *Taq* polymerase, IFU-01  
101.708-24u – without *Taq* polymerase, IFU-02

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Lot No.: **43V**

Lot-specific information

101.708-24 – including *Taq* polymerase, IFU-01  
101.708-24u – without *Taq* polymerase, IFU-02

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Lot No.: **43V**

Lot-specific information

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