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

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Lot No.: 5D9 **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:	**5D9**
Expiry date:	**2018-09-01**
Number of tests:	**24 tests**
Number of wells per test:	**95 +1**
Storage - pre-aliquoted primers:	**dark at -20ºC**
- PCR Master Mix:	**-20ºC**
- Adhesive PCR seals	**RT**
- Product Insert	**RT**

This Product Description is only valid for Lot No. 5D9.

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 (65Y)

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. 65Y)**. The kit design is based on IMGT/HLA database 3.22.0.

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

Well	5'-primer	3'-primer	rationale
7	Added	-	5'-primer added for the A*66:23 allele.
8	-	Added	3'-primer added for the A*25:19:02 allele.
12	Added	-	5'-primer added for the A*25:01:09 allele.
13	Added	-	5'-primer added for the A*11:130 allele.
16	Added	-	5'-primer added for the A*03:152 allele.

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

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Lot No.: 5D9 **Lot-specific information**

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. 65Y)**. The kit design is based on IMGT/HLA database 3.22.0.

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

Well	5'-primer	3'-primer	rationale
25	-	Added	3'-primer added the B*14:46 allele.
48	-	Added	3'-primer added for the B*44:234 allele.
49	-	Added	3'-primer added for the B*15:297 allele.

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. 65Y)**. The kit design is based on IMGT/HLA database 3.22.0.

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	Added	5'-primer added for increased yield of the DRB1*15:69 allele, 3'-primer added for the DRB1*15:127 allele.
68	Added	-	5'-primer added for the DRB1*12:57 allele.
69	-	Added	3'-primer added for the allelic resolution of the DRB1*03:125 allele.
73	Added	Added	5'-primer added for the DRB1*07:64 allele, 3'-primer added for the DRB1*07:61 allele.
78	-	Added	3'-primer added for the DRB1*12:58 allele.

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

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Lot No.: 5D9 **Lot-specific information**

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. 65Y)**. The kit design is based on IMGT/HLA database 3.22.0.

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'-primers added for the DQB1*05:60, DQB1*05:82 and DQB1*05:105 alleles, 3'-primer added for the DQB1*05:98 allele.
89	Added	Added	5'-primer added for the DQB1*06:169 allele, 3'-primer added for the DQB1*06:146:01-06:146:02 alleles.
91	-	Added	3'-primer added for the DQB1*03:154 allele.
94	-	Added	3'-primer added for the DQB1*03:189 allele.
95	Added	Added	5'-primer added for the DQB1*04:30 allele, 3'-primer added for the DQB1*04:02:08 allele.

Change in revision R01 compared to R00:
1. Primer mix 69 does not amplify the DRB1*03:97 and *11:53 alleles. This has been corrected in the Specificity and Interpretation Tables.
Change in revision R02 compared to R01:
1. Due to sharing of sequence motifs in codon 38 and 47, DRB3*01:23 will be amplified in primer mix 69, in addition to primer mix 85.
2. The DRB1*13:02:02 allele is amplified in primer mix 70.
The Specificity and Interpretation Tables have been changed.
Changes in revision R03 compared to R02:
1. Primer mix 67 does not amplify the DRB1*16:05:01-16:05:02 and 16:07 alleles. This has been corrected in the Specificity and Interpretation Tables.
Change in revision R04 compared to R03:
1. Primer mix 20 may generate a false positive band of about 560 base pairs. This band should be disregarded when interpreting HLA-A low resolution typings. A footnote has been added in the Specificity Table.
Change in revision R05 compared to R04:
1. Primer mix 70 does not amplify the DRB1*14:137N and 14:152N alleles. Primer mix 79 does not amplify the DRB1*14:137N allele. This has been corrected in the Specificity and Interpretation Tables.
Change in revision R06 compared to R05:
1. In primer mix 20, an HLA-specific PCR product of 545 bp has been added in the Specificity Table.
Change in revision R07 compared to R06:
1. Primer mix 46 does not amplify the B*08:31, 41:06, 41:15 and 42:14 alleles. This has been corrected in the Specificity and Interpretation Tables.

Lot No.: 5D9 **Lot-specific information**

Well **96** contains Negative Control primer pairs, that will amplify more than 95% of the *Olerup* SSP® HLA Class I, DRB, DQB1, DPB1 and DQA1 amplicons as well as all the amplicons generated by the control primer pairs matching the human growth hormone gene.

HLA-specific PCR product sizes range from 75 to 200 base pairs.
The PCR product generated by the positive control primer pair is 430 base pairs.

Length of PCR product	**105**	**200**	**105**	**80**	**75**	**80**	**85**
5'-primer[1]	**164**	**340**	**440**	**45**	**45**	**43**	**36**
	5'-CAC3'	**5'-Agg3'**	**5'-TTA3'**	**5'-Tgg3'**	**5'-Tgg3'**	**5'-Tgg3'**	**5'-TAC3'**
							36
							5'-TAT3'
3'-primer[2]	**231**	**2nd I**	**507**	**59**	**58**	**57**	**47**
	5'-TgC3'	**5'-AAA3'**	**5'-TTg3'**	**5'-CTC3'**	**5'-ggC3'**	**5'-CTC3'**	**5'-ACA3'**
							48
							5'-gCA3'
							48
							5'-gCC3'
							52
							5'-TgT3'
A*	**+**	**+**	**+**				
B*	**+**	**+**	**+**				
C*	**+**	**+**	**+**				
DRB1				**+**	**+**		
DRB3				**+**	**+**		
DRB5				**+**			
DQB1					**+**		
DPB1						**+**	
DQA1							**+**

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

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

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Lot No.: 5D9 **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*10:16 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. '5D9'.
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.

Lot No.: 5D9 **Lot-specific information**

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 and HLA-C alleles will be amplified by primer mixes 4, 5, 8 and 10.
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 22 to 25, 27 to 29, 33, 34, 37, 39 to 42, 45, 48, 49, 58 to 60 and 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 2015[1,2] 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[3,4].

All the HLA-B alleles, **i.e. B*07:02 to B*83:01**, recognized by the HLA Nomenclature Committee in October 2015[1,2] 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[3].

All the HLA-DRB1, -DRB3, -DRB4[5] and -DRB5 alleles, i.e. **DRB1*01:01:01 to 10:16, DRB3*01:01:02:01 to DRB3*03:03, DRB4*01:01:01:01 to DRB4*01:10, DRB5*01:01:01 to DRB5*02:06**, recognized by the HLA Nomenclature Committee in October 2015[1,2] 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[3].

All the DQB1 alleles, i.e. **DQB1*05:01:01:01 to 05:109, DQB1*06:01:01 to 06:197, DQB1*02:01:01 to 02:64, DQB1*03:01:01:01 to 03:215 and DQB1*04:01:01 to 04:32**, recognized by the HLA Nomenclature Committee in October 2015[1,2] will be amplified by the primers in the DQ low resolution primer set. The DQB1 alleles will be grouped into their corresponding serological specificities[6], 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

