

Olerup SSP™ DPB1

Product number: 101.311-24/04 – licensed for PCR
101.311-24u/04u – not licensed for PCR
Lot number: Y21
Expiry date: 2009-August-01
Number of tests: 24 tests – Product No. 101.311-24
4 tests – Product No. 101.311-04
Number of tubes per test: 48
Storage - pre-aliquoted primers: dark at -20°C
- PCR Master Mix: -20°C

This Product Description is only valid for Lot No. Y21.

CHANGES COMPARED TO THE PREVIOUS *OLERUP* SSP™ DPB1 LOT

The DPB1 specificity and interpretation tables have been updated for the DPB1 alleles described since the previous *Olerup* SSP™ DPB1 lot was made (**Lot No. X20**).

The primers of the tubes detailed below have been added, exchanged or modified.

Tube	5'-primer	3'-primer	rationale
1	Modified	-	Increased yield of specific PCR product.
3	-	Modified	Increased yield of specific PCR product.
12	-	Modified	Increased yield of specific PCR product.
30	Modified	Modified	Increased yield of specific PCR product.
40	Modified	-	Increased yield of specific PCR product.
43	-	Modified	Increased yield of specific PCR product.
44	-	-	Changed to the 430 bp internal positive control primer pair for decreased primer oligomer formation tendency.
45	Added	-	Primer added for the DPB1*1802 allele to be able to resolve the DPB1*0201,0401 and DPB1*0401,1802 genotypes.

PRODUCT DESCRIPTION

DPB1 SSP typing

CONTENT

The primer set contains 5'- and 3'-primers for identifying the DPB1*0101 to DPB1*9901 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.

48 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 48 PCR reactions in a 48 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
33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48

The 48 well cut PCR plate is marked with 'DPB1 Y21'.

Well No. 1 is marked with '1'.

The PCR plates are heat-sealed with a PCR-compatible foil.

Please note: When removing each 48 well PCR plate, make sure that the remaining plates stay sealed. Use a scalpel or a similar instrument to carefully cut the foil between the plates.

INTERPRETATION

Only DPB1 alleles will be amplified by the DPB1 typing kit. Thus, the interpretation of DPB1 typings is not influenced by the DPB2 gene or other HLA class II genes.

UNIQUELY IDENTIFIED ALLELES

All the phenotypically different DPB1 alleles, i.e. **DPB1*0101 to DPB1*9901**, recognized by the HLA Nomenclature Committee in October 2007¹ will give rise to unique amplification patterns by the primers in the DPB1 typing kit.

The DPB1 typing kit cannot distinguish the DPB1*010101 and DP1*010103 alleles, the DPB1*020102 to DPB1*020106 alleles, the DPB1*030101 and the DPB1*030102 alleles, the DPB1*040101 and DPB1*040102 alleles, the DPB1*110101 and DPB1*110102 alleles, the DPB1*200101 and DPB1*200102 alleles or the DPB1*260101 and DPB1*260102 alleles.

¹**Nomenclature for factors of the HLA system, 1998.** *Tissue Antigens* 1999; **53**: 407-446.

DPB1 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 116 DPB1 alleles can be combined in 6 786 homozygous and heterozygous combinations. 682 of these genotypes do not give rise to unique amplification patterns. (The different lengths of the specific PCR products in lanes 24, 25, 32, 37, 40, 41, 42, 43, 44, 45, 47 and 48 were not considered in these calculations.)

