Olerup SSP® KIR Genotyping

Product number:	**104.101-12 – including *Taq* polymerase** **104.101-12u – without *Taq* polymerase**
Lot number:	**81S**
Expiry date:	**2016-March-01**
Number of tests:	**12**
Number of wells per test:	**23 + 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. 81S.

CHANGES COMPARED TO THE PREVIOUS *OLERUP* SSP® KIR GENOTYPING LOT (78R)

The KIR Genotyping specificity and interpretation tables are unchanged since the previous *Olerup* SSP® KIR Genotyping lot was made **(Lot No. 78R)**.

The KIR Genotyping primer set is unchanged compared to the previous lot.

Changes in revision R01 compared to R00:
1. Primer mix 3 may have tendencies of unspecific amplifications. A footnote has been added in the Specificity Table.

Changes in revision R02 compared to R01:
1. Primer mix 3 does not amplify the 2DL3*00102 allele. Thus, this lot of the KIR Genotyping kit will not amplify the 2DL3*00102 allele. This has been corrected in the Specificity and Interpretation Tables.

Well **24** contains Negative Control primer pairs, that will produce exon 4 and/or exon 5 amplicons for more than 97% of applicable KIR alleles as well as amplicons generated by positive control primer pairs constituent of all primer mixes in the Olerup SSP® product range.

PCR product sizes: 280bp KIR specific amplicons
430bp Positive control

Length of PCR product	**280**	**280**	**280**	**280**
5'-primer[1]	**110**	**109**	**208**	**208**
	5'-CAg3'	**5'-CCT3'**	**5'-CCA3'**	**5'-CCg3'**
3'-primer	**187**	**187**	**288**	**288**
	5'-ggT3'	**5'-ggT3'**	**5'-gTC3'**	**5'-gTC3'**
	187	**187**	**288**	**288**
	5'-ggT3'	**5'-ggT3'**	**5'-ggT3'**	**5'-ggT3'**
			288	**288**
			5'-gAT3'	**5'-gAT3'**
2DL1*	**+**		**+**	
2DL2*	**+**		**+**	
2DL3*	**+**		**+**	
2DL4*	**N/A**	**N/A**		**+**
2DL5A*	**N/A**	**N/A**	**+**	
2DL5B*	**N/A**	**N/A**	**+**	
2DS1*	**+**		**+**	
2DS2*	**+**		**+**	
2DS3*	**+**		**+**	
2DS4*		**+**	**+**	
2DS5*	**+**		**+**	
3DL1*	**+**		**+**	
3DL2*	**+**		**+**	
3DL3*	**+**		**+**	
3DS1*	**+**		**+**	
2DP1*	**+**		**+**	
3DP1*	**+**		**+**	

[1]The codon position for KIR genes, in the 4th or 5th exon, matching the specificity-determining 3'-end of the primer is given. Codon numbering as on the www.ebi.ac.uk/ipd/kir web site. The sequence of the 3 terminal nucleotides of the primer is given.

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PRODUCT DESCRIPTION

KIR Genotyping SSP typing

CONTENT
The primer set contains 5'- and 3'-primers for KIR Genotyping.

PLATE LAYOUT
Each test consists of 24 PCR reactions in a 24 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**

Wells 1 to 23 – KIR Genotyping primers.
Well 24 – Negative Control.
The 24 well cut PCR plate is marked with 'KIR GENOTYP' in silver/gray ink.
Well No. 1 is marked with the Lot No. '81S'.
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.
Please note: When removing each 24 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.

UNIQUELY IDENTIFIED ALLELES
All the KIR alleles available in the IPD KIR Sequence Database in April 2011[1] will be amplified by the primers in the KIR Genotyping SSP kit[2].

[1]KIR alleles listed on the IPD KIR web page 2011-April-15, release 2.4.0, www.ebi.ac.uk/ipd/kir.
[2]The 2DL3*00102 allele is not amplified by this lot of the KIR Genotyping primer set.

PROTOCOL

DNA EXTRACTION

Extracted, highly pure DNA is needed for SSP typings. DNA samples to be used for PCR-SSP HLA typing should be re-suspended in dH_2O. The A260/A280 ratio should be 1.6 – 2.0 by UV spectrophotometry for optimal band visualization during electrophoresis.

We recommend automated DNA extraction with the QIAGEN EZ1 DSP DNA Blood System. ACD blood should be used as starting material.

