

## Olerup SSP<sup>®</sup> DQA1

Product number:	101.231-24/04 – including <i>Taq</i> pol.
Lot number:	99F
Expiry date:	2011-August-01
Number of tests:	24 tests – Product No. 101.231-24 4 tests – Product No. 101.231-04
Number of wells per test:	32
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. 99F.**

### CHANGES COMPARED TO THE PREVIOUS *OLERUP SSP*<sup>®</sup> DQA1 LOT

The DQA1 specificity and interpretation tables have been updated compared the previous *Olerup SSP*<sup>®</sup> DQA1 lot (Lot No. 16F).

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	Exchanged	Exchanged	Exchanged primer pair for the DQA1*0509 allele.

## PRODUCT DESCRIPTION

### DQA1 SSP typing

#### CONTENT

The primer set contains 5'- and 3'-primers for identifying the DQA1\*0101 to DQA1\*0602 alleles.

#### STRIP 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	32

The 32 well cut PCR plate is marked with 'DQA1', in silver/gray ink.  
Well No. 1 is marked with the Lot No. '99F'.

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.

#### UNIQUELY IDENTIFIED ALLELES

All the DQA1 alleles, i.e. **DQA1\*0101 to 0107, DQA1\*0201, DQA1\*0301 to 0303, DQA1\*0401 to DQA1\*0404, DQA1\*0501 to 0509 and DQA1\*0601 to DQA1\*0602**, recognized by the HLA Nomenclature Committee in July 2009<sup>1</sup> will give rise to unique amplification patterns by the primers in the DQA1 typing kit.

The DQA1 typing kit cannot distinguish the DQA1\*010101 and 010102 alleles, the DQA1\*010201 to 010203 alleles, the DQA1\*010401 and 010402 alleles, the DQA1\*050101 and 050102 alleles and the DQA1\*060101 and 060102 alleles.

<sup>1</sup>DQA1 alleles listed on the IMGT/HLA web page 2009-July-17, release 2.26.0, [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla).

### RESOLUTION IN HOMO- AND HETEROZYGOTES

The DQA1 alleles give rise to 28 different amplification patterns, the DQA1\*010201-010203 and 010204 alleles and the DQA1\*040101 and 040102 alleles have different amplification patterns. These amplification patterns can be combined in 406 homozygous and heterozygous combinations. 37 of the alleles do not give rise to unique amplification patterns. The differently sized specific PCR fragments generated by primer mix 25 and the silent alleles DQA1\*010204 and \*040102 were not considered in this calculation.)

+++++++	-----	-----+	-----	0101,0106 = 0104,0106 = 0105,0106
++-----	-----+	++-----	+-----	0104,0509 = 0107,0505 = 0107,0509
++-----	-----	-----+	+-----	0101,0107 = 0104,0107 = 0105,0107 = 0107,0107
++-----	-----	-----+	-----	0104,0104 = 0104,0105
-++-----	-----	-----+	-----	0102,0106 = 0106,0106
-----+	-++-----	-----+	-----	0302,0302 = 0302,0303
-----+	-----+	+++-----	-----	0501,0502 = 0502,0502 = 0502,0503 = 0502,0505
-----+	-----+	++++-----	-----	0501,0504 = 0503,0504 = 0504,0505
-----+	-----+	++-----	+-----	0505,0509 = 0509,0509
-----+	-----+	++-----	-----+	0505,0508 = 0508,0508
-----+	-----+	-++-----	-----+	0503,0506 = 0506,0506
-----+	-----+	-++-----	-----+	0503,0507 = 0507,0507
-----+	-----+	-----+	-+-----	0401,0402 = 0402,0402
-----+	-----+	-----+	----+-----	0401,0404 = 0404,0404
-----+	-----	-----+	-----	0601,0602 = 0602,0602

0101 = 010101-010102, 0102 = 010201-010203,  
0104 = 010401-010402, 0401 = 040101,  
0501 = 050101-050102, 0601 = 060101-060102

## SPECIFICITY TABLE

### DQA1 SSP typing

Specificities and sizes of the PCR products of the 32 primer mixes used for DQA1 SSP typing