+++++++	+----+--	-----++	+-----+	-----	---+-----	0101,3801 = 2102,3801
+++++++	-----+	+++++--+	-----+	-----	-----	0301,6501 = 6501,9201
+++++++	-----+	+--+--+	---+--+	-----	-----	2601,6801 = 6501,7901
+++++++	-----	+--+--+	---+--+	-----	-----	2601,6501 = 2601,8401
+++++++	-----	-----+	-----+	-----	---+-----	2102,6501 = 2102,8401
+++++++	-----	-----+	-----+	-----	-----	0101,6501 = 0101,8401 = 6501,9001
+++++++	+--+-----	+++-----	-++-----	-----	---+-----	0101,6401N = 0601,2102 = 2102,6401N
+++++++	-----+	+++++--	-----++	-+-----	---+-----	1401,2102 = 2102,7601
+++++++	-----+	+++++--	-----++	-+-----	-----	0101,1401 = 0101,7601
+++++++	-----+	+++++--	-----+	-----	---+-----	0101,1402 = 0301,2102 = 1402,2102 = 2102,9201
+++++++	-----+	+++++--	-----+	-----	-----	0101,0301 = 0101,9201
+++++++	-----	+--+-----	---+--+	+-----+	-----	0101,0902 = 0902,9001
+++++++	-----	+--+-----	---+--+	+-----	---+-----	1301,2102 = 1302,2102
+++++++	-----	+--+-----	---+--+	+-----	-----	0101,1301 = 0101,1302 = 1301,9001
+++++++	-----	+--+-----	---+--+	-----	-----	0101,2601 = 2601,9001
+++++++	-----	-----	-----+	-----	---+-----	0101,2102 = 2102,2102 = 2102,8901 = 2102,9001
+++++++	-----	-----	-----+	-----	-----	0101,0101 = 0101,8901 = 0101,9001
+++++--+	-----+	+++++--	-----++	-+-----	-----	1401,9001 = 7601,9001
+++++--+	-----+	+++++--	-----+	-----	-----	0301,9001 = 9001,9201
+++++--+	-----	-----	-----+	-----	-----	8901,9001 = 9001,9001
+++++--+	-----+	+++++--	---+--+	-+-----	-----	1401,2601 = 2601,7601
+++++--+	-----+	+++++--	---+--+	-----	-----	0301,2601 = 2601,9201
+++++--+	-----	+--+-----	---+--+	+-----+	-----	0902,2601 = 0902,2701 = 0902,8901
+++++--+	-----	+--+-----	---+--+	+-----	-----	1301,2601 = 1301,2701 = 1301,8901 = 1302,2601
+++++--+	-----	+--+-----	---+--+	-----	-----	2601,2601 = 2601,2701 = 2601,8901
+++++--+	-----+	+++++--	-----++	-+-----	-----	1401,5601 = 5601,7601