Alternatively, the DNA can be extracted by any preferred method yielding pure DNA. When using alternative methods, the DNA concentration should be adjusted to 30 ng/µl. ***Do not use heparinised blood with these methods.***

Recommended DNA concentration using:
EZ1-extracted DNA, 15 ng/µl.
DNA extracted by other methods, 30 ng/µl.

Concentrations exceeding 50 ng/µl will increase the risk for nonspecific amplifications and weak extra bands. If necessary, dilute the extracted DNA in dH_2O.

DNA samples should not be re-suspended in solutions containing chelating agents such as EDTA, above 0.5 mM in concentration.

DNA samples may be used immediately after extraction or stored at +4°C for up to 2 weeks with no adverse effects on results. DNA samples can be stored at -20°C or colder for 9 months. The purity and concentration of extracted DNA samples that have been stored for a prolonged period should be tested for acceptability prior to HLA typing.

DNA samples should be shipped at +4°C or colder to preserve their integrity during transport.

PCR AMPLIFICATION

104.101-12 – including Taq *polymerase*

For one KIR Genotyping typing, begin by adding to well No. 24, i.e. the well with the negative control primer pairs:

7 µl dH_2O
3 µl PCR Master Mix complete with *Taq*,

then add at room temperature in a 0.5 ml tube:

27 x 2 µl = 54 µl DNA (30 ng/µl)
27 x 3 µl = 81 µl PCR Master Mix complete with *Taq* – mix well before taking your aliquot
27 x 5 µl = 135 µl dH_2O

Mix well, dispense 10 µl of the DNA-PCR Master Mix-H_2O mixture into each of the 23 wells of an KIR Genotyping typing, i.e. wells 1 to 23. Cover the primer tray(s) with the provided adhesive seals. Check that all reaction wells are completely covered to prevent evaporative loss during PCR amplification.

104.101-12u – without *Taq* polymerase

For one KIR Genotyping typing, begin by adding at room temperature in a 0.5 ml tube:

28 x 3 µl = 84 µl PCR Master Mix without *Taq* – mix well before taking your aliquot
2.2 µl *Taq* polymerase (5 units/µl)

Mix well, dispense 3 µl of the PCR Master Mix-*Taq* mixture from the 0.5 ml tube into well No. 24, i.e. the well with the negative control primer pairs. Then add 7 µl dH_2O to well 24.

Then add at room temperature to the 0.5 ml tube containing 84 + 2.2 - 3 = 83,2 µl PCR Master Mix-*Taq* mixture:

27 x 2 µl = 54 µl DNA (30 ng/µl)
27 x 5 µl – 2,2 µl = 132.8 µl dH_2O

Mix well, dispense 10 µl of the DNA-PCR Master Mix-*Taq*-H_2O mixture into each of the 23 wells of an KIR Genotyping typing, i.e. wells 1 to 23. Cover the primer tray(s) with the provided adhesive seals. Check that all reaction wells are completely covered to prevent evaporative loss during PCR amplification.

Use a 96 well thermal cycler with a heated lid. The temperature gradient across the heating block should be < 1°C.

PCR cycling parameters:

1. 1 cycle	94°C	2 min	denaturation
2. 10 cycles	94°C	10 sec.	denaturation
	65°C	60 sec.	annealing and extension
3. 20 cycles	94°C	10 sec.	denaturation
	61°C	50 sec.	annealing
	72°C	30 sec.	extension
4. End - hold	RT		if less than 8 hours
	4°C		if longer than 8 hours

Total reaction volume in each well, 10 µl.

The same PCR cycling parameters are used for all the *Olerup* SSP kits.

AGAROSE GEL ELECTROPHORESIS

Prepare a 2% (w/v) agarose gel in 0.5 x TBE buffer. Dissolve the agarose by boiling in a microwave oven. Let the gel solution cool to 60°C. Stain the gel prior

to casting with ethidium bromide (10 mg/ml), 5 µl per 100 ml gel solution. For maximal ease of handling use our ethidium bromide dropper bottles (Product No. 103.301-10), 1 drop of ethidium bromide solution per 50-75 ml of gel. **Note: Ethidium bromide is a carcinogen. Handle with appropriate personal protective equipment.**
Load the PCR products, preferably using an 8-channel pipette. Load a DNA size marker (100 base pair ladder, Product No. 103.201-100) in one well per row.
Run the gel in 0.5 x TBE buffer, without re-circulation of the buffer, for 15-20 minutes at 8-10 V/cm.