Primer Mix	Size of spec. PCR product <sup>1</sup>	Size of control band <sup>2</sup>	Amplified DQA1 alleles <sup>3</sup>
1 <sup>4</sup>	145 bp	515 bp	*010101, 010102, 010401-0105, 0107
2 <sup>5</sup>	170 bp	515 bp	*010101-010204, 010401-0107
3 <sup>4</sup>	145 bp	430 bp	*010201-0103, 0106
4	170 bp	430 bp	*0103
5	220 bp	430 bp	*010401-0105, 0106 <sup>?</sup> , 0107 <sup>?</sup>
6 <sup>4</sup>	100 bp	430 bp	*010401, 010402, 0106 <sup>?</sup> , 0107 <sup>?</sup>
7 <sup>4,5</sup>	95 bp	430 bp	*0106
8 <sup>4</sup>	65 bp	430 bp	*010101-010203, 0103, 0106 <sup>?</sup> , 0107 <sup>?</sup> , 0201, 030101-0303, 040101-0404, 050101-0509, 060101-0602
9	175 bp	430 bp	*0201
10	185 bp	430 bp	*030101-0303
11	215 bp	430 bp	*0302
12	225 bp	515 bp	*0302, 0303
13	225 bp	515 bp	*010101-0107, 0201, 030101, 040101, 0402-0404, 050101-0509, 060101-0602
14 <sup>4</sup>	125 bp	430 bp	*040101-0402, 0404, 050101-0509
15	165 bp	430 bp	*050101-0509
16 <sup>4</sup>	90 bp	430 bp	*0502
17	200 bp	430 bp	*050101, 050102, 0502 <sup>?</sup> , 0504 <sup>?</sup> , 0505, 0508, 0509
18	200 bp	430 bp	*0502 <sup>?</sup> , 0503, 0504 <sup>?</sup> , 0506, 0507
19	205 bp	430 bp	*050101-0503, 0505-0509
20 <sup>4</sup>	135 bp	430 bp	*0504
21 <sup>4</sup>	100 bp	430 bp	*0502 <sup>?</sup> , 0504 <sup>?</sup> , 0505, 0508, 0509
22 <sup>4</sup>	120 bp	515 bp	*060101-0602
23 <sup>4</sup>	85 bp	430 bp	*040101-0404, 060101-0602
24	220 bp	430 bp	*010101-0107, 0201 <sup>w</sup> , 030101-0303, 040101-0404, 050101, 050102, 0502 <sup>?</sup> , 0503, 0504 <sup>?</sup> , 0506, 0507, 060101-0602

<b>25<sup>4,7</sup></b>	80 bp, 175 bp	430 bp	*0107, 0509
<b>26</b>	150 bp	430 bp	*0402
<b>27<sup>4,6</sup></b>	90 bp	430 bp	*0403N
<b>28<sup>4</sup></b>	105 bp	430 bp	*0404
<b>29</b>	160 bp	430 bp	*0602
<b>30</b>	215 bp	430 bp	*0506
<b>31<sup>4</sup></b>	100 bp	430 bp	*0507
<b>32<sup>4</sup></b>	135 bp	430 bp	*0508

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

When the primers in a primer mix can give rise to specific PCR products of more than one length this is indicated if the size difference is 20 base pairs or more. Size differences shorter than 20 base pairs are not given. For high resolution SSP kits the respective length of the specific PCR product(s) of the alleles amplified by these primer mixes are given.

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.

<sup>2</sup>The internal positive control primer pairs amplify segments of the human growth hormone gene. The two different control primer pairs give rise to either an internal positive control band of 430 base pairs, for most wells, or a band of 515 base pairs, for some wells.

Well number 1 contains the primer pair giving rise to the longer, 515 bp, internal positive control band in order to help in the correct orientation of the DQA1 typing.

In addition, wells number 2, 12, 13 and 22 contain the primer pair giving rise to the longer, 515 bp, internal positive control band in order to allow kit identification.

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

<sup>3</sup>For several DQA1 alleles only partial 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> exon nucleotide sequences are 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. We assume that unknown sequences are conserved within allelic groups.

<sup>4</sup>Short specific PCR fragments are less intense and not as sharp as longer specific bands.

<sup>5</sup>Primer mixes 2 and 7 may have tendencies of giving rise to primer dimer artifacts.

<sup>6</sup>Primer mix 27 may give rise to nonspecific amplifications.

<sup>7</sup>Primer mix 25: Specific PCR product of 80 bp in the DQA1\*0509 allele. Specific PCR product of 175 bp in the DQA1\*0107 allele.

‘w’, may be weakly amplified.

