

DRB1*11
101.115-24/03 – licensed for PCR
101.115-24u/03u – not licensed for PCR
Lot No.: Y48

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Olerup SSP™ DRB1*11

Product number: 101.115-24/03 – licensed for PCR
101.115-24u/03u – not licensed for PCR
Lot number: Y48
Expiry date: 2009-September-01
Number of tests: 24 tests – Product No. 101.115-24
3 tests – Product No. 101.115-03
Number of tubes per test: 32
Storage - pre-aliquoted primers: dark at -20°C
- PCR Master Mix: -20°C

This Product Description is only valid for Lot No. Y48.

CHANGES COMPARED TO THE PREVIOUS OLERUP SSP™ DRB1*11 LOT

The DRB1*11 specificity and interpretation tables have been updated for the DRB1 alleles described since the previous *Olerup SSP™* DRB1*11 lot was made (Lot No. X07).

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

Tube	5'-primer	3'-primer	rationale
12	Added	-	Primer added for the DRB1*1161 allele.
13	Added	-	Primer added for the DRB1*1160 allele.
15	Added	-	Primer added for the DRB1*1166 allele.
18	-	Modified	Increased specificity of specific primer pair.
21	Added	-	Primer added for the DRB1*1159 allele.

Changes in revision R01 compared to R00:

1. Length of internal positive control band generated by primer mix 25 corrected to 515 bp.

PRODUCT DESCRIPTION

DRB1*11 SSP subtyping

CONTENT

The primer set contains 5'- and 3'-primers for identifying the DRB1*1101 to DRB1*1166 alleles.

The primer solutions are pre-aliquoted into 0.2 ml PCR tubes. Each tube in the set contains a dried primer solution consisting of a specific primer mix, i.e. allele- and group-specific primers as well as a **control primer pair** matching non-allelic sequences.

PCR Master Mix complete with Taq, Taq polymerase, nucleotides, buffer, glycerol and cresol red, as well as PCR lids are included in the licensed kit.

PCR Master Mix without Taq, nucleotides, buffer, glycerol and cresol red, as well as PCR lids are included in the unlicensed kit.

32 PCR reactions with a reaction volume of 10 µl are performed per sample.

Note: The pellets in the tubes may vary in form and colour. This does not affect the performance of the product.

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

The 32 well cut PCR plate is marked with 'DRB1*11 Y48'.

Well No. 1 is marked with '1'.

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

The interpretation of DRB1*11 PCR-SSP subtypings will be influenced by two DRB1*01 alleles, eleven DRB1*03 alleles, twelve DRB1*04 alleles, most DRB1*07 alleles, most DRB1*08 alleles, all DRB1*12 alleles, many DRB1*13 and DRB1*14 alleles, ten DRB1*15 and four DRB1*16 alleles when present on the other haplotype. In addition, the DRB3*0211, DRB5*0107, DRB5*0111 and DRB5*0203 alleles are amplified by primer mix 29 and the DRB3*0218 allele is amplified by primer mixes 7, 10, 12, 14 and 18 and the DRB5*0113 allele is amplified by primer mixes 3, 5, 7 and 14.

UNIQUELY IDENTIFIED ALLELES

All the phenotypically different DRB1*11 alleles, i.e. **DRB1*1101 to DRB1*1166**, recognized by the HLA Nomenclature Committee in October 2007¹ will give rise to unique amplification patterns by the primers in the DRB1*11 subtyping kit.

The DRB1*11 subtyping kit cannot distinguish the DRB1*110101 to 110107 alleles, the DRB1*110201 and 110202 alleles, the DRB1*110401 to 110403 alleles, the DRB1*110601 and 110602 alleles, the DRB1*110801 and 110802 alleles, the DRB1*111101 and 111102 alleles, the DRB1*111401 and 1111402 alleles, the DRB1*111901 and 111902 alleles, the DRB1*112701 and 112702 alleles, the DRB1*115401 and 115402 alleles and the DRB1*116501 and 116502 alleles.

¹**Nomenclature for factors of the HLA system, 1998.** *Tissue Antigens* 1999; **53**: 407-446 and DRB1 alleles listed on the IMGT/HLA web page 2007-October-05, release 2.19.0, www.ebi.ac.uk/imgt/hla.

RESOLUTION IN HOMO- AND HETEROZYGOTES

The 66 DRB1*11 alleles give rise to 68 different amplification patterns that can be combined in 2346 homozygous and heterozygous combinations. 789 of these genotypes do not give rise to unique amplification patterns. (The different lengths of the specific PCR products in lanes 10, 11, 12, 13, 15, 19, 21, 22 and 24 were not considered in these calculations.)

+++--++	--+-----	-----+	-----++	1105, 1106 = 1105, 1157
+-----	++-----	+-----	---++--	1103, 1145 = 1119, 1155 = 1131, 1155
				= 1145, 1155
+-----	--++----	-----+	---+-+--	1121, 1130 = 1121, 1161
+-----	--+-----	-----+	---+-+--	1101, 1121 = 1121, 1139
+-----	---++----	-----	++-+-+--	1116, 1130 = 1116, 1161
+-----	---+-+--	-----	---+-+--	1130, 1148 = 1148, 1161
+-----	---+-----	-----+	---+-+--	1130, 1165 = 1161, 1165
+-----	---+-----	-----	---+-+--	1102, 1130 = 1102, 1161
+-----	---+-----	---+-----	++-+-+--	1110, 1116 = 111201, 1116 =
				111202, 1116
+-----	---+-----	-----+	++-+-+--	1109, 1165 = 1116, 1133
+-----	---+-----	-----	+++-----	1104, 1120 = 110404, 1120 =
				1120, 1146 = 1120, 1158 = 1120, 1160
+-----	---+-----	-----	++-+-+--	1101, 1116 = 1102, 1109 = 1109, 1116
				= 1116, 1128 = 1116, 1162
+-----	-----+--	-----	---+-----	1102, 1137 = 1137, 1148
+-----	-----++	-----+	---+-+--	1102, 1115 = 1115, 1165 = 1124, 1165
+-----	-----	-----+	---+-+--	1101, 1165 = 1102, 1133 = 1133, 1165
+-----	++-----	+-----	---+-+--	1111, 1145 = 1114, 1123
+-----	---++----	-----	+++-----	1120, 1130 = 1120, 1161
+-----	---+-----	-----	---+-+--	1114, 1130 = 1114, 1161
+-----	---+-----	---+-----	+++-----	1110, 1120 = 111201, 1120 =
				111202, 1120
+-----	---+-----	-----	+++-----	1101, 1120 = 1109, 1114 = 1109, 1120
				= 1120, 1128 = 1120, 1162
+-----	-----	-----	---+-+--	1101, 1114 = 1111, 1119
+-----	++-----	+-----	---+-+--	1102, 1125 = 1118, 1155
+-----	--+-----	---+-----	---+-+--	1102, 1147 = 1121, 1147
+-----	--+-----	-----+	---+-+--	1106, 1165 = 1121, 1135

