Olerup SSP® DQ-DR SSP Combi Tray

Product number:	**101.704-48u/12u – without *Taq* pol.**
Lot number:	**93F**
Expiry date:	**2011-May-01**
Number of tests:	**48 tests – Product No. 101.704-48u**
	12 tests – Product No. 101.704-12u
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. 93F.

CHANGES COMPARED TO THE PREVIOUS *OLERUP* SSP® DQ-DR SSP COMBI TRAY LOT

The DQ low resolution specificity and interpretation tables have been updated for the HLA-DQB1 alleles described since the previous *Olerup* SSP® DQ-DR Combi Tray lot was made **(Lot No. 48F)**.

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	-	Primer added for the DQB1*0323 allele.

The DR low resolution specificity and interpretation tables have been updated for the HLA-DRB1 alleles described since the previous *Olerup* SSP® DQ-DR Combi Tray lot was made **(Lot No. 48F)**.

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

Well	5'-primer	3'-primer	rationale
16	Modified	Modified	Primers modified to decrease dimer formation and improve yield of specific PCR product.
27	-	Removed	One 3'-primer removed and changed positive control primers to decrease unspecific amplifications.

Well **32** contains Negative Control primer pairs, that will amplify more than 95% of the *Olerup* SSP® HLA Class I, DRB, DQB1 and DPB1 amplicons as well as the amplicons generated by control primer pairs.

PCR product sizes range from 75 to 430 base pairs.
The PCR product generated by the control primer pair is 430 base pairs.

[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

Length of PCR product	**105**	**200**	**105**	**80**	**75**	**80**
5'-primer[1]	**164**	**340**	**440**	**45**	**45**	**43**
	5'-CAC3'	**5'-Agg3'**	**5'-TTA3'**	**5'-Tg g3'**	**5'-Tg g3'**	**5'-Tg g3'**
3'-primer[2]	**231**	**2nd I**	**507**	**59**	**58**	**57**
	5'-TgC3'	**5'-AAA3'**	**5'-TTg3'**	**5'-CTC3'**	**5'-ggC3'**	**5'-CTC3'**
A*	**+**	**+**	**+**			
B*	**+**	**+**	**+**			
Cw*	**+**	**+**	**+**			
DRB1				**+**	**+**	
DRB3				**+**	**+**	
DRB5				**+**		
DQB1					**+**	
DPB1						**+**

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.

Change in revision R01 compared to R00:
1. Primer mix 8 may yield less intense specific PCR fragments than the other DQ low resolution primer mixes.

Change in revision R02 compared to R01:
1. One foot note numbering has been corrected in the specificity table.

Change in revision R03 compared to R02:
1. The DRB1*1419 and 1421 alleles are weakly amplified in primer mix 27.

PRODUCT DESCRIPTION

DQ-DR SSP Combi Tray

CONTENT

The primer set contains 5'- and 3'-primers for grouping the DQB1 alleles in to the serological groups DQ2 to DQ9.
The primer set contains 5'- and 3'-primers for grouping the DRB1*0101 to DRB1*1001 alleles into the corresponding serological groups DR1 to DR18 as well as primer pairs for recognizing the DRB3, DRB4 and DRB5 groups of alleles.

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 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**

Wells 1 to 8 – DQ low resolution primers.
Wells 9 to 31 – DR low resolution primers.
Well 32 – Negative Control.
The 32 well cut PCR plate is marked with 'DQ-DR'.
Well No. 1 is marked with the Lot No. '93F'.
The PCR plates are covered with a PCR-compatible foil.
Please note: When removing each 32 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

Only the DQB1 alleles will be amplified by the 8 wells of the DQ low resolution primer set, **wells 1 to 8**. Thus, the interpretation of DQ low resolution typings is not influenced the DQB2 and DQB3 genes.
Only HLA-DRB alleles will be amplified by the 23 wells of the DR low resolution primer set, **wells 9 to 31**. Thus, the interpretation of DR low resolution typings is not influenced by other HLA class II genes.

UNIQUELY IDENTIFIED ALLELES

All the DQB1 alleles, i.e. **DQB1*050101 to 0505, DQB1*060101 to 0634, DQB1*020102 to 0205, DQB1*030101 to 0324 and DQB1*0401 to 0403**, recognized by the HLA Nomenclature Committee in May 2009[1] will be amplified by the primers in the DQ low resolution SSP primer set, **wells 1 to 8**. The DQB1 alleles will be grouped into their corresponding serological specificities, i.e.:

DQ5(1) = DQB1*050101-0505[2]
DQ6(1) = DQB1*060101-0634[2]
DQ2 = DQB1*020101-0205
DQ3 = DQB1*030101-0324[2]
DQ7(3) = DQB1*030101-030103, DQB1*0304
DQ8(3) = DQB1*030201, DQB1*030501, DQB1*0310
DQ9(3) = DQB1*030302
DQ4 = DQB1*0401-0403

[1]DQB1 alleles listed on the IMGT/HLA web page 2009-May-09, release 2.25.2, www.ebi.ac.uk/imgt/hla.
[2]The serological split of the DQB1*0505, DQB1*0606 to 0608 alleles, the DQB1*0610 to 0634, the DQB1*030202-030204, DQB1*030303 and the DQB1*030502 to 0324 alleles is not known. In this table we have inferred the serological grouping from the naming of the sequence-defined allele.

All the HLA-DRB1, -DRB3, -DRB4[1] and –DRB5 alleles, i.e. **DRB1*010101 to 1003, DRB3*010101 to DRB3*0303, DRB4*01010101 to DRB4*0107, DRB5*010101 to DRB5*0205**, recognized by the HLA Nomenclature Committee in January 2009[2] will be amplified by the primers in the DR low resolution SSP kit. The HLA-DRB alleles will be grouped into their corresponding serological specificities[3].