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

<b>INTERPRETATION TABLE</b>																
<b>DQA1 SSP typing</b>																
<b>Amplification patterns of the DQA1*0101 to *0602 alleles</b>																
	<b>Well<sup>5</sup></b>															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length of spec.	145	170	145	170	220	100	95	65	175	185	215	225	225	125	165	90
PCR product																
Length of int.	515	515	430	430	430	430	430	430	430	430	430	515	515	430	430	430
pos. control <sup>1</sup>																
5'-primer(s) <sup>2</sup>	34(169)	25(143)	34(169)	25(143)	-7(49)	199(664)	25(143)	-7(49)	7(90)	7(90)	-6(53)	99(366)	99(366)	25(143)	34(169)	59(245)
	5'-Agg <sup>3'</sup>	3'-gTA <sup>3'</sup>	5'-AgC <sup>3'</sup>	3'-gTT <sup>3'</sup>	5'-CCA <sup>3'</sup>	3'-gCA <sup>3'</sup>	3'-gTA <sup>3'</sup>	5'-CCg <sup>3'</sup>	3'-CAC <sup>3'</sup>	3'-CAT <sup>3'</sup>	3'-gAC <sup>3'</sup>	3'-CCC <sup>3'</sup>	3'-CCC <sup>3'</sup>	3'-gTA <sup>3'</sup>	3'-AgC <sup>3'</sup>	3'-CCg <sup>3'</sup>
								-7(49)								
									5'-CCg <sup>3'</sup>							
3'-primer(s) <sup>3</sup>	69(274)	69(274)	69(274)	69(274)	1st I	218(722)	44(199)	2(74)	52(224)	55(232)	1st I	160(548)	160(548)	53(226)	75(293)	75(293)
	5'-TgC <sup>3'</sup>	3'-TgC <sup>3'</sup>	5'-TgC <sup>3'</sup>	3'-TgC <sup>3'</sup>	5'-TTT <sup>3'</sup>	3'-CTT <sup>3'</sup>	5'-AgC <sup>3'</sup>	3'-TgT <sup>3'</sup>	5'-TgT <sup>3'</sup>	3'-TCT <sup>3'</sup>	5'-TTT <sup>3'</sup>	3'-CAT <sup>3'</sup>	5'-CAG <sup>3'</sup>	3'-TTg <sup>3'</sup>	3'-gAC <sup>3'</sup>	3'-gAC <sup>3'</sup>
													160(548)			
													5'-CAG <sup>3'</sup>			
Well No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
DQA1 allele <sup>4</sup>																
*010101, 010102	1	2						8					13			
*010201-010203		2	3					8					13			
*010204		2	3										13			
*0103			3	4				8					13			
*010401, 010402	1	2			5	6							13			
*0105	1	2			5								13			
*0106		2	3		?	?	7	?					13			
*0107	1	2			?	?		?					13			
*0201								8	9				13			
*030101								8		10			13			
*0302								8		10	11	12				
*0303								8		10		12				
*040101								8					13	14		
*040102								8						14		
*0402								8					13	14		
*0403N								8					13			
*0404								8					13	14		
Well No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