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+ - + + + + - +	- - + - - - - -	- - - - - - +	- - - + - + + -	1102, 1106 = 1104, 1121 = 1106, 1121 = 1121, 1143
+ - + + + + - +	- - - - + - - -	- - - - - - - -	+ + - + - + + -	1104, 1116 = 110404, 1116 = 1116, 1146 = 1116, 1158 = 1116, 1160 = 1118, 1140
+ - + + + + - +	- - - - - + - +	- - - + - - - +	- - - + - - - +	1102, 1150 = 1148, 1150
+ - + + + + - +	- - - - - + - -	- - - - - - - -	- - - + - - - +	1102, 1156 = 1118, 1141 = 1148, 1156
+ - + + + + - +	- - - - - - - -	- - - - - + - -	- - - + - + + -	1102, 1135 = 1104, 1165 = 1135, 1165
+ - + + + + - +	- - - - - - - -	- - - - - - - -	- - - + - + + -	1102, 1104 = 1103, 1118
+ - + + + - + +	+ + - - - - - -	+ - + - - - - -	- - - - + + + -	1104, 1145 = 1119, 1125 = 1125, 1131 = 1125, 1145 = 1145, 1154
+ - + + + - + +	- - - + - - - -	- - - - - - - -	- - - - + + + -	1118, 1130 = 1118, 1161
+ - + + + - + -	+ + - + - - - -	+ - + - - - - -	- - - - + + - -	1130, 1145 = 1145, 1161
+ - + + + - + -	+ + - - - - - -	+ - + - - - - -	- - - - + + - -	1101, 1145 = 1119, 1123 = 1123, 1131 = 1123, 1145 = 1132, 1145
+ - + + + - + -	+ - - - - - - -	- - + - - - - -	- - - - + + - -	1119, 1132 = 1131, 1132
+ - + + + - + -	- - - + - - - -	- - + - - - - -	- - - - + + - -	1130, 1131 = 1131, 1161
+ - + + + - + -	- - - + - - - -	- - - - - - - -	- - - - + + - -	1119, 1130 = 1119, 1161
+ - + + - + + +	- - - - + - - -	- - - - + - - -	+ + + + + - - -	1114, 1159 = 1120, 1159
+ - + + - + + +	- - - - + - - -	- - - - - - - -	+ + + + + - - -	1103, 1120 = 1114, 1140 = 1120, 1140
+ - + + - + - +	- - - - + - - -	- - - - + - - -	+ + - + - + - -	1102, 1159 = 1116, 1159
+ - + + - + - +	- - - - + - - -	- - - - - - - -	+ + - + - + - -	1102, 1140 = 1103, 1116 = 1116, 1140
+ - + + - + - +	- - - - + - - -	- - - - - - - -	- - - + - - - -	1102, 1141 = 1141, 1148
+ - + - + + + +	+ + + - - - - -	+ - + - - - - -	- - - - + - - -	1103, 1164 = 1108, 1155 = 1123, 1136 = 1155, 1164
+ - + - + + + +	+ + - + - - - -	+ - + - - - - -	- - - - + - - -	1130, 1155 = 1155, 1161
+ - + - + + + +	+ + - - + - - -	+ - + - - - - -	+ + - + - + - -	1109, 1155 = 1123, 1140
+ - + - + + + +	+ + - - - + - -	+ - + - - - - -	- - - - + - - -	1123, 1141 = 1137, 1155
+ - + - + + + +	+ + - - - - - -	+ - + + - - - -	- - - - + - - -	1123, 1163 = 1129, 1155
+ - + - + + + +	+ + - - - - - -	+ - + - - - - -	- - - - + - - -	1101, 1155 = 1103, 1123 = 1123, 1155 = 1126, 1155 = 1132, 1155 = 1153, 1155
+ - + - + + + +	- - + + - - - -	- - - - - - - -	- - - - + - - -	1130, 1136 = 1136, 1161
+ - + - + + + +	- - + - + - - -	- - - - - - - -	+ + - + - + - -	1108, 1140 = 1109, 1136
+ - + - + + + +	- - + - - + - -	- - - - - - - -	- - - + - - - -	1108, 1141 = 1136, 1137
+ - + - + + + +	- - + - - - - -	- - - + - - - -	- - - + - + - -	1108, 1163 = 1129, 1136
+ - + - + + + +	- - + - - - - -	- - - - - - +	- - + - - + + -	1106, 1111 = 1111, 1157
+ - + - + + + +	- - + - - - - -	- - - - - - - -	- - - + - + - -	1101, 1136 = 1103, 1108
+ - + - + + + +	- - - + + - - -	- - - - + - - -	+ + - + - + - -	1130, 1159 = 1159, 1161
+ - + - + + + +	- - - + + - - -	- - - - - - - -	+ + - + - + - -	1130, 1140 = 1140, 1161
+ - + - + + + +	- - - + - + - -	- - - - - - - -	- - - + - + - -	1130, 1141 = 1141, 1161
+ - + - + + + +	- - - + - - - -	- - - + - - - -	- - - + - + - -	1130, 1163 = 1161, 1163
+ - + - + + + +	- - - + - - - -	- - - - - - - -	- - - + - + - -	1103, 1130 = 1103, 1161
+ - + - + + + +	- - - - + + - -	- - - - - - - -	+ + - + - + - -	1109, 1141 = 1137, 1140
+ - + - + + + +	- - - - + - + -	- - - + + - - -	+ + - + - + - -	1110, 1159 = 111201, 1159 = 111202, 1159
+ - + - + + + +	- - - - + - + -	- - - + - - - -	+ + - + - + - -	1110, 1140 = 111201, 1140 = 111202, 1140
+ - + - + + + +	- - - - + - - -	- - - + - - - -	+ + - + - + - -	1109, 1163 = 1129, 1140
+ - + - + + + +	- - - - + - - -	- - - + - - - -	+ + - + - + - -	1101, 1159 = 1109, 1159 = 1122, 1140 = 1122, 1159 = 1128, 1159 = 1159, 1162

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+ - + - + + + +	- - - - + - - -	- - - - - - - -	++ - + - + - -	1101, 1140 = 1103, 1109 = 1109, 1140 = 1128, 1140 = 1140, 1162
+ - + - + + + +	- - - - - + - -	- - - + - - - -	- - - + - + - -	1129, 1141 = 1137, 1163
+ - + - + + + +	- - - - - + - -	- - - - - - - -	- - - + - + - -	1101, 1141 = 1103, 1137
+ - + - + + + +	- - - - - + - -	- - - + - - - -	++ - + - + - -	1103, 1110 = 1110, 1163
+ - + - + + + +	- - - - - + - -	- - - + - - - -	+ - - + - + - -	1103, 111202 = 111202, 1163
+ - + - + + + +	- - - - - + - -	- - - + - - - -	- - - + - + - -	1103, 111201 = 111201, 1163 = 1163, 1166
+ - + - + + + +	- - - - - - + -	- - - + - - - -	- - - + - + - -	1103, 1149 = 1124, 1163 = 1149, 1163
+ - + - + + + +	- - - - - - - -	- - - + - - - -	- - - + - + - -	1101, 1163 = 1103, 1129 = 1129, 1163
+ - + - + + + -	- - - + - - - -	- - - - - - - -	- - + - - + - -	1111, 1130 = 1111, 1161
+ - + - + + - +	++ + - - - - -	+ - + - - - - +	- - - + - + + -	1106, 1155 = 1155, 1157
+ - + - + + - +	++ + - - - - -	+ - + - - - - -	- - - + - + + -	1125, 1136 = 1142, 1155
+ - + - + + - +	++ + - - - + -	+ - + + - - - -	++ - + - + - +	1117, 1155 = 1152, 1155
+ - + - + + - +	++ + - - - + -	+ - + - - - - -	- - - + - + + -	1125, 1141 = 1155, 1156
+ - + - + + - +	++ + - - - - -	+ - + - - - - -	- - - + - + + -	1103, 1125 = 1104, 1155 = 1125, 1155 = 1154, 1155
+ - + - + + - +	++ + - - - - -	+ - + - - - - -	- - - + - + - -	1103, 1155 = 1134, 1155 = 1155, 1155
+ - + - + + - +	- + - - - + + -	+ - + + - - - -	++ - + - + - +	1103, 1152 = 1152, 1163
+ - + - + + - +	- + - - - + + -	+ - + - - - - -	++ - + - + - +	1103, 1117 = 1117, 1163
+ - + - + + - +	- + - - - + + -	- - - + - - - -	++ - + - + - +	1103, 1113 = 1113, 1163
+ - + - + + - +	- - + - + - - -	- - - - + - - +	++ - + - + + -	1106, 1159 = 1157, 1159
+ - + - + + - +	- - + - + - - -	- - - - - - + -	++ - + - + + -	1106, 1140 = 1140, 1157
+ - + - + + - +	- - + - - + - -	- - - - - - - -	- - - + - + - +	1136, 1156 = 1141, 1142
+ - + - + + - +	- - + - - - - -	- - - - + - - +	- - - + - + + -	1103, 1147 = 1106, 1163 = 1136, 1147 = 1147, 1163 = 1157, 1163
+ - + - + + - +	- - + - - - - -	- - - - - - + -	- - - + - + + -	1103, 1106 = 1103, 1157 = 1106, 1136 = 1136, 1143
+ - + - + + - +	- - + - - - - -	- - - - - - - -	- - - + - + + -	1103, 1142 = 1104, 1136
+ - + - + + - +	- - - - + - - -	- - - - + - - -	++ - + - + + -	1104, 1159 = 110404, 1159 = 1146, 1159 = 1158, 1159 = 1159, 1160
+ - + - + + - +	- - - - + - - -	- - - - - - - -	++ - + - + + -	1104, 1140 = 110404, 1140 = 1140, 1146 = 1140, 1158 = 1140, 1160
+ - + - + + - +	- - - - - + - +	- - - + - - - +	- - - + - + + -	1103, 1150 = 1150, 1163
+ - + - + + - +	- - - - - + - -	- - - - - - - -	- - - + - + + -	1103, 1156 = 1104, 1141
+ - + - + + - +	- - - - - - + -	- - - + - - - -	- - - + - + + -	1103, 1144 = 1144, 1163
+ - + - + - + +	++ + - - - - -	+ - + + - - - +	- - - - - + + -	1123, 1147 = 1147, 1164
+ - + - + - + +	++ + - - - - -	+ - + - - - - +	- - - - - + + -	1106, 1123 = 1106, 1164 = 1123, 1157 = 1143, 1164
+ - + - + - + +	++ + - - - - -	+ - + - - - - -	- - - - - + + -	1104, 1164 = 1108, 1125 = 1123, 1142 = 1125, 1164 = 1154, 1164
+ - + - + - + +	++ + - + - - -	+ - + - - - - -	- - - - - + + -	1125, 1130 = 1125, 1161
+ - + - + - + +	++ + - + - - -	- + - - - - - -	- - - - - + - -	1107, 1130 = 1107, 1161
+ - + - + - + +	++ + - + - - -	+ - + - - - - -	- - - - - + + -	1123, 1160 = 1125, 1128
+ - + - + - + +	++ + - - - + -	+ - + + - - - -	++ - - - + - +	1117, 1123 = 1117, 1132 = 1123, 1152 = 1132, 1152
+ - + - + - + +	++ + - - - + -	+ - + - - - - -	- - - - - + + -	1123, 1156 = 1125, 1137
+ - + - + - + +	++ + - - - - +	+ - + + - - - -	- - - - - + + -	1123, 1144 = 1125, 1149
+ - + - + - + +	++ + - - - - -	+ - + - - + - -	- - - - - + + -	1123, 1135 = 1125, 1133
+ - + - + - + +	++ + - - - - -	+ - + - - - - +	- - - - - + + -	1123, 1143 = 1125, 1139
+ - + - + - + +	++ + - - - - -	+ - + - - - - -	- - - - - + + -	1101, 1125 = 1104, 1123 = 1123, 1125 = 1123, 1154 = 1125, 1126 = 1125, 1132 = 1125, 1153