Lot No.: 5D9 **Lot-specific information**

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

[1]HLA-A, HLA-B, HLA-DRB and HLA-DQB1 alleles listed on the IMGT/HLA web page 2015-October-10, release 3.22.0, www.ebi.ac.uk/imgt/hla.
[2]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.
[3]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*01:136, 01:192, A*11:94, 11:112, 11:211, 11:226	B*35:191, B*58:64
A*03:01:23, 03:08, 03:36N, 03:57, 03:59, 03:72, 03:89:01-03:89:02, 03:107-03:108, 03:111, 03:142, 03:172-03:173, 03:176, 03:178N, 03:198-03:199, 03:203, 03:205, 03:211, A*24:92	B*41:06, 41:09, 41:29, 41:32, B*45:02-45:03
A*23:01:01-23:01:12, 23:01:14-23:01:18, 23:03:01-23:13, 23:15-23:56, 23:58-23:63, 23:65, 23:67-23:69, B*18:27	B*51:45, 51:81, B*53:41
A*23:14:01-23:14:02, A*24:24, 24:71, 24:315	B*51:104, 51:118N, 51:147, B*58:08:01-58:08:02
A*23:57, 23:66, A*24:94, 24:138, 24:188, 24:228	B*51:148, B*53:14
A*26:92, A*66:01:01, 66:01:03, 66:04-66:05, 66:07-66:08, 66:11, 66:13-66:14, 66:17-66:20, 66:22, 66:24	B*53:30, 53:39, B*57:45, 57:51, 57:69
A*31:01:02:01-31:02, 31:05-31:20, 31:22-31:23, 31:25-31:28, 31:30-31:34, 31:36-31:84, 31:86-31:103, A*33:53	B*55:01:07, 55:02:01:01-55:02:09, 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, 55:61-55:63, 55:65, 55:67, 55:69-55:72, B*56:10
A*31:21, A*32:05, 32:79	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, 07:222, 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, 57:70, 57:72-57:73, 57:75-57:80, B*58:36
B*08:26:01-08:26:02, 08:50, 08:62, 08:85, 08:94, 08:146, B*42:07	DRB1*03:27, DRB1*13:44, 13:86, 13:206
B*13:04, 13:10, 13:21, 13:35, 13:59, 13:71-13:72, B*44:135, 44:158, 44:184	DRB1*08:20, DRB1*13:18, 13:47, 13:55, 13:158, 13:164
B*13:46, B*44:213	DRB1*08:31, 08:41, 08:75, DRB1*11:67, 11:193
B*14:08:01-14:08:02, B*39:01:19, 39:25N, 39:30, 39:32-39:34, 39:43, 39:47, 39:50, 39:74, 39:82, 39:102, 39:107	DRB1*13:13, 13:119, 13:154, 13:156, DRB1*14:84, 14:116, 14:144
B*18:29, 18:72, 18:92, 18:102, 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, 35:234-35:235, 35:273, 35:292	

[4]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.
[5]The DRB4*02:01N and DRB4*03:01N null alleles will not be amplified by the DR low resolution primer set.

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[6]The serological split of the DQB1*05:05-05:109, DQB1*06:06 to 06:07 alleles, the DQB1*06:10, 06:13, 06:15-06:24 and 06:27 to 06:197, the DQB1*02:04-02:64, the DQB1*03:07-03:09 and 03:11-03:215 alleles and the DQB1:04:0301-04:32 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.

Lot No.: 5D9 **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[1]	Size of control band[2]	HLA-A serology[3]	Amplified HLA-A alleles[4,5,6]
1[6,7]	120 bp, 145 bp, 225 bp	**800 bp**	A1, A36	*01:01:01:01-01:04N, 01:06-01:33, 01:35-01:194, 01:196, 03:18, 03:135, 11:94, 11:112, 11:211, 11:226, 36:01-36:05
2[7]	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[w], 02:79:01-02:97:02, 02:99, 02:101:01-02:128, 02:130-02:570, 02:572-02:598
3[11]	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, 03:136-03:176, 03:178N-03:186, 03:188-03:193, 03:195-03:214, 03:216-03:224, 03:226-03:234Q, 11:03, 11:20, 11:25:01-11:25:02, 11:60, 11:130, 11:158, 11:175, 11:183, 11:209, 24:92, 32:04, 34:02:01-34:04, 34:07-34:10N, 34:13, 36:02, 74:23
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, 01:01:49-01:01:64, 01:01:67-01:01:72, 01:01:73[w], 01:02-01:04N, 01:06-01:07, 01:09-01:11N, 01:13, 01:16N-01:18N, 01:20-01:29, 01:31N-01:33, 01:35-01:52:01N, 01:52:02N[w], 01:53N-01:78, 01:80-01:98, 01:100-01:144, 01:146, 01:148, 01:150-01:158, 01:160N-01:166, 01:168-01:177, 01:180-01:194, 01:196, 02:78, 02:169, 03:12, 03:18, 03:88, 03:135, 11:01:01:01-11:27, 11:29-11:52Q, 11:54-11:229, 26:19, 26:72, 29:67, 30:08, 32:64, 36:04, 66:23, 68:13:01, 68:66, 68:134, 74:19, **C*12:131**
5[8,12]	135 bp, 200 bp	**800 bp**	A9, A23, A24, A29, A80	*11:166, 23:01:01-23:56, 23:58-23:65, 23:67-23:69, 24:24, 24:71, 24:315, 29:07, 29:49, 31:29, 31:85, 32:72, 80:01:01:01-80:03, **B*18:27**
6	175 bp, 205 bp	1070 bp	A2, A23, A24, A26, A33	*02:17:01[w]-02:17:03[w], 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, 24:229-24:290, 24:292-24:295, 24:297-24:303N, 24:305-24:315, 24:317-24:323N, 26:16, 33:19, 68:45, 68:117
7[7]	165 bp, 200 bp	**800 bp**	A2/A28, A3, A10, A11, A25, A26, A32, A34, A43, A66, A68, A69	*01:51, 02:55, 02:135, 02:527, 02:582, 03:24, 03:50, 11:10, 11:183, 11:191, 25:01:01-25:33, 26:01:01:01-26:43:02, 26:45-26:117, 29:28, 32:15, 33:51, 34:01:01-34:14, 43:01, 66:01:01-66:24, 68:01:01:01-68:137, 69:01-69:03
8[6,9]	80 bp	**800 bp**	A3, A25, A32	*25:01:01-25:33, 32:01:01-32:02, 32:04, 32:06-32:37, 32:39-32:59, 32:61-32:70, 32:72-32:77, **B*07:81, B*08:52, B*18:67, B*38:41, B*51:185,**

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				B*53:05, B*53:16, B*53:33
9[6,7,12]	80 bp, 240 bp	**800 bp**	A10, A26, A43	*01:43, 01:51, 11:17, 11:40, 11:223, 26:01:01:01-26:02:02, 26:04, 26:07:01-26:20, 26:22-26:29, 26:31-26:43:02, 26:45-26:77, 26:79-26:91, 26:93-26:110, 26:112-26:117, 33:13, 33:48, 43:01, 68:84
10[6,7]	80 bp, 175 bp, 500 bp	1070 bp	A1, A11, A24, A26, A31, A34, A66	*01:13, 01:28, 01:136, 01:176, 01:192, 02:590, 03:63, 03:88, 11:01:01:01-11:27, 11:29-11:52Q, 11:54-11:229, 24:19, 24:44, 26:03:01, 26:06, 26:21, 26:78, 26:92, 26:111, 34:01:01-34:08, 34:10N-34:14, 66:01:01-66:01:03, 66:04-66:11, 66:13-66:14, 66:17-66:20, 66:22-66:24, 69:02, 80:02, **C*07:404**
11[6]	125 bp, 190 bp	**800 bp**	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, 34:01:01-34:14, 43:01, 66:02-66:03, 66:16, 66:21, 68:130, 74:01:03
12	175 bp, 225 bp	1070 bp	A1, A2, A3, A10, A25, A26, A34, A43, A66	*01:01:56[w], 01:13, 01:145[w], 01:176, 01:194, 02:34-02:35:03, 02:56:01-02:56:02, 02:62, 02:103, 02:135, 02:580, 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, 03:177, 03:179-03:193, 03:195-03:197N, 03:200Q-03:202, 03:204, 03:206-03:210, 03:212-03:218, 03:220-03:234Q, 11:116, 11:140, 11:199:01-11:199:02, 11:222, 25:01:01-25:05, 25:07-25:33, 26:01:01:01-26:01:20, 26:01:22-26:03:01, 26:05-26:08, 26:10-26:28, 26:29[w], 26:30-26:33, 26:35-26:43:02, 26:45-26:48, 26:49[w], 26:50-26:72, 26:74-26:77, 26:79-26:90, 26:92-26:117, 30:55, 31:24, 33:61, 34:08, 43:01, 66:01:01, 66:01:03, 66:04-66:09, 66:10[w], 66:11-66:15, 66:17-66:20, 66:22-66:24, 68:71, 74:13
13[6,7,10,12]	80 bp, 115 bp, 200 bp, 240 bp, 460 bp	1070 bp	A26, A29, A31, A34, A36, A68	*02:237, 02:309, 02:454, 03:01:38, 03:95, 03:123:02, 03:171, 03:231, 11:130, 26:19, 26:22, 29:01:01:01-29:82, 31:03-31:04, 32:42, 34:04, 36:02, 66:09, 68:19
14[6,12]	90 bp, 135 bp, 205 bp	1070 bp	A1, A30	*01:13, 01:28, 01:176, 01:194, 03:43, 03:82, 03:186, 11:113, 11:162, 30:01:01-30:04:02, 30:06-30:20, 30:22-30:96, 31:35
15	240 bp, 380 bp, 410 bp	1070 bp	A24, A31, A32	*02:237, 03:95, 29:14, 31:01:02:01-31:103, 32:05, 32:79, 33:53, 74:13
16	140 bp, 180 bp, 235 bp, 260 bp	1070 bp	A2, A3, A25, A29, A32, A74	*01:95, 02:11:01-02:11:09, 02:69, 02:81, 02:87, 02:112, 02:124, 02:128, 02:136, 02:297-02:298, 02:308, 02:457, 02:490N, 02:494, 02:503, 02:514N, 02:571, 02:579, 02:584, 02:589, 03:32, 03:43, 03:82, 03:152, 03:186, 03:219, 23:64, 24:88, 24:104, 24:243, 25:03, 25:30, 29:13, 29:39, 30:89, 31:21, 31:35, 32:01:01-32:79, 74:07
17	200 bp, 390 bp	1070 bp	A32, A33, A68, A74	*02:243:01-02:243:02, 29:48, 32:15, 33:01:01-33:01:08, 33:03:01-33:37, 33:39-33:52, 33:54-33:104, 68:29, 74:04, 74:21

