

101.231-24/04 – including *Taq* pol., IFU-01
101.231-24u/04u – without *Taq* pol., IFU-02

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

Lot No.: **52X**

Lot-specific information
Olerup SSP® DQA1

Product number:	101.231-24/04 – including <i>Taq</i> pol. 101.231-24u/04u – without <i>Taq</i> pol.
Lot number:	52X
Expiry date:	2017-April-01
Number of tests:	24 tests – Product No. 101.231-24/24u 4 tests – Product No. 101.231-04/04u
Number of wells per test:	31+1
Storage - pre-aliquoted primers:	dark at -20°C
- PCR Master Mix:	-20°C
- Adhesive PCR seals	RT
- Product Insert	RT

This Product Description is only valid for Lot No. 52X.

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

**CHANGES COMPARED TO THE PREVIOUS OLERUP SSP®
DQA1 Lot (17V)**

The Lot-specific information for DQA1 including and without
Taq polymerase is now described in one common Product Insert.

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

The DQA1 primer set, specificity and interpretation tables have been updated compared the previous *Olerup SSP®* DQA1 lot (**Lot No. 17V**). The kit design is based on IMGT/HLA database 3.17.0.

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.

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

Well	5'-primer	3'-primer	rationale
5	Exchanged	-	5'-primer exchanged for improved HLA-specific amplification and for the allelic resolution of DQA1*01:05 alleles.
32	-	-	Updated Negative Control.

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Well **32** 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'-primer¹	164	340	440	45	45	43	36
	5'-CAC ^{3'}	5'-Agg ^{3'}	5'-TTA ^{3'}	5'-Tgg ^{3'}	5'-Tgg ^{3'}	5'-Tgg ^{3'}	5'-TAC ^{3'}
							36
							5'-TAT ^{3'}
3'-primer²	231	2nd I	507	59	58	57	47
	5'-TgC ^{3'}	5'-AAA ^{3'}	5'-TTg ^{3'}	5'-CTC ^{3'}	5'-ggC ^{3'}	5'-CTC ^{3'}	5'-ACA ^{3'}
							48
							5'-gCA ^{3'}
							48
							5'-gCC ^{3'}
							52
							5'-TgT ^{3'}
A*	+	+	+				
B*	+	+	+				
C*	+	+	+				
DRB1				+	+		
DRB3				+	+		
DRB5				+			
DQB1					+		
DPB1						+	
DQA1							+

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

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

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PRODUCT DESCRIPTION

DQA1 SSP typing

CONTENT

The primer set contains 5'- and 3'-primers for identifying the DQA1*01:01 to DQA1*06:02 alleles.

PLATE LAYOUT

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

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

The 32 well cut PCR plate is marked with 'DQA1', in silver/gray ink.

Well No. 1 is marked with the Lot No. '52X'.

Wells 1 to 31 – DQA1 high resolution primers.

Well 32 – Negative Control (NC).

A faint row of numbers is seen between wells 1 and 2 or wells 7 and 8 of the PCR trays. These stem from the manufacture of the trays, and should be disregarded.

The PCR plates are heat-sealed with a PCR-compatible foil.

Please note: When removing each 32 well PCR plate, make sure that the remaining plates stay sealed. Use a scalpel or a similar instrument to carefully cut the foil between the plates.

INTERPRETATION

Only DQA1 alleles will be amplified by the DQA1 typing kit. Thus, the interpretation of DQA1 typings is not influenced by the DQA2 gene.

For further details see Specificity Table.

UNIQUELY IDENTIFIED ALLELES

All the DQA1 alleles, i.e. **DQA1*01:01 to 01:12, DQA1*02:01, DQA1*03:01 to 03:03, DQA1*04:01 to DQA1*04:04, DQA1*05:01 to 05:11 and DQA1*06:01 to DQA1*06:02**, recognized by the HLA Nomenclature Committee in July 2014^{1,2} will give rise to unique amplification patterns by the primers in the DQA1 typing kit.

The DQA1 typing kit cannot distinguish the DQA1*01:01:01-01:01:02 alleles, the DQA1*01:02:01-01:02:03 alleles, the DQA1*01:03:01-01:03:02 alleles, the DQA1*01:04:01-01:04:02 alleles, the DQA1*01:05:01-01:05:02 alleles, the DQA1*03:03:01-03:03:02 alleles, the DQA1*04:01:02-04:01:02:02, the DQA1*05:01:01-05:01:02 alleles, the DQA1*05:05:01-05:05:03 alleles and the DQA1*06:01:01-06:01:02 alleles.