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+ - + - + - + +	+ + - - - - -	+ - - - - - -	- - - - + - + -	1104, 1153 = 1153, 1154
+ - + - + - + +	+ + - - - - -	- + - - - - -	- - - - + - -	1101, 1107 = 1107, 1127
+ - + - + - + +	+ - + - - - -	- - + - - - +	- - - - + - + -	1106, 1132 = 1132, 1157
+ - + - + - + +	- + - + - + -	+ - + + - - -	+ + - - + - +	1130, 1152 = 1152, 1161
+ - + - + - + +	- + - + - + -	+ - + - - - -	+ + - - + - +	1117, 1130 = 1117, 1161
+ - + - + - + +	- + - + - + -	- - + - - - -	+ + - - + - +	1113, 1130 = 1113, 1161
+ - + - + - + +	- + - + - - -	- - - - - - -	- - - - + - -	1130, 1134 = 1134, 1161
+ - + - + - + +	- + - + + + -	+ - + + - - -	+ + - - + - +	1109, 1152 = 1128, 1152
+ - + - + - + +	- + - + + + -	+ - + - - - -	+ + - - + - +	1109, 1117 = 1117, 1128
+ - + - + - + +	- + - + - + -	- - + - - - -	+ + - - + - +	1109, 1113 = 1113, 1128
+ - + - + - + +	- + - - + + +	+ - + + - - -	+ + - - + - +	1124, 1152 = 1149, 1152
+ - + - + - + +	- + - - + + +	+ - + - - - -	+ + - - + - +	1117, 1124 = 1117, 1149
+ - + - + - + +	- + - - + + -	+ - + + - - -	+ + - - + - +	1101, 1152 = 1110, 1152 =
				111201, 1152 = 111202, 1152 =
				1129, 1152 = 1151, 1152 = 1152, 1162
				= 1152, 1166
+ - + - + - + +	- + - - + + -	+ - + - - - -	+ + - - + - +	1101, 1117 = 1110, 1117 =
				111201, 1117 = 111202, 1117 =
				1117, 1129 = 1117, 1151 = 1117, 1162
				= 1117, 1166
+ - + - + - + +	- + - - - + +	- - + - - - -	+ + - - + - +	1113, 1124 = 1113, 1149
+ - + - + - + +	- + - - - + -	- - + - - - -	+ + - - + - +	1101, 1113 = 1110, 1113 =
				111201, 1113 = 111202, 1113 =
				1113, 1129 = 1113, 1151 = 1113, 1162
				= 1113, 1166
+ - + - + - + +	- - + + - - -	- - + - - - +	- - - - + - + -	1130, 1147 = 1147, 1161
+ - + - + - + +	- - + + - - -	- - - - - + +	- - - - + - + -	1106, 1130 = 1106, 1161 = 1130, 1157
				= 1157, 1161
+ - + - + - + +	- - + + - - -	- - - - - - -	- - - - + - + -	1130, 1142 = 1142, 1161
+ - + - + - + +	- - + - + - -	- - - - - + +	+ + - - + - + -	1106, 1109 = 1109, 1157
+ - + - + - + +	- - + - + - -	- - - - - + +	- - - - + - + -	1106, 1128 = 1128, 1157
+ - + - + - + +	- - + - + - -	- - - - - - -	- - - - + - + -	1108, 1160 = 1128, 1142
+ - + - + - + +	- - + - + - -	- - - - - - -	- - - - + - + -	1108, 1156 = 1137, 1142
+ - + - + - + +	- - + - - + -	- - + - - - +	+ + - - + - + -	1106, 1110 = 1110, 1147 = 1110, 1157
+ - + - + - + +	- - + - - + -	- - + - - - +	+ - - - + - + -	1106, 111202 = 111202, 1147 =
				111202, 1157
+ - + - + - + +	- - + - - + -	- - + - - - +	- - - - + - + -	1106, 111201 = 111201, 1147 =
				111201, 1157 = 1147, 1166
+ - + - + - + +	- - + - - + -	- - - - - + +	- - - - + - + -	1106, 1166 = 1157, 1166
+ - + - + - + +	- - + - - - +	- - + - - - +	- - - - + - + -	1106, 1149 = 1124, 1147 = 1147, 1149
				= 1149, 1157
+ - + - + - + +	- - + - - - +	- - + - - - -	- - - - + - + -	1108, 1144 = 1142, 1149
+ - + - + - + +	- - + - - - +	- - - - + - +	- - - - + - + -	1106, 1115 = 1115, 1157
+ - + - + - + +	- - + - - - +	- - - - - + +	- - - - + - + -	1106, 1124 = 1124, 1157
+ - + - + - + +	- - + - - - -	- + - - - - +	- - - - + - + -	1106, 1127 = 1127, 1157
+ - + - + - + +	- - + - - - -	- - + - - - +	- - - - + - + -	1101, 1147 = 1106, 1129 = 1108, 1147
				= 1129, 1147 = 1129, 1157 =
				1139, 1147
+ - + - + - + +	- - + - - - -	- - - + - - +	+ - - - + - + -	1106, 1122 = 1122, 1157
+ - + - + - + +	- - + - - - -	- - - + - + +	- - - - + - + -	1106, 1133 = 1133, 1157
+ - + - + - + +	- - + - - - -	- - - + - - -	- - - - + - + -	1108, 1135 = 1133, 1142
+ - + - + - + +	- - + - - - -	- - - - - + +	- + - - + - + -	1106, 1162 = 1157, 1162
+ - + - + - + +	- - + - - - -	- - - - - + +	- - - - + - + +	1106, 1151 = 1151, 1157

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+ - + - + +	- - - - -	- - - - -	++ - - + -	1101, 1146 = 110404, 1162 = 1146, 1162
+ - + - + -	++++ - - -	+ - + - - -	- - - - + -	1130, 1164 = 1161, 1164
+ - + - + -	++++ - - -	+ - + - - -	- - - - + -	1101, 1164 = 1108, 1123 = 1123, 1164 = 1132, 1164
+ - + - + -	++ - + - -	+ - + - - -	- - - - + -	1123, 1130 = 1123, 1161
+ - + - + -	++ - + - -	+ - - - - -	- - - - + -	1130, 1153 = 1153, 1161
+ - + - + -	++ - - - -	+ - + - - -	- - - - + -	1101, 1123 = 1123, 1123 = 1123, 1126 = 1123, 1132 = 1123, 1153 = 1132, 1153
+ - + - + -	+ - - - - -	- - + - - -	- - - - + -	1130, 1132 = 1132, 1161
+ - + - + -	+ - - - - -	- - + - - -	- - - - + -	1101, 1132 = 1132, 1132
+ - + - + -	- + - - - -	- - - - - -	- - - - + -	1126, 1130 = 1126, 1161
+ - + - + -	- - + - - -	- - - - - -	- - - - + -	1108, 1130 = 1108, 1161
+ - + - + -	- - + - - -	- - - - - -	++ - - + -	1109, 1130 = 1109, 1161
+ - + - + -	- - + - - -	- - - - - -	- - - - + -	1128, 1130 = 1128, 1161
+ - + - + -	- - + - + -	- - - - - -	- - - - + -	1130, 1137 = 1137, 1161
+ - + - + -	- - + - + -	- - + - - -	++ - - + -	1110, 1130 = 1110, 1161
+ - + - + -	- - + - + -	- - + - - -	+ - - - + -	111202, 1130 = 111202, 1161
+ - + - + -	- - + - + -	- - + - - -	- - - - + -	111201, 1130 = 111201, 1161
+ - + - + -	- - + - + -	- - - - - -	- - - - + -	1130, 1166 = 1161, 1166
+ - + - + -	- - + - - +	- - + - - -	- - - - + -	1130, 1149 = 1149, 1161
+ - + - + -	- - + - - +	- - - - + -	- - - - + -	1115, 1130 = 1115, 1161
+ - + - + -	- - + - - +	- - - - - -	- - - - + -	1124, 1130 = 1124, 1161
+ - + - + -	- - + - - -	- + - - - -	- - - - + -	1127, 1130 = 1127, 1161
+ - + - + -	- - + - - -	- - + - - -	- - - - + -	1129, 1130 = 1129, 1161
+ - + - + -	- - + - - -	- - - - + -	- - - - + -	1130, 1133 = 1133, 1161
+ - + - + -	- - + - - -	- - - - - +	- - - - + -	1130, 1139 = 1139, 1161
+ - + - + -	- - + - - -	- - - - - -	- + - - + -	1130, 1162 = 1161, 1162
+ - + - + -	- - + - - -	- - - - - -	- - - - + -	1130, 1151 = 1151, 1161
+ - + - + -	- - + - - -	- - - - - -	- - - - + -	1101, 1130 = 1101, 1161 = 1130, 1161 = 1161, 1161
+ - + - + -	- - - + - +	- - + - - -	++ - - + -	1109, 1110 = 1109, 111201 = 1109, 111202 = 1110, 1128
+ - + - + -	- - - + - -	- - - - - -	++ - - + -	1101, 1109 = 1109, 1109 = 1109, 1128 = 1109, 1162
+ - + - + -	- - - + - -	- - - - - -	- - - - + -	1101, 1128 = 1128, 1128
+ - + - + -	- - - - + +	- - + - - -	++ - - + -	1110, 1124 = 1110, 1149
+ - + - + -	- - - - + +	- - + - - -	+ - - - + -	111202, 1124 = 111202, 1149
+ - + - + -	- - - - + +	- - + - - -	- - - - + -	111201, 1124 = 111201, 1149 = 1149, 1166
+ - + - + -	- - - - + -	- - + - - -	+ - - - + -	111201, 1122 = 111202, 1122
+ - + - + -	- - - - + -	- - + - - -	++ - - + -	1101, 1110 = 1110, 1110 = 1110, 111201 = 1110, 111202 = 1110, 1129 = 1110, 1162 = 1110, 1166 = 111202, 1162
+ - + - + -	- - - - + -	- - + - - -	+ - - - + -	1101, 111202 = 111201, 111202 = 111202, 111202 = 111202, 1129 = 111202, 1166
+ - + - + -	- - - - + -	- - + - - -	- - - - + -	1101, 111201 = 111201, 111201 = 111201, 1129 = 111201, 1166 = 1129, 1166
+ - + - + -	- - - - + -	- - - - - -	- - - - + -	1101, 1166 = 1166, 1166