[1]The DRB4*0201N and DRB4*0301N null alleles will not be amplified by the DR low resolution primer set.
[2]DRB alleles listed on the IMGT/HLA web page 2009-May-09, release 2.25.2, www.ebi.ac.uk/imgt/hla.
[3]The DRB1*0809, DRB1*0821 and DRB1*1415 alleles yield identical amplification patterns except for the specific PCR product yielded by the DRB3 gene in linkage disequilibrium with the DRB1*1415 allele.
The DRB1*0820, DRB1*1318, DRB1*1347 and DRB1*1355 alleles yield identical amplification patterns except for the specific PCR product yielded by the DRB3 gene in linkage disequilibrium with the DRB1*1318, DRB1*1347 and DRB1*1355 alleles.
The DRB1*0831 and DRB1*1167 alleles yield identical amplification patterns except for the specific PCR product yielded by the DRB3 gene in linkage disequilibrium with the DRB1*1167 allele.

SPECIFICITY TABLE

DQ low resolution primer set

Specificities and sizes of the PCR products of the 8 primer mixes of the DQ low resolution primer set

Primer Mix	Size of spec. PCR product[1]	Size of control band[2]	DQ serology[3]	Amplified DQB1 alleles[4]
1	225 bp	**515 bp**	5	050101-0505
2	220, 270 bp	430 bp	6	060101-0634
3	210 bp	430 bp	2	020101-0205
4	135, 150 bp	**515 bp**	2, 3, 6, 8	020101-0202, 0204, 0205, 030201-030204, 030501, 030503, 0307, 0308, 0311, 0318, 0629
5	220 bp	**515 bp**	3, 7, 8	030101-030104, 0304, 0309, 0310, 0313, 0314, 0316, 0319, 0321, 0322, 0324
6[5]	220 bp	**515 bp**	2, 8, 9, 3, 4	020101-0205, 030201-030204, 030302-030303, 0306-0308, 0311, 0312, 0315, 0318, 0320, 0323, 0403
7[6]	135, 155 bp	**515 bp**	7, 8, 9, 3	030101-030204, 030302-0324
8[6]	210 bp	430 bp	4	0401-0403

[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 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 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 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 DQ low resolution typing.
In addition, wells number 4, 5, 6 and 7 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.

[3]The serological reactivity of the DQB1*0505, DQB1*0606 to 0608 alleles, the DQB1*0610 to 0634, the DQB1*030202-030204, DQB1*030303 and the DQB1*030502 to 0324 alleles is not known. In this table we have inferred the serological grouping from the naming of the sequence-defined allele.

[4]For several DQB1 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 5'- and 3'-ends of the second exon of the DQB1 gene are conserved within allelic groups.

[5]This primer mix may give rise to primer dimer formation

[6]These primer mixes may yield somewhat less intense specific PCR fragments than the other DQ low resolution primer mixes.

SPECIFICITY TABLE

DR low resolution primer set

Specificities and sizes of the PCR products of the 23 primer mixes of the DR low resolution primer set

Primer Mix	Size of spec. PCR product[1]	Size of control band[2]	DR serology[3]	Amplified HLA-DRB[4] alleles
9[7]	205 bp	**515 bp**	1	010101-010205, 0104-0121
10	200 bp	430 bp	103	0103
11[6]	215, 260 bp	430 bp	15	15010101-1532
12	210 bp	430 bp	16	160101-160502, 1607-1613N
13	220 bp	430 bp	3, 17, 18, 11	03010101-0341, 1107, 1153
14[5,6]	75, 210 bp	430 bp	3, 17, 11, 13, 14	03010101-030106, 0304-0306, 0308-0316, 0318-0320, 0322, 0323, 0325, 0326, 0328, 0330, 0331, 0333, 0334, 0336, 0337, 110201-1103, 111101-111102, 111401-111402, 1116, 1120, 1121, 1136, 1140, 1141, 1148, 1159, 1163, 116501-116502, 1168, 1170, 130101-1304, 1308, 1310, 1315-1317, 1319, 1320, 1322-1324, 1327-1329, 1331-1341, 1343, 1345, 1348, 1351-1354, 1357, 1359, 1361, 1363-1366, 1368-1376, 1378-1381, 1383-1385, 1387, 1388, 1416, 1419, 1421, 1482
15[5,6]	85, 210 bp	430 bp	3, 18, 11, 13, 14	030201-0303, 0327, 0329, 0338, 111301-111302[weakly], 1126, 1134, 1315, 1319, 1326, 1344, 1353, 1357, 1385, 1386, 1402-140302, 1406, 1409, 1412, 1413, 1417-1421, 1424, 1427, 1429, 1430, 143201-143202[weakly], 1433, 1440, 1441, 1447-1449, 1451, 1463, 1465[weakly], 1467, 1477, 1478, 1480, 1481, 1483, 1485
16[5,6]	100, 175 bp	430 bp	4	040101-0478
17[6]	215, 235 bp	430 bp	7,	07010101-070103, 0703-0717,