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¹DQA1 alleles listed on the IMGT/HLA web page 2014-July-25, release 3.17.0,
www.ebi.ac.uk/imgt/hla.

²Alleles that have been deleted from or renamed in the official WHO HLA Nomenclature up to and including the last IMGT/HLA database release can be retrieved from web page
<http://hla.alleles.org/alleles/deleted.html>.

RESOLUTION IN HOMO- AND HETEROZYGOTES

Results file with resolution in DQA1 homo- and heterozygotes is available upon request.

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SPECIFICITY TABLE

DQA1 SSP typing

Specificities and sizes of the PCR products of the 31+1 primer mixes used for DQA1 SSP typing

Primer Mix	Size of spec. PCR product ¹	Size of control band ²	Amplified DQA1 alleles ³
1⁷	145 bp	515 bp	*01:01:01-01:01:02, 01:04:01:01-01:05:02, 01:07, 01:12
2	170 bp	515 bp	*01:01:01-01:02:04, 01:04:01:01-01:09, 01:11-01:12
3	145 bp	430 bp	*01:02:01:01-01:03:01:02, 01:06, 01:08-01:11
4	170 bp	430 bp	*01:03:01:01-01:03:01:02, 01:10
5	220 bp	430 bp	*01:04:01:01-01:05:02, 01:06 [?] , 01:07, 01:08 [?] -01:09 [?] , 01:12 [?]
6⁴	100 bp	430 bp	*01:04:01:01-01:04:02, 01:06 [?] , 01:07, 01:08 [?] -01:09 [?] , 01:12 [?]
7^{4,5}	95 bp	430 bp	*01:06
8⁴	65 bp	430 bp	*01:01:01-01:02:03, 01:03:01:01-01:03:01:02, 01:06 [?] , 01:08 [?] -01:09 [?] , 01:10-01:11, 01:12 [?] , 02:01, 03:01:01-03:03:02, 04:01:01-04:04, 05:01:01:01-05:11, 06:01:01-06:02
9	175 bp	430 bp	*02:01
10	185 bp	430 bp	*03:01:01-03:03:02
11	215 bp	430 bp	*03:02
12	225 bp	515 bp	*03:02-03:03:02
13	225 bp	515 bp	*01:01:01-01:12, 02:01, 03:01:01, 04:01:01, 04:02-04:04, 05:01:01:01-05:11, 06:01:01-06:02
14^{4,5}	125 bp	430 bp	*04:01:01-04:02, 04:04, 05:01:01:01-05:11
15	165 bp	430 bp	*05:01:01:01-05:09, 05:11
16⁴	95 bp	515 bp	*05:02, 05:07
17	200 bp	430 bp	*05:01:01:01-05:01:02, 05:02 [?] , 05:04 [?] , 05:05:01:01-05:05:01:03, 05:08-05:11
18	200 bp	430 bp	*05:02 [?] , 05:03, 05:04 [?] , 05:06-05:07
19	205 bp	430 bp	*05:01:01:01-05:03, 05:05:01:01-05:09, 05:11
20	135 bp	430 bp	*05:04
21^{4,5}	100 bp	430 bp	*05:02 [?] , 05:04 [?] , 05:05:01:01-05:05:01:03, 05:08-05:09, 05:10 [?] , 05:11
	210 bp		*01:09
22^{4,6}	120 bp	515 bp	*06:01:01-06:02
	215 bp		*01:10
23⁴	85 bp	430 bp	*04:01:01-04:04, 06:01:01-06:02
24⁷	220 bp	430 bp	*01:01:01-01:12, 02:01 ^w , 03:01:01-03:03:02, 04:01:01-04:04, 05:01:01:01-05:01:02, 05:02 [?] , 05:03, 05:04 [?] ,

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05:06-05:07, 05:10 ⁷ , 06:01:01-06:02			
25⁴	80 bp	430 bp	*05:09
	175 bp		*01:07
26	160 bp	430 bp	*04:02, 05:10
27^{4,6}	90 bp	430 bp	*04:03N
	135 bp		*01:11
28⁴	105 bp	430 bp	*04:04
29	150 bp	430 bp	*01:08, 06:02
	250 bp		*01:12
30⁴	115 bp	430 bp	*05:11
	215 bp		*05:06
31	135 bp	430 bp	*05:08
32⁸	Negative Control		

¹Alleles are assigned by the presence of specific PCR product(s). However, the sizes of the specific PCR products may be helpful in the interpretation of DQA1 SSP typings.