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+ - + - + - + - - - - - + - - - + - + - - - - - + - - - - + - -	1115, 1129 = 1115, 1149 = 1133, 1149
+ - + - + - + - - - - - + - - - + - + - - - - - + - - - - + - -	1101, 1149 = 1124, 1129 = 1124, 1149
	= 1129, 1149 = 1149, 1149
+ - + - + - + - - - - - + - - - - + - - - - - + - - - - + - -	1101, 1115 = 1115, 1115 = 1115, 1124
	= 1115, 1133 = 1124, 1133
+ - + - + - + - - - - - + - - - - - - - - - - + - - - - + - -	1101, 1124 = 1124, 1124
+ - + - + - + - - - - - - - - - - + - - - - - - - - - + - -	1101, 1127 = 1127, 1127
+ - + - + - + - + - -	1101, 1129 = 1129, 1129
+ - + - + - + - + - -	1101, 1133 = 1133, 1133
+ - + - + - + - + - -	1101, 1139 = 1139, 1139
+ - + - + - + - + - -	1101, 1162 = 1162, 1162
+ - + - + - + - + + + - - - - + - + - - - - + - - - - + + -	1106, 1125 = 1125, 1157
+ - + - + - + - + + - - + + - + - + + - - - - + + - - + + +	1117, 1125 = 1125, 1152
+ - + - + - + - + + - - - - + - + - - - - - - - - - + + -	1104, 1125 = 1125, 1125 = 1125, 1134
	= 1125, 1154
+ - + - + - + - - + - - + + - + - + + - - - - + + - - + + +	1106, 1152 = 1147, 1152
+ - + - + - + - - + - - + + - + - + - - - - + + - - + + +	1106, 1117 = 1117, 1147
+ - + - + - + - - + - - + + - + - - - - + + - - + + +	1106, 1113 = 1113, 1147
+ - + - + - + - - + - - + + + - + - + + - - - - + + - - + + +	1152, 1158 = 1152, 1160
+ - + - + - + - - + - - + + + - + - + - - - - + + - - + + +	1117, 1158 = 1117, 1160
+ - + - + - + - - + - - + + - - - - + - - - - + + - - + + +	1113, 1158 = 1113, 1160
+ - + - + - + - - + - - - + + - + - + + - - - - + + - - + + +	1104, 1152 = 110404, 1152 =
	1146, 1152 = 1152, 1154
+ - + - + - + - - + - - - + + - + - + - - - - + + - - + + +	1104, 1117 = 110404, 1117 =
	1117, 1146 = 1117, 1154
+ - + - + - + - - + - - - - + - - - - - + + - - - + + +	1104, 1113 = 110404, 1113 =
	1113, 1146
+ - + - + - + - - - + - + - - - - - - - - - + - - - - + + -	1106, 1158 = 1157, 1158
+ - + - + - + - - - + - + - - - - - - - - - + - - - - + + -	1106, 1160 = 1157, 1160
+ - + - + - + - - - + - - - + - - - - - - - - - - - + + -	1106, 1150 = 1147, 1150
+ - + - + - + - - - + - - - + - - - - - - - - - - - + + -	1142, 1150 = 1150, 1157
+ - + - + - + - - - + - - - - - - - - - - - - - - - - + + -	1106, 1144 = 1144, 1147 = 1144, 1157
+ - + - + - + - - - + - - - - - - - - - - - - - - - - + + -	1106, 1154 = 1154, 1157
+ - + - + - + - - - + - - - - - - - - - - - - - - - - + + -	1104, 1147 = 1106, 1147 = 1142, 1147
	= 1143, 1147 = 1147, 1147 =
	1147, 1157
+ - + - + - + - - - + - - - - - - - - - - - + - - - - + + -	1106, 1135 = 1135, 1157
+ - + - + - + - - - + - - - - - - - - - - - + - - - - + + -	1106, 1138 = 1138, 1157
+ - + - + - + - - - + - - - - - - - - - - - + + - - - + + -	1106, 1146 = 1146, 1157
+ - + - + - + - - - + - - - - - - - - - - - + - - - - + + -	110404, 1106 = 110404, 1157
+ - + - + - + - - - + - - - - - - - - - - - + - - - - + + -	1104, 1106 = 1104, 1157 = 1106, 1106
	= 1106, 1142 = 1106, 1143 =
	1106, 1157 = 1142, 1143 = 1143, 1157
+ - + - + - + - - - - + - - - - - - - - - - + + - - - + + -	1146, 1158 = 1146, 1160
+ - + - + - + - - - - + - - - - - - - - - - + - - - - + + -	1104, 1158 = 110404, 1158 =
	110404, 1160 = 1158, 1158 =
	1158, 1160
+ - + - + - + - - - - + - - - - - - - - - - - - - - - + + -	1104, 1160 = 1160, 1160
+ - + - + - + - - - - + - - - - - - - - - - - - - - - + + -	1104, 1150 = 1143, 1150 = 1144, 1150
+ - + - + - + - - - - + - - - - - - - - - - - - - - - + + -	1150, 1150 = 1150, 1156
+ - + - + - + - + + -	1104, 1144 = 1144, 1144
+ - + - + - + - + + -	1104, 1154 = 1154, 1154
+ - + - + - + - + + -	1104, 1135 = 1135, 1135

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+ - + - + - + - - - - - - - - - - + - - - - + + -	1104, 1138 = 1138, 1138
+ - + - + - + - - - - - - - - - - + - - - - + + -	1104, 1143 = 1143, 1143
+ - + - + - + - - - - - - - - - - + + - - + + -	1104, 1146 = 110404, 1146 =
	1146, 1146
+ - + - + - + - - - - - - - - - - + - - - + + -	1104, 110404 = 110404, 110404
+ - + - - + - + - - - + - - - - + - - + - + - -	1103, 1159 = 1140, 1159 = 1159, 1159
+ - + - - + - + - - - + - - - - + - - + - + - -	1103, 1140 = 1140, 1140
+ - + - - + - + - - - - - - - - - - - - + - + - -	1103, 1163 = 1163, 1163
+ - + - - + - + - - - - - - - - - - - - + - + - -	1102, 1152 = 1148, 1152
+ - + - - + - + - - - - - - - - - - - - + - + - -	1102, 1117 = 1117, 1148
+ - + - - + - + - - - - - - - - - - - - + - + - -	1102, 1157 = 1118, 1121 = 1121, 1142
	= 1121, 1157
+ - + - - + - + - - - - - - - - - - - - + - + - -	1102, 1142 = 1118, 1136
+ - + - - + - + - - - - - - - - - - - - + - + - -	1117, 1145 = 1145, 1152
+ - + - - + - + - - - - - - - - - - - - + - + - -	1117, 1131 = 1119, 1152 = 1131, 1152
+ - + - - + - + - - - - - - - - - - - - + - + - -	1108, 1145 = 1119, 1164 = 1131, 1164
	= 1145, 1164
+ - + - - + - + - - - - - - - - - - - - + - + - -	1119, 1145 = 1126, 1145 = 1131, 1145
	= 1131, 1153 = 1145, 1145 =
	1145, 1153
+ - + - - + - + - - - - - - - - - - - - + - + - -	1119, 1131 = 1131, 1131
+ - + - - + - + - - - - - - - - - - - - + - + - -	1102, 1120 = 1114, 1116 = 1116, 1120
+ - + - - + - + - - - - - - - - - - - - + - + - -	1114, 1120 = 1120, 1120
+ - + - - + - + - - - - - - - - - - - - + - + - -	1102, 1121 = 1121, 1121 = 1121, 1136
+ - + - - + - + - - - - - - - - - - - - + - + - -	1102, 1116 = 1116, 1116
+ - + - - + - + - - - - - - - - - - - - + - + - -	1102, 1148 = 1148, 1148
+ - + - - + - + - - - - - - - - - - - - + - + - -	1102, 1165 = 1165, 1165
+ - + - - + - + - - - - - - - - - - - - + - + - -	1117, 1164 = 1152, 1164
+ - + - - + - + - - - - - - - - - - - - + - + - -	1108, 1164 = 1126, 1164 = 1153, 1164
	= 1164, 1164
+ - + - - + - + - - - - - - - - - - - - + - + - -	1113, 1152 = 1117, 1152 = 1134, 1152
	= 1152, 1152
+ - + - - + - + - - - - - - - - - - - - + - + - -	1113, 1117 = 1117, 1117 = 1117, 1134
+ - + - - + - + - - - - - - - - - - - - + - + - -	1113, 1113 = 1113, 1134
+ - + - - + - + - - - - - - - - - - - - + - + - -	1142, 1157 = 1157, 1157

(1104 = 110401-110403)

LICENSES**101.115-24/03 – licensed for PCR.****Notice to purchaser: Limited License.**

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101.115-24/03 and 101.115-24u/03u

These products use ARMSTM technology and is sold under license from Zeneca Limited. ARMS is the subject of European Patent No. 0332435, US Patent No. 5595890 and corresponding world-wide patents. ARMS is a trademark of Zeneca Limited.

GUARANTEE

Olerup SSP AB guarantees that the primers in the DRB1*11 subtyping kit have the specificities given in the Specificity and Interpretation Tables of the product insert and in the GenoVision version of the HELMBERG-SCORETM software.