			13, 14	1317, 1450
18[6]	170, 215, 250 bp	**515 bp**	8, 11, 12, 14	080101-080203, 080302-0819, 0821-0836, 1167, 1204, 1216, 1411, 1415, 1468
19[5,6]	95, 135, 190 bp	430 bp	3, 9, 11	0308, 090102-0908, 1107, 1153
20	205 bp	430 bp	10	100101-1003
21[5,6]	100, 170 bp	430 bp	11, 3, 8	0308, 0831, 110101-1170, 1172
22[5]	95 bp	430 bp	12, 8	0832, 120101-120204, 120302-1219
23	220 bp	430 bp	13, 8, 11, 14	0820, 110101-110404, 110601-110602, 110801-111202, 111401-1116, 1118-1121, 1123-1125, 112701-1133, 1135-1151, 115401-115402, 1156-1166, 1168, 1170, 1172, 130101-1308, 1310-1316, 1318-1343, 1345-1385, 1387, 1388 140301-140302, 1412, 1416, 1419, 1421, 1422, 1425, 1427, 1440, 1453, 1463, 1467, 1469, 1474, 1477, 1478, 1484, 1485
24[6]	205, 225 bp	430 bp	13, 8, 11, 12, 14	080101-080203, 080401-0809, 0811, 0816, 0817, 0820-0822, 0824, 0826, 0828, 0831, 110101-110602, 1109-111202, 111401-1116, 1120, 1121, 1123-1125, 112701-1130, 1132, 1133, 1135-1141, 1143, 1144, 1146-1151, 115401-1156, 1158-1163, 116501-1170, 1172, 120201-120204, 1213, 1215, 1216, 1218, 1219, 130101-130201, 130203, 1304-130502, 130701-1309, 131101-131102, 131401-1324, 1326-1329, 1331, 1332, 1334-1336, 1338-1343, 1345-1355, 1357, 1359, 1361-1365, 1367-1376, 1378-1380, 1383, 1384, 1387 1415, 1416, 1422, 1424, 1425, 1427, 1437, 1453, 1473

25	175 bp	430 bp	3, 8, 13, 14	03010101-0307, 0309, 0311-0341, 0820, 130101-1316, 1318-1342, 1344, 1346-1366, 1368-1388, 1402-140302, 140501-1406, 1409, 1412-1414, 1417-1421, 142301, 1424, 1427, 1429, 1430, 1433, 1436, 1437, 1440-1445, 1447, 1448, 1451, 1456, 1459, 1463-1465, 1467, 1477, 1478, 1480, 1481, 1483-1485
26[5-7]	100, 140 bp	430 bp	14, 4, 8,13	0462, 0469, 0473, 0808, 1169, 1345, 140101-140102, 1404, 140701-140702, 1410, 1416, 1422, 1425, 1426, 1428, 1431-143202, 1435, 1437-1439, 1449, 1450, 1453-1455, 1457, 1458, 1460-1462, 1468-1471, 1473-1476, 1479, 1482
27[5-8]	110, 145, 175 bp	430 bp	14, 3, 9, 11, 12, 13, 15	0310, 090102-090202, 0904-0908, 111301-111302, 1117, 1152, 1343, 140101-1402, 1404-1411, 1413, 1414, 1416-1418, 1419[W], 1420, 1421[W], 1422-142302, 1426, 1428-1436, 1438, 1439, 1441, 1443-1452, 1454-1457, 1459-1462, 1464, 1465, 1468, 1470-1476, 1479-1483 1527
28[5-8]	115, 155, 180, 220 bp	430 bp	14, 3, 8, 11, 13, 15, 16	0310, 0809, 0820, 0821, 0832, 0835, 111301-111302, 1117, 1123, 1125, 1131, 1145, 1152, 1155, 1164, 1313, 1318, 1343, 1345, 1347, 1355, 140101-140103, 140301-140503, 140701-1408, 1410-1412, 1414-1416, 1418, 1422-142302, 1425-1428, 1431-143202, 1434-1436, 1438-1440, 1442-1445, 1449, 1450, 1453-1465, 1467-1479, 1481, 1482, 1484, 1485, 1521[weakly], 1604[weakly]

29	230 bp	430 bp	52	DRB3*01010201-0113, 0201-0224, 030101-0303
30[9]	215 bp	430 bp	53	DRB4*01010101-0107
31	175 bp	430 bp	51	DRB5*010101-0113, 0202-0205

[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 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, e.g. the primers in wells 11, 26, 27 and 28.
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 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 9 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 DR low resolution typing.
In addition, well number 18 contains 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.
[3]The serological reactivity of all DRB alleles is not known. In this table we use the information in the HLA Dictionary 2004 on the www.ebi.ac.uk/imgt/hla web site and the information available at the www.worldmarrow.org web site and have also inferred the serological grouping from the naming of the sequence-defined allele.
[4]For 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 set 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.
The DRB1*0809, DRB1*0821 and DRB1*1415 alleles yield identical amplification patterns except for the specific PCR product yielded by the DRB3 gene in linkage disequilibrium with the DRB1*1415 allele.
The DRB1*0820, DRB1*1318, DRB1*1347 and DRB1*1355 alleles yield identical amplification patterns except for the specific PCR product yielded by the DRB3 gene in linkage disequilibrium with the DRB1*1318, DRB1*1347 and DRB1*1355 alleles.
The DRB1*0831 and DRB1*1167 alleles yield identical amplification patterns except for the specific PCR product yielded by the DRB3 gene in linkage disequilibrium with the DRB1*1167 allele.
[5]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 these primer mixes.
[7]Primer mixes 9, 26, 27 and 28 may give rise to primer oligomer formation.
[8]Primer mix 27 has a tendency of unspecific amplification and also has an intense primer cloud due to the high number of primers present in the primer mix.
[9]The DRB4*01030102N allele is amplified by the primer pair in well No. 30, whereas the DRB4*0201N and DRB4*0301N null alleles are not amplified by this primer pair.

