

Olerup SSP[®] DRB1*16

Product number:	101.126-12 – including <i>Taq</i> polymerase
Lot number:	63F
Expiry date:	2011-March-01
Number of tests:	12
Number of wells per test:	13
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. 63F.

CHANGES COMPARED TO THE PREVIOUS *OLERUP SSP*[®] DRB1*16 LOT

The DRB1*16 specificity and interpretation tables have been updated for the DRB1 alleles described since the previous *Olerup SSP*[®] DRB1*16 lot was made (Lot No. 29E).

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

Well	5'-primer	3'-primer	rationale
3	-	Added	3'primers added to decrease formation of primer dimers.

Changes in revision R02 compared to R01:

1. The DRB1 alleles amplified by primer mix 3 have been corrected in the Specificity and Interpretation Tables and the primer information has been updated.

PRODUCT DESCRIPTION

DRB1*16 SSP subtyping

CONTENT

The primer set contains 5'- and 3'-primers for identifying the DRB1*1601 to DRB1*1613N alleles.

PLATE LAYOUT

Each test consists of 13 PCR reactions in a 16 well cut PCR plate. Wells 14 to 16 are empty.

1	2	3	4	5	6	7	8
9	10	11	12	13	empty	empty	empty

The 16 well cut PCR plate is marked with 'DRB1*16' in silver/gray ink.

Well No. 1 is marked with the Lot No. '63F'.

The PCR plates are covered with a PCR-compatible foil.

Please note: When removing each 16 well PCR plate, make sure that the remaining plates stay covered. Use a scalpel or a similar instrument to carefully cut the foil between the plates.

INTERPRETATION

The interpretation of DRB1*16 PCR-SSP subtypings will be influenced by the DRB1*15, two DRB1*11, most DRB1*12 and two DRB1*13 alleles, when present on the other haplotype.

UNIQUELY IDENTIFIED ALLELES

All the DRB1*16 alleles, i.e. **DRB1*1601 to DRB1*1613N**, recognized by the HLA Nomenclature Committee in May 2009¹ will give rise to unique amplification patterns by the primers in the DRB1*16 subtyping kit.

The DRB1*16 subtyping kit cannot distinguish the DRB1*160101 to DRB1*160102 alleles or the DRB1*160201 to DRB1*160202 alleles or the DRB1*160501 to DRB1*160502 alleles.

¹DRB1 alleles listed on the IMGT/HLA web page 2009-May-09, release 2.25.2, www.ebi.ac.uk/imgt/hla.

RESOLUTION IN HOMO- AND HETEROZYGOTES

The 12 DRB1*16 alleles can be combined in 78 homozygous and heterozygous combinations. Twenty-four of these genotypes do not give rise to unique amplification patterns.

+++----- +++-- 1609,1611 = 1610,1611
+++----- ++---- 1601,1610 = 1602,1609 = 1602,1610 =
 1609,1610 = 1610,1610
+++----- ---+-- 1601,1611 = 1602,1611 = 1611,1611
+++----- ----- 1601,1602 = 1602,1602
+--+----- ----- 1601,1603 = 1603,1603
+--+----- ----- 1601,1604 = 1604,1604
+--+-----+ ----- 1601,1608 = 1608,1608
+--+----- ++---- 1601,1609 = 1609,1609
+--+----- -----+ 1601,1613N = 1613N,1613N
+-----++- ----- 1605,1607 = 1607,1607

1601 = 160101 and 160102
1602 = 160201 and 160202
1605 = 160501 and 160502

SPECIFICITY TABLE

DRB1*16 SSP subtyping

Specificities and sizes of the PCR products of the 13 primer mixes used for DRB1*16 SSP subtyping