DOCUMENTATION AND INTERPRETATION

Put the gel on a UV transilluminator and document by photography.
Record the presence and absence of specific PCR products. The relative lengths of the specific PCR products are helpful in the interpretation of the results.
Record the presence and relative lengths of the internal positive control bands. The differently sized control bands will help in the correct orientation of the typing as well as in kit identification.
Lanes without either control band or specific PCR products should be repeated.

Interpret the typings with the ***lot-specific Interpretation and Specificity Tables***.

PCR MASTER MIXES

The PCR Master Mix complete with *Taq* polymerase contains:

Taq polymerase	0.4 unit per 10 µl SSP reaction
nucleotides	final concentration of each dNTP is 200 µM
PCR buffer	final concentrations: 50 mM KCl, 1.5 mM $MgCl_2$, 10 mM Tris-HCl pH 8.3, 0.001% w/v gelatin
glycerol	final concentration of glycerol is 5%
cresol red	final concentration of cresol red is 100 µg/ml

The same PCR Master Mix complete with *Taq* is used for all *Olerup* SSP kits.

The PCR Master Mix without *Taq* polymerase contains:

nucleotides	final concentration of each dNTP is 200 µM
PCR buffer	final concentrations: 50 mM KCl, 1.5 mM $MgCl_2$, 10 mM Tris-HCl pH 8.3, 0.001% w/v gelatin
glycerol	final concentration of glycerol is 5%
cresol red	final concentration of cresol red is 100 µg/ml

The same PCR Master Mix without *Taq* is used for all *Olerup* SSP kits.

SPECIFICITY TABLE

KIR Genotyping SSP typing

Specificities and sizes of the PCR products of the 23+1 primer mixes used for KIR SSP Genotyping SSP.

Primer Mix	Size of spec. PCR product[1]	Size of control band[2]	KIR Gene	Amplified KIR[3] alleles
1	145 bp	**800 bp**	2DL1	001-025
2[7]	150 bp	1070 bp	2DL2	0010101-010
3[4,7,10]	100 bp, 520 bp	1070 bp	2DL3	0010101-0010111, 00103-017
4	200 bp	1070 bp	2DL4	00101-022
5[6]	155 bp	1070 bp	2DL5A, 2DL5B	0010101-00105, 0050101-005010104, 01201-01202, 014-015 0020101-004, 00601-011, 01301-01303, 016
6[5]	1650 bp	**430 bp**	2DL5A	0010101-00105, 0050101-005010104, 01201-01202, 014-015
7[5,8]	1650 bp	**515 bp**	2DL5B	0020101-004, 00601-011, 01301-01303, 016
8[4]	100 bp	1070 bp	2DS1	001-008
9	205 bp	1070 bp	2DS2	0010101-008
10	130 bp	1070 bp	2DS3	00101-005
11	215 bp	1070 bp	2DS4	0010101-00104, 01101-01102, 014, 015
12	200 bp	1070 bp	2DS4	0030101-0030104, 0040101-0040102, 0060101-0060102, 007-010, 012, 013
13[4,7]	110 bp	1070 bp	2DS5	001-011
14	135 bp	1070 bp	3DL1	0010101-002, 00401-00403, 0050101-009, 01501-044, 051-054, 056, 057, 059-068, 072-073
15	200 bp	1070 bp	3DL2	0010101-062
16[4]	115 bp	1070 bp	3DL3	00101-036, 041-055
17	130 bp	1070 bp	3DS1	010-014, 045-049N, 050, 055, 058
18	165 bp	1070 bp	2DP1	00101-010
19[4]	125 bp	1070 bp	3DP1	001-010
20	235 bp	1070 bp	3DP1	0030101-0030402, 004[?]-010[?]
21	145 bp	1070 bp	2DS1	001
22[4]	95 bp	1070 bp	2DS1	0020101-008

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23	210 bp	1070 bp	3DL1	00401-00403, 019, 021, 036, 037, 039, 056, 072
24[6,9]	-	-	-	**Negative control**