INTERPRETATION TABLE

DQ low resolution SSP typing

Amplification patterns of the DQB1*0501 to DQB1*0403 alleles

		Well							
		1	2	3	4	5	6	7	8
Length of spec.		225	220	210	135	220	220	135	210
PCR product(s)			270		150			155	
Length of int.		515	430	430	515	515	515	515	430
pos. control[1]									
5'-primer(s)[2]		26	9	30	21	26	26	48	21
		5'-g gg3'	5'-g TT3'	5'-A Ag3'	5'-ACC3'	5'-T TA3'	5'-T CT3'	5'-CgC3'	5'-ACC3'
			26		26			55	
			5'-T TA3'		5'-T CT3'			5'-g CC3'	
			26					55	
			5'-T CT3'					5'-g CA3'	
3'-primer(s)[3]		87	86	86	57	86	86	86	77
		5'-g gT3'	5'-A Cg3'	5'-g CT3'	5'-C gg3'	5'-g CT3'	5'-g CT3'	5'-g CT3'	5'-AC g3'
			86						
			5'-A CC3'						
Well No.		1	2	3	4	5	6	7	8
DQB1 allele[4]	ser.[5]								
*050101-0505	5	1							
*060101-0628, 0630-0634	6		2						
*0629	6		2		4				
*020101-0202, 0204, 0205	2			3	4		6		
*0203	2			3			6		
*030101-030104, 0304, 0309, 0310, 0313, 0314, 0316, 0319, 0321, 0322, 0324	3, 7, 8					5		7	
*030201-030204, 0307, 0308, 0311, 0318	3, 8				4		6	7	
*030302, 030303, 0306, 0312, 0315, 0320, 0323	3, 9						6	7	
*030501, 030503	3, 8				4			7	
*030502, 030504, 0317								7	
*0401, 0402	4								8
*0403	4						6		8
DQB1 allele[4]	ser.[5]								
Well No.		1	2	3	4	5	6	7	8

[1]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 DQ low resolution typing.
In addition, wells number 4, 5, 6 and 7 contain the primer pair giving rise to the longer, 515 bp, internal positive control band in order to allow kit identification.
[2]The 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.
[3]The 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.
[4]The sequence of the DQB1*030301 allele has been shown to be identical to DQB1*030302.
[5]The serological reactivity of the DQB1*0505, DQB1*0606 to 0608 alleles, the DQB1*0610 to 0634, the DQB1*030202-030204, DQB1*030303 and the DQB1*030502 to 0323 alleles is not known. In this table we have inferred the serological grouping from the naming of the sequence-defined allele.

INTERPRETATION TABLE

DR low resolution SSP typing

Amplification patterns of the DRB1*0101 to DRB1*1003 alleles

		Well											
		9	10	11	12	13	14	15	16	17	18	19	20
Length of spec.		205	200	215	210	220	75	85	100	215	170	95	205
PCR product(s)				260			210	210	175	235	215	135	
											250	190	
Length of int.		515	430	430	430	430	430	430	430	430	515	430	430
pos. control[1]													
5'-primer(s)[2]		14	14	13	13	13	13	13	13	14	16	26	31
		5'-gAA3'	5'-gAA3'	5'-Agg3'	5'-Agg3'	5'-g TC3'	5'-g TC3'	5'-g TC3'	5'-A CA3'	5'-AT A3'	5'-gT T3'	5'-TAT3'	5'-gC g3'
				13	13		16		13	14	16	58	
				5'-AAg3'	5'-AAg3'		5'-gT T3'		5'-A CC3'	5'-AT A3'	5'-gT T3'	5'-gAg3'	
									13	16			
									5'-A TA3'	5'-gT T3'			
									13				
									5'-g TC3'				
3'-primer(s)[3]		67	67	70	67	73	26	28	33	71	58	57	86
		5'-gAg3'	5'-gAT3'	5'-CTg3'	5'-gAA3'	5'-g gC3'	5'-g gT3'	5'-CT C3'	5'-gTg3'	5'-CTC3'	5'-C CT3'	5'-C gA3'	5'-C AC3'
		71		71	67	73	71	70	58	73	74	73	86
		5'-gC g3'		5'-CgC3'	5'-gAg3'	5'-g gC3'	5'-g CT3'	5'-CTg3'	5'-C gg3'	5'-g gC3'	5'-CAg3'	5'-g gC3'	5'-C CA3'
				86	72	74				77	86	78	
				5'-C CA3'	5'-gC g3'	5'-C CC3'				5'-A AT3'	5'-C AC3'	5'-CAC3'	
										78			
										5'-CAC3'			
Well No.	DR	9	10	11	12	13	14	15	16	17	18	19	20
DRB1 allele[4]	ser[5]												
*010101-010205, 0104-0121	1	9											
*0103	103		10										
*03010101-030106, 0304-0306, 0309, 0311-0316, 0318-0320, 0322, 0323, 0325, 0326, 0328, 0330, 0331, 0333, 0334, 0336, 0337	17					13	14						
*030201-0303, 0327, 0329, 0338	18					13		15					
*0307, 0317, 0321, 0324, 0332, 0335, 0339-0341	-					13							
Well No.	DR	9	10	11	12	13	14	15	16	17	18	19	20

INTERPRETATION TABLE

DR low resolution SSP typing

Amplification patterns of the DRB1*0101 to DRB1*1003 alleles

Well												
21	22	23	24	25	26	27	28	29	30	31		
100	95	220	205	175	100	110	115	230	215	175		Length of spec.
170			225		140	145	155					PCR product(s)
						175	180					
							220					
430	430	430	430	430	430	430	430	430	430	430		Length of int.
												pos. control[1]
13	16	10	10	13	37	26	13	10	28	13		5'-primer(s)[2]
5'-g TC3'	5'-gT T3'	5'-g CT3'	5'-g CT3'	5'-g TC3'	5'-g TA3'	5'-g TA3'	5'-g TC3'	5'-g CT3'	5'-g AT3'	5'-g TA3'		
16		13	13		37	34	34	10		13		
5'-gT C3'		5'-g TC3'	5'-g TC3'		5'-g TT3'	5'-CAg3'	5'-CAg3'	5'-g CT3'		5'-g TA3'		
38			16									
5'-C gT3'			5'-gT T3'									
			16									
			5'-gT C3'									
58	30	70	67	58	57	57	57	73	87	57		3'-primer(s)[3]
5'-C CT3'	5'-gTg3'	5'-gTC3'	5'-gAA3'	5'-C gg3'	5'-C Ag3'	5'-C Ag3'	5'-C Ag3'	5'-g gC3'	5'-CTC3'	5'-gC g3'		
58	38	71	67	58	71	70	60	73		58		
5'-C CT3'	5'-CAg3'	5'-g CT3'	5'-gAA3'	5'-C Ag3'	5'-CgC3'	5'-CTg3'	5'-gTg3'	5'-g gC3'		5'-C CT3'		
			71			70	70					
			5'-CTC3'			5'-TC C3'	5'-T CC3'					
			71				74					
			5'-CgC3'				5'-CAg3'					
21	22	23	24	25	26	27	28	29	30	31	DR	Well No.
											ser[5]	DRB1 allele[4]
											1	*010101-010205, 0104-0121
											103	*0103
				25							17	*03010101-030106, 0304-0306, 0309, 0311-0316, 0318-0320, 0322, 0323, 0325, 0326, 0328, 0330, 0331, 0333, 0334, 0336, 0337
				25							18	*030201-0303, 0327, 0329, 0338
				25							-	*0307, 0317, 0321, 0324, 0332, 0335, 0339-0341
21	22	23	24	25	26	27	28	29	30	31	DR	Well No.