<b>INTERPRETATION TABLE</b>																
<b>DQA1 SSP typing</b>																
<b>Amplification patterns of the DQA1*0101 to *0602 alleles</b>																
<b>Well<sup>5</sup></b>																
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
200	200	205	135	100	120	85	220	80	150	90	105	160	215	100	135	Length of spec. PCR product
								175								
430	430	430	430	430	<b>515</b>	430	430	430	430	430	430	430	430	430	430	Length of int. pos. control <sup>1</sup>
107(389)	107(389)	21(131)	21(131)	-13(31)	25(143)	32(165)	up <sup>6</sup>	-13(31)	101(372)	53(226)	153(526)	99(366)	102(373)	189(634)	107(389)	5'-primer(s) <sup>2</sup>
5'-CAT <sup>35'</sup>	5'-CAT <sup>35'</sup>	5'-TCC <sup>35'</sup>	5'-TCT <sup>35'</sup>	5'-ggA <sup>35'</sup>	5'-gTT <sup>35'</sup>	5'-gAC <sup>35'</sup>	5'-ACT <sup>35'</sup>	5'-ggA <sup>35'</sup>	5'-ACg <sup>35'</sup>	5'-gAT <sup>35'</sup>	5'-gTC <sup>35'</sup>	5'-CCC <sup>35'</sup>	5'-CAg <sup>35'</sup>	5'-CTA <sup>35'</sup>	5'-CAT <sup>35'</sup>	
								34(169)								
160(547)	160(547)	75(293)	52(223)	1st I	52(223)	47(208)	-13(31)	1(70)	138(482)	69(274)	174(591)	139(484)	160(547)	208(691)	139(485)	3'-primer(s) <sup>3</sup>
5'-AgC <sup>35'</sup>	5'-AgA <sup>35'</sup>	5'-gAC <sup>35'</sup>	5'-TCT <sup>35'</sup>	5'-TgC <sup>35'</sup>	5'-TCT <sup>35'</sup>	5'-ACA <sup>35'</sup>	5'-ggC <sup>35'</sup>	5'-TTT <sup>35'</sup>	5'-TgA <sup>35'</sup>	5'-TgT <sup>35'</sup>	5'-TCg <sup>35'</sup>	5'-gCg <sup>35'</sup>	5'-AgA <sup>35'</sup>	5'-gCA <sup>35'</sup>	5'-AgA <sup>35'</sup>	
								79(304)								
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	Well No.
																DQA1 allele <sup>4</sup>
							24									*010101, 010102
							24									*010201-010203
							24									*010204
							24									*0103
							24									*010401, 010402
							24									*0105
							24									*0106
							24	25								*0107
							w									*0201
							24									*030101
							24									*0302
							24									*0303
						23	24									*040101
						23	24									*040102
						23	24		26							*0402
						23	24			27						*0403N
						23	24				28					*0404
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	Well No.



Length of spec.	145	170	145	170	220	100	95	65	175	185	215	225	225	125	165	90
PCR product																
Well No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
*050101, 050102								8					13	14	15	
*0502								8					13	14	15	16
*0503								8					13	14	15	
*0504								8					13	14	15	
*0505								8					13	14	15	
*0506								8					13	14	15	
*0507								8					13	14	15	
*0508								8					13	14	15	
*0509								8					13	14	15	
*060101, 060102								8					13			
*0602								8					13			
DQA1 allele <sup>4</sup>																
Well No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

<sup>1</sup>The internal positive control primer pairs amplify segments of the human growth hormone gene. The two different control primer pairs give rise to either an internal positive control band of 430 base pairs, for most wells, or a band of 515 base pairs, for some wells.

Well number 1 contains the primer pair giving rise to the longer, 515 bp, internal positive control band in order to help in the correct orientation of the DQA1 typing.

In addition, wells number 2, 12, 13 and 22 contain the primer pair giving rise to the longer, 515 bp, internal positive control band in order to allow kit identification.

<sup>2</sup>The codon, and in parenthesis the nucleotide, in the 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> or 4<sup>th</sup> exon, matching the specificity-determining 3'-end of the primer is given. Codon and nucleotide numbering as on the [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla) web site. The sequence of the 3 terminal nucleotides of the primer is given.

<sup>3</sup>The codon, and in parenthesis the nucleotide, in the 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> or 4<sup>th</sup> exon or the 1<sup>st</sup> intron, matching the specificity-determining 3'-end of the primer is given in the anti-sense direction. Codon and nucleotide numbering as on the [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla) web site. The sequence of the 3 terminal nucleotides of the primer is given.



200	200	205	135	100	120	85	220	80	150	90	105	160	215	100	135	Length of spec. PCR product
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	Well No.
								175								*050101, 050102
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	*0502
?	?	19		?			?									*0503
	18	19					24									*0504
?	?		20	?			?									*0505
17		19		21												*0506
	18	19					24						30			*0507
	18	19					24							31		*0508
17		19		21											32	*0509
17		19		21				25								*060101, 060102
					22	23	24									*0602
					22	23	24					29				DQA1 allele <sup>4</sup>
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	Well No.

<sup>4</sup>The sequence of the DQA1\*030102 allele has been shown to be identical to DQA1\*0302.

DQA1\*050103 has been renamed to DQA1\*0505.

<sup>5</sup>Primer mix 25: Specific PCR product of 80 bp in the DQA1\*0509 allele. Specific PCR product of 175 bp in the DQA1\*0107 allele.

<sup>6</sup>Primer located upstream of the 1<sup>st</sup> exon.

‘w’, may be weakly amplified.