[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 KIR 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 more than 20 base pairs. Size differences of 20 base pairs or less are not given. For high resolution SSP kits the respective lengths of the specific PCR product(s) are given for the alleles amplified by these primer mixes.
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 control primer pair gives rise to an internal positive control band of 1070 base pairs for most wells. Well number 1 contains a primer pair giving rise to an 800 base pair internal positive control band, well number 6 contains a primer pair giving rise to a 430 base pair internal positive control band and well number 7 contains a primer pair giving rise to a 515 base pair internal positive control band, in order to help in the correct orientation and kit identification of the KIR Genotyping typing.
In the presence of a specific amplification the intensity of the control band often decreases.
[3]KIR alleles listed on the IPD KIR web page 2011-April-15, release 2.4.0, www.ebi.ac.uk/ipd/kir.
[4]Specific PCR products shorter than 125 base pairs have a lower intensity and are less sharp than longer PCR products.
[5]The specific PCR product generated by primer mixes 6 and 7 are longer than the internal positive control band and the positive control band may be weaker than for other KIR primer mixes.
[6]Primer mixes 5 and 24 have a tendency to giving rise to primer oligomer formation.
[7]Primer mixes 2, 3 and 13 may have tendencies of unspecific amplifications.
[8]Primer mix 7 may give rise to a lower yield of specific PCR product than the other KIR primer mixes.
[9]Well 24 contains negative control primer pairs, that will produce exon 4 and/or exon 5 amplicons for more than 97% of applicable KIR alleles as well as amplicons generated by positive control primer pairs.
[10]The 2DL3*00102 allele is not amplified by this lot of the KIR Genotyping primer set.
'?', the 2nd intron sequence of the primer matching region is not known.

INTERPRETATION TABLE

KIR SSP Genotyping

Amplification patterns of the KIR alleles

	Well[5]											
	1	2	3	4	5	6	7	8	9	10	11	12
Length of spec.	145	150	100	200	155	1650	1650	100	205	130	215	200
PCR product			520									
Length of int.	800	1070	1070	1070	1070	430	515	1070	1070	1070	1070	1070
pos. control[1]												
5'-primer(s)[2]	130	208	226	208	226	-16	-16	165	140	236	229	234
	5'-gAA$^{3'}$	5'-CCA$^{3'}$	5'-CCA$^{3'}$	5'-CCg$^{3'}$	5'-CCA$^{3'}$	5'-TCA$^{3'}$	5'-TCg$^{3'}$	5'-gAg$^{3'}$	5'-gTA$^{3'}$	5'-CAC$^{3'}$	5'-CTA$^{3'}$	5'-TCT$^{3'}$
		156	332				-16	165				
		5'-AAA$^{3'}$	5'-TCg$^{3'}$				5'-Tgg$^{3'}$	5'-gAA$^{3'}$				
			344									
			5'-CTg$^{3'}$									
3'-primer(s)[3]	165	243	246	262	276	27	27	185	195	266	288	288
	5'-gCg$^{3'}$	5'-ACA$^{3'}$	5'-AgA$^{3'}$	5'-ggA$^{3'}$	5'-gAg$^{3'}$	5'-ACA$^{3'}$	5'-ACA$^{3'}$	5'-gAC$^{3'}$	5'-ATg$^{3'}$	5'-CCT$^{3'}$	5'-ggA$^{3'}$	5'-ggA$^{3'}$
		195	350									
		5'-ATg$^{3'}$	5'-CAA$^{3'}$									
			351									
			5'-ACC$^{3'}$									
Well No.	1	2	3	4	5	6	7	8	9	10	11	12
KIR allele[4]												
2DL1*001-025	1											
2DL2*0010101-010		2										
2DL3*0010101-0010111, 00103-017[6]			3									
2DL4*00101-022				4								
2DL5A*0010101-00105, 0050101-005010104, 01201-01202, 014-015					5	6						
2DL5B*0020101-004, 00601-011, 01301-01303, 016					5		7					
Well No.	1	2	3	4	5	6	7	8	9	10	11	12