Primer Mix	Size of spec. PCR product ¹	Size of control band ²	Amplified DRB1*16 alleles ³	Other amplified DRB1 alleles ⁴
1	260 bp	515 bp	160101-160502, 1607-1611, 1613N	150201-150206, 1508, 1511, 1514, 1515, 1519, 1526, 1527, 1529-1531
2	200 bp	515 bp	160201-160202, 1610, 1611	
3	200 bp	430 bp	160101-1604, 1608- 1611, 1613N	
4	215 bp	430 bp	1603	
5	220 bp	430 bp	1604	1521
6	200 bp	430 bp	160501-160502, 1607	1510, 1521
7	160 bp	515 bp	1607	
8⁵	110 bp	430 bp	1608	
9	140 bp	430 bp	1609, 1610	15010101-1506, 1508, 1510, 1512- 1527, 1529-1532
10⁵	115 bp	430 bp	1609, 1610	110103, 111902, 120101, 120201- 120203, 120302- 1210, 1212-1215, 1217- 1219, 130202, 1377
11	215 bp	430 bp	1611	
12	220 bp	515 bp	1612	
13	155 bp	430 bp	1613N	

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 DRB*16 SSP subtypings.

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 lengths 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.

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 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 DRB1*16 subtyping.

In addition, wells number 2, 7 and 12 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.

³For several DRB alleles only partial second 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 in the first hyperpolymorphic region of the second exon of DRB alleles are conserved within allelic groups and that unknown sequences of codons 87 to 92 are identical with the DRB1*0101 consensus sequence.

⁴Due to the sharing of sequence motifs between DRB1 alleles, primer mixes 1, 5, 6, 9 and 10 will amplify other DRB1 alleles.

⁵Specific PCR fragments shorter than 125 base pairs have a lower intensity and are less sharp than longer PCR bands.

INTERPRETATION TABLE								
DRB1*16 SSP subtyping								
Amplification patterns of the DRB1*1601 to 1613N alleles								
	Well							
	1	2	3	4	5	6	7	8
Length of spec.	260	200	200	215	220	200	160	110
PCR product								
Length of int.	515	515	430	430	430	430	515	430
pos. control¹								
5'-primer²	13	13	13	13	13	13	27	13
	5'-Agg 3'	5'-Agg 3'	5'-Agg 3'	5'-Agg 3'	5'-Agg 3'	5'-Agg 3'	5'-C CC 3'	5'-Agg 3'
3'-primer(s)³	86	67	67	72	74	67	67	37
	5'-C AC 3'	5'-gAg 3'	5'-gAA 3'	5'-ggC 3'	5'-CAg 3'	5'-gAT 3'	5'-gAT 3'	5'-C gT 3'
			67			67	67	
			5'-gAg 3'			5'-gAT 3'	5'-gAT 3'	
			72					
			5'-ggC 3'					
Well No.	1	2	3	4	5	6	7	8
DRB1 allele⁴								
*160101-160102	1		3					
*160201-160202	1	2	3					
*1603	1		3	4				
*1604	1		3		5			
*160501-160502	1					6		
*1607	1					6	7	
*1608	1		3					8
*1609	1		3					
*1610	1	2	3					
*1611	1	2	3					
*1612								
*1613N	1		3					
*110103, 111902, 120101, 120201-120203, 120302-1210, 1212-1215, 1217-1219, 130202, 1377								
*15010101-150106, 15030101-1506, 1512, 1513, 1516-1518, 1520, 1522-1525, 1532								
*150201-150206, 1508, 1514, 1515, 1519, 1526, 1527, 1529-1531	1							
*1510						6		
*1511	1							
*1521					5	6		
DRB1 allele⁴								
Well No.	1	2	3	4	5	6	7	8

INTERPRETATION TABLE					
DRB1*16 SSP subtyping					
Amplification patterns of the DRB1*1601 to 1613N alleles					
Well					
9	10	11	12	13	
140	115	215	220	155	Length of spec. PCR product
430	430	430	515	430	Length of int. pos. control¹
13	47	14	13	13	5'-primer²
5' -Agg 3'	5' -g TT 3'	5' -gg A 3'	5' -AAG 3'	5' -Agg 3'	
47	72	72	72	52	3'-primer(s)³
5' -g gA 3'	5' -gC g 3'	5' -gC g 3'	5' -gC g 3'	5' -CTA 3'	
9	10	11	12	13	Well No.
					DRB1 allele⁴
					*160101-160102
					*160201-160202
					*1603
					*1604
					*160501-160502
					*1607
					*1608
9	10				*1609
9	10				*1610
		11			*1611
			12		*1612
				13	*1613N
	10				*110103, 111902, 120101, 120201-120203, 120302-1210, 1212-1215, 1217-1219, 130202, 1377
9					*15010101-150106, 15030101-1506, 1512, 1513, 1516-1518, 1520, 1522-1525, 1532
9					*150201-150206, 1508, 1514, 1515, 1519, 1526, 1527, 1529-1531
9					*1510
					*1511
9					*1521
					DRB1 allele⁴
9	10	11	12	13	Well No.