When stored at –20°C, the dried primers are stable for 22 months from the date of manufacture.

When stored at –20°C, the PCR Master Mix complete with *Taq* and the PCR Master Mix without *Taq* are stable for 24 months from the date of manufacture.

The kit is shipped at ambient temperature.

PROTOCOL

DNA EXTRACTION

Extracted, highly pure DNA is needed for SSP typings. We recommend isolation of DNA using GenoPrep B200 or GenoPrep B350 cartridges on the GenoM™-6 robotic workstation (GenoVision Europe Tel: +43 1 710 15 00 or GenoVision Inc. USA Tel: +1 610 430 88 41; <http://www.genovision.com>). Using GenoM™-6-extracted DNA ACD, EDTA and heparinised blood can be used as starting material. Because of its high purity, GenoM™-6-extracted DNA can be diluted when used in combination with Olerup SSP™ products. The recommended DNA concentration is 15 ng/μl.

Alternatively – BUT DO NOT USE HEPARINISED BLOOD WITH THESE METHODS - the DNA can be extracted using trimethylammoniumbromide salts (DTAB/CTAB) or by salting out. Dissolve the extracted DNA in dH₂O.

IMPORTANT:

Optimal DNA concentration using: GenoM™-6-extracted DNA, 15 ng/μl.

DNA extracted by other methods, 30 ng/μl.

Concentration exceeding 50 ng/μl will increase the risk for nonspecific amplifications and weak extra bands, especially for HLA Class I high resolution SSP typings.

PCR AMPLIFICATION

101.115-24/03 – licensed for PCR

For one DRB1*11 subtyping, add at room temperature in a 0.5 ml tube:

38 x 2 μl = 76 μl DNA (30 ng/μl)

38 x 3 μl = 114 μl PCR Master Mix complete with *Taq* – mix well
before taking your aliquot

38 x 5 μl = 190 μl dH₂O

Mix well, dispense 10 μl of the DNA-PCR Master Mix-H₂O mixture into each of the 32 wells of a DRB1*11 subtyping. **Well No. 1 of the 32 well PCR plate is marked with '1'.** Close the 32 well PCR plate with the provided lids.

101.115-24u/03u – not licensed for PCR

For one DRB1*11 subtyping, add at room temperature in a 0.5 ml tube:

38 x 2 μl = 76 μl DNA (30 ng/μl)

38 x 3 μl = 114 μl PCR Master Mix without *Taq* – mix well before
taking your aliquot

3.0 μl *Taq* polymerase (5 units/μl)

38 x 5 μl – 3.0 μl = 187 μl dH₂O

Mix well, dispense 10 μl of the DNA-PCR Master Mix-*Taq*-H₂O mixture into each of the 32 wells of a DRB1*11 subtyping. **Well No. 1 of the 32 well PCR plate is marked with '1'.** Close the 32 well PCR plate with the provided lids.

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

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 powerful carcinogen.**

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***.

INTERPRETATION SOFTWARE

The interpretation software (Product No. 110.101) can be helpful in the interpretation of the typings.

PCR MASTER MIXES

The PCR Master Mix complete with *Taq* contains:

<i>Taq</i> 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 the licensed *Olerup* SSP kits.

The PCR Master Mix without *Taq* 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 the unlicensed *Olerup* SSP kits.

The PCR Master Mix complete with *Taq* and the PCR Master Mix without *Taq* can be shipped at ambient temperature.

When stored at –20°C, the PCR Master Mix complete with *Taq* and the PCR Master Mix without *Taq* are stable for 24 months from the date of manufacture.

Vials with the PCR Master Mixes can be kept at +4°C for 4 weeks, but the PCR Master Mixes are then no longer stable for 24 months.

SPECIFICITY TABLE

DRB1*11 SSP subtyping

Specificities and sizes of the PCR products of the 32 primer mixes used for DRB1*11 SSP subtyping

Primer Mix	Approx. size of spec. PCR product ¹	Size of control band ²	Amplified DRB*11 alleles ³	Other amplified DRB alleles ^{3,4}
1	175 bp	515 bp	110101-110404, 110601-1121, 1123-1129, 1131-1166	0308
2	175 bp	430 bp	1105	0831, 1204, 1411
3⁵	65 bp	430 bp	110101-110107, 1103-110602, 1109-111202, 1115, 1122-1125, 112701-1130, 1132, 1133, 1135, 1137-1141, 1143, 1144, 1146, 1147, 1149-1151, 115401-1156, 1158-1163, 1166	0415, 0831, DRB5*0113
4	200 bp	430 bp	110201-110202, 111401-111402, 1116, 1118-1121, 1131, 1145, 1148, 116501-116502	130101-1304, 1306, 1308, 1310, 1312, 1313, 1315, 1316, 1319, 1322, 1323, 1327, 1328, 1330-1341, 1345, 1348, 1351-1353, 1357-1359, 1361, 1364-1366, 1368- 1370, 1372, 1373, 1374 ^{weakly} , 1376, 1377, 1379-1381, 1416, 1463, 1467
5^{5,6}	85 bp	515 bp	110101-110107, 110401-110602, 110801-1110, 111201-1113, 1115, 1117- 111902, 1122- 1135, 1137-1139, 1142-1147, 1149,	0415, 0461, 0831, 1204, 1411, DRB5*0113

			1150, 1152, 115401-1158, 1160-1162, 1164, 1166 110201-1103, 111101-111102, 111401-111402, 1116, 1120, 1121, 1136, 1140, 1141, 1148, 1155, 1159, 1163, 116501- 116502	
6^{5,6}	80 bp	515 bp		
7⁵	125 bp	430 bp	110101-110107, 1105, 110801- 111202, 111401- 1115, 111901- 1120, 1122-1124, 1126-1133, 1137, 1139, 1145, 1149, 1151, 1153, 1161, 1162, 1164, 1166	0461, DRB3*0218 , DRB5*0113
8⁵	125 bp	430 bp	110201-110404, 110601-1107, 1113, 1116-1118, 1121, 1125, 1134- 1136, 1138, 1140- 1144, 1146-1148, 1150, 1152, 115401-1160, 1163, 116501- 116502	0308, 0415, 0831, 1204, 1411
9⁵	85 bp	430 bp	1107, 1123, 1125, 1132, 1145, 1153, 1155, 1164	0308
10^{5,7}	65, 85 bp	430 bp	1107, 1113, 1117, 1123, 1125, 1126, 1134, 1145, 1152, 1153, 1155, 1164	0308, 0461, 1411, DRB3*0218
11⁸	200, 255 bp	515 bp	110601-110602, 110801-110802, 1121, 1136, 1142, 1147, 1157, 1164	0320, 1320, 1325, 1329, 1343, 1356, 1358, 1360, 1371, 1378, 1381, 140301-140302, 1412, 1429, 1440, 1469, 1474 DRB3*0218
12^{5,9}	95, 185 bp	430 bp	1130, 1161	DRB3*0218

13^{5,10}	70, 105 bp	430 bp	1109, 1116, 1120, 1128, 1140, 1158-1160	0308
14^{5,6}	75 bp	430 bp	1117, 1137, 1141, 1148, 1150, 1152, 1156	0415, 0461, 0831, 1411, DRB3*0218, DRB5*0113
15^{5,11}	60, 105 bp	430 bp	1110, 111201-1113, 1117, 1152, 1166	1411
16⁵	110 bp	430 bp	1115, 1124, 1144, 1149, 1150	0326, 0333, 1362, 1368
17⁵	90 bp	430 bp	1117, 1123, 1125, 1145, 1152-1155, 1164	1411
18^{5,6}	95 bp	515 bp	1107, 112701-112702	0308, DRB3*0218
19¹²	180, 225 bp	430 bp	1123, 1125, 1131, 1132, 1145, 1152, 1155, 1164	0310, 0820, 1313, 1318, 1343, 1345, 1347, 1355, 140101-140103, 140301-140302, 140701-1408, 1412, 1416, 1422, 1425-1427, 143201-143202, 1434, 1435, 1438-1440, 1449, 1453-1455, 1458, 1460, 1462, 1463, 1467, 1469, 1470, 1472, 1474
20^{5,6}	115 bp	515 bp	1110, 111201-1113, 1117, 1129, 1144, 1147, 1149, 1150, 1152, 1163	0304, 0321, 0326, 0330, 0333, 0335, 1308, 1319, 1357, 1360, 1372, 1376, 140101-140103, 140501-140503, 140701-1408, 1414, 1416, 1420, 1422-142302, 1426, 143201-143202, 1434-1440, 1443-1445, 1449, 1454-1456, 1460, 1462, 1465, 1470, 1472, 1474

21¹³	135, 175 bp	430 bp	1122, 1159	0308, 0415, 0461
22^{5,14}	115, 180 bp	430 bp	1115, 1133, 1135, 116501-116502	1362
23⁵	120 bp	430 bp	1138	
24¹⁵	155, 255 bp	430 bp	110601-110602, 1121, 1139, 1143, 1147, 1150, 1157	0317, 0320, 0337, 1358, 1381, 1429, 1459
25⁵	110 bp	515 bp	110404, 1109, 1110, 111202, 1113, 1116, 1117, 1120, 1122, 1140, 1146, 1152, 1158, 1159	0308, 1411
26⁵	120 bp	430 bp	1109, 1110, 1113, 1116, 1117, 1120, 1140, 1146, 1152, 1159, 1162	0308, 1411
27⁵	85 bp	430 bp	111101-111102, 111401-111402, 1120	0103, 0414, 130201-130302, 1323, 1329, 1331, 1333, 1334, 1336- 1339, 1341, 1345, 1363, 1365, 1367, 1373, 1374
28⁵	85 bp	430 bp	110201-1103, 1116, 1121, 1136, 1140, 1141, 1148, 1155, 1159, 1163, 116501-116502	0402, 0437, 130101-130103, 1304, 1308, 1310, 1315, 1317, 1319, 1320, 1322, 1324, 1327, 1328, 1332, 1335, 1340, 1343, 1348, 1351-1354, 1357, 1359, 1361, 1364, 1368-1372, 1375, 1376, 1378- 1380, 1416, 1457, 1510
29⁵	100 bp	515 bp	111401-111402, 111901-1120, 1131, 1145	0103, 0115, 0414, 0438, 070101- 070102, 0703- 0715, 080302, 0814, 0815, 0818, 0819, 0823, 0825, 0827, 0829, 0830, 0832-0834, 130201-130302, 1312, 1313, 1323,