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

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18	340 bp, 375 bp	**800 bp**	A2, A19, A68, A74	*01:121, 02:65, 02:407, 02:449, 32:62, 68:25, 74:01:01-74:26
19[12,13]	210 bp, 240 bp	**800 bp**	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, 02:571, 02:580, 11:199:02, 23:01:13, 25:05, 26:54, 34:02:04, 68:01:01:01-68:137
20[14]	200 bp, 240 bp, 375 bp, 545 bp	**800 bp**	A2, A26, A28, A32, A66, A68, A69	*02:17:01-02:17:03, 02:55, 02:108, 02:110, 02:243:01-02:243:02, 02:268, 02:300, 02:303, 23:02, 23:57, 23:66, 24:06, 24:13:01, 24:22, 24:82, 24:94, 24:138, 24:167, 24:188, 24:207, 24:228, 25:30, 26:22, 33:22, 66:06, 66:09, 68:08:02, 68:29, 68:105, 69:01-69:03
21[6,12]	75 bp, 155 bp, 240 bp, 495 bp	**800 bp**	A2, A26, A68, A80	*02:55, 02:237, 03:41, 03:63, 03:75, 03:88, 03:95, 03:177, 11:130, 24:18, 24:204, 24:213, 26:03:01, 26:05-26:06, 26:21, 26:30, 26:78, 26:111, 33:24, 36:02, 68:05, 68:15, 68:20, 68:109, 68:136, 80:01:01:01-80:01:01:02, 80:03

[1]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.
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 inherit 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.

[2]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.

[3]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.

[4]For several HLA Class I alleles 1st and/or 4th 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.

[5]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 4, 5, 8 and 10.

[6]HLA-specific PCR products shorter than 125 base pairs have a lower intensity and are less sharp than longer PCR products.

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

[8]Primer mix 5 may give rise to a lower yield of A*23 alleles than the other A low primer mixes.

[9]Primer mix 8 may weakly amplify the A*34 alleles.

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

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[11]Primer mix 3 may faintly amplify the A*30:04:01-30:04:02, 30:06, 30:09, 30:17, 30:29, 30:46, 30:77 and 30:90 alleles.

[12]Primer mixes 5, 9, 13, 14, 19 and 21 may have a tendency of giving rise to primer oligomer formation.

[13]Primer mix 19 may have tendency of unspecific amplification.

[14]Primer mix 20 may generate a false positive band of about 560 base pairs. This band should be disregarded when interpreting HLA-A low resolution typings.

'w', might be weakly amplified.

Lot No.: 5D9 **Lot-specific information**

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[1]	Size of control band[2]	HLA-B serol.[3]	Amplified HLA-B alleles[4,5]
22[10]	285 bp	**800 bp**	7, 15, 37, 40, 41, 42, 48	*07:02:01-07:02:38, 07:02:40-07:06, 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, 07:199-07:213, 07:215-07:234, 07:236-07:238, 07:240-07:254, 07:256, 08:01:01-08:01:20, 08:01:22-08:01:24, 08:01:26-08:05, 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, 08:114-08:115, 08:117-08:133, 08:135-08:156, 15:297, 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, 41:02:01-41:02:06, 41:04, 41:10-41:11, 41:13, 41:18-41:19, 41:23-41:24, 41:27, 41:31, 41:36, 41:38-41:41, 42:01:01-42:02:01:02, 42:05:01-42:07, 42:09-42:13, 42:15-42:21, 44:150, 44:166, 48:01:01-48:01:06, 48:05-48:12, 48:14-48:20, 48:22, 48:27-48:37, 53:15, 81:01-81:08, **C*03:260**
23	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, 08:95-08:122, 08:124-08:131, 08:133-08:145, 08:147-08:156, 15:142, 15:180, 35:218, 35:256, 44:49, 44:156, 49:25, 51:68, 51:176, **C*06:147**
24[10]	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, 07:220, 07:223, 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, 13:68-13:85, 15:07:01-15:07:03, 15:36[w], 15:45, 15:55, 15:68, 15:89[w], 15:126, 15:207, 15:324, 15:329, 15:331, 15:360, 35:05:01-35:05:03, 35:16-35:17:02, 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, 35:242, 40:05, 40:71, 40:174, 44:08[w], 44:54, 44:57[w], 44:60, 44:106, 44:110, 44:135, 44:158, 44:184, 44:211, 44:213, 46:12, 51:64, 51:148, 53:14, 55:51, 58:18, **C*03:05, C*03:25, C*03:27, C*03:143, C*03:167, C*03:296**
25[7,8]	130 bp, 265 bp, 645 bp	**800 bp**	12, 13, 14, 15, 17, 21, 35, 40, 41, 44, 45, 47, 49, 50, 57, 58, 60, 61, 64, 65	*13:01:01-13:01:09, 13:01:11-13:04, 13:06-13:13:02, 13:15-13:23, 13:25-13:57, 13:59-13:82, 13:84-13:85, 14:01:01-14:02:08, 14:02:10-14:04, 14:07N, 14:09, 14:11-14:12, 14:14-14:36, 14:38-14:50, 15:46, 15:53, 15:106, 15:143, 15:212, 15:336, 18:44:01-18:44:02, 18:107, 35:19, 35:46-35:47, 35:63, 35:154, 35:207, 35:217, 39:79, 40:01:01-40:01:39, 40:01:42-40:01:43, 40:07, 40:10:01:01-40:10:02, 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, 40:112-40:114:02, 40:116-40:118N, 40:121, 40:123-40:126, 40:128-40:130:02, 40:132, 40:134-

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26[8]	185 bp, 235 bp	**800 bp**	14, 16, 27, 37, 38, 39, 47, 64, 67	*07:02:32, 07:197, 14:01:01-14:01:05, 14:07N-14:08:02, 14:10, 14:12, 14:14, 14:19, 14:26, 14:32, 14:40, 14:46-14:47, 14:49, 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, 27:82-27:124, 27:126, 27:128-27:129, 27:131-27:137, 27:140-27:145, 37:02, 38:01:01-38:01:07, 38:01:09-38:02:02, 38:02:04-38:03, 38:07-38:24, 38:26-38:32, 38:34N-38:58, 39:01:01:01-39:01:01:04, 39:01:03-39:01:08, 39:01:10-39:02:01, 39:03, 39:05:01-39:06:02, 39:06:04-39:09:03, 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, 39:84-39:88, 39:90-39:91, 39:93-39:95N, 39:97N-39:98, 39:100, 39:102-39:104, 39:106-39:107, 47:04-47:05, 48:21, 48:26, 67:01:01, 67:03-67:04
27[9]	190 bp	**800 bp**	14, 35, 38, 39, 65	*07:28, 08:87, 14:02:01:01-14:02:02, 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, 14:33-14:39, 14:41N, 14:43-14:45, 14:48, 14:50, 15:77, 15:189, 15:233, 35:03:17, 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, 44:190, 52:26, 57:04:01-57:04:02, **A*23:31, A*24:106, C*02:97, C*07:231, C*16:10**
28	290 bp	1070 bp	15, 46, 62, 63, 75, 76, 77	*15:01:01:01-15:01:03, 15:01:06-15:02:09, 15:03:03, 15:04:01-15:08:02, 15:10:02, 15:11:01-15:11:03, 15:11:05-15:15, 15:17:01:01-15:17:05, 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, 15:177-15:179:02,