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

CELL LINE VALIDATION SHEET																						
DQA1 SSP typing kit																						
					Prod. No.:	Well																
						1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
						200960901	200960902	200960903	200960904	200960905	200960906	200960907	200960908	200960909	200960910	200960911	200960912	200960913	200960914	200960915	200960916	
	IHWC cell line		DQA1*																			
1	9001 SA		*0101			+	+	-	-	-	-	-	+	-	-	-	-	+	-	-	-	-
2	9280 LK707		*0103	*0303		-	-	+	+	-	-	-	+	-	+	-	+	+	-	-	-	-
3	9011 E4181324		*0103			-	-	+	+	-	-	-	+	-	-	-	-	+	-	-	-	-
4	9275 GU373		*0501			-	-	-	-	-	-	-	+	-	-	-	-	+	+	-	-	-
5	9009 KAS011		*0102			-	+	+	-	-	-	-	+	-	-	-	-	+	-	-	-	-
6	9353 SM		*0103	*0301		-	-	+	+	-	-	-	+	-	+	-	-	+	-	-	-	-
7	9020 QBL		*0501			-	-	-	-	-	-	-	+	-	-	-	-	+	+	+	-	-
8	9025 DEU		*03			-	-	-	-	-	-	-	+	-	+	-	-	+	-	-	-	-
9	9026 YAR		*0301			-	-	-	-	-	-	-	+	-	+	-	-	+	-	-	-	-
10	9107 LKT3		*0303			-	-	-	-	-	-	-	+	-	+	-	+	-	-	-	-	-
11	9051 PITOUT		*0201			-	-	-	-	-	-	-	+	+	-	-	-	+	-	-	-	-
12	9052 DBB		*0201			-	-	-	-	-	-	-	+	+	-	-	-	+	-	-	-	-
13	9004 JESTHOM		*0101			+	+	-	-	-	-	-	+	-	-	-	-	+	-	-	-	-
14	9071 OLGA		*0401			-	-	-	-	-	-	-	+	-	-	-	-	+	+	-	-	-
15	9075 DKB		*0302			-	-	-	-	-	-	-	+	-	+	+	+	-	-	-	-	-
16	9037 SWEIG007		*0505			-	-	-	-	-	-	-	+	-	-	-	-	+	+	+	-	-
17	9282 CTM3953540		*0103	*0501		-	-	+	+	-	-	-	+	-	-	-	-	+	+	+	-	-
18	9257 32367		*0102	*0303		-	+	+	-	-	-	-	+	-	+	-	+	+	-	-	-	-
19	9038 BM16		*0505			-	-	-	-	-	-	-	+	-	-	-	-	+	+	+	-	-
20	9059 SLE005		*0102			-	+	+	-	-	-	-	+	-	-	-	-	+	-	-	-	-
21	9064 AMALA		*0503			-	-	-	-	-	-	-	+	-	-	-	-	+	+	+	-	-
22	9056 KOSE		*0102	*0104		+	+	+	-	+	+	-	+	-	-	-	-	+	-	-	-	-
23	9124 IHL		*0103	*0104		+	+	+	+	+	+	-	+	-	-	-	-	+	-	-	-	-
24	9035 JBUSH		*0505			-	-	-	-	-	-	-	+	-	-	-	-	+	+	+	-	-
25	9049 IBW9		*0201			-	-	-	-	-	-	-	+	+	-	-	-	+	-	-	-	-
26	9285 WT49		*0501			-	-	-	-	-	-	-	+	-	-	-	-	+	+	+	-	-
27	9191 CH1007		*0303	*0105		+	+	-	-	+	-	-	+	-	+	-	+	+	-	-	-	-
28	9320 BEL5GB		*0201	*0303		-	-	-	-	-	-	-	+	+	+	-	+	+	-	-	-	-
29	9050 MOU		*0201			-	-	-	-	-	-	-	+	+	-	-	-	+	-	-	-	-
30	9021 RSH		*0401			-	-	-	-	-	-	-	+	-	-	-	-	+	+	-	-	-
31	9019 DUCAF		*0501			-	-	-	-	-	-	-	+	-	-	-	-	+	+	+	-	-
32	9297 HAG		*0505			-	-	-	-	-	-	-	+	-	-	-	-	+	+	+	-	-
33	9098 MT14B		*0301			-	-	-	-	-	-	-	+	-	+	-	-	+	-	-	-	-
34	9104 DHIF		*0505			-	-	-	-	-	-	-	+	-	-	-	-	+	+	+	-	-
35	9302 SSTO		*0301			-	-	-	-	-	-	-	+	-	+	-	-	+	-	-	-	-
36	9024 KT17		*0301			-	-	-	-	-	-	-	+	-	+	-	-	+	-	-	-	-
37	9065 HHKB		*0103			-	-	+	+	-	-	-	+	-	-	-	-	+	-	-	-	-
38	9099 LZL		*0503			-	-	-	-	-	-	-	+	-	-	-	-	+	+	+	-	-
39	9315 CML		*0303	*0501		-	-	-	-	-	-	-	+	-	+	-	+	+	+	+	-	-
40	9134 WHONP199		*0201	*0302		-	-	-	-	-	-	-	+	+	+	+	+	+	-	-	-	-
41	9055 H0301		*0102			-	+	+	-	-	-	-	+	-	-	-	-	+	-	-	-	-
42	9066 TAB089		*0103			-	-	+	+	-	-	-	+	-	-	-	-	+	-	-	-	-
43	9076 T7526		*0302			-	-	-	-	-	-	-	+	-	+	+	+	-	-	-	-	-
44	9057 TEM		*0104			+	+	-	-	+	+	-	-	-	-	-	-	+	-	-	-	-
45	9239 SHJO		*0201	*0303		-	-	+	+	-	-	-	+	-	+	-	+	+	-	-	-	-
46	9013 SCHU		*0102			-	+	+	-	-	-	-	+	-	-	-	-	+	-	-	-	-
47	9045 TUBO		*0505			-	-	-	-	-	-	-	+	-	-	-	-	+	+	+	-	-
48	9303 TER-ND		*0101			+	+	-	-	-	-	-	+	-	-	-	-	+	-	-	-	-