				1330, 1331, 1333, 1334, 1336-1339, 1341, 1345, 1365- 1367, 1373, 1374, 1424, 1463, 1467, 150201-150204, 1511, 1514, 1519, 1526, 160501- 160502, 1607, DRB3*0211, DRB5*0107, DRB5*0111, DRB5*0203
30⁵	100 bp	515 bp	110101-110107, 1103-110602, 1109-111202, 1115, 1122-1125, 112701-1130, 1132, 1133, 1135, 1138-1140, 1143, 1144, 1146, 1147, 1149, 1151, 115401-1155, 1158-1163, 1166	0817, 0828, 120201-120202, 1213, 1215, 1216, 130501-130502, 1311, 131401- 131402, 1318, 1321, 1324, 1342, 1346, 1350, 1354, 1362, 1363, 1375, 1453, 1609
31⁵	85 bp	515 bp	110401-110404, 110601-110602, 1118, 1125, 1135, 1138, 1142-1144, 1146, 1147, 1150, 115401-115402, 1156-1158, 1160	0412, 0415, 0418, 0425, 0436, 0453, 0458, 080401, 080404, 0806, 0810, 0812, 0820, 0822, 0828, 0831, 120101-120202, 120302-1215, 1306, 1311, 1318, 1342, 1358, 1377, 1412, 1415, 1473, 1474, 1521
32⁵	75 bp	430 bp	1113, 1117, 1151, 1152	1411

¹Alleles are assigned by the presence of specific PCR product(s). However, the sizes of the specific PCR products may be helpful in the interpretation of DRB1*11 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 bp or more. Size differences shorter than 20 bp are not given. For high resolution SSP kits the length of the specific PCR product(s) of the alleles amplified by these primer mixes are given.

Nonspecific amplifications, i.e. a ladder or a smear of bands, may sometimes be seen. GC-rich primers have a higher tendency of giving rise to nonspecific amplifications than other primers, e.g. the primers in primer mixes 5 and 18.

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

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 tubes, or a band of 515 base pairs, for some tubes.

Tube 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*11 subtyping.

In addition, tubes number 5, 6, 11, 18, 20, 25, 29, 30 and 31 contain the primer pair giving rise to the longer, 515 bp, internal positive control band in order to allow kit identification.

PLEASE NOTE: All the SSP kits, except the B*37, B*41, B*42, B*46, B*47, B*48, B*49, B*50, B*53, B*67, B*78, B*81 and B*82 kits and the Cw*01, Cw*02, Cw*08, Cw*12, Cw*14, Cw*15, Cw*16, Cw*17 and Cw*18 kits, from *Olerup* SSP AB can be uniquely identified by the number of tubes and the kit-specific pattern of the two differently sized control bands.

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 within the DR52 group of DRB1 alleles, two DRB1*01 alleles, eleven DRB1*03 alleles, twelve DRB1*04 alleles, most DRB1*07 alleles, most DRB1*08 alleles, all DRB1*12 alleles, many DRB1*13 and DRB1*14 alleles, ten DRB1*15 and four DRB1*16 alleles when present on the other haplotype. In addition, the DRB3*0211, DRB5*0107, DRB5*0111 and DRB5*0203 alleles are amplified by primer mix 29 and the DRB3*0218 allele is amplified by primer mixes 7, 10, 12, 14 and 18 and the DRB5*0113 allele is amplified by primer mixes 3, 5, 7 and 14.

⁵Specific PCR fragments shorter than 125 base pairs have a lower intensity than longer PCR bands. In order to have as little co-amplification as possible of non-DRB1*11 alleles by the primer pairs of the DRB1*11 subtyping kit, the DRB1*11 characteristic sequence motif in codon 58, 'Ag', has been used in either the 5'-primer or the 3'-primer in many of the DRB1*11 primer mixes and consequently many of the specific PCR products are shorter than 100 base pairs.

⁶Primer mixes 5, 6, 14, 18 and 20 frequently gives rise to nonspecific amplification and/or a primer oligomer artifact.

⁷Primer mix 10: Specific PCR fragment of 65 bp in the DRB1*1113, 1117, 1126, 1134, 1152, 1155, and the 0461, 1411 and DRB3*0218 alleles. Specific PCR fragment of 85 bp in the DRB1*1107, 1123, 1125, 1145, 1153, 1164 and the 0308 alleles.

⁸Primer mix 11: Specific PCR fragment of 200 bp in the DRB1*110801-110802, 1136, 1142, 1164 and the 1320, 1325, 1329, 1343, 1356, 1360, 1371, 1378, 140301-140302, 1412, 1440, 1469 and 1474 alleles. Specific PCR fragment of 255 bp in the DRB1*110601-110602, 1121, 1147, 1157 and the 0320, 1358, 1381 and 1429 alleles.

⁹Primer mix 12: Specific PCR fragment of 95 bp in the DRB1*1161 allele. Specific PCR fragment of 185 bp in the DRB1*1130 and the DRB3*0218 alleles.

¹⁰Primer mix 13: Specific PCR fragment of 70 bp in the DRB1*1160 allele. Specific PCR fragment of 105 bp in the DRB1*1109, 1116, 1120, 1128, 1140, 1158 to 1160 and the 0308 alleles.

¹¹Primer mix 15: Specific PCR fragment of 60 bp in the DRB1*1166 allele. Specific PCR fragment of 105 bp in the DRB1*1110, 111201-111202, 1113, 1117, 1152 and the 1411 alleles.

¹²Primer mix 19: Specific PCR fragment of 180 bp in the DRB1*1131, 1152 and the 0310, 1343, 1345, 140101-140103, 140701-1408, 1416, 1422, 1425, 1426, 143201-143202, 1434, 1435, 1438, 1439, 1449, 1453-1455, 1463, 1469, 1470, 1472 and 1474 alleles. Specific PCR fragment of 225 bp in the DRB1*1123, 1125, 1132, 1145, 1155, 1164 and the 0820, 1313, 1318, 1347, 1355, 140301-140302, 1412, 1427, 1440, 1458, 1460, 1462 and 1467 alleles.

¹³Primer mix 21: Specific PCR fragment of 135 bp in the DRB1*1159 and the 0308 alleles. Specific PCR fragment of 175 bp in the DRB1*1122 and the 0415 and 0461 alleles.

¹⁴Primer mix 22: Specific PCR fragment of 115 bp in the DRB1*1115 and the 1362 alleles. Specific PCR fragment of 180 bp in the DRB1*1133, 1135 and 116501-116502 alleles.

¹⁵Primer mix 24: Specific PCR fragment of 155 bp in the DRB1*1139, 1143, 1150 and the 0317, 0337 and 1459 alleles. Specific PCR fragment of 255 bp in the DRB1*110601-110602, 1121, 1147, 1157 and the 0320, 1358, 1381 and 1429 alleles.

INTERPRETATION TABLE																
DRB1*11 SSP subtyping																
Amplification patterns of the DRB1*1101 to DRB1*1166 alleles																
	Tube ⁴															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length of spec.	175	175	65	200	85	80	125	125	85	65	200	70	95	75	60	110
PCR product										85	255	105	185		105	
Length of int.	515	430	430	430	515	515	430	430	430	430	515	430	430	430	430	430
pos. control ¹																
5'-primer(s) ²	13	13	58	13	58	58	58	58	58	58	13	37	10	47	37	13
	5'-g TC ³	5'-g gg ³	5'-gAg ³	5'-g TC ³	5'-T gA ³	5'-gAg ³	5'-gAg ³	5'-gAg ³	5'-gAg ³	5'-gAg ³	5'-g TC ³	5'-Ag A ³	5'-g CT ³	5'-g TA ³	5'-g TT ³	5'-g TC ³
												49	41		52	
												5'-gg A ³	5'-T CA ³		5'-g AT ³	
3'-primer(s) ³	58	58	67	67	71	71	86	86	73	67	67	58	58	58	58	37
	5'-C CT ³	5'-C CT ³	5'-gAA ³	5'-gAT ³	5'-CCT ³	5'-CTC ³	5'-C AC ³	5'-C CA ³	5'-g gC ³	5'-gAg ³	5'-gAg ³	5'-C CT ³	5'-C CT ³	5'-C CT ³	5'-C CT ³	5'-gTC ³
	58		67	67	72				74	73	85					38
	5'-C CT ³	5'-gAA ³	5'-gAT ³	5'-gC g ³					5'-C CA ³	5'-g gC ³	5'-C Ag ³					5'-CAA ³
					74					74						38
					5'-CAg ³					5'-CAg ³						5'-g Cg ³
Tube No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
DRB1 allele																
*110101-110107	+		+		+		+									
110201-110202	+			+		+		+								
*1103	+		+			+		+								
*110401-110403	+		+		+			+								
*110404	+		+		+			+								
*1105		+	+		+		+									
*110601-110602	+		+		+			+			+					
*1107	+							+	+	+						
*110801-110802	+				+		+				+					
*1109	+		+		+		+						+			
*1110	+		+		+		+								+	
*111101-111102	+		+			+	+									
*111201	+		+		+		+								+	
*111202	+		+		+		+								+	
*1113	+				+			+		+					+	
*111401-111402	+			+		+	+									
*1115	+		+		+		+									+
*1116	+			+		+		+					+			
*1117	+				+			+		+				+	+	
*1118	+			+	+			+								
Tube No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