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++++--+-	-----+	+++++---	-----++	-----	-----	1101,9201 = 5601,7801
++++--+-	-----+	+++++---	-----+-	-----	-----	0301,5601 = 5601,9201 = 8901,9201
++++--+-	-----	+---+---	-----+-	-----	-----	5601,5601 = 5601,8901
++++--+-	-----	+---+---	---+---+	+-----	-----	1302,2701 = 1302,8901
++++--+-	---+---	++-++---	-+-+---+	-----	-----	2701,8801 = 8801,8901
++++--+-	---+---	+---+---	---+---+	-----	-----	2701,3701 = 3701,8901
++++--+-	-----+	+++++---	---+---+	-----	-----+	0301,8501 = 2701,6101N = 6101N,8501
++++--+-	-----+	+---+---	---+---+	-----	-----	2701,7901 = 7901,8901
++++--+-	-----+	+++++---	-----++	-----	-----	0301,1101 = 1101,7801
++++--+-	-----+	+++++---	-----+-	-----	-----	6801,9201 = 8401,9201
++++--+-	++-+---	+++++---	-----	-----	+-----	7701,9201 = 9201,9401
++++--+-	++-+---	+++++---	---+---	-----	-----	2001,9201 = 6901,9201
++++--+-	-----+	+++++---	-----+-	+-----	-----	0301,7601 = 1401,9201 = 7601,9201
++++--+-	-----+	+++++---	-----	-----	-----	0301,9201 = 9201,9201
++++--+-	++-+---	+++++---	-----+-	-----	---+---	0301,1901 = 0502,1901
++++--+-	++-+---	+++++---	-----	-----	+-----	5001,7701 = 5001,9401
++++--+-	-----+	+++++---	-----++	-----	-----	6801,7801 = 7801,8401
++++--+-	-----+	+++++---	-----+-	-----	---+---	0502,6801 = 0502,8401
++++--+-	-----+	+++++---	-----+-	-----	---+---	1402,6801 = 1402,8401
++++--+-	-----+	+++++---	-----+-	-----	-----+	6101N,6801 = 6101N,8401
++++--+-	-----+	+++++---	-----+-	-----	-----	0301,6801 = 0301,8401
++++--+-	-----+	+++++---	-----+-	-----	-----	2501,6801 = 2501,8401
++++--+-	-----+	+++++---	---+---+	-----	-----	6801,7901 = 7901,8401
++++--+-	-----+	+++++---	-----+-	-----	-----	5001,6801 = 5001,8401
++++--+-	++-+---	+++++---	---+---	-----	-----	2001,5001 = 5001,6901
++++--+-	++-+---	+++++---	-----+	-----	+-----	7701,7801 = 7801,9401
++++--+-	++-+---	+++++---	-----	-----	+-----	0502,7701 = 0502,9401
++++--+-	++-+---	+++++---	-----	-----	+-----	1402,7701 = 1402,9401
++++--+-	++-+---	+++++---	-----	-----	+-----+	6101N,7701 = 6101N,9401
++++--+-	++-+---	+++++---	-----	-----	+-----	0301,7701 = 0301,9401
++++--+-	++-+---	+++++---	-----+-	-----	+-----	2501,7701 = 2501,9401
++++--+-	++-+---	+++++---	---+---+	-----	+-----	7701,7901 = 7901,9401
++++--+-	++-+---	+++++---	++-+---	-----	---+---	0501,1402 = 0502,3801
++++--+-	++-+---	+++++---	++-+---	-----	---+---	0301,0501 = 0501,0502
++++--+-	++-+---	+++++---	++-+---	-----	---+---	0301,3801 = 1402,3801
++++--+-	++-+---	+++++---	---+---	-----	---+---	1502,2501 = 1902,5201
++++--+-	++-+---	+++++---	---+---	-----	---+---	0301,6201 = 0502,6201
++++--+-	++-+---	+++++---	---+---	-----	---+---	0301,6401N = 0601,1402 = 1402,6401N
++++--+-	++-+---	+++++---	---+---	-----	-----	0301,0601 = 2001,2901
++++--+-	++-+---	+++++---	---+---	-----	-----	3701,8701 = 5201,9301
++++--+-	++-+---	+++++---	++-+---	-----	-----	1702,5501 = 1702,5801
++++--+-	++-+---	+++++---	++-+---	-----	-----	1702,2101 = 1702,3601
++++--+-	++-+---	+++++---	---+---	-----	+-----	0301,3401 = 0502,3401
++++--+-	++-+---	+++++---	---+---	-----	-----	2001,7801 = 6901,7801
++++--+-	++-+---	+++++---	---+---	-----	---+---	0502,2001 = 0502,6901
++++--+-	++-+---	+++++---	---+---	-----	---+---	1402,2001 = 1402,6901
++++--+-	++-+---	+++++---	---+---	-----	-----+	2001,6101N = 6101N,6901
++++--+-	++-+---	+++++---	---+---	-----	-----	0301,2001 = 0301,6901
++++--+-	++-+---	+++++---	---+---	-----	-----	2001,7901 = 6901,7901
++++--+-	++-+---	+++++---	---+---	-----	-----	2001,2501 = 2501,6901
++++--+-	++-+---	+++++---	---+---	-----	-----	3001,5201 = 5201,5501
++++--+-	---+---	+++++---	---+---	-----	-----	2501,8801 = 2901,7901
++++--+-	---+---	+++++---	++-+---	-----	-----	0301,1702 = 1702,7001
++++--+-	---+---	+++++---	---+---	-----	-----	0301,7801 = 7801,7801
++++--+-	---+---	+++++---	---+---	-----	---+---	0301,0502 = 0502,0502