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64	350 bp	1070 bp	Bw6	*07:02:01-07:26, 07:28-07:35, 07:37, 07:39-07:80, 07:82-07:148, 07:150-07:179, 07:181N-07:191, 07:193-07:218, 07:220-07:235, 07:237-07:256, 08:01:01-08:01:31, 08:04-08:05, 08:07-08:51, 08:53:01-08:77, 08:79-08:116, 08:118-08:125, 08:127-08:130, 08:132-08:135, 08:137-08:138, 08:140-08:152, 08:154-08:156, 13:09, 13:39, 13:67, 14:01:01-14:50, 15:01:01:01-15:01:04, 15:01:06-15:12, 15:14-15:15, 15:18:01-15:21, 15:25:01-15:35, 15:37-15:40, 15:42, 15:44-15:58, 15:60-15:66, 15:68-15:86, 15:88, 15:90-15:94N, 15:96-15:99, 15:101-15:114, 15:116-15:129, 15:131-15:156, 15:158-15:161, 15:163-15:167, 15:169-15:176, 15:178-15:195, 15:197-15:207, 15:209N-15:215, 15:217-15:221, 15:223-15:229, 15:231-15:253, 15:255, 15:257-15:267, 15:269-15:272N, 15:274-15:276, 15:278-15:338, 15:340-15:355, 15:357-15:360, 15:363-15:374, 18:01:01:01-18:08, 18:10-18:15, 18:17N-18:53, 18:55-18:66, 18:68-18:116, 27:08, 27:12, 27:18, 27:26, 27:33, 27:40, 27:42, 27:44, 27:89, 35:01:01:01-35:01:38, 35:01:40-35:72, 35:74-35:221, 35:223-35:247, 35:249-35:292, 35:294-35:300, 37:05, 37:11, 37:14[w], 37:37, 39:01:01:01-39:01:01:04, 39:01:03-39:01:14, 39:01:16-39:20, 39:22-39:103, 39:105-39:107, 40:01:01-40:12, 40:14:01-40:16, 40:18, 40:20-40:40, 40:42-40:46, 40:48-40:75, 40:77-40:95, 40:97-40:108, 40:111-40:116, 40:118N-40:156, 40:158-40:187, 40:189-40:200, 40:202-40:291N, 40:293-40:317, 41:01:01-41:25, 41:27-41:41, 42:01:01-42:02:01:02, 42:04-42:21, 44:09, 44:46, 44:75, 44:90, 44:129, 44:131, 45:01:01-45:15, 45:17, 46:01:01-46:64, 47:02, 47:03[w], 48:01:01-48:17, 48:19-48:37, 50:01:01-50:02, 50:04-50:20, 50:31-50:43, 54:01:01-54:11, 54:13-54:34, 55:01:01-55:05, 55:07-55:76, 56:01:01:01-56:06, 56:08-56:20:02, 56:22-56:45, 56:47-56:49, 57:12, 58:64, 67:01:01-67:05, 73:01-73:02, 78:01:01-78:09, 81:01-81:08, 82:01-82:03, 83:01

[1]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.

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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 inherit 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.

[2]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.

[3]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.

[4]For several HLA Class I alleles 1st and/or 4th 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.

[5]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 22 to 25, 27 to 29, 33, 34, 37, 39 to 42, 45, 48, 49, 58 to 60 and 62.

[6]HLA-specific PCR products shorter than 125 base pairs have a lower intensity and are less sharp than longer PCR products.

[7]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.

[8]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.

[9]Primer mixes 27, 30, 40 and 57 may have tendencies of unspecific amplifications, most pronounced in primer mix 30.

[10]Primer mixes 22, 24, 35, 39, 40, 42, 60 and 62 have a tendency to giving rise to primer oligomer formation.

[11]The B*15, B*46, B*57, B*58 and C*03 alleles may be faintly amplified by primer mix 30.

[12]Primer mix 57 may give rise to a lower yield of B*54 alleles than the other B low primer mixes.

[13]The C*17 alleles might be faintly amplified by primer mix 45.

[14]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.

[15]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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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[1]	Size of control band[2]	DR serology[3]	Amplified HLA-DRB alleles[4]
65[6,7]	210 bp, 235 bp, 260 bp	**515 bp**	1	*01:01:01-01:02:12, 01:04-01:38, 01:40N-01:72
66	200 bp	430 bp	103	*01:03, 01:39N, 01:42, 01:61
67[9]	210 bp, 230 bp	430 bp	2, 15, 16	*15:01:01:01-15:127
68[9]	210 bp	430 bp	11, 16	*11:30, 12:57, 16:01:01-16:05:02, 16:07-16:37
69[5,6,11]	120 bp, 220 bp	430 bp	3, 11, 13, 17, 18	*03:01:01:01-03:16, 03:18-03:26, 03:28-03:34, 03:36-03:96, 03:98-03:125, 11:07, 11:27:02-11:27:03, 11:84:02-11:84:03, 11:103:01-11:103:02, 11:105, 11:107, 11:125, 11:173, 13:33:01, 13:61:02, 13:94:01, 13:96:01, 14:38:02, 15:25, 15:37:01, 15:100, 15:104
70[5,11]	75 bp, 210 bp	430 bp	3, 11, 13, 14, 17	*03:01:01:01-03:01:23, 03:01:25, 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, 03:95-03:96, 03:98-03:100:02, 03:104, 03:106-03:110, 03:112-03:114, 03:116-03:118, 03:121-03:125, 08:40, 11:02:01-11:03:02, 11:11:01, 11:11:03, 11:14:01-11:14:02, 11:16, 11:20-11:21, 11:36, 11:40-11:41, 11:48, 11:59, 11:63:01-11:63:02, 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, 11:151, 11:153, 11:161, 11:168, 11:171, 11:176, 11:182, 11:184, 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, 13:165-13:168, 13:170-13:180, 13:182, 13:184-13:188, 13:190-13:191, 13:193-13:194, 13:196, 13:198, 13:200N-13:202, 13:204-13:205, 13:207-13:209, 14:16, 14:19, 14:21, 14:45, 14:82, 14:95, 14:109, 14:120, 14:122, 14:132
71[5]	85 bp, 210 bp	430 bp	3, 11, 13, 14, 18	*03:02:01-03:03, 03:27, 03:29, 03:38, 03:53, 03:74, 03:88, 03:90, 03:102-03:103, 03:115, 03:119, 11:13:01[w]-11:13:02[w], 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, 13:193, 13:198, 13:206, 14:02:01-14:03:02,

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72[5,6,7]	100 bp, 175 bp	430 bp	3, 4	*04:01:01-04:05:11, 04:05:13-04:202
73[9]	200 bp, 230 bp	430 bp	7, 13, 14	*07:01:01:01-07:01:18, 07:03-07:66, 08:67, 12:22, 13:17, 13:116, 13:175, 14:50
74[6]	170 bp, 215 bp, 250 bp	**515 bp**	8, 12, 14	*08:01:01-08:19, 08:21-08:56, 08:58-08:66, 08:68-08:77, 11:67, 11:193, 12:04, 12:16:01-12:16:03, 12:22, 12:39, 12:49, 14:11, 14:15, 14:68:01-14:68:02, 14:93, 14:148
75[5,6]	90 bp, 135 bp, 165 bp, 190 bp	430 bp	3, 9, 11	*03:08, 03:65, 03:112, 09:01:02-09:27, 11:07, 11:103:01-11:103:02, 11:105, 11:107, 11:125, 11:173
76[7]	175 bp	430 bp	10	*03:76, 03:125, 10:01:01-10:16, 11:59, 11:80, 11:83, 11:87, 11:135, 11:142, 11:182, 13:27, 13:41, 13:71, 13:129, 13:176
77[5,6]	100 bp, 170 bp	430 bp	3, 8, 11	*03:08, 03:65, 08:31, 08:41, 08:63, 08:75, 11:01:01-11:11:01, 11:11:03-11:70, 11:72-11:191, 11:193-11:194
78[5,6]	90 bp, 110 bp	430 bp	8, 12	*08:32, 08:53, 12:01:01-12:56, 12:58, 14:52
79[7,8]	220 bp	430 bp	6, 8, 11, 13, 14, 1403	*03:76, 03:125, 08:20-08:21, 11:01:01-11:04:12, 11:06:01-11:06:03, 11:08:01-11:11:01, 11:11:03-11:12:03, 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, 11:144-11:158, 11:160-11:172, 11:174-11:191, 11:194, 12:57, 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, 13:147-13:166, 13:168-13:174, 13:176-13:182, 13:184-13:191, 13:194-13:205, 13:207-13:209, 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, 14:144, 14:156, **DRB3*02:27**
80[6,7,8]	205 bp, 225 bp	430 bp	8, 11, 12, 13, 14	*03:125, 08:01:01-08:01:05, 08:02:01-08:02:04, 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, 08:54-08:55, 08:57, 08:59, 08:64, 08:67, 08:70, 08:72-08:73, 08:75, 08:77, 11:01:01-11:01:17, 11:01:20-11:06:03, 11:09-11:11:01, 11:11:03-11:12:03, 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, 11:58:01-11:63:02, 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,