INTERPRETATION TABLE

KIR SSP Genotyping

Amplification patterns of the KIR alleles

Well[5]												
13	14	15	16	17	18	19	20	21	22	23	24	
110	135	200	115	130	165	125	235	145	95	210		Length of spec. PCR product
1070	1070	1070	1070	1070	1070	1070	1070	1070	1070	1070		Length of int. pos. control[1]
142	136	110	156	133	29	25	2nd I	130	130	31		5'-primer(s)[2]
5'-ACC3'	5'-CAA3'	5'-ggg3'	5'-CCC3'	5'-TCT3'	5'-CAT3'	5'-Tgg3'	5'-gCC3'	5'-gAA3'	5'-gAA3'	5'-TCA3'		
	208									31		
	5'-CCA3'									5'-TCA3'		
165	166	164	181	163	71	54	54	165	165	86		3'-primer(s)[3]
5'-gTg3'	5'-CAA3'	5'-CAA3'	5'-gTA3'	5'-ggA3'	5'-TAC3'	5'-TAC3'	5'-TAC3'	5'-gCC3'	5'-gCT3'	5'-CCA3'		
	238											
	5'-CCg3'											
13	14	15	16	17	18	19	20	21	22	23	24	Well No.
												KIR allele[4]
												2DL1*001-025
												2DL2*0010101-010
												2DL3*0010101-0010111, 00103-017[6]
												2DL4*00101-022
												2DL5A*0010101-00105, 0050101-05010104, 01201-01202, 014-015
												2DL5B*0020101-004, 00601-011, 01301-01303, 016
13	14	15	16	17	18	19	20	21	22	23	24	Well No.

Neg. control

Neg. control

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Length of spec.	145	150	100	200	155	1650	1650	100	205	130	215	200
PCR product			520									
Well No.	1	2	3	4	5	6	7	8	9	10	11	12
2DS1*001								8				
2DS1*0020101-008								8				
2DS2*0010101-008									9			
2DS3*00101-005										10		
2DS4*0010101-00104, 01101-01102, 014, 015											11	
2DS4*0030101-0030104, 0040101-0040102, 0060101-0060102, 007-010, 012, 013												12
2DS5*001-011												
3DL1*0010101-003, 0050101-009, 01501-018, 020, 022-035, 038, 040-044, 051-054, 057, 059-068, 073												
3DL1*00401-00403, 019, 021, 036, 037, 039, 056, 072												
3DL2*0010101-062												
3DL3*00101-055												
3DS1*010-014, 045-049N, 050, 055, 058												
2DP1*00101-010												
3DP1*001-002												
3DP1*0030101-0030402												
3DP1*004, 005-010												
KIR allele[4]												
Well No.	1	2	3	4	5	6	7	8	9	10	11	12

[1]The internal positive control primer pairs amplify segments of the human growth hormone gene. The control primer pair gives rise to an internal positive control band of 1070 base pairs for most wells. Well number 1 contains a primer pair giving rise to an 800 base pair internal positive control band, well number 6 contains a primer pair giving rise to a 430 base pair internal positive control band and well number 7 contains a primer pair giving rise to a 515 base pair internal positive control band, in order to help in the correct orientation and kit identification of the KIR Genotyping typing.

110	135	200	115	130	165	125	235	145	95	210		Length of spec.
												PCR product
13	14	15	16	17	18	19	20	21	22	23	24	Well No.
								21			Neg. control	2DS1*001
									22			2DS1*0020101-008
												2DS2*0010101-008
												2DS3*00101-005
												2DS4*0010101-00104, 01101-01102, 014, 015
												2DS4*0030101-0030104, 0040101-0040102, 0060101-0060102, 007-010, 012, 013
13												2DS5*001-011
	14											3DL1*0010101-003, 0050101-009, 01501-018, 020, 022-035, 038, 040-044, 051-054, 057, 059-068, 073
	14									23		3DL1*00401-00403, 019, 021, 036, 037, 039, 056, 072
		15										3DL2*0010101-062
			16									3DL3*00101-055
				17								3DS1*010-014, 045-049N, 050, 055, 058
					18							2DP1*00101-010
						19						3DP1*001-002
						19	20					3DP1*0030101-0030402
						19	?					3DP1*004, 005-010
												KIR allele[4]
13	14	15	16	17	18	19	20	21	22	23	24	Well No.

[2]The codon position, in the 1st, 3rd, 4th, 5th or 7th exon or the 2nd intron matching the specificity-determining 3'-end of the primer is given. Codon numbering as on the KIR web page 2011-April-25, release 2.4.0,, www.ebi.ac.uk/ipd/kir. The sequence of the 3 terminal nucleotides of the primer is given.
[3]The codon position, in the 3rd, 4th, 5th or 8th exon, matching the specificity-determining 3'-end of the primer. Codon numbering as on the KIR web page 2011-April-15, release 2.4.0, www.ebi.ac.uk/ipd/kir. The sequence of the 3 terminal nucleotides of the primer is given in the anti-sense direction.
[4]KIR alleles listed on the IPD KIR web page 2011-April-15, release 2.4.0, www.ebi.ac.uk/ipd/kir.
[5]Well 24 contains negative control primer pairs, that will produce exon 4 and/or exon 5 amplicons for more than 97% of applicable KIR alleles as well as amplicons generated by positive control primer pairs.
[6]The 2DL3*00102 allele is not amplified by this lot of the KIR Genotyping primer set.
'?', the 2nd intron sequence of the primer matching region is not know.