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++-----	-----+	+++++---	-----	-----	---+-----	0301,1402 = 1402,1402
++-----	-----+	+++++---	-----	-----	-----+	0301,6101N = 6101N,6101N
++-----	-----+	+--+-----	-----+	-+---+-	-----	2501,6701 = 4501,5201
+-----+	-----	+--+-----	---+---+	+-----	-----	1301,6501 = 1302,6501
+--+-----	-----	+--+-----	---+---+	+-----+	-----	0902,5401 = 1301,5401
+--+-----	-----	+--+-----	---+---+	+-----+	-----	0902,0902 = 0902,1301 =
						0902,1302
+--+-----	-----	+--+-----	---+---+	+-----	-----	1301,1301 = 1301,1302
+-----	+--+-----	+++++---	+++-----	-----	-----+	0601,4401 = 4401,6901
+-----	+--+-----	+++++---	++-++-+-	-----+	-----+	4401,5501 = 4401,5801
+-----	+--+-----	+++++---	-+++-----	-----	-----	0601,8801 = 6901,8801
+-----	+--+-----	+++++---	-++-----	-----	-----	0601,2901 = 2901,6901
+-----	---+-----	+++++---	++-----	-----	-----+	2901,4401 = 4401,4401
-+++-----	+--+-----	++-----	-+++++---	-----	-----	1701,2701 = 1701,8901
-+++-----	+--+-----	+-----	---+---+	-----	-----	2701,9301 = 8901,9301
-+++-----	+--+-----	+-----+	+--+---+	-----	-----	2701,3601 = 3601,8901
-+++-----	+--+-----	+-----	+--+---+	-----	-----	2101,2701 = 2101,8901
-+++-----	+-----+	++-----	-++-++-	-----	-----	2701,9801 = 8901,9801
-+++-----	+-----	+-----	+--+---+	-----+	-----	2701,5801 = 5801,8901
-+++-----	+-----	+-----	---+---+	-----+	-----	2701,5501 = 5501,8901
-+++-----	+-----	+-----	---+---+	-----	-----	2701,3001 = 3001,8901
-+++-----	---+-----	++-++-	-+-----	-----	-----	0901,2701 = 0901,8901
-+++-----	---+-----	+--+-----	---+---+	-----	-----	1001,2701 = 1001,8901
-+++-----	-----+	++-++-	---+---+	-----	-----	2701,3501 = 3501,8901
-+++-----	-----	+--+-----	---+---+	-----+	-----	2701,5401 = 5401,8901
-+++-----	-----	+-----	---+---+	-----	-----+	2701,8501 = 8501,8501 =
						8501,8901
-+++-----	-----	+-----	---+---+	-----	-----	2701,2701 = 2701,8901
-+--+-----	+-----+	+++-----	-+-----	-----	-----	2001,6801 = 2001,8401
-+--+-----	+-----+	-----+	-----+	---+-----	-----	1801,6801 = 1801,8401
-+-----+	+--+-----	+++-----	-+-----	-----	+-----	2001,7701 = 2001,9401
-+-----+	+--+-----	-----	-----	---+-----	+-----	1801,7701 = 1801,9401
-+-----	+--+-----	+-----+	+--+---+	-----+	-----	3601,5501 = 3601,5801
-+-----	+--+-----	+-----+	+--+---+	-----	-----	2101,3601 = 3601,3601
-+-----	+-----+	+++-----	-+-----	---+-----	-----	1801,2001 = 1801,6901
-+-----	+-----+	+++-----	-+-----	-----	-----	2001,2001 = 2001,6901
-+-----	+-----	+--+-----	---+---+	-----+	-----	3001,8701 = 5501,8701
-+++++---	+--+-----	-----+	-----+	-----+	-----	6001,6501 = 6501,8301
-+++++---	-----+	+++++---	-----+	-+-----	-----	1401,6501 = 6501,7601
-+++++---	-----	-----+	-----+	-----	-----	6501,6501 = 6501,8401
-++-----	+++++---	-----+	-----	-----	-----+	0201,9901 = 0401,4801
-++-----	+++++---	-----+	-----	-----	-----++-	1802,9601 = 3901,4101 =
						4101,9601
-++-----	+++++---	-----+	-----	-----	-----+--	0201,3901 = 0401,1802
-++-----	+++-----	-----+	-----	-----	-----+	0202,0401 = 0202,9901
-++-----	+++-----	-----+	-----	-----	-----+	6001,9901 = 8301,9901
-++-----	+--+-----	-----+	---+-----	-----+	-----+	1002,3901 = 7201,8001
-++-----	+--+-----	-----+	-----	-----+	-----+	0401,5901 = 0602,7201
-++-----	+--+-----	-----+	-----	-----	-----++-	3901,6001 = 3901,8301 =
						6001,9601 = 8301,9601
-++-----	+--+-----	-----+	-----	-----	-----++-	0401,6001 = 0401,8301
-++-----	+--+-----	-----+	-----+	-----+	+-----	0302,7701 = 3101,7701
-++-----	+--+-----	-----	-----	---+-----	-----+	4001,6001 = 4001,8301
-++-----	+--+-----	-----+	-----+	-----+	+-----	0302,9401 = 3101,9401
-++-----	-----+	-----+	-----	---+-----	-----+	3901,5301 = 4001,4901
-++-----	-----	-----+	-----	-----	-----++-	3901,9601 = 9601,9601
-++-----	+-----	-----++	-----+	---+---	+-----	0302,3401 = 3101,3401
-++-----	-----	-----+	-----+	-----+	+-----	0302,3101 = 3101,3101
-+-----	+++-----	-----+	-----	+-----	-----+	3301,6001 = 3301,8301