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81[11]	175 bp, 240 bp	430 bp	3, 6, 11, 13, 14, 17	*03:01:01:01-03:01:05, 03:01:07-03:01:08, 03:01:10-03:07, 03:09, 03:11:01-03:41:02, 03:43-03:45, 03:47-03:63, 03:66-03:68N, 03:70-03:86, 03:88-03:91, 03:93-03:110, 03:112-03:125, 08:20, 11:13:01-11:13:02, 11:149, 12:20, 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, 13:166-13:170, 13:171:02-13:174, 13:176-13:178, 13:180-13:190, 13:192-13:194, 13:196, 13:198-13:210, 14:01:01, 14:01:02[?]-14:01:04[?], 14:02:01-14:04:01, 14:04:02[?]-14:04:03[?], 14:05:01-14:07:01, 14:07:02[?], 14:08-14:14, 14:15[?]-14:16[?], 14:17-14:21, 14:22[?], 14:23:01, 14:23:02[?], 14:23:03-14:24, 14:25[?]-14:26[?], 14:27, 14:28[?], 14:29-14:30, 14:31[?]-14:32:03[?], 14:33, 14:34[?]-14:35[?], 14:36-14:37, 14:38:01[?]-14:39[?], 14:40-14:45, 14:47-14:48, 14:49[?]-14:50[?], 14:51, 14:52[?]-14:53[?], 14:54:01-14:54:05, 14:55[?], 14:56-14:57, 14:58[?], 14:59, 14:60[?]-14:62[?], 14:63-14:65, 14:67, 14:68:01[?]-14:76[?], 14:77-14:78, 14:79[?], 14:80-14:85, 14:86[?]-14:88[?], 14:89, 14:90[?], 14:91, 14:92N[?]-14:93[?], 14:94-14:96, 14:97[?], 14:98, 14:99[?], 14:100, 14:101[?], 14:102-14:103, 14:104[?]-14:105[?], 14:106, 14:107[?], 14:108-14:109, 14:110[?]-14:114[?], 14:115-14:116, 14:117[?]-14:120[?], 14:121, 14:122[?], 14:123, 14:124[?]-14:126:02[?], 14:127:01-14:127:02, 14:128[?]-14:133[?], 14:134-14:137N, 14:138[?]-14:140[?], 14:141, 14:142[?]-14:143[?], 14:144, 14:145[?]-14:151[?], 14:152N, 14:153[?], 14:154-14:156, 14:157[?]-14:158[?], 14:159-14:161, 14:162[?]-14:164[?], 14:165, 14:166N[?], 14:167, 14:168[?]
82[5,7]	100 bp, 150 bp, 195 bp, 240 bp	430 bp	4, 8, 13, 14	*04:62, 04:69, 04:73, 04:105:01-04:105:02, 04:122, 04:146, 08:08, 11:69, 11:82, 13:45, 13:197, 14:01:01-14:01:02, 14:01:04, 14:04:01-14:04:03, 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, 14:54:03-14:55, 14:57-14:58,

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				14:60-14:62, 14:68:01-14:71, 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, 14:145-14:147, 14:149-14:153, 14:157-14:158, 14:163-14:164, 14:166N, 14:168^{w}, **DRB4*01:03:01:02N**
83[5,6,7,10]	110 bp, 145 bp, 170 bp	430 bp	3, 9, 11, 12, 13, 14, 15	*03:10, 09:01:02-09:01:05, 09:01:07-09:02:02, 09:04-09:22, 09:24-09:27, 11:13:01-11:13:02, 11:17, 11:52, 13:43, 13:159, 13:171:01, 13:179, 13:191, 13:193, 14:01:01-14:02:02, 14:04:01-14:11, 14:13-14:14, 14:16-14:18, 14:19^{w}, 14:20, 14:21^{w}, 14:22-14:23:04, 14:26, 14:28-14:36, 14:38:01-14:39, 14:41, 14:43-14:52, 14:54:01-14:54:03, 14:54:04^{w}, 14:54:05-14:57, 14:59-14:62, 14:64-14:65, 14:68:01-14:68:02, 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^{w}, 14:110-14:114, 14:117-14:127:02, 14:129-14:134, 14:137N-14:140, 14:142-14:143, 14:145-14:155, 14:157-14:160, 14:162-14:167, 15:27, 15:34, 15:66:01-15:66:02, 15:122^{w}
84[5,6]	110 bp, 150 bp, 180 bp, 220 bp	430 bp	3, 8, 11, 13, 14, 15, 16	*03:10, 08:09, 08:20-08:21, 08:32, 08:35, 08:36:02, 08:53, 08:68^{w}, 08:70^{w}, 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, 11:159, 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, 13:171:01, 13:179, 13:191, 13:197, 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, 14:38:01-14:40, 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, 14:142-14:158, 14:160-14:164, 14:166N-14:168, 15:21^{w}, 16:04^{w}, 16:18^{w}
85[6,11]	160 bp, 240 bp	430 bp	52	*14:141, **DRB3*01:01:02:01-01:17, DRB3*02:01-02:29N, DRB3*03:01:01-03:03**
86[7,12]	215 bp	430 bp	53	**DRB4*01:01:01:01-01:10**
87	175 bp	430 bp	51	**DRB5*01:01:01-01:16, DRB5*02:02-02:06**

[1]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.
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 inherit 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.

[2]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.

[3]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.

[4]For several DRB1 alleles 1st and/or 3rd exon(s) and beyond, as well as intron nucleotide sequences, are not available. In these instances it is not known whether some of the primers of the SSP sets are completely matched with the target sequences or not. Assumption is made that unknown sequences in these regions are conserved within allelic groups.

[5]HLA-specific PCR fragments shorter than 125 base pairs have a lower intensity and are less sharp than longer PCR bands.

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

[7]Primer mixes 65, 72, 76, 79, 80, 82, 83 and 86 have a tendency to giving rise to primer oligomer formation.

[8]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.

[9]Primer mixes 67, 68 and 73 may have tendencies of unspecific amplifications.

[10]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.

[11]Due to sharing of sequence motifs in codon 38 and 47, DRB3*01:14 will also be amplified in primer mixes 69, 70 and 81, and DRB3*01:23 in primer mix 69, in addition to primer mix 85.

[12]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.

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

Lot No.: 5D9 **Lot-specific information**

SPECIFICITY TABLE

DQ low resolution primer set

Specificities and sizes of the PCR products of the 8+1 primer mixes used for DQ low resolution SSP typing

Primer Mix	Size of spec. PCR product[1]	Size of control band[2]	DQ serology[3]	Amplified DQB1 alleles[4]
88	135 bp, 230 bp	**515 bp**	5, 6	*05:01:01:01-05:109, 06:23, 06:151, 06:156, 06:162, 06:169
89[5,6]	65 bp, 110 bp, 135 bp, 160 bp, 185 bp, 220 bp, 270 bp	**515 bp**	1, 5, 6	*03:23:01, 06:01:01-06:197
90	210 bp	430 bp	2	*02:01:01-02:64
91[7]	220 bp	**515 bp**	3, 7	*03:01:01:01-03:01:31, 03:04:01-03:04:02, 03:09-03:10:02, 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, 03:101-03:103, 03:108-03:109, 03:114-03:116, 03:118N-03:122, 03:127-03:131, 03:133-03:135, 03:138-03:140, 03:142-03:144, 03:147-03:148, 03:150, 03:152, 03:154, 03:157-03:160, 03:162-03:167, 03:169-03:173, 03:180, 03:182-03:183, 03:186-03:188, 03:191-03:198, 03:201-03:202, 03:206-03:208
92[7]	130 bp, 220 bp	**515 bp**	6, 8	*03:02:01-03:02:19, 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, 03:104, 03:106-03:107, 03:125, 03:132, 03:146, 03:153, 03:161, 03:174-03:175, 03:178-03:179, 03:181, 03:184-03:185, 03:189-03:190, 03:199, 03:203-03:205, 03:210-03:211, 03:213N-03:215, 06:29, 06:123, 06:139
93[7,8]	135 bp	**515 bp**	2, 3, 4, 9	*02:03, 03:03:02:01-03:03:13, 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, 03:104-03:105, 03:111-03:113, 03:117, 03:123-03:124, 03:126, 03:136-03:137, 03:141, 03:145, 03:149, 03:155-03:156, 03:168, 03:176-03:177, 03:200, 03:209, 03:212, 04:03:01-04:03:02, 06:03:10, 06:51:01, 06:66, 06:96, 06:168, 06:172
94[5,7,8,9]	85 bp, 185 bp	**515 bp**	3, 4, 7, 8, 9	*03:01:01:01-03:103, 03:105-03:153, 03:155-03:215, 04:01:03
95[7]	135 bp, 170 bp, 205 bp	430 bp	4	*03:132, 04:01:01-04:32
96[10]				**Negative control**

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Lot No.: 5D9 **Lot-specific information**

[1]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 inherit 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.