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

Nonspecific amplifications, i.e. a ladder or a smear of bands, may sometimes be seen. GC-rich primers have a higher tendency of giving rise to nonspecific amplifications than other primers, e.g. the primers in wells 11, 12, 17, 18, 21, 23 and 27.

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

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

Some primers may give rise to primer oligomer artifacts. Sometimes this phenomenon is an inherent feature of the primer pair(s) of a primer mix. More often it is due to other factors such as too low amount of DNA in the PCR reactions, taking too long time in setting up the PCR reactions, working at elevated room temperature or using thermal cyclers that are not pre-heated.

²The internal positive control primer pairs amplify segments of the human growth hormone gene. The internal positive control bands are 430 or 515 base pairs respectively, well distribution as outlined in the table. Well number 1 contains the longer, 515 bp, internal positive control band. The well distribution of the internal controls can help in orientation of the kit on gel photo, as well as allow for kit identification. In the presence of a specific amplification the intensity of the control band often decreases.

³For several DQA1 alleles 1st and/or 3rd exon(s) and beyond, as well as intron nucleotide sequences, are not available. In these instances it is not known whether some of the primers of the SSP sets are completely matched with the target sequences or not. Assumption is made that unknown sequences in these regions are conserved within allelic groups.

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

⁵Primer mixes 7, 14 and 21 may have a tendency to giving rise to primer oligomer formation.

⁶Primer mixes 22 and 27 may have tendencies of unspecific amplifications.

⁷Primer mixes 1 and 24 may give rise to a lower yield of HLA-specific PCR product than the other DQA1 primer mixes.

⁸Primer mix 32 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

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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.

‘w’, may be weakly amplified.

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

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PRIMER SPECIFICATION

Well No.	1	2	3	4	5	6	7	8	9	10	11	12
Length of spec. PCR product	145	170	145	170	220	100	95	65	175	185	215	225
Length of int. pos. control ¹	515	515	430	430	430	430	430	430	430	430	430	515
5'-primer(s) ²	33(169) 5' -Agg 3'	25(143) 5' -gTA 3'	33(169) 5' -AgC 3'	25(143) 5' -gTT 3'	-7(49) 5' -CCA 3'	198(664) 5' -gCA 3'	25(143) 5' -gTA 3'	-7(49) 5' -CCg 3'	7(90) 5' -CAC 3'	7(90) 5' -CAT 3'	-6(53) 5' -gAC 3'	99(366) 5' -CCC 3'
3'-primer(s) ³	68(274) 5' -TgC 3'	68(274) 5' -TgC 3'	68(274) 5' -TgC 3'	68(274) 5' -TgC 3'	1 st I 5' -TTT 3'	218(722) 5' -CTT 3'	43(199) 5' -AgC 3'	2(74) 5' -TgT 3'	52(224) 5' -TgT 3'	54(232) 5' -TCT 3'	1 st I 5' -TTT 3'	160(548) 5' -CAT 3'
Well No.	1	2	3	4	5	6	7	8	9	10	11	12

Well No.	13	14	15	16	17	18	19	20	21	22	23	24
Length of spec. PCR product	225	125	165	95	200	200	205	135	100	120	85	220
Length of int. pos. control ¹	515	430	430	515	430	430	430	430	430	515	430	430
5'-primer(s) ²	99(366) 5' -CCC 3'	25(143) 5' -gTA 3'	33(169) 5' -AgC 3'	59(245) 5' -CCg 3'	107(389) 5' -CAT 3'	107(389) 5' -CAT 3'	21(131) 5' -TCC 3'	21(131) 5' -TCT 3'	-13(31) 5' -ggA 3'	25(143) 5' -gTT 3'	32(165) 5' -gAC 3'	up ⁴ 5' -ACT 3'
				188(634) 5' -CTA 3'					103(377) 5' -ggA 3'			
3'-primer(s) ³	160(548) 5' -CAg 3'	52(226) 5' -TTg 3'	75(293) 5' -gAC 3'	75(293) 5' -gAC 3'	159(547) 5' -AgC 3'	159(547) 5' -AgA 3'	75(293) 5' -gAC 3'	51(223) 5' -TCT 3'	1 st I 5' -TgC 3'	51(223) 5' -TCT 3'	46(208) 5' -ACA 3'	-13(31) 5' -ggC 3'
	160(548) 5' -CAg 3'			207(691) 5' -gCA 3'					160(548) 5' -CAg 3'	83(319) 5' -AgT 3'		
Well No.	13	14	15	16	17	18	19	20	21	22	23	24