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--+-----+ +++-----	-----+--	-----+--	-----+--	-----+--	-----+--	2301,3301 = 3301,7101
---++-++	-----+	+++++--+	-----++	-+-----	-----	6801,7601 = 7601,8401
---++-+	-+-----	-----+--	-----+--	-----	-----	5101,6801 = 5101,8401
---++-+	-+-----	-----	-----	---++-+	-----	2801,7501 = 5301,7301
---++-+	-----+--	-----+--	-----+--	-----	-----	4901,6801 = 4901,8401
---++-+	-----+--	-----+--	-----+--	---++-+	-----	2801,6801 = 2801,8401
---++-+	-----+--	-----+--	-----+--	---++-+	-----	5301,6801 = 5301,8401
---+---++	+--+-----	+++++--	-----+--	-+-----	+-----	7601,7701 = 7601,9401
---+---+	+--+-----	+++++--	-+-----	-+-----	-----	6901,7601 = 7601,9101
---+---+	-----+--	+++++--	-----+--	-+-----	-----	1401,7601 = 7601,7601
---+---+	+++++--+	-----+--	-++-----	-----	-----	4601,4901 = 4601,5101
---+---+	+++++--+	-----+--	-----	-----	-----	1802,4901 = 1802,5101
---+---+	+--+-----	-+-----	-+++++--	-----	-----	4901,8601 = 5101,8601
---+---+	+--+-----	-----+--	-----	-----	-----	2401,6001 = 2401,8301
---+---+	+--+-----	-----+--	-+-----	-----	-----	1002,4901 = 1002,5101
---+---+	+--+-----	-----+--	-+-----	-----	-----	4901,8001 = 5101,8001
---+---+	+--+-----	-----+--	-----	-----	+-----	4901,7701 = 4901,9401
---+---+	+--+-----	-----+--	-----	-----	+-----	5101,7701 = 5101,9401
---+---+	+--+-----	-----+--	-----	-----	-----	4901,6001 = 4901,8301
---+---+	+--+-----	-----+--	-----	-----	-----	5101,6001 = 5101,8301
---+---+	+--+-----	-----	-+-----	---++-+	-----	1002,5301 = 2801,8001
---+---+	+--+-----	-----	-----	---++-+	+-----	2801,7701 = 2801,9401
---+---+	+--+-----	-----	-----	---++-+	-----	0402,2801 = 5301,5901
---+---+	+--+-----	-----	-----	---++-+	+-----	5301,7701 = 5301,9401
---+---+	+--+-----	-----	-----	---++-+	-----	5301,6001 = 5301,8301
---+---+	+++++--+	-----+--	-----+--	-----+--	-----	0801,5901 = 1601,7301
---+---+	+++++--+	-----+--	-----+--	-----	-+-----	0801,8201 = 3201,6801
---+---+	+++++--+	-----+--	-----+--	-----	-----	0801,6001 = 0801,8301 =
						4101,6801
---+---+	+++++--+	-----+--	-----+--	-----	-----	0201,6801 = 0602,0801
---+---+	+++++--	-----+--	-++-----	-----	-----	0801,4601 = 4601,8401
---+---+	+++++--	-----+--	-----+--	-----	-----	0801,2301 = 0801,7101
---+---+	+++++--	-----+--	-----+--	-----	-+-----	0801,3201 = 3201,8401
---+---+	+++++--	-----+--	-----+--	-----	-----	0801,1802 = 1802,8401
---+---+	+++++--	-----+--	-----+--	-----	-----	0801,4101 = 4101,8401
---+---+	+++++--	-----+--	-----+--	-----	-----	0201,0801 = 0201,8401
---+---+	+++--+	-----+--	-----+--	-----	-+-----	1901,5901 = 1901,7301
---+---+	+++--+	-----+--	-----+--	-----	-----	0802,5901 = 0802,7301
---+---+	+++--+	-----+--	-----+--	-----	-+-----	1901,6001 = 1901,8301
---+---+	+++--+	-----+--	-----+--	-----	-----	0802,6001 = 0802,8301
---+---+	+++--+	-----+--	-----+--	-----	-----	0602,0802 = 0802,7501
---+---+	+++--+	-----+--	-----+--	-----	-+-----	1901,2301 = 1901,7101
---+---+	+++--+	-----+--	-----+--	-----	-----	0802,2301 = 0802,7101
---+---+	+++--+	-----+--	-----+--	-----	-----	0403,7501 = 6801,7101
---+---+	++-++-	-----+--	-----+--	-----	-+-----	0801,1901 = 1601,1901
---+---+	++-++-	-----+--	-----+--	-----	-----	0801,0802 = 0802,1601
---+---+	++-++-	-----+--	-----+--	-----	-----	0801,4801 = 4801,8401
---+---+	++-++-	-----+--	-----+--	-----	-----	0801,1601 = 1601,8401
---+---+	++-+++	-----+--	-----+--	-----	-----	0202,0802 = 0202,8401 =
						0203,0802
---+---+	++-+--	-----+--	-----+--	-----	-+-----	1901,1901 = 1901,8401
---+---+	++-+--	-----+--	-----+--	-----	-----	0802,0802 = 0802,8401
---+---+	+--+-----	-----+--	-----+--	-----	+-----	5701,7701 = 5701,9401
---+---+	+--+-----	-----+--	-+-----	-----	-----	1002,6801 = 1002,8401
---+---+	+--+-----	-----+--	-+-----	-----	-----	6801,8001 = 8001,8401
---+---+	+--+-----	-----+--	-----+--	-----	-----	0402,6801 = 0402,8401
---+---+	+--+-----	-----+--	-----+--	-----	-----	5901,6801 = 5901,8401
---+---+	+--+-----	-----+--	-----+--	-----	+-----	6801,7701 = 6801,9401 =
						7701,8401