[2]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.

[3]The serological split of the DQB1*05:05-05:109, DQB1*06:06 to 06:07 alleles, the DQB1*06:10, 06:13, 06:15-06:24 and 06:27 to 06:197, the DQB1*02:04-02:64, the DQB1*03:07-03:09 and 03:11-03:215 alleles and the DQB1:04:0301-04:32 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.

[4]For several DQB1 alleles 1st and/or 3rd exon(s) and beyond, as well as intron nucleotide sequences, are not available. In these instances it is not known whether some of the primers of the SSP sets are completely matched with the target sequences or not. Assumption is made that unknown sequences in these regions are conserved within allelic groups.

[5]HLA-specific PCR products shorter than 125 base pairs have a lower intensity and are less sharp than longer PCR products.

[6]Primer mix 89 has a tendency to giving rise to primer oligomer formation.

[7]Primer mixes 91 to 95 may give rise to a lower yield of HLA-specific PCR product than the other DQ low resolution primer mixes.

[8]Primer mixes 93 and 94 may have tendencies of unspecific amplifications.

[9]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.

[10]Primer mix 96 contains a negative control, which will amplify more than 95% of HLA amplicons as well as the amplicons generated by the control primer pairs matching the human growth hormone gene. HLA-specific PCR product sizes range from 75 to 200 base pairs and the PCR product generated by the HGH positive control primer pair is 430 base pairs.

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Lot No.: 5D9 **Lot-specific information**

HLA-A LOW PRIMER SPECIFICATION

Well No.	1	2	3	4	5	6	7	8	9	10	11	12
Length of spec.	120	175	205	190	135	175	165	80	80	80	125	175
PCR product	145	215	235		200	205	200		240	175	190	225
	225	255								500		
		365										
		415										
Length of int. pos. control[1]	800	800	1070	800	800	1070	800	800	800	1070	800	1070
5'-primer(s)[2]	98	48	357	98	176	98	98	261	98	301	103	98
	5' -CTT 3'	5' -gCT 3'	5' -ATg 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	363	413	368	368	102	266	261	302	415	414
	5' -CCT 3'	5' -TCT 3'	5' -ATA 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' -CAg 3'
	123	106	363				413			385	423	423
	5' -AgT 3'	5' -CCA 3'	5' -ATA 3'				5' -CCg 3'			5' -ggC 3'	5' -gCT 3'	5' -gCT 3'
	363						423					
	5' -ATA 3'						5' -gCT 3'					
3'-primer(s)[3]	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	303		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' -AgA 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

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

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Lot No.: 5D9 **Lot-specific information**

Well No.	13	14	15	16	17	18	19	20	21
Length of spec.	80	90	240	140	200	340	210	200	75
PCR product	115	135	380	180	390	375	240	240	155
	200	205	410	235				375	240
	240			260				545	495
	460								
Length of int. pos. control[1]	1070	1070	1070	1070	1070	800	800	800	800
5'-primer(s)[2]	98	203	41	98	41	302	78	28	176
	5' -CAC 3'	5' -gAA 3'	5' -CTT 3'	5' -CTT 3'	5' -CTT 3'	5' -ggA 3'	5' -TCT 3'	5' -TCg 3'	5' -gCA 3'
	219	362	355	180	98	302	106	261	261
	5' -gCA 3'	5' -ggT 3'	5' -CCg 3'	5' -TTT 3'	5' -CAC 3'	5' -ggA 3'	5' -CCA 3'	5' -AAC 3'	5' -AAC 3'
	238	363		203		341	2nd I	368	341
	5' -AgA 3'	5' -ATA 3'		5' -gAA 3'		5' -ggA 3'	5' -CCT 3'	5' -gTT 3'	5' -ggA 3'
	355	363		418					355
	5' -CCg 3'	5' -ATA 3'		5' -AgC 3'					5' -CCC 3'
	489	363							362
	5' -gCA 3'	5' -ATA 3'							5' -gAg 3'
		369							362
		5' -TAC 3'							5' -gAg 3'
3'-primer(s)[3]	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	538	555
	5' -CCA 3'		5' -CCC 3'				5' -CTT 3'	5' -CCA 3'	5' -CCA 3'
			282				506		
			5' -gAC 3'				5' -TgT 3'		
			555						
			5' -CCA 3'						
Well No.	13	14	15	16	17	18	19	20	21

[1]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.

[2]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 web site. The sequence of the 3 terminal nucleotides of the primer is given.

[3]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 web site. The sequence of the 3 terminal nucleotides of the primer is given.

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Lot No.: 5D9 **Lot-specific information**

HLA-B LOW PRIMER SPECIFICATION

Well No.	22	23	24	25	26	27	28	29	30	31	32	33
Length of spec.	285	215	140	130	185	190	290	165	165	180	100	195
PCR product			235	265	235			225	190		195	
				645				285	390			
								330				
Length of int.	800	1070	1070	800	800	800	1070	1070	1070	800	1070	1070
pos. control[1]												
5'-primer(s)[2]	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)[3]	603	272	309	193	246	246	165	206	266	559	256	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' -CCC 3'	5' -gTC 3'
	605	272	312	193	246	572		538	559		272	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' -Tgg 3'	5' -gTC 3'
			559	463	559			603	583		572	570
			5' -CAg 3'	5' -gCT 3'	5' -CTC 3'			5' -gTg 3'	5' -gTg 3'		5' -gCg 3'	5' -CCg 3'
				583								572
				5' -gTg 3'								5' -gCg 3'
Well No.	22	23	24	25	26	27	28	29	30	31	32	33

Well No.	34	35	36	37	38	39	40	41	42	43	44	45
Length of spec.	105	115	80	150	140	55	210	170	110	395	160	180
PCR product	395	150				245					425	
	435					390						
						415						
Length of int.	1070	1070	1070	800	1070	1070	800	800	1070	1070	1070	1070
pos. control[1]												
5'-primer(s)[2]	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)[3]	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'
	272	272			312	259	311				302	
	5' -TgT 3'	5' -TgA 3'			5' -AgT 3'	5' -gTT 3'	5' -ggg 3'				5' -ggT 3'	
	309	272				266	538				477	
	5' -ATC 3'	5' -Tgg 3'				5' -TCC 3'	5' -gTC 3'				5' -gCg 3'	
	605					272						
	5' -gCT 3'					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

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Lot No.: 5D9 **Lot-specific information**

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				370
			160									
			195									
			225									
			260									
Length of int. pos. control[1]	1070	800	1070	800	1070	1070	1070	800	1070	1070	1070	1070
5'-primer(s)[2]	540	1st I	355	209	41	209	48	357	49	206	1st 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)[3]	603	282	538	299	282	259	309	435	309	311	259	207
	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' -TCC 3'
	605		572	583	418	499		527			259	226
	5' -gCT 3'		5' -gCA 3'	5' -gTg 3'	5' -gTC 3'	5' -ggA 3'		5' -CCT 3'			5' -CTC 3'	5' -CAC 3'
			572	605							262	538
			5' -gCg 3'	5' -gCT 3'							5' -TgC 3'	5' -gTC 3'
			573									
			5' -AgT 3'									
Well No.	46	47	48	49	50	51	52	53	54	55	56	57

Well No.	58	59	60	61	62	63	64
Length of spec.	180	180	90	95	115	360	350
PCR product	210	205	240		150		
Length of int. pos. control[1]	1070	1070	800	1070	1070	1070	1070
5'-primer(s)[2]	141	97	209	206	165	1st I	1st I
	5' -ATT 3'	5' -TCg 3'	5' -ggC 3'	5' -gAC 3'	5' -ACC 3'	5' -CAg 3'	5' -CAg 3'
	420	420	209		463		
	5' -TTA 3'	5' -TTA 3'	5' -ggA 3'		5' -TgA 3'		
			362				
			5' -ggT 3'				
3'-primer(s)[3]	311	259	256	259	272	317	311
	5' -ggT 3'	5' -gTT 3'	5' -CCC 3'	5' -gTT 3'	5' -TgC 3'	5' -ggA 3'	5' -ggT 3'
	559	559	259		538		
	5' -CgT 3'	5' -CAg 3'	5' -CTT 3'		5' -CCA 3'		
			263				
			5' -gTT 3'				
			559				
			5' -CgT 3'				
Well No.	58	59	60	61	62	63	64

[1]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.