Length of spec.		**205**	**200**	**215**	**210**	**220**	**75**	**85**	**100**	**215**	**170**	**95**	**205**
PCR product(s)				**260**			**210**	**210**	**175**	**235**	**215**	**135**	
											250	**190**	
Well No.	**DR**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
***0308**	**-**					**13**	**14**					**19**	
***0310**	**-**					**13**	**14**						
***040101-0461, 0463-0468, 0470-0472, 0474-0478**	**4**								**16**				
***0462, 0469, 0473**	**-**								**16**				
***07010101-070103, 0703-0717**	**7**									**17**			
***080101-080203, 080401-0807, 0811, 0816, 0817, 0822, 0824, 0826, 0828**	**8**										**18**		
***080302, 0810, 0812-0815, 0818, 0819, 0823, 0825, 0827, 0829, 0830, 0833, 0834, 0836**	**8**										**18**		
***0808**	**-**										**18**		
***0809, 0821, 1415**	**8**										**18**		
***0820, 1318, 1347, 1355**	**8, 13**												
***0831, 1167**	**-**										**18**		
***0832**	**-**										**18**		
***0835**	**-**										**18**		
***090102-090202, 0904-0908**	**9**											**19**	
***0903**	**-**											**19**	
***100101-1003**	**10**												**20**
***110101-110107, 110401-110404, 110601-110602, 1109-111002, 111201-111202, 1115, 1124, 112701-1130, 1132, 1133, 1135, 1137-1139, 1143, 1144, 1146, 1147, 1149-1151, 115401-115402, 1156, 1158, 1160-1162, 1166, 1172**	**11**												
Well No.	**DR**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**

100	95	220	205	175	100	110	115	230	215	175		Length of spec.
170			225		140	145	155					PCR product(s)
						175	180					
							220					
21	22	23	24	25	26	27	28	29	30	31	DR	Well No.
21											-	*0308
						27	28				-	*0310
											4	*040101-0461, 0463-0468, 0470-0472, 0474-0478
					26						-	*0462, 0469, 0473
											7	*07010101-070103, 0703-0717
			24								8	*080101-080203, 080401-0807, 0811, 0816, 0817, 0822, 0824, 0826, 0828
											8	*080302, 0810, 0812-0815, 0818, 0819, 0823, 0825, 0827, 0829, 0830, 0833, 0834, 0836
			24		26						-	*0808
			24				28				8	*0809, 0821, 1415
		23	24	25			28				8, 13	*0820, 1318, 1347, 1355
21			24								-	*0831, 1167
	22						28				-	*0832
							28				-	*0835
						27					9	*090102-090202, 0904-0908
											-	*0903
											10	*100101-1003
21		23	24								11	*110101-110107, 110401-110404, 110601-110602, 1109-111002, 111201-111202, 1115, 1124, 112701-1130, 1132, 1133, 1135, 1137-1139, 1143, 1144, 1146, 1147, 1149-1151, 115401-115402, 1156, 1158, 1160-1162, 1166, 1172
21	22	23	24	25	26	27	28	29	30	31	DR	Well No.

Length of spec.		**205**	**200**	**215**	**210**	**220**	**75**	**85**	**100**	**215**	**170**	**95**	**205**
PCR product(s)				**260**			**210**	**210**	**175**	**235**	**215**	**135**	
											250	**190**	
Well No.	**DR**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
***110201-1103, 111101-111102, 111401-111402, 1116, 1120, 1121, 1136, 1140, 1141, 1148, 1159, 1163, 116501-116502, 1168, 1170**	**11**						**14**						
***1105**	**11**												
***1107, 1153**	**-**					**13**						**19**	
***110801-110802, 1118-111902, 1142, 1157**	**11**												
***111301-111302**	**11**							**w**					
***1117, 1152**	**-**												
***1122**	**-**												
***1123, 1125**	**11**												
***1126, 1134**	**11**							**15**					
***1131, 1145, 1164**	**-**												
***1155**	**-**												
***1169**	**-**												
***120101-120102, 120302, 1205-1212, 1214, 1217**	**12**												
***120201-120204, 1213, 1215, 1218, 1219**	**12**												
***1204**	**-**										**18**		
***1216**	**-**										**18**		
***130101-130201, 130203, 1304, 1308, 1316, 1320, 1322-1324, 1327-1329, 1331, 1332, 1334-1336, 1338-1341, 1348, 1351, 1352, 1354, 1359, 1361, 1363-1365, 1368-1376, 1378-1380, 1383, 1384, 1387**	**13**						**14**						
***130202, 130301-130302, 1310, 1333, 1337, 1366, 1381, 1388**	**13**						**14**						
Well No.	**DR**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**