INTERPRETATION TABLE																
DRB1*11 SSP subtyping																
Amplification patterns of the DRB1*1101 to DRB1*1166 alleles																
Tube ⁴																
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
90	95	180	115	135	115	120	155	110	120	85	85	100	100	85	75	Length of spec. PCR product
		225		175	180		255									Length of int. pos. control ¹
430	515	430	515	430	430	430	430	515	430	430	430	515	515	515	430	5'-primer(s) ²
58	58	13	13	13	13	59	13	34	32	71	71	67	47	71	58	
5'-T gA ³	5'-gAg ³	5'-g TC ³	5'-g TC ³	5'-A CA ³	5'-g TC ³	5'-g gg ³	5'-g TC ³	5'-CAg ³	5'-TC C ³	5'-C gA ³	5'-C gA ³	5'-AC A ³	5'-g TT ³	5'-C Ag ³	5'-gAg ³	
				26						71	71					
				5'-g TA ³						5'-C AA ³	5'-C AA ³					
74	77	60	37	58	38	86	51	58	58	86	86	86	67	86	70	3'-primer(s) ³
5'-CAg ³	5'-A AT ³	5'-gTg ³	5'-C gA ³	5'-C CT ³	5'-CAA ³	5'-C CA ³	5'-C CC ³	5'-C CT ³	5'-C CT ³	5'-C AC ³	5'-C CA ³	5'-C AC ³	5'-gAA ³	5'-C CA ³	5'-T CC ³	
74	77	74	37		59		85								72	
5'-C CT ³	5'-A gT ³	5'-C CA ³	5'-C gg ³		5'-TA g ³		5'-C Ag ³								5'-C CT ³	
			38													
			5'-g Cg ³													
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	Tube No. DRB1 allele
													+			*110101-110107
											+					110201-110202
											+		+			*1103
													+	+		*110401-110403
								+					+	+		*110404
													+			*1105
							+						+	+		*110601-110602
	+															*1107
																*110801-110802
								+	+				+			*1109
			+					+	+				+			*1110
										+			+			*111101-111102
			+										+			*111201
			+					+					+			*111202
			+					+	+						+	*1113
										+		+				*111401-111402
					+								+			*1115
								+	+		+					*1116
+			+					+	+						+	*1117
														+		*1118
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	Tube No.

Length of spec.	175	175	65	200	85	80	125	125	85	65	200	70	95	75	60	110
PCR product										85	255	105	185		105	
Tube No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
*111901-111902	+			+	+		+									
*1120	+			+		+	+						+			
*1121	+			+		+		+			+					
*1122			+		+		+									
*1123	+		+		+		+		+	+						
*1124	+		+		+		+									+
*1125	+		+		+			+	+	+						
*1126	+				+		+			+						
*112701-112702	+		+		+		+									
*1128	+		+		+		+						+			
*1129	+		+		+		+									
*1130			+		+		+					+				
*1131	+			+	+		+									
*1132	+		+		+		+		+							
*1133	+		+		+		+									
*1134	+				+			+		+						
*1135	+		+		+			+								
*1136	+					+		+			+					
*1137	+		+		+		+							+		
*1138	+		+		+			+								
*1139	+		+		+		+									
*1140	+		+			+		+					+			
*1141	+		+			+		+						+		
*1142	+				+			+			+					
*1143	+		+		+			+								
*1144	+		+		+			+								+
*1145	+			+	+		+		+	+						
*1146	+		+		+			+								
*1147	+		+		+			+			+					
*1148	+			+		+		+						+		
*1149	+		+		+		+									+
*1150	+		+		+			+						+		+
*1151	+		+				+									
*1152	+				+			+		+				+	+	
*1153	+						+		+	+						
*115401-115402	+		+		+			+								
*1155	+		+		+	+		+	+	+						
*1156	+		+		+			+						+		
*1157	+				+			+			+					
Tube No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

90	95	180	115	135	115	120	155	110	120	85	85	100	100	85	75	Length of spec. PCR product
		225		175	180		255									
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	Tube No.
												+				*111901-111902
								+	+	+		+				*1120
							+				+					*1121
				+				+					+			*1122
+		+											+			*1123
													+			*1124
+		+											+	+		*1125
																*1126
	+												+			*112701-112702
													+			*1128
			+										+			*1129
													+			*1130
		+										+				*1131
		+											+			*1132
					+								+			*1133
																*1134
					+								+	+		*1135
											+					*1136
						+										*1137
							+						+	+		*1138
							+						+			*1139
								+	+		+		+			*1140
											+					*1141
														+		*1142
							+						+	+		*1143
			+										+	+		*1144
+		+										+				*1145
								+	+				+	+		*1146
			+				+						+	+		*1147
											+					*1148
			+										+			*1149
			+				+							+		*1150
													+		+	*1151
+		+	+					+	+						+	*1152
+																*1153
+													+	+		*115401-115402
+		+									+		+			*1155
														+		*1156
							+							+		*1157
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	Tube No.

Length of spec.	175	175	65	200	85	80	125	125	85	65	200	70	95	75	60	110
PCR product										85	255	105	185		105	
Tube No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
*1158	+		+		+			+					+			
*1159	+		+			+		+					+			
*1160	+		+		+			+					+			
*1161	+		+		+		+					+				
*1162	+		+		+		+									
*1163	+		+			+		+								
*1164	+				+		+		+	+	+					
*116501-116502	+			+		+		+								
*1166	+		+		+		+								+	
*0103, 0414, 1367																
*0115, 0438, 070101-070102, 0703-0715, 080302, 0814, 0815, 0818, 0819, 0823, 0825, 0827, 0829, 0830, 0832- 0834, 1424, 150201-150204, 1511, 1514, 1519, 1526, 160501- 160502, 1607																
*0304, 0321, 0330, 0335, 140501- 140503, 1414, 1420, 142301- 142302, 1436, 1437, 1443-1445, 1456, 1465																
*0308	+							+	+	+			+			
*0310, 1347, 1355, 1425, 1427, 1458																
*0317, 0337, 1459																
*0320, 1429											+					
*0326, 0333																+
*0402, 0437, 1317, 1457, 1510																
Tube No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

90	95	180	115	135	115	120	155	110	120	85	85	100	100	85	75	Length of spec. PCR product
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	Tube No.
								+					+	+		*1158
				+				+	+		+		+			*1159
													+	+		*1160
													+			*1161
									+				+			*1162
			+								+		+			*1163
+		+														*1164
					+						+					*116501-116502
													+			*1166
										+		+				*0103, 0414, 1367
												+				*0115, 0438, 070101-070102, 0703-0715, 080302, 0814, 0815, 0818, 0819, 0823, 0825, 0827, 0829, 0830, 0832- 0834, 1424, 150201-150204, 1511, 1514, 1519, 1526, 160501- 160502, 1607
			+													*0304, 0321, 0330, 0335, 140501- 140503, 1414, 1420, 142301- 142302, 1436, 1437, 1443-1445, 1456, 1465
	+			+				+	+							*0308
		+														*0310, 1347, 1355, 1425, 1427, 1458
							+									*0317, 0337, 1459
							+									*0320, 1429
			+													*0326, 0333
											+					*0402, 0437, 1317, 1457, 1510
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	Tube No.

Length of spec.	175	175	65	200	85	80	125	125	85	65	200	70	95	75	60	110
PCR product										85	255	105	185		105	
Tube No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
*0412, 0418, 0425, 0436, 0453, 0458, 080401, 080404, 0806, 0810, 0812, 0822, 120101- 120102, 120302, 1205-1212, 1214, 1415, 1473, 1521																
*0415			+		+			+						+		
*0461					+		+			+				+		
*0817, 1216, 130501-130502, 131401-131402, 1321, 1346, 1350, 1609																
*0820																
*0828, 120201- 120202, 1213, 1215, 1311, 1342																
*0831		+	+		+			+						+		
*1204		+			+			+								
*130101-130103, 1304, 1310, 1315, 1322, 1327, 1328, 1332, 1335, 1340, 1348, 1351-1353, 1359, 1361, 1364, 1369, 1370, 1379, 1380				+												
*130201-130302, 1323, 1331, 1333, 1334, 1336-1339, 1341, 1365, 1373				+												
*1306, 1377				+												
*1308, 1319, 1357, 1372, 1376				+												
*1312, 1330, 1366				+												
*1313, 1463, 1467				+												
*1316				+												
Tube No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

90	95	180	115	135	115	120	155	110	120	85	85	100	100	85	75	Length of spec. PCR product
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	Tube No.
														+		*0412, 0418, 0425, 0436, 0453, 0458, 080401, 080404, 0806, 0810, 0812, 0822, 120101- 120102, 120302, 1205-1212, 1214, 1415, 1473, 1521
				+										+		*0415
				+												*0461
													+			*0817, 1216, 130501-130502, 131401-131402, 1321, 1346, 1350, 1609
		+												+		*0820
													+	+		*0828, 120201- 120202, 1213, 1215, 1311, 1342
														+		*0831
														+		*1204
											+					*130101-130103, 1304, 1310, 1315, 1322, 1327, 1328, 1332, 1335, 1340, 1348, 1351-1353, 1359, 1361, 1364, 1369, 1370, 1379, 1380
										+		+				*130201-130302, 1323, 1331, 1333, 1334, 1336-1339, 1341, 1365, 1373
														+		*1306, 1377
			+								+					*1308, 1319, 1357, 1372, 1376
												+				*1312, 1330, 1366
		+										+				*1313, 1463, 1467
																*1316
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	Tube No.