[2]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 web site. The sequence of the 3 terminal nucleotides of the primer is given.

[3]The nucleotide position matching the specificity-determining 3'-end of the primer is given in the anti-

101.708-24 – including *Taq* polymerase, IFU-01 Visit www.olerup.com for
101.708-24u – without *Taq* polymerase, IFU-02 **"Instructions for Use" (IFU)**

Lot No.: 5D9 **Lot-specific information**

sense direction. Nucleotide numbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

DR LOW PRIMER SPECIFICATION

Well No.	65	66	67	68	69	70	71	72	73	74	75	76
Length of spec.	210	200	210	210	120	75	85	100	200	170	90	175
PCR product	235		230		220	210	210	175	230	215	135	
	260									250	165	
											190	
Length of int. pos. control[1]	515	430	430	430	430	430	430	430	430	515	430	430
5'-primer(s)[2]	12(124)	14(129)	11(121)	11(119)	13(125)	13(125)	13(125)	13(125)	10(118)	15(133)	26(165)	26(164)
	5' -A.T 3'	5' -gAA 3'	5' -CTg 3'	5' -gCT 3'	5' -gTC 3'	5' -gTC 3'	5' -gTC 3'	5' -ACA 3'	5' -AgA 3'	5' -gTT 3'	5' -TAT 3'	5' -gTA 3'
	14(129)		13(126)	13(126)	47(227)	15(133)		13(125)	13(127)	15(133)	36(196)	30(178)
	5' -gAA 3'		5' -AgA 3'	5' -AAg 3'	5' -gTT 3'	5' -gTT 3'		5' -ACC 3'	5' -gTA 3'	5' -gTT 3'	5' -AgA 3'	5' -gCg 3'
			13(126)	13(126)				13(125)	13(127)	15(133)	58(261)	
			5' -AAg 3'	5' -Agg 3'				5' -ATA 3'	5' -ATA 3'	5' -gCT 3'	5' -gAg 3'	
			13(126)					13(125)	13(127)			
			5' -Agg 3'					5' -gTC 3'	5' -ATA 3'			
									15(133)			
									5' -gTT 3'			
3'-primer(s)[3]	66(286)	66(286)	66(286)	66(286)	73(305)	26(164)	28(171)	32(184)	70(298)	58(260)	57(257)	72(303)
	5' -gAg 3'	5' -gAT 3'	5' -gAT 3'	5' -gAA 3'	5' -ggC 3'	5' -ggT 3'	5' -CTC 3'	5' -gTg 3'	5' -CTC 3'	5' -CCT 3'	5' -CgA 3'	5' -gCA 3'
	66(286)		66(286)	66(286)	73(305)	66(286)	69(295)	58(260)	73(305)	73(307)	73(305)	73(307)
	5' -gAg 3'		5' -gAT 3'	5' -gAg 3'	5' -ggC 3'	5' -gAT 3'	5' -CTg 3'	5' -Cgg 3'	5' -ggC 3'	5' -CAg 3'	5' -ggC 3'	5' -CgC 3'
	66(286)		69(295)	70(296)	73(305)	71(299)			77(317)	86(344)	77(319)	
	5' -gAT 3'		5' -.Tg 3'	5' -TgT 3'	5' -ggC 3'	5' -gCT 3'			5' -AAT 3'	5' -CAC 3'	5' -CAC 3'	
	70(297)		69(295)	71(301)	74(308)				77(319)			
	5' -CTg 3'		5' -CTg 3'	5' -ggC 3'	5' -CCC 3'				5' -CAA 3'			
	71(299)		70(298)		74(310)				77(319)			
	5' -gCg 3'		5' -CgC 3'		5' -CAA 3'				5' -CAC 3'			
	77(317)		71(299)		77(317)				77(319)			
	5' -AgT 3'		5' -gCT 3'		5' -AgT 3'				5' -CgC 3'			
	86(344)		73(305)									
	5' -CCA 3'		5' -Cgg 3'									
			73(305)									
			5' -ggC 3'									
			77(317)									
			5' -AgT 3'									
Well No.	65	66	67	68	69	70	71	72	73	74	75	76

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

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Lot No.: 5D9 **Lot-specific information**

Well No.	77	78	79	80	81	82	83	84	85	86	87
Length of spec.	100	90	220	205	175	100	110	110	160	215	175
PCR product	170	110		225	240	150	145	150	240		
						195	170	180			
						240		220			
Length of int. pos. control[1]	430	430	430	430	430	430	430	430	430	430	430
5'-primer(s)[2]	13(125)	12(124)	10(116)	10(116)	13(125)	5(101)	26(164)	13(125)	10(116)	28(170)	13(125)
	5' -gTC 3'	5' -Cgg 3'	5' -gCT 3'	5' -gCT 3'	5' -gTC 3'	5' -CAA 3'	5' -gTA 3'	5' -gTC 3'	5' -gCT 3'	5' -gAT 3'	5' -gTA 3'
	15(133)	15(133)	12(122)	12(122)	13(125)	37(197)	34(189)	34(189)	10(116)		
	5' -gTC 3'	5' -gTT 3'	5' -TAT 3'	5' -TAT 3'	5' -gTg 3'	5' -gTT 3'	5' -CAg 3'	5' -CAg 3'	5' -gCT 3'		
	38(200)		13(125)	13(125)	114(429)	37(197)		36(196)	37(199)		
	5' -CgT 3'		5' -gTC 3'	5' -gTC 3'	5' -CTg 3'	5' -gTA 3'		5' -AgC 3'	5' -TCC 3'		
				13(125)							
				5' -gTg 3'							
				15(133)							
				5' -gTT 3'							
				15(133)							
				5' -gTC 3'							
3'-primer(s)[3]	58(260)	28(171)	69(295)	66(286)	58(260)	42(213)	57(257)	57(257)	51(239)	86(346)	57(258)
	5' -CCT 3'	5' -CTC 3'	5' -gTC 3'	5' -gAA 3'	5' -Cgg 3'	5' -TCA 3'	5' -CAg 3'	5' -CAg 3'	5' -CCC 3'	5' -CTC 3'	5' -gCg 3'
	58(260)	29(175)	71(299)	70(298)	58(260)	57(257)	69(295)	59(265)	77(317)	86(346)	58(260)
	5' -CCT 3'	5' -gTg 3'	5' -gCT 3'	5' -CgC 3'	5' -CAg 3'	5' -CAg 3'	5' -CTg 3'	5' -gTg 3'	5' -AAT 3'	5' -CTT 3'	5' -CCT 3'
	58(260)	37(199)	71(299)	70(298)	181(630)	70(298)	70(296)	70(296)			
	5' -CCT 3'	5' -CAg 3'	5' -ACT 3'	5' -CTC 3'	5' -CTT 3'	5' -CgC 3'	5' -TCC 3'	5' -TCC 3'			
								73(307)			
								5' -CAg 3'			
Well No.	77	78	79	80	81	82	83	84	85	86	87

[1]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.

[2]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 web site. The sequence of the 3 terminal nucleotides of the primer is given.