CELL LINE VALIDATION SHEET

KIR Genotyping primer set

			Well															
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
			201324201	201324202	201324203	201324204	201324205	201324206	201324207	201324208	201324209	201324210	201324211	201324212	201324213	201324214	201324215	201324216
	IHWC cell line																	
1	9001	SA	+	-	+	+	-	-	-	-	-	-	+	-	-	+	+	+
2	9280	LK707	-	+	-	+	+	-	+	+	+	-	-	+	+	+	+	+
3	9011	E4181324	+	-	+	+	-	-	-	-	-	-	+	+	-	+	+	+
4	9275	GU373	+	-	+	+	-	-	-	-	-	-	+	+	-	+	+	+
5	9009	KAS011	+	-	+	+	+	+	-	+	-	-	-	+	+	+	+	+
6	9353	SM	+	-	+	+	+	+	-	+	-	+	+	-	-	+	+	+
7	9020	QBL	+	+	+	+	+	+	+	+	+	+	-	+	+	+	+	+
8	9025	DEU	+	+	+	+	-	-	-	-	+	-	-	+	-	+	+	+
9	9026	YAR	+	-	+	+	-	-	-	-	-	-	+	+	-	+	+	+
10	9107	LKT3	+	-	+	+	-	-	-	-	-	-	+	-	-	+	+	+
11	9051	PITOUT	+	+	+	+	-	-	-	-	+	-	-	+	-	+	+	+
12	9052	DBB	+	+	+	+	+	-	+	-	+	+	-	+	-	+	+	+
13	9025	JESTHOM	+	+	-	+	+	-	+	-	+	+	+	+	-	+	+	+
14	9071	OLGA	+	-	+	+	+	+	-	+	-	-	-	+	+	+	+	+
15	9075	DKB	+	-	+	+	-	-	-	-	-	-	+	-	-	+	+	+
16	9037	SWEIG007	+	-	+	+	-	-	-	-	-	-	-	+	-	+	+	+
17	9282	CTM3953540	+	+	+	+	+	+	+	+	+	+	-	+	+	+	+	+
18	9257	32367	+	-	+	+	-	-	-	-	-	-	-	+	-	+	+	+
19	9038	BM16	+	-	+	+	-	-	-	-	-	-	-	+	-	+	+	+
20	9059	SLE005	+	-	+	+	-	-	-	-	-	-	+	+	-	+	+	+
21	9064	AMALA	+	+	+	+	+	+	-	+	+	-	+	-	+	+	+	+
22	9056	KOSE	+	+	+	+	-	-	-	-	+	-	-	+	-	+	+	+
23	9124	IHL	+	+	+	+	-	-	-	-	+	-	+	+	-	+	+	+
24	9035	JBUSH	+	-	+	+	-	-	-	-	-	-	+	+	-	+	+	+
25	9049	IBW9	+	-	+	+	-	-	-	-	-	-	+	+	-	+	+	+
26	9285	WT49	+	+	+	+	+	-	+	+	+	-	-	+	+	+	+	+
27	9191	CH1007	+	+	+	+	+	-	+	-	+	+	+	+	-	+	+	+
28	9320	BEL5GB	+	+	-	+	+	-	+	-	+	+	-	+	-	+	+	+
29	9050	MOU	+	-	+	+	-	-	-	-	-	-	-	+	-	+	+	+
30	9021	RSH	+	+	+	+	+	-	+	-	+	-	+	+	+	+	+	+
31	9019	DUCAF	+	-	+	+	-	-	-	-	-	-	-	+	-	+	+	+
32	9297	HAG	+	-	+	+	-	-	-	-	-	-	+	+	-	+	+	+
33	9098	MT14B	+	-	+	+	-	-	-	-	-	-	+	-	-	+	+	+
34	9104	DHIF	+	+	+	+	-	-	-	-	+	-	+	+	-	+	+	+
35	9302	SSTO	+	+	+	+	-	-	-	-	+	-	+	+	-	+	+	+
36	9024	KT17	+	-	+	+	+	+	-	+	-	+	-	+	-	+	+	+
37	9065	HHKB	+	+	+	+	+	+	-	+	+	-	-	+	+	+	+	+
38	9099	LZL	+	+	+	+	+	-	+	+	+	+	+	-	-	+	+	+
39	9315	CML	+	+	-	+	+	+	+	+	+	+	-	+	-	+	+	+
40	9134	WHONP199	+	-	+	+	-	-	-	-	-	-	+	-	-	+	+	+
41	9055	H0301	+	+	-	+	+	-	+	-	+	+	+	-	-	+	+	+
42	9066	TAB089	+	-	+	+	-	-	-	-	-	-	-	+	-	+	+	+
43	9076	T7526	+	-	+	+	+	+	-	+	-	-	+	-	+	+	+	+
44	9057	TEM	+	+	+	+	+	-	+	-	+	+	-	+	-	+	+	+
45	9239	SHJO	+	+	+	+	+	-	+	-	+	-	+	-	+	+	+	+
46	9013	SCHU	+	-	+	+	-	-	-	-	-	-	+	+	-	+	+	+
47	9045	TUBO	+	-	+	+	-	-	-	-	-	-	-	+	-	+	+	+
48	9303	TER-ND	+	-	+	+	-	-	-	-	-	-	-	+	-	+	+	+