Length of spec.	175	175	65	200	85	80	125	125	85	65	200	70	95	75	60	110
PCR product										85	255	105	185		105	
Tube No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
*1318																
*1320, 1371, 1378											+					
*1324, 1354, 1375																
*1325, 1356											+					
*1329											+					
*1343											+					
*1345				+												
*1358				+							+					
*1360											+					
*1362																+
*1363																
*1368				+												+
*1374				W												
*1381				+							+					
*140101-140103, 140701-1408, 1422, 1426, 143201-143202, 1434, 1435, 1438, 1439, 1449, 1454, 1455, 1460, 1462, 1470, 1472																
*140301-140302, 1469											+					
*1411		+			+			+		+				+	+	
*1412											+					
*1416				+												
*1440											+					
*1453																
*1474											+					
DRB1 allele																
Tube No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
DRB3*0211, DRB5*0107, DRB5*0111, DRB5*0203																
DRB3*0218							+			+		+		+		
DRB5*0113			+		+		+							+		
Tube No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

90	95	180	115	135	115	120	155	110	120	85	85	100	100	85	75	Length of spec. PCR product
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	Tube No.
		+											+	+		*1318
											+					*1320, 1371, 1378
											+		+			*1324, 1354, 1375
																*1325, 1356
										+						*1329
		+									+					*1343
		+								+		+				*1345
							+							+		*1358
			+													*1360
					+								+			*1362
										+			+			*1363
											+					*1368
										+		+				*1374
							+									*1381
		+	+													*140101-140103, 140701-1408, 1422, 1426, 143201-143202, 1434, 1435, 1438, 1439, 1449, 1454, 1455, 1460, 1462, 1470, 1472
		+														*140301-140302, 1469
+								+	+						+	*1411
		+												+		*1412
		+	+								+					*1416
		+	+													*1440
		+											+			*1453
		+	+											+		*1474
																DRB1 allele
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	Tube No.
												+				DRB3*0211, DRB5*0107, DRB5*0111, DRB5*0203
	+															DRB3*0218
																DRB5*0113
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	Tube 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 tubes, or a band of 515 base pairs, for some tubes.

Tube 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*11 subtyping.

In addition, tubes number 5, 6, 11, 18, 20, 25, 29, 30 and 31 contain the primer pair giving rise to the longer, 515 bp, internal positive control band in order to allow kit identification.

PLEASE NOTE: All the SSP kits, except the B*37, B*41, B*42, B*46, B*47, B*48, B*49, B*50, B*53, B*67, B*78, B*81 and B*82 kits and the Cw*01, Cw*02, Cw*08, Cw*12, Cw*14, Cw*15, Cw*16, Cw*17 and Cw*18 kits, from *Olerup* SSP AB can be uniquely identified by the number of tubes and the kit-specific pattern of the two differently sized control bands.

²The codon, in the 2nd exon, matching the specificity-determining 3'-end of the primer is given. Codon numbering as in *Tissue Antigens* 1998, **51:II**, 467-507. 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 in *Tissue Antigens* 1998, **51:II**, 467-507. The sequence of the 3 terminal nucleotides of the primer is given. Empty spaces indicate codon boundaries.

⁴Primer mix 10: Specific PCR fragment of 65 bp in the DRB1*1113, 1117, 1126, 1134, 1152, 1155, and the 0461, 1411 and DRB3*0218 alleles. Specific PCR fragment of 85 bp in the DRB1*1107, 1123, 1125, 1145, 1153, 1164 and the 0308 alleles.

Primer mix 11: Specific PCR fragment of 200 bp in the DRB1*110801-110802, 1136, 1142, 1164 and the 1320, 1325, 1329, 1343, 1356, 1360, 1371, 1378, 140301-140302, 1412, 1440, 1469 and 1474 alleles. Specific PCR fragment of 255 bp in the DRB1*110601-110602, 1121, 1147, 1157 and the 0320, 1358, 1381 and 1429 alleles.

Primer mix 12: Specific PCR fragment of 95 bp in the DRB1*1161 allele. Specific PCR fragment of 185 bp in the DRB1*1130 and the DRB3*0218 alleles.

Primer mix 13: Specific PCR fragment of 70 bp in the DRB1*1160 allele. Specific PCR fragment of 105 bp in the DRB1*1109, 1116, 1120, 1128, 1140, 1158 to 1160 and the 0308 alleles.

Primer mix 15: Specific PCR fragment of 60 bp in the DRB1*1166 allele. Specific PCR fragment of 105 bp in the DRB1*1110, 111201-111202, 1113, 1117, 1152 and the 1411 alleles.

Primer mix 19: Specific PCR fragment of 180 bp in the DRB1*1131, 1152 and the 0310, 1343, 1345, 140101-140103, 140701-1408, 1416, 1422, 1425, 1426, 143201-143202, 1434, 1435, 1438, 1439, 1449, 1453-1455, 1463, 1469, 1470, 1472 and 1474 alleles. Specific PCR fragment of 225 bp in the DRB1*1123, 1125, 1132, 1145, 1155, 1164 and the 0820, 1313, 1318, 1347, 1355, 140301-140302, 1412, 1427, 1440, 1458, 1460, 1462 and 1467 alleles.

Primer mix 21: Specific PCR fragment of 135 bp in the DRB1*1159 and the 0308 alleles. Specific PCR fragment of 175 bp in the DRB1*1122 and the 0415 and 0461 alleles.

Primer mix 22: Specific PCR fragment of 115 bp in the DRB1*1115 and the 1362 alleles. Specific PCR fragment of 180 bp in the DRB1*1133, 1135 and 116501-116502 alleles.

Primer mix 24: Specific PCR fragment of 155 bp in the DRB1*1139, 1143, 1150 and the 0317, 0337 and 1459 alleles. Specific PCR fragment of 255 bp in the DRB1*110601-110602, 1121, 1147, 1157 and the 0320, 1358, 1381 and 1429 alleles.

CELL LINE VALIDATION SHEET															
DRB1*11 SSP subtyping kit															
				Tube											
					1	2	3	4	5	6	7	8	9	10	11
					12	13	14	15	16	17	18	19	20	21	22
				Prod. No.:	200514001	200514002	200514003	200514004	200514005	200627306	200514007	200514008	200514009	200514010	200514011
					200740012	200740013	200740014	200740015	200740016	200740017	200740018	200740019	200740020	200740021	200740022
	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	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*11 SSP

Product number: 101.115-24/03 – licensed for PCR
101.115-24u/03u – not licensed for PCR
Lot number: Y48
Expiry date: 2009-September-01
Number of tests: 24 tests – Product No. 101.115-24
3 tests – Product No. 101.115-03
Number of tubes per test: 32

Tube specifications:

Tube No.	Production No.	Tube No.	Production No.	Tube No.	Production No.
1	2005-140-01	13	2007-400-13	25	2005-140-25
2	2005-140-02	14	2005-140-14	26	2005-140-26
3	2005-140-03	15	2007-400-15	27	2005-140-27
4	2005-140-04	16	2005-140-16	28	2005-140-28
5	2005-140-05	17	2005-140-17	29	2005-140-29
6	2006-273-06	18	2007-400-18	30	2005-140-30
7	2005-140-07	19	2005-140-19	31	2005-140-31
8	2005-140-08	20	2005-140-20	32	2006-273-32
9	2005-140-09	21	2007-400-21		
10	2005-140-10	22	2005-140-22		
11	2005-140-11	23	2005-140-23		
12	2007-400-12	24	2006-273-24		

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

No DNAs carrying the alleles to be amplified by primer solutions 2, 9 to 12, 14, 16 to 18, 21 to 26 and 32 were available. The specificities of the primers in primer solutions 2, 9, 10, 11, 12, 14, 17, 18, 21, 24, 25, 26 and 32 were tested by separately adding one or several additional 5'-primer(s), respectively, one or several additional 3'-primer(s). In primer solutions 16, 22 and 32 one of the 3'-primers was not possible to test. In primer solution 23 the 5'-primer was not possible test.

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

Date of approval: 2007-December-16

Approved by:

Quality Control, Supervisor

Declaration of Conformity

Product name: Olerup SSP™ DRB1*11
Product number: 101.115-24/03, 101.115-24u/03u
Lot number: Y48

Intended use: DRB1*11 high resolution histocompatibility testing

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

We, Olerup SSP AB, hereby declare that this product, to which this Declaration of Conformity relates is in conformity with the following Standard(s) and other normative document(s) ISO 9001:2000 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
2007-December-16

Olle Olerup
Managing Director

DRB1*11

101.115-24/03 – licensed for PCR

101.115-24u/03u – not licensed for PCR

Lot No.: **Y48**

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Lot No.: **Y48**

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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, Hasselstigen 1, SE-133 33 Saltsjöbaden, Sweden.

Handle all samples as if capable of transmitting disease. All work should be performed wearing gloves and appropriate protection.

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PCRTM is a trademark of F. Hoffmann-La Roche Ltd.
ARMSTM is a trademark of Zeneca Ltd.

DRB1*11
101.115-24/03 – licensed for PCR
101.115-24u/03u – not licensed for PCR
Lot No.: **Y48**

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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**.