Well No.	25	26	27	28	29	30	31
Length of spec. PCR product	80	160	90	105	150	115	135
Length of int. pos. control ¹	430	430	430	430	430	430	430
5'-primer(s) ²	-13(31) 5' -ggA 3'	33(169) 5' -AgC 3'	52(226) 5' -gAT 3'	152(526) 5' -gTC 3'	99(366) 5' -CCC 3'	101(373) 5' -CAg 3'	107(389) 5' -CAT 3'
	33(169) 5' -Agg 3'	101(372) 5' -ACg 3'	186(626) 5' -TCT 3'			194(650) 5' -Agg 3'	
3'-primer(s) ³	0(70) 5' -TTT 3'	76(298) 5' -AAC 3'	68(274) 5' -TgT 3'	174(591) 5' -TCg 3'	134(470) 5' -CAg 3'	159(547) 5' -AgA 3'	139(485) 5' -AgA 3'
	78(304) 5' -gCA 3'	138(482) 5' -TgA 3'	218(722) 5' -CTT 3'		138(484) 5' -gCg 3'	218(722) 5' -CTC 3'	
				168(574) 5' -CTg 3'			
Well No.	25	26	27	28	29	30	31

¹The internal positive control primer pairs amplify segments of the human growth hormone gene. The internal positive control bands are 430 or 515 base pairs respectively, well distribution as outlined in the table. Well number 1 contains the longer, 515 bp, internal positive control band. The well distribution of the internal controls can help in orientation of the kit on



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gel photo, as well as allow for kit identification. In the presence of a specific amplification the intensity of the control band often decreases.

²The nucleotide position matching the specificity-determining 3'-end of the primer is given. Nucleotide numbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

³The nucleotide position matching the specificity-determining 3'-end of the primer is given in the anti-sense direction. Nucleotide numbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

⁴Primer located upstream of the 1st exon.