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CELL LINE VAL. SHEET

KIR Genotyping primer set

			Well						
			17	18	19	20	21	22	23
			201324217	201324218	201324219	201324220	201324221	201324222	201324223
	IHWC cell line								
1	9001	SA	-	+	+	+	-	-	-
2	9280	LK707	-	-	+	-	-	+	-
3	9011	E4181324	+	+	+	+	-	-	+
4	9275	GU373	-	+	+	+	-	-	-
5	9009	KAS011	+	+	+	+	-	+	-
6	9353	SM	+	+	+	+	-	+	-
7	9020	QBL	+	+	+	+	-	+	+
8	9025	DEU	-	+	+	+	-	-	-
9	9026	YAR	-	+	+	+	-	-	-
10	9107	LKT3	-	+	+	+	-	-	-
11	9051	PITOUT	-	+	+	+	-	-	+
12	9052	DBB	-	+	+	+	-	-	+
13	9025	JESTHOM	-	+	+	+	-	-	-
14	9071	OLGA	+	+	+	+	-	+	-
15	9075	DKB	-	+	+	+	-	-	-
16	9037	SWEIG007	-	+	+	+	-	-	+
17	9282	CTM3953540	+	+	+	+	-	+	+
18	9257	32367	-	+	+	+	-	-	+
19	9038	BM16	-	+	+	+	-	-	-
20	9059	SLE005	-	+	+	+	-	-	-
21	9064	AMALA	+	+	+	+	-	+	-
22	9056	KOSE	-	+	+	+	-	-	+
23	9124	IHL	-	+	+	+	-	-	+
24	9035	JBUSH	-	+	+	+	-	-	-
25	9049	IBW9	-	+	+	+	-	-	+
26	9285	WT49	-	+	+	+	-	+	-
27	9191	CH1007	-	+	+	+	-	-	-
28	9320	BEL5GB	-	+	+	+	-	-	+
29	9050	MOU	-	+	+	+	-	-	+
30	9021	RSH	-	+	+	+	-	-	-
31	9019	DUCAF	-	+	+	+	-	-	-
32	9297	HAG	-	+	+	+	-	-	-
33	9098	MT14B	-	+	+	+	-	-	-
34	9104	DHIF	-	+	+	+	-	-	-
35	9302	SSTO	-	+	+	+	-	-	-
36	9024	KT17	+	+	+	+	-	+	-
37	9065	HHKB	+	+	+	+	-	+	-
38	9099	LZL	-	+	+	+	-	+	-
39	9315	CML	+	+	+	+	-	+	+
40	9134	WHONP199	-	+	+	+	-	-	-
41	9055	H0301	-	+	+	+	-	-	-
42	9066	TAB089	-	+	+	+	-	-	-
43	9076	T7526	+	+	+	+	-	+	-
44	9057	TEM	-	+	+	+	-	-	-
45	9239	SHJO	-	+	+	+	-	-	-
46	9013	SCHU	-	+	+	+	-	-	-
47	9045	TUBO	-	+	+	+	-	-	-
48	9303	TER-ND	-	+	+	+	-	-	-