CELL LINE VALIDATION SHEET																					
DQA1 SSP typing kit																					
				Prod. No.:	Well																
					17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
	IHWC cell line	DQA1*			200960917	200960918	200960919	200960920	200960921	200960922	200960923	200960924	200960925	200960926	200960927	200960928	200960929	200960930	200960931	200960932	
1	9001 SA	*0101			-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
2	9280 LK707	*0103	*0303		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
3	9011 E4181324	*0103			-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
4	9275 GU373	*0501			+	-	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-
5	9009 KAS011	*0102			-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
6	9353 SM	*0103	*0301		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
7	9020 QBL	*0501			+	-	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-
8	9025 DEU	*03			-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
9	9026 YAR	*0301			-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
10	9107 LKT3	*0303			-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
11	9051 PITOUT	*0201			-	-	-	-	-	-	-	W	-	-	-	-	-	-	-	-	-
12	9052 DBB	*0201			-	-	-	-	-	-	-	W	-	-	-	-	-	-	-	-	-
13	9004 JESTHOM	*0101			-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
14	9071 OLGA	*0401			-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-
15	9075 DKB	*0302			-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
16	9037 SWEIG007	*0505			+	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-
17	9282 CTM3953540	*0103	*0501		+	-	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-
18	9257 32367	*0102	*0303		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
19	9038 BM16	*0505			+	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-
20	9059 SLE005	*0102			-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
21	9064 AMALA	*0503			-	+	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-
22	9056 KOSE	*0102	*0104		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
23	9124 IHL	*0103	*0104		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
24	9035 JBUSH	*0505			+	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-
25	9049 IBW9	*0201			-	-	-	-	-	-	-	W	-	-	-	-	-	-	-	-	-
26	9285 WT49	*0501			+	-	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-
27	9191 CH1007	*0303	*0105		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
28	9320 BEL5GB	*0201	*0303		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
29	9050 MOU	*0201			-	-	-	-	-	-	-	W	-	-	-	-	-	-	-	-	-
30	9021 RSH	*0401			-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
31	9019 DUCAF	*0501			+	-	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-
32	9297 HAG	*0505			+	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-
33	9098 MT14B	*0301			-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
34	9104 DHIF	*0505			+	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-
35	9302 SSTO	*0301			-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
36	9024 KT17	*0301			-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
37	9065 HHKB	*0103			-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
38	9099 LZL	*0503			-	+	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-
39	9315 CML	*0303	*0501		+	-	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-
40	9134 WHONP199	*0201	*0302		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
41	9055 H0301	*0102			-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
42	9066 TAB089	*0103			-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
43	9076 T7526	*0302			-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
44	9057 TEM	*0104			-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
45	9239 SHJO	*0201	*0303		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
46	9013 SCHU	*0102			-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
47	9045 TUBO	*0505			+	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-
48	9303 TER-ND	*0101			-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-