¹The 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 DRB1*16 subtyping.

In addition, wells number 2, 7 and 12 contain the primer pair giving rise to the longer, 515 bp, internal positive control band in order to allow kit identification.

²The codon, in the 2nd exon, matching the specificity-determining 3'-end of the primer is given. 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. Empty spaces indicate codon boundaries.

³The codon, in the 2nd exon, matching the specificity-determining 3'-end of the primer is given in the anti-sense direction. 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. Empty spaces indicate codon boundaries.

⁴The DRB1*1606 allele has been shown to be identical to DRB1*1605.

CELL LINE VALIDATION SHEET																	
DRB1*16 SSP subtyping kit																	
					Well												
					1	2	3	4	5	6	7	8	9	10	11	12	13
					200321501	200321502	200956803	200321504	200321505	200413606	200413607	200321508	200616509	200616512	200843411	200843412	200843413
	IHWC cell line	DRB1	Prod. No.:														
1	9001 SA	*0101			-	-	-	-	-	-	-	-	-	-	-	-	-
2	9280 LK707	*1502	*0405		+	-	-	-	-	-	-	-	+	-	-	-	-
3	9011 E4181324	*1502			+	-	-	-	-	-	-	-	+	-	-	-	-
4	9275 GU373	*0301			-	-	-	-	-	-	-	-	-	-	-	-	-
5	9009 KAS011	*1601			+	-	+	-	-	-	-	-	-	-	-	-	-
6	9353 SM	*0407	*0803		-	-	-	-	-	-	-	-	-	-	-	-	-
7	9020 QBL	*0301			-	-	-	-	-	-	-	-	-	-	-	-	-
8	9007 DEM	*0401	*1602		+	+	-	-	-	-	-	-	-	-	-	-	-
9	9026 YAR	*0402			-	-	-	-	-	-	-	-	-	-	-	-	-
10	9107 LKT3	*0405			-	-	-	-	-	-	-	-	-	-	-	-	-
11	9051 PITOUT	*0701			-	-	-	-	-	-	-	-	-	-	-	-	-
12	9052 DBB	*0701			-	-	-	-	-	-	-	-	-	-	-	-	-
13	9067 BTB	*0801			-	-	-	-	-	-	-	-	-	-	-	-	-
14	9071 OLGA	*0802			-	-	-	-	-	-	-	-	-	-	-	-	-
15	9075 DKB	*0901			-	-	-	-	-	-	-	-	-	-	-	-	-
16	9037 SWEIG007	*1101			-	-	-	-	-	-	-	-	-	-	-	-	-
17	9008 WILJON	*1501			-	-	-	-	-	-	-	-	+	-	-	-	-
18	9257 32367	*0901	*1101		-	-	-	-	-	-	-	-	-	-	-	-	-
19	9038 BM16	*1201			-	-	-	-	-	-	-	-	-	+	-	-	-
20	9059 SLE005	*1302			-	-	-	-	-	-	-	-	-	-	-	-	-
21	9064 AMALA	*1402			-	-	-	-	-	-	-	-	-	-	-	-	-
22	9056 KOSE	*1302	*1401		-	-	-	-	-	-	-	-	-	-	-	-	-
23	9124 IHL	*0803	*1414		-	-	-	-	-	-	-	-	-	-	-	-	-
24	9035 JBUSH	*1101			-	-	-	-	-	-	-	-	-	-	-	-	-
25	9049 IBW9	*0701			-	-	-	-	-	-	-	-	-	-	-	-	-
26	9285 WT49	*0301			-	-	-	-	-	-	-	-	-	-	-	-	-
27	9191 CH1007	*0405	*1001		-	-	-	-	-	-	-	-	-	-	-	-	-
28	9320 BEL5GB	*0416	*0701		-	-	-	-	-	-	-	-	-	-	-	-	-
29	9050 MOU	*0701			-	-	-	-	-	-	-	-	-	-	-	-	-
30	9021 RSH	*0302			-	-	-	-	-	-	-	-	-	-	-	-	-
31	9019 DUCAF	*0301			-	-	-	-	-	-	-	-	-	-	-	-	-
32	9297 HAG	*1303			-	-	-	-	-	-	-	-	-	-	-	-	-
33	9098 MT14B	*0404			-	-	-	-	-	-	-	-	-	-	-	-	-
34	9104 DHIF	*1101			-	-	-	-	-	-	-	-	-	-	-	-	-
35	9302 SSTO	*0403			-	-	-	-	-	-	-	-	-	-	-	-	-
36	9024 KT17	*0403	*0406		-	-	-	-	-	-	-	-	-	-	-	-	-
37	9065 HHKB	*1301			-	-	-	-	-	-	-	-	-	-	-	-	-
38	9099 LZL	*1402			-	-	-	-	-	-	-	-	-	-	-	-	-
39	9315 CML	*0301	*0401		-	-	-	-	-	-	-	-	-	-	-	-	-
40	9134 WHONP199	*0701	*0901		-	-	-	-	-	-	-	-	-	-	-	-	-
41	9055 H0301	*1302			-	-	-	-	-	-	-	-	-	-	-	-	-
42	9066 TAB089	*0803			-	-	-	-	-	-	-	-	-	-	-	-	-
43	9076 T7526	*0901			-	-	-	-	-	-	-	-	-	-	-	-	-
44	9057 TEM	*1401			-	-	-	-	-	-	-	-	-	-	-	-	-
45	9239 SHJO	*0701			-	-	-	-	-	-	-	-	-	-	-	-	-
46	9013 SCHU	*1501			-	-	-	-	-	-	-	-	+	-	-	-	-
47	9045 TUBO	*1104	*1201		-	-	-	-	-	-	-	-	-	+	-	-	-
48	9303 TER-ND	*0103			-	-	-	-	-	-	-	-	-	-	-	-	-