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CERTIFICATE OF ANALYSIS

Olerup SSP® KIR Genotyping SSP

Product number: **104.101-12 – including *Taq* polymerase**
104.101-12u – without *Taq* polymerase
Lot number: **81S**
Expiry date: **2016-March-01**
Number of tests: **12**
Number of wells per test: **23 + 1**

Well specifications:

Well No.	Production No.	Well No.	Production No.	Well No.	Production No.
1	2013-242-01	9	2013-242-09	17	2013-242-17
2	2013-242-02	10	2013-242-10	18	2013-242-18
3	2013-242-03	11	2013-242-11	19	2013-242-19
4	2013-242-04	12	2013-242-12	20	2013-242-20
5	2013-242-05	13	2013-242-13	21	2013-242-21
6	2013-242-06	14	2013-242-14	22	2013-242-22
7	2013-242-07	15	2013-242-15	23	2013-242-23
8	2013-24208	16	2013-242-16		

The specificity of each primer solution of the kit has been tested against 48 IHWC cell line DNAs.
Additional primers in primer solutions 3 and 21 were tested by separately adding another 5'-primer respective another 3'-primer. In primer solutions 1, 3 and 7, one of the 5'-primers was not possible to test.

The negative control primer pairs, **Production No. 2013-242-24**, can detect contamination with PCR products diluted 10^{-7}.

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

Date of approval: 2013-September-11

Approved by:

Production Quality Control

CE

Declaration of Conformity

Product name: *Olerup* SSP® KIR Genotyping
Product number: 104.101-12/12u
Lot number: 81S

Intended use: KIR Genotyping

Manufacturer: *Olerup* SSP AB
Franzengatan 5
SE-112 51 Stockholm, 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 9001:2008 and ISO 13485:2012, following the provisions of the 98/79/EC Directive on *in vitro* diagnostic medical devices, Annex III, as transposed into the national laws of the Member States of the European Union.

The Technical Documentation File is maintained at *Olerup* SSP AB, Franzengatan 5, SE-112 51 Stockholm, Sweden.

Stockholm, Sweden

Daniel Malica
Head of QA and Regulatory Affairs

TRADEMARKS USED IN THIS DOCUMENT/PRODUCT

Olerup SSP® is a registered trademark of *Olerup* SSP AB.
Qiagen™ is a trademark of QIAGEN.

WARRANTY

Olerup SSP AB warrants its products to the original purchaser against defects in materials and workmanship under normal use and application. *Olerup* SSP AB's sole obligation under this warranty shall be to replace, at no charge, any product that does not meet the performance standards stated on the product specification sheet.
This warranty applies only to products that have been handled and stored in accordance with *Olerup* SSP AB's recommendations, and does not apply to products that have been the subject of alternation, misuse, or abuse.
All claims under this warranty must be directed to *Olerup* SSP AB in writing and must be accompanied by a copy of the purchaser's invoice. This warranty is in lieu of all other warranties, expressed or implied, including the warranties of merchantability and fitness for a particular purpose. In no case shall *Olerup* SSP AB be liable for incidental or consequential damages.
This product may not be reformulated, repacked or resold in any form without the written consent of *Olerup* SSP AB, Franzengatan 5, SE-112 51 Stockholm, Sweden.
Handle all samples as if capable of transmitting disease. All work should be performed wearing gloves and appropriate protection.

GUARANTEE

Olerup SSP AB guarantees that the primers in the *Olerup* SSP® typing trays have the specificities given in the lot-specific Specificity and Interpretation Tables of the product insert.
When stored at –20°C, the dried primers are stable for 30 months from the date of manufacture.
When stored at –20°C, the PCR Master Mix including *Taq* polymerase and the PCR Master Mix without *Taq* polymerase are stable for 33 months from the date of manufacture.

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ADDRESSES:

Manufacturer:
Olerup SSP AB, Franzengatan 5, SE-112 51 Stockholm, Sweden.
Tel: +46-8-717 88 27
Fax: +46-8-717 88 18
E-mail: info-ssp@olerup.com
Web page: http://www.olerup-ssp.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
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
Web page: http://www.olerup.com

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