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-----+--+	+--+-----+	-----+	-----+-	-----	-+-----	6801,8201 = 8201,8401
-----+--+	+--+-----+	-----+	-----+-	-----	-----+-	6001,6801 = 6001,8401 =
						6801,8301 = 8301,8401
----+--+	+--+-----+	-----+	-----+-	-----	-----+-	0602,6801 = 0602,8401
----+--+	+--+-----+	-----	-+-----	-----+	----+---	1002,7501 = 7301,8001
----+--+	+--+-----+	-----	-----	-----+	+-----	7301,7701 = 7301,9401
----+--+	+--+-----+	-----	-----	-----	+-----	7501,7701 = 7501,9401
----+--+	+--+-----+	-----	-----	-----	-----+-	6001,7501 = 7501,8301
----+--+	+-----++	-----++	-----+-	-----	-----	1902,6801 = 1902,8401
----+--+	+-----+	+++-----	-+-----	-+-----	-----	6801,9101 = 8401,9101
----+--+	+-----+	++-----	-++-++-	-----	-----	6801,9801 = 8401,9801
----+--+	-+++-----	-----+-	-----+-	+-----	-----	0801,8101 = 8101,8401
----+--+	-+-+-----	-----+	-----+-	-----	-----	0801,0801 = 0801,8401
----+--+	-+-+-----	-----+	-----+-	-----+	-----	6801,7301 = 7301,8401
----+--+	-+-+-----	-----+	-----+-	-----	-----	6801,7501 = 7501,8401
----+--+	-----+	+++++-----	+-----+-	-----	-----	6801,7001 = 7001,8401
----+--+	-----+	+++++-----	-----++-	-+-----	-----	1401,6801 = 1401,8401
----+--+	-----+	++-++-+	---+---	-----	-----	3501,6801 = 3501,8401
----+--+	-----+	+---+-+	-----+-	-+-----	-----	4501,6801 = 4501,8401
----+--+	-----+	---+-+	-----+-	-----+	-----	5701,6801 = 5701,8401
----+--+	-----+	-----+	-----+-	-----	-----	6801,6801 = 6801,8401
-----+	++++-++	-----	-----	-----	-----+-	4801,6001 = 4801,8301
-----+	++++-+-	-----	-----	-----+-	-----	2301,4801 = 4801,7101
-----+	++++-----	-----+-	-----	+-----	-----+	6001,8101 = 8101,8301
-----+	++++-----	-----+	-----+	-----	-----+-	1601,6001 = 1601,8301
-----+	++++-----	-----	-++-----	-----+-	----+---	1002,4601 = 4601,5901
-----+	++++-----	-----	-++-----	-----	-----++-	4601,6001 = 4601,8301
-----+	++++-----	-----	-----	-----	-+---+-	3201,6001 = 3201,8301 =
						4101,8201
-----+	++++-----	-----	-----	-----	-+-----	0201,8201 = 0602,3201
-----+	++++-----	-----	-----	-----	-----++-	1802,6001 = 1802,8301
-----+	++++-----	-----	-----	-----	-----++-	0201,6001 = 0201,8301 =
						0602,4101
-----+	++++-----	+++-----	-++-----	-----	---+---	1802,6401N = 4601,6401N
-----+	++++-----	+++-----	-++-----	-----	-----+-	0601,1802 = 0601,4601 =
						4601,6901
-----+	++++-----	++-----	-+++++--	-----	----+---	1701,1802 = 1701,4601
-----+	++++-----	-+-----	-+++++--	-----	----+---	1802,8601 = 4601,8601
-----+	++++-----	-----+-	-----	+-----	-----	2301,8101 = 7101,8101
-----+	++++-----	-----+	-----+	-----+	-----	1601,2301 = 1601,7101
-----+	++++-----	-----	-++-----	-----+-	----+---	2301,4601 = 4601,7101
-----+	++++-----	-----	-++-----	-----	----+---	1802,4601 = 4601,4601
-----+	++++-----	-----	-----	-----+-	-+-----	2301,3201 = 3201,7101
-----+	++++-----	-----	-----	-----+-	----+---	1802,2301 = 1802,7101
-----+	++++-----	-----	-----	-----+-	-----+-	2301,4101 = 4101,7101
-----+	++++-----	-----	-----	-----+-	-----+-	0201,2301 = 0201,7101
-----+	+++-++++	-----+	-----	-----	-----+-	0203,6001 = 0203,8301
-----+	+++-++++	-----	-----	-----	-----++	0202,6001 = 0202,8301
-----+	+++-+++-	-----+	-----	-----+-	-----	0203,2301 = 0203,7101
-----+	+++-+++-	-----	-----	-----+-	-----+-	0202,2301 = 0202,7101
-----+	+++-++-+	-----+	+-----+-	-----	-----+-	2201,6001 = 2201,8301
-----+	+++-++-	-----+	+-----+-	-----+-	-----	2201,2301 = 2201,7101
-----+	+++-+-+	-----	-----	-----	-----+-	4701,6001 = 4701,8301
-----+	+++-+-	-----	-----	-----+-	-----	2301,4701 = 4701,7101
-----+	+++-----	-----	-----	-----++	-----	2301,9501 = 7101,9501
-----+	+++-----	-----+	-----+	-----+-	-----+-	0403,6001 = 0403,8301
-----+	+++-----	-----	-----	-----+-	-----+-	6001,7101 = 7101,8301
-----+	+++-----	+-----	-++-+-	-----+-	-----	3001,7101 = 5501,7101
-----+	+++-----	-----+	-----+-	-----+-	-----	0403,2301 = 0403,7101