100	95	220	205	175	100	110	115	230	215	175		Length of spec.
170			225		140	145	155					PCR product(s)
						175	180					
							220					
21	22	23	24	25	26	27	28	29	30	31	DR	Well No.
21		23	24								11	*110201-1103, 111101-111102, 111401-111402, 1116, 1120, 1121, 1136, 1140, 1141, 1148, 1159, 1163, 116501-116502, 1168, 1170
21			24								11	*1105
21											-	*1107, 1153
21		23									11	*110801-110802, 1118-111902, 1142, 1157
21						27	28				11	*111301-111302
21						27	28				-	*1117, 1152
21											-	*1122
21		23	24				28				11	*1123, 1125
21											11	*1126, 1134
21		23					28				-	*1131, 1145, 1164
21			24				28				-	*1155
21			24		26						-	*1169
	22										12	*120101-120102, 120302, 1205-1212, 1214, 1217
	22		24								12	*120201-120204, 1213, 1215, 1218, 1219
	22										-	*1204
	22		24								-	*1216
		23	24	25							13	*130101-130201, 130203, 1304, 1308, 1316, 1320, 1322-1324, 1327-1329, 1331, 1332, 1334-1336, 1338-1341, 1348, 1351, 1352, 1354, 1359, 1361, 1363-1365, 1368-1376, 1378-1380, 1383, 1384, 1387
		23		25							13	*130202, 130301-130302, 1310, 1333, 1337, 1366, 1381, 1388
21	22	23	24	25	26	27	28	29	30	31	DR	Well No.

Length of spec.		**205**	**200**	**215**	**210**	**220**	**75**	**85**	**100**	**215**	**170**	**95**	**205**
PCR product(s)				**260**			**210**	**210**	**175**	**235**	**215**	**135**	
											250	**190**	
Well No.	**DR**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
***130501-130502, 130701-130702, 131101-131102,131401-131403, 1321, 1342, 1346, 1349-135002, 1362**	**13**												
***1306, 1312, 1325, 1330, 1356, 1358, 1360, 1377, 1382**	**13**												
***1309**	**-**												
***1313, 1484**	**-**												
***1315, 1319, 1353, 1357**	**-**						**14**	**15**					
***1317**	**13**						**14**			**17**			
***1326**	**-**							**15**					
***1343**	**-**						**14**						
***1344, 1386**	**-**							**15**					
***1345**	**-**						**14**						
***1367**	**-**												
***1385**	**-**						**14**	**15**					
***140101-140102, 1404, 140701-140702, 1410, 1426, 1428, 1431, 1435, 1438, 1439, 1454, 1455, 1457, 1460-1462, 1470, 1471, 1475, 1476, 1479**	**14**												
***140103, 1408, 142302, 1434, 1472**	**-**												
***1402, 1406, 1409, 1413, 1417, 1420, 1429, 1430, 1433, 1441, 1447, 1448, 1451, 1480, 1483**	**14**							**15**					
***140301-140302, 1412, 1440, 1463, 1467, 1477, 1478, 1485**	**14**							**15**					
***140501-140503, 1414, 142301, 1436, 1443-1445, 1456, 1459, 1464**	**14**												
***1411**	**14**										**18**		
***1416**	**6**						**14**						
Well No.	**DR**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**

100	95	220	205	175	100	110	115	230	215	175		Length of spec.
170			225		140	145	155					PCR product(s)
						175	180					
							220					
21	22	23	24	25	26	27	28	29	30	31	DR	Well No.
		23	24	25							13	*130501-130502, 130701-130702, 131101-131102,131401-131403, 1321, 1342, 1346, 1349-135002, 1362
		23		25							13	*1306, 1312, 1325, 1330, 1356, 1358, 1360, 1377, 1382
			24	25							-	*1309
		23		25			28				-	*1313, 1484
		23	24	25							-	*1315, 1319, 1353, 1357
			24								13	*1317
		23	24	25							-	*1326
		23	24			27	28				-	*1343
				25							-	*1344, 1386
		23	24		26		28				-	*1345
		23	24								-	*1367
		23		25							-	*1385
					26	27	28				14	*140101-140102, 1404, 140701-140702, 1410, 1426, 1428, 1431, 1435, 1438, 1439, 1454, 1455, 1457, 1460-1462, 1470, 1471, 1475, 1476, 1479
						27	28				-	*140103, 1408, 142302, 1434, 1472
				25		27					14	*1402, 1406, 1409, 1413, 1417, 1420, 1429, 1430, 1433, 1441, 1447, 1448, 1451, 1480, 1483
		23		25			28				14	*140301-140302, 1412, 1440, 1463, 1467, 1477, 1478, 1485
				25		27	28				14	*140501-140503, 1414, 142301, 1436, 1443-1445, 1456, 1459, 1464
						27	28				14	*1411
		23	24		26	27	28				6	*1416
21	22	23	24	25	26	27	28	29	30	31	DR	Well No.

Length of spec.		**205**	**200**	**215**	**210**	**220**	**75**	**85**	**100**	**215**	**170**	**95**	**205**
PCR product(s)				**260**			**210**	**210**	**175**	**235**	**215**	**135**	
											250	**190**	
Well No.	**DR**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
***1418, 1481**	**-**							**15**					
***1419, 1421**	**-**						**14**	**15**					
***1422**	**-**												
***1424**	**-**							**15**					
***1425, 1453**	**-**												
***1427**	**14**							**15**					
***143201-143202**	**-**							**w**					
***1437**	**-**												
***1442**	**-**												
***1446, 1452**	**-**												
***1449**	**-**							**15**					
***1450**	**-**									**17**			
***1458**	**-**												
***1465**	**-**							**w**					
***1468**	**-**										**18**		
***1469**	**-**												
***1473**	**-**												
***1474**	**-**												
***1482**	**-**						**14**						
***15010101-1520, 1522-1526, 1528-1532**	**15**			**11**									
***1521**	**-**			**11**									
***1527**	**-**			**11**									
***160101-1603, 160501-160502, 1607-1613N**	**16**				**12**								
***1604**	**16**				**12**								
DRB3*01010201-0113, 0201-0224, 030101-0303	**52**												
DRB4*01010101-0107	**53**												
DRB5*010101-0113, 0202-0205	**51**												
Well No.	**ser[5]**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**