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CELL LINE VALIDATION SHEET																				
DQA1 SSP typing kit ²																				
					Well															
				Prod. No.:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
					201439801	201439802	201439803	201439804	201443605	201439806	201439807	201439808	201439809	201439810	201439811	201439812	201439813	201439814	201439815	201439816
	IHWC cell line ¹		DQA1*																	
1	9001	SA	*01:01		+	+	-	-	-	-	-	+	-	-	-	-	+	-	-	-
2	9280	LK707	*01:03	*03:03	-	-	+	+	-	-	-	+	-	+	-	+	+	-	-	-
3	9011	E4181324	*01:03		-	-	+	+	-	-	-	+	-	-	-	-	+	-	-	-
4	9275	GU373	*05:01		-	-	-	-	-	-	-	+	-	-	-	-	+	+	+	-
5	9009	KAS011	*01:02		-	+	+	-	-	-	-	+	-	-	-	-	+	-	-	-
6	9353	SM	*01:03	*03:01	-	-	+	+	-	-	-	+	-	+	-	-	+	-	-	-
7	9020	QBL	*05:01		-	-	-	-	-	-	-	+	-	-	-	-	+	+	+	-
8	9025	DEU	*03		-	-	-	-	-	-	-	+	-	+	-	-	+	-	-	-
9	9026	YAR	*03:01		-	-	-	-	-	-	-	+	-	+	-	-	+	-	-	-
10	9107	LKT3	*03:03		-	-	-	-	-	-	-	+	-	+	-	+	-	-	-	-
11	9051	PITOUT	*02:01		-	-	-	-	-	-	-	+	+	-	-	-	+	-	-	-
12	9052	DBB	*02:01		-	-	-	-	-	-	-	+	+	-	-	-	+	-	-	-
13	9004	JESTHOM	*01:01		+	+	-	-	-	-	-	+	-	-	-	-	+	-	-	-
14	9071	OLGA	*04:01		-	-	-	-	-	-	-	+	-	-	-	-	+	+	-	-
15	9075	DKB	*03:02		-	-	-	-	-	-	-	+	-	+	+	+	-	-	-	-
16	9037	SWEIG007	*05:05		-	-	-	-	-	-	-	+	-	-	-	-	+	+	+	-
17	9282	CTM3953540	*01:03	*05:01	-	-	+	+	-	-	-	+	-	-	-	-	+	+	+	-
18	9257	32367	*01:02	*03:03	-	+	+	-	-	-	-	+	-	+	-	+	+	-	-	-
19	9038	BM16	*05:05		-	-	-	-	-	-	-	+	-	-	-	-	+	+	+	-
20	9059	SLE005	*01:02		-	+	+	-	-	-	-	+	-	-	-	-	+	-	-	-
21	9064	AMALA	*05:03		-	-	-	-	-	-	-	+	-	-	-	-	+	+	+	-
22	9056	KOSE	*01:02	*01:04	+	+	+	-	-	+	-	+	-	-	-	-	+	-	-	-
23	9124	IHL	*01:03	*01:04	+	+	+	+	-	+	-	+	-	-	-	-	+	-	-	-
24	9035	JBUSH	*05:05		-	-	-	-	-	-	-	+	-	-	-	-	+	+	+	-
25	9049	IBW9	*02:01		-	-	-	-	-	-	-	+	+	-	-	-	+	-	-	-
26	9285	WT49	*05:01		-	-	-	-	-	-	-	+	-	-	-	-	+	+	+	-
27	9191	CH1007	*03:03	*01:05	+	+	-	-	+	-	-	+	-	+	-	+	+	-	-	-
28	9320	BEL5GB	*02:01	*03:03	-	-	-	-	-	-	-	+	+	+	-	+	+	-	-	-
29	9050	MOU	*02:01		-	-	-	-	-	-	-	+	+	-	-	-	+	-	-	-
30	9021	RSH	*04:01		-	-	-	-	-	-	-	+	-	-	-	-	+	+	-	-
31	9019	DUCAF	*05:01		-	-	-	-	-	-	-	+	-	-	-	-	+	+	+	-
32	9297	HAG	*05:05		-	-	-	-	-	-	-	+	-	-	-	-	+	+	+	-
33	9098	MT14B	*03:01		-	-	-	-	-	-	-	+	-	+	-	-	+	-	-	-
34	9104	DHIF	*05:05		-	-	-	-	-	-	-	+	-	-	-	-	+	+	+	-
35	9302	SSTO	*03:01		-	-	-	-	-	-	-	+	-	+	-	-	+	-	-	-
36	9024	KT17	*03:01		-	-	-	-	-	-	-	+	-	+	-	-	+	-	-	-
37	9065	HHKB	*01:03		-	-	+	+	-	-	-	+	-	-	-	-	+	-	-	-
38	9099	LZL	*05:03		-	-	-	-	-	-	-	+	-	-	-	-	+	+	+	-
39	9315	CML	*03:03	*05:01	-	-	-	-	-	-	-	+	-	+	-	+	+	+	+	-
40	9134	WHONP199	*02:01	*03:02	-	-	-	-	-	-	-	+	+	+	+	+	+	-	-	-
41	9055	H0301	*01:02		-	+	+	-	-	-	-	+	-	-	-	-	+	-	-	-
42	9066	TAB089	*01:03		-	-	+	+	-	-	-	+	-	-	-	-	+	-	-	-
43	9076	T7526	*03:02		-	-	-	-	-	-	-	+	-	+	+	+	-	-	-	-
44	9057	TEM	*01:04		+	+	-	-	-	+	-	-	-	-	-	-	+	-	-	-
45	9239	SHJO	*02:01	*03:03	-	-	+	+	-	-	-	+	-	+	-	+	+	-	-	-
46	9013	SCHU	*01:02		-	+	+	-	-	-	-	+	-	-	-	-	+	-	-	-
47	9045	TUBO	*05:05		-	-	-	-	-	-	-	+	-	-	-	-	+	+	+	-
48	9303	TER-ND	*01:01		+	+	-	-	-	-	-	+	-	-	-	-	+	-	-	-

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

Lot-specific information

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

101.231-24/04 – including *Taq* pol., IFU-01
101.231-24u/04u – without *Taq* pol., IFU-02

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Lot-specific information

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

No DNAs carrying the alleles to be amplified by primer solutions 7, 16, 20 and 26 to 29 were available. The specificities of the primers in primer solution 16 were tested by separately adding one 5'-primer, respectively one 3'-primer. In primer solutions 7, 26 and 29 the 5'-primers were tested by adding one additional 3'-primer, the 3'-primers were not possible to test. In primer solutions 20, 27 and 28 the 3'-primers were tested by adding one additional 5'-primer, the 5'-primers were not possible to test. In primer solutions 16, 21 and 30, one 5'-primer was not possible to test, and in primer solution 16 22 and 25 one 3'-primer was not possible to test.

Additional 3'-primers in primer solutions 21 and 30 were tested by separately adding one 5'-primer, and one additional 5'-primer in primer solution 25 was tested by separately adding one 3'-primer.

101.231-24/04 – including *Taq* pol., IFU-01
101.231-24u/04u – without *Taq* pol., IFU-02

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101.231-24u/04u – without *Taq* pol., IFU-02

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Lot-specific information

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101.231-24u/04u – without *Taq* pol., IFU-02

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Lot No.: **52X**

Lot-specific information

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