CERTIFICATE OF ANALYSIS

Olerup SSP® DRB1*16 SSP

Product number: 101.126-12 – including *Taq* polymerase
Lot number: 63F
Expiry date: 2011-March-01
Number of tests: 12
Number of wells per test: 13

Well specifications:

Well No.	Production No.	Well No.	Production No.
1	2006-286-01	9	2006-286-09
2	2006-286-02	10	2006-286-10
3	2009-568-03	11	2008-434-11
4	2006-286-04	12	2008-434-12
5	2006-286-05	13	2008-434-13
6	2004-286-06		
7	2004-286-07		
8	2006-286-08		

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 4, 6 to 8 and 11 to 13 were available. The specificities of the primers in primer solutions 6 and 8 were tested by separately adding one additional 5'-primer, respectively one additional 3'-primer. In primer solutions 4 and 13 it was only possible to test the 5'-primers, the 3'-primers were not possible to test. In primer solution 7, 11 and 12 it was only possible to test the 3'-primers, the 5'-primers were not possible to test. In primer solution 3, one 3'-primer was not possible to test.

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

Date of approval: 2009-June-28

Approved by:

Quality Control, Supervisor

Declaration of Conformity

Product name: *Olerup* SSP® DRB1*16
Product number: 101.126-12
Lot number: 63F

Intended use: DRB1*16 high resolution histocompatibility testing

Manufacturer: *Olerup* SSP AB
Hasselstigen 1
SE-133 33 Saltsjöbaden, Sweden
Phone: +46-8-717 88 27
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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 and ISO 13485:2003, following the provisions of the 98/79/EC Directive on *in vitro* diagnostic medical devices, Annex II List B, conformity assessed using Annex IV, as transposed into the national laws of the Member States of the European Union.

The Technical Documentation 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.

Notified Body: Lloyd's Register Quality Assurance Limited, Hiramford, Middlemarch Office Village, Siskin Drive, Coventry CV3 4FJ, United Kingdom. (Notified Body number: 0088.)

Saltsjöbaden, Sweden
2009-June-28

Olle Olerup
Managing Director

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