100	95	220	205	175	100	110	115	230	215	175		Length of spec.
170			225		140	145	155					PCR product(s)
						175	180					
							220					
21	22	23	24	25	26	27	28	29	30	31	DR	Well No.
				25		27	28				-	*1418, 1481
		23		25		w					-	*1419, 1421
		23	24		26	27	28				-	*1422
			24	25							-	*1424
		23	24		26		28				-	*1425, 1453
		23	24	25			28				14	*1427
					26	27	28				-	*143201-143202
			24	25	26						-	*1437
				25			28				-	*1442
						27					-	*1446, 1452
					26	27	28				-	*1449
					26	27	28				-	*1450
					26		28				-	*1458
				25		27	28				-	*1465
					26	27	28				-	*1468
		23			26		28				-	*1469
			24		26	27	28				-	*1473
		23			26	27	28				-	*1474
					26	27	28				-	*1482
											15	*15010101-1520, 1522-1526, 1528-1532
							w				-	*1521
						27					-	*1527
											16	*160101-1603, 160501-160502, 1607-1613N
							w				16	*1604
								29			52	DRB3*01010201-0113, 0201-0224, 030101-0303
									30		53	DRB4*01010101-0107
										31	51	DRB5*010101-0113, 0202-0205
21	22	23	24	25	26	27	28	29	30	31	ser[5]	Well No.

[1]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 9 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 DR low resolution typing.
In addition, wells number 18 and 27 contain the primer pair giving rise to the longer, 515 bp, internal positive control band in order to allow kit identification.
[2]The 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.
[3]The 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.
[4]The sequence of the DRB1*0702 allele has been shown to be identical to DRB1*070101.
The sequence of the DRB1*080301 allele has been shown to be identical to DRB1*080302.
The sequence of the DRB1*090101 allele has been shown to be identical to DRB1*090102.
The sequence of the DRB1*120301 allele has been shown to be identical to DRB1*1201.
The sequence of the DRB1*1606 allele has been shown to be identical to DRB1*1605.
The DRB4*0101102N allele has been renamed DRB4*0103102N.
The sequence of the DRB5*0201 allele has been shown to be identical to DRB5*0202.
The DRB1*0809, DRB1*0821 and DRB1*1415 alleles yield identical amplification patterns except for the specific PCR product yielded by the DRB3 gene in linkage disequilibrium with the DRB1*1415 allele.
The DRB1*0820, DRB1*1318, DRB1*1347 and DRB1*1355 alleles yield identical amplification patterns except for the specific PCR product yielded by the DRB3 gene in linkage disequilibrium with the DRB1*1318, DRB1*1347 and DRB1*1355 alleles.
The DRB1*0831 and DRB1*1167 alleles yield identical amplification patterns except for the specific PCR product yielded by the DRB3 gene in linkage disequilibrium with the DRB1*1167 allele.
[5]The serological reactivity of all DRB alleles is not known. In this table we use the information in the HLA Dictionary 2004 on the www.ebi.ac.uk/imgt/hla web site and the information available at the www.worldmarrow.org web site and have also inferred the serological grouping from the naming of the sequence-defined allele.
'ser', serological HLA specificity.
'w', may be weakly amplified.

CELL LINE VALIDATION SHEET

DQ low resolution primer set

					Well							
					1	2	3	4	5	6	7	8
				Production No.	200851201	200851202	200851203	200851204	200851205	200851206	200960107	200851208
	IHWC cell line		DQB1									
1	9001	SA	*0501		+	-	-	-	-	-	-	-
2	9280	LK707	*0601	*0202	-	+	+	+	-	+	-	-
3	9011	E4181324	*0601		-	+	-	-	-	-	-	-
4	9275	GU373	*0201		-	-	+	+	-	+	-	-
5	9009	KAS011	*0502		+	-	-	-	-	-	-	-
6	9353	SM	*0302	*0601	-	+	-	+	-	+	+	-
7	9020	QBL	*0201		-	-	+	+	-	+	-	-
8	9025	DEU	*0301		-	-	-	-	+	-	-	-
9	9026	YAR	*0302		-	-	-	+	-	+	-	-
10	9107	LKT3	*0401		-	-	-	-	-	-	-	+
11	9051	PITOUT	*0202		-	-	+	+	-	+	-	-
12	9052	DBB	*0303		-	-	-	-	-	+	+	-
13	9004	JESTHOM	*0501		+	-	-	-	-	-	-	-
14	9071	OLGA	*0402		-	-	-	-	-	-	-	+
15	9075	DKB	*0303		-	-	-	-	-	+	+	-
16	9037	SWEIG007	*0301		-	-	-	-	+	-	+	-
17	9282	CTM3953540	*0201	*0603	-	+	+	+	-	+	-	-
18	9257	32367	*0602	*0202	-	+	+	+	-	+	-	-
19	9038	BM16	*0301		-	-	-	-	+	-	+	-
20	9059	SLE005	*0604		-	+	-	-	-	-	-	-
21	9064	AMALA	*0301		-	-	-	-	+	-	+	-
22	9056	KOSE	*0503	*0604	+	+	-	-	-	-	-	-
23	9124	IHL	*0503	*0601	+	+	-	-	-	-	-	-
24	9035	JBUSH	*0301		-	-	-	-	+	-	+	-
25	9049	IBW9	*0202		-	-	+	+	-	+	-	-
26	9285	WT49	*0201		-	-	+	+	-	+	-	-
27	9191	CH1007	*0401	*0501	+	-	-	-	-	-	-	+
28	9320	BEL5GB	*0202	*0301	-	-	+	+	+	+	+	-
29	9050	MOU	*0202		-	-	+	+	-	+	-	-
30	9021	RSH	*0402		-	-	-	-	-	-	-	+
31	9019	DUCAF	*0201		-	-	+	+	-	+	-	-
32	9297	HAG	*0301		-	-	-	-	+	-	+	-
33	9098	MT14B	*0302		-	-	-	+	-	+	+	-
34	9104	DHIF	*0301		-	-	-	-	+	-	+	-
35	9302	SSTO	*0305		-	-	-	+	-	-	+	-
36	9024	KT17	*0302		-	-	-	+	-	+	+	-
37	9065	HHKB	*0603		-	+	-	-	-	-	-	-
38	9099	LZL	*0301		-	-	-	-	+	-	+	-
39	9315	CML	*0201	*0301	-	-	+	+	+	+	+	-
40	9134	WHONP199	*0202	*0303	-	-	+	+	-	+	+	-
41	9055	H0301	*0609		-	+	-	-	-	-	-	-
42	9066	TAB089	*0601		-	+	-	-	-	-	-	-
43	9076	T7526	*0303		-	-	-	-	-	+	+	-
44	9057	TEM	*0503		+	-	-	-	-	-	-	-
45	9239	SHJO	*0202		-	-	+	+	-	+	-	-
46	9013	SCHU	*0602		-	+	-	-	-	-	-	-
47	9045	TUBO	*0301		-	-	-	-	+	-	+	-
48	9303	TER-ND	*0501		+	-	-	-	-	-	-	-