[3]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 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.: 5D9 **Lot-specific information**

DQ LOW PRIMER SPECIFICATION

Well No.	88	89	90	91	92	93	94	95
Length of spec.	135	65	210	220	130	135	85	135
PCR product	230	110			220		185	170
		135						205
		160						
		185						
		220						
		270						
Length of int.	515	515	430	515	515	515	515	430
pos. control[1]								
5'-primer(s)[2]	25(170)	9(122)	29(184)	26(173)	28(179)	26(173)	38(210)	21(159)
	5' -gCT 3'	5' -gTT 3'	5' -gAg 3'	5' -TTA 3'	5' -gAC 3'	5' -TCT 3'	5' -gCA 3'	5' -ACC 3'
	25(170)	24(169)	30(185)		28(179)		71(309)	23(164)
	5' -gCA 3'	5' -TgT 3'	5' -AAg 3'		5' -gAC 3'		5' -ACC 3'	5' -gCT 3'
	25(172)	26(173)			28(179)		71(309)	38(210)
	5' -ggA 3'	5' -TCT 3'			5' -gAC 3'		5' -ACC 3'	5' -gCg 3'
	26(173)	26(173)						
	5' -ggg 3'	5' -TTA 3'						
	26(173)	48(240)						
	5' -ggA 3'	5' -CgC 3'						
3'-primer(s)[3]	57(266)	48(240)	86(353)	55(260)	57(266)	57(266)	86(353)	69(304)
	5' -CAA 3'	5' -gCg 3'	5' -gCT 3'	5' -gCg 3'	5' -Cgg 3'	5' -CgT 3'	5' -gCT 3'	5' -CTC 3'
	87(356)	57(266)		86(353)	57(266)		86(354)	77(327)
	5' -ggT 3'	5' -CAA 3'		5' -gCT 3'	5' -CAg 3'		5' -AgT 3'	5' -ACg 3'
	87(356)	86(353)		86(354)	57(266)		86(355)	
	5' -ggT 3'	5' -ACC 3'		5' -AgT 3'	5' -Cgg 3'		5' -gAC 3'	
	87(356)	86(353)			87(356)		87(356)	
	5' -ggA 3'	5' -ACg 3'			5' -ggg 3'		5' -ggC 3'	
	88(361)	86(354)					87(358)	
	5' -CCT 3'	5' -AAT 3'					5' -gCC 3'	
		86(354)						
		5' -AAg 3'						
		86(354)						
		5' -AAA 3'						
		86(354)						
		5' -TAT 3'						
Well No.	88	89	90	91	92	93	94	95

[1]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.

[2]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 web site. The sequence of the 3 terminal nucleotides of the primer is given.

[3]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 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.: 5D9 **Lot-specific information**

CELL LINE VALIDATION SHEET

HLA-A low resolution primer set[2]

					Well													
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
				Prod. No.:	201553401	201553402	201554703	201553404	201559006	201553407	201663808	201556309	201553410	201553411	201553412	201663813	201663814	201553415	201664316
	IHWC cell line[1]		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.: 5D9 **Lot-specific information**

CELL LINE VALIDATION SHEET

HLA-A low resolution primer set[2]

					Well					
					16	17	18	19	20	21
				Prod. No.:	201663817	201553418	201553419	201553420	201661121	201663823
	IHWC cell line[1]		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	-	-	-	-	-	-

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

Visit www.olerup.com for
"Instructions for Use" (IFU)

Lot No.: 5D9 **Lot-specific information**

[1]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.

[2]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, 12 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, 3, 10, 11 and 14 one or two 5'-primers were not possible to test, and in primer solutions 3, 5, 7, 8, 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.: 5D9 **Lot-specific information**

CELL LINE VALIDATION SHEET

HLA-B low resolution SSP kit[2]

					Well														
					22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
				Prod. No.:	201561148	201561102	201561103	201561104	201561105	201561106	201561107	201561108	201561109	201561110	201561111	201663913	201663914	201561115	201561116
	IHWC cell line[1]		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.: 5D9 **Lot-specific information**

CELL LINE VALIDATION SHEET

HLA-B low resolution SSP kit[2]

					Well													
					37	38	39	40	41	42	43	44	45	46	47	48	49	50
				Prod. No.:	201561117	201561118	201561119	201561120	201561121	201561122	201561123	201561124	201561125	201561127	201663928	201663929	201561131	201561132
	IHWC cell line[1]		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.: 5D9 **Lot-specific information**

CELL LINE VALIDATION SHEET

HLA-B low resolution SSP kit[2]

					Well													
					51	52	53	54	55	56	57	58	59	60	61	62	63	64
				Prod. No.:	201561133	201663934	201561135	201561136	201561137	201561138	201561139	201561140	201663941	201561142	201561144	201561145	201561146	201561147
	IHWC cell line[1]		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

Visit www.olerup.com for **"Instructions for Use" (IFU)**

Lot No.: 5D9 **Lot-specific information**

[1]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.

[2]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, 58 and 59 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, 57 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

Visit www.olerup.com for **"Instructions for Use" (IFU)**

Lot No.: 5D9 **Lot-specific information**

CELL LINE VALIDATION SHEET

DR low resolution primer set[3]

					Well[2]													
					65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
				Prod. No.:	201664001	201664002	201664003	201664004	201664005	201664006	201664007	201664008	201664009	201664010	201664011	201664012	201664013	201664014	201664015	201664016
	IHWC cell line[1]		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

Visit www.olerup.com for **"Instructions for Use" (IFU)**

Lot No.: 5D9 **Lot-specific information**

CELL LINE VALIDATION SHEET

DR low resolution primer set[3]

					Well[2]						
					81	82	83	84	85	86	87
				Prod. No.:	201553617	201664018	201664019	201664020	201664029	201664030	201664031
	IHWC cell line[1]		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

Visit www.olerup.com for
"Instructions for Use" (IFU)

Lot No.: 5D9 **Lot-specific information**

[1]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.

[2]The DRB4*01:03:01:02N allele is amplified by primer mix 82 in the DBB/9052 cell line.

[3]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 68, 73, 75, 76 and 82 were tested by separately adding one 3'-primer, respectively one 5'-primer.
Additional 5'-primers in primer solutions 70, 79 and 80 were tested by separately adding one 3'-primer.
Additional 3'-primers in primer solutions 65, 67, 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 81 and 84 were not possible to test. One or two of the 3'-primers in primer solution 65, 67 to 70, 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

Visit www.olerup.com for **"Instructions for Use" (IFU)**

Lot No.: 5D9 **Lot-specific information**

CELL LINE VALIDATION SHEET

DQ low resolution primer set[2]

					Well							
					88	89	90	91	92	93	94	95
				Production No.	201664101	201663502	201663503	201664104	201663505	201663506	201664107	201663508
	IHWC cell line[1]		DQB1									
1	9001	SA	*05:01		+	-	-	-	-	-	-	-
2	9280	LK707	*06:01	*02:02	-	+	+	-	-	-	-	-
3	9011	E4181324	*06:01		-	+	-	-	-	-	-	-
4	9275	GU373	*02:01		-	-	+	-	-	-	-	-
5	9009	KAS011	*05:02		+	-	-	-	-	-	-	-
6	9353	SM	*03:02	*06:01	-	+	-	-	+	-	+	-
7	9020	QBL	*02:01		-	-	+	-	-	-	-	-
8	9025	DEU	*03:01		-	-	-	+	-	-	+	-
9	9026	YAR	*03:02		-	-	-	-	+	-	+	-
10	9107	LKT3	*04:01		-	-	-	-	-	-	-	+
11	9051	PITOUT	*02:02		-	-	+	-	-	-	-	-
12	9052	DBB	*03:03		-	-	-	-	-	+	+	-
13	9004	JESTHOM	*05:01		+	-	-	-	-	-	-	-
14	9071	OLGA	*04:02		-	-	-	-	-	-	-	+
15	9075	DKB	*03:03		-	-	-	-	-	+	+	-
16	9037	SWEIG007	*03:01		-	-	-	+	-	-	+	-
17	9282	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		+	-	-	-	-	-	-	-

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

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Lot No.: 5D9 **Lot-specific information**

[1]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.

[2]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 solution 89 were tested by separately adding one 3'-primer, respectively one 5'-primer.

One additional 5'-primer in primer solution 94 was tested by separately adding one additional 3'-primer and one additional 3'-primer in primer solution 88 was tested by separately adding one additional 5'-primer.

In primer mixes 88 to 90 and 92 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

Visit www.olerup.com for **"Instructions for Use" (IFU)**

Lot No.: 5D9 **Lot-specific information**

Lot No.: 5D9 **Lot-specific information**

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