## CERTIFICATE OF ANALYSIS

### Olerup SSP® DQA1 SSP

Product number: 101.231-24/04 – including *Taq* pol.  
Lot number: 99F  
Expiry date: 2011-August-01  
Number of tests: 24 tests – Product No. 101.231-24  
4 tests – Product No. 101.231-04  
Number of wells per test: 32

#### Well specifications:

Well No.	Production No.	Well No.	Production No.	Well No.	Production No.
1	2009-609-01	13	2009-609-13	25	2009-609-25
2	2009-609-02	14	2009-609-14	26	2009-609-26
3	2009-609-03	15	2009-609-15	27	2009-609-27
4	2009-609-04	16	2009-609-16	28	2009-609-28
5	2009-609-05	17	2009-609-17	29	2009-609-29
6	2009-609-06	18	2009-609-18	30	2009-609-30
7	2009-609-07	19	2009-609-19	31	2009-609-31
8	2009-609-08	20	2009-609-20	32	2009-609-32
9	2009-609-09	21	2009-609-21		
10	2009-609-10	22	2009-609-22		
11	2009-609-11	23	2009-609-23		
12	2009-609-12	24	2009-609-24		

The specificity of each primer solution of the kit has been tested against 48 well characterized IHWC cell line DNAs.

No DNAs carrying the alleles to be amplified by primer solutions No. 7, 16, 20 and 26 to 32 were available. In primer solutions 7, 25, 26, 29, 31 and 3 the 5'-primers were tested by adding one additional 3'-primer, the 3'-primers were not possible to test. In primer solutions 16, 20, 27, 28 and 30 the 3'-primers were tested by adding one additional 5'-primer, the 5'-primers were not possible to test.

**Results:** No false positive or false negative amplifications were obtained.

**Date of approval:** 2009-August-25

**Approved by:**

**Quality Control, Supervisor**

## Declaration of Conformity

**Product name:** *Olerup* SSP<sup>®</sup> DQA1  
**Product number:** 101.231-24/04  
**Lot number:** 99F

**Intended use:** HLA-DQA1 high resolution histocompatibility testing

**Manufacturer:** *Olerup* SSP AB  
Hasselstigen 1  
SE-133 33 Saltsjöbaden, Sweden  
**Phone:** +46-8-717 88 27  
**Fax:** +46-8-717 88 18

We, *Olerup* SSP AB, hereby declare that this product, to which this Declaration of Conformity relates is in conformity with the following Standard(s) and other normative document(s) ISO 9001:2000, ISO 17025:1999 and ISO 13485:2000, following the provisions of the 98/79/EC Directive on *in vitro* diagnostic medical devices, Annex III.

The Technical Construction File is maintained at *Olerup* SSP AB, Hasselstigen 1, SE-133 33 Saltsjöbaden, Sweden.

The Authorized Representative located within the Community is: *Olerup* SSP AB.

Saltsjöbaden, Sweden  
2009-August-25

Olle Olerup  
Managing Director





Lot No.: **99F**

Lot-specific Information

[www.olerup.com](http://www.olerup.com)

**ADDRESSES:**

**Manufacturer:**

**Olerup SSP AB**, Hasselstigen 1, SE-133 33 Saltsjöbaden, Sweden.

**Tel:** +46-8-717 88 27

**Fax:** +46-8-717 88 18

**E-mail:** [info-ssp@olerup.com](mailto:info-ssp@olerup.com)

**Web page:** <http://www.olerup.com>

**Distributed by:**

**Olerup GmbH**, Löwengasse 47 / 6, AT-1030 Vienna, Austria.

**Tel:** +43-1-710 15 00

**Fax:** +43-1-710 15 00 10

**E-mail:** [support-at@olerup.com](mailto:support-at@olerup.com)

**Web page:** <http://www.olerup.com>

**Olerup Inc.**, 901 S. Bolmar St., Suite R, West Chester, PA 19382

**Tel:** 1-877-OLERUP1

**Fax:** 610-344-7989

**E-mail:** [info.us@olerup.com](mailto:info.us@olerup.com)

**Web page:** <http://www.olerup.com>

For information on *Olerup* SSP distributors worldwide, contact **Olerup GmbH**.