CELL LINE VALIDATION SHEET

DR low resolution primer set

					Well															
					9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
				Prod. No.:	200960301	200960302	200960303	200960304	200960305	200960306	200960307	200960308	200960309	200960310	200960311	200960312	200960313	200960314	200960315	200960316
	IHWC cell line		DRB1																	
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	9025	DEU	*0401		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
9	9026	YAR	*0402		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
10	9107	LKT3	*0405		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
11	9051	PITOUT	*0701		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
12	9052	DBB	*0701		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
13	9004	JESTHOM	*0101		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	9071	OLGA	*0802		-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	+
15	9075	DKB	*0901		-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
16	9037	SWEIG007	*1101		-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	+
17	9282	CTM3953540	*0301	*1301	-	-	-	-	+	+	-	-	-	-	-	-	-	-	+	+
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		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-

CELL LINE VALIDATION SHEET

DR low resolution primer set

					Well						
					25	26	27	28	29	30	31
				Prod. No.:	200960317	200960318	200960319	200960320	200960321	200960322	200960323
	IHWC cell line		DRB1								
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	9025	DEU	*0401		-	-	-	-	-	+	-
9	9026	YAR	*0402		-	-	-	-	-	+	-
10	9107	LKT3	*0405		-	-	-	-	-	+	-
11	9051	PITOUT	*0701		-	-	-	-	-	+	-
12	9052	DBB	*0701		-	-	-	-	-	+	-
13	9004	JESTHOM	*0101		-	-	-	-	-	-	-
14	9071	OLGA	*0802		-	-	-	-	-	-	-
15	9075	DKB	*0901		-	-	+	-	-	+	-
16	9037	SWEIG007	*1101		-	-	-	-	+	-	-
17	9282	CTM3953540	*0301	*1301	-	-	-	-	+	-	-
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® DQ-DR SSP Combi Tray

Product number: **101.704-48u/12u – without *Taq* pol.**
Lot number: **93F**
Expiry date: **2011-May-01**
Number of tests: **48 tests – Product No. 101.704-48u**
12 tests – Product No. 101.704-12u
Number of wells per test: **31 + 1**

Well specifications:

Well No.	Production No.
1	2008-512-01
2	2008-512-02
3	2008-512-03
4	2008-512-04
5	2008-512-05
6	2008-512-06
7	2009-601-07
8	2008-512-08

Well No.	Production No.	Well No.	Production No.	Well No.	Production No.
9	2009-603-01	17	2009-603-09	25	2009-603-17
10	2009-603-02	18	2009-603-10	26	2009-603-18
11	2009-603-03	19	2009-603-11	27	2009-603-19
12	2009-603-04	20	2009-603-12	28	2009-603-20
13	2009-603-05	21	2009-603-13	29	2009-603-21
14	2009-603-06	22	2009-603-14	30	2009-603-22
15	2009-603-07	23	2009-603-15	31	2009-603-23
16	2009-603-08	24	2009-603-16		

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

The reactivities of one additional 5'-primer and one or more 3'primers in primer solution 17, 19 and 26 were tested by separately adding another 5'-primer or 3'-primer. One additional 3'-primer in primer solution 9, 11, 18, 20 and 28 were tested by separately adding another 5'-primer. One additional 5'-primer in primer solutions 2, 4, 14, 23 and 24 was tested by separately adding another 3'-primer. In primer solution 21 one 5'-primer and two 3'-primers were not possible to test, in primer solutions 11, 12, 17, 18 and 24 one 5'-primer was not possible to test, and in primer solution 16 three 5'-primers were not possible to test.

The negative control primer pairs, **Production No. 2008-495-01**, can detect contamination with PCR products diluted 10^{-7}.

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

Date of approval: 2010-January-15

Approved by:

Quality Control Supervisor

Declaration of Conformity

Product name: *Olerup* SSP® DQ-DR SSP Combi Tray
Product number: 101.704-48u/12u
Lot number: 93F

Intended use: DQB1 and DRB1 low 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 and ISO 13485:2004, following the provisions of the 98/79/EC Directive on *in vitro* diagnostic medical devices, Annex II List B, 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
2010-January-15

Olle Olerup
Managing Director

ADDRESSES:

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