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-----+ +++----- -----+----- -----+----- 2301,7101 = 7101,7101
-----+ ++-----+----- ++ +-----+-----+----- 0203,6301 = 1502,2201
-----+ ++-----+----- +-----+ +-----+----- 2201,5501 = 2201,5801
-----+ ++-----+----- +-----+ +-----+----- 0403,3001 = 0403,5501
-----+ +-+-----+----- +-----+----- +-----+----- 0102,6001 = 0102,8301
-----+ +-+-----+----- +-----+----- +-----+----- 6001,9701 = 8301,9701
-----+ +-+-----+----- +-----+----- +-----+----- 0501,6001 = 0501,8301
-----+ +-+-----+----- +-----+----- +-----+----- 3801,6001 = 3801,8301
-----+ +-+-----+----- +-----+----- +-----+----- 1502,6001 = 1502,8301
-----+ +-+-----+----- +-----+----- +-----+----- 1902,7701 = 1902,9401
-----+ +-+-----+----- +-----+----- +-----+----- 1902,6001 = 1902,8301
-----+ +-+-----+----- +-----+----- +-----+----- 7001,7701 = 7001,9401
-----+ +-+-----+----- +-----+----- +-----+----- 1401,7701 = 1401,9401
-----+ +-+-----+----- +-----+----- +-----+----- 7701,9101 = 9101,9401
-----+ +-+-----+----- +-----+----- +-----+----- 3501,7701 = 3501,9401
-----+ +-+-----+----- +-----+----- +-----+----- 7701,9801 = 9401,9801
-----+ +-+-----+----- +-----+----- +-----+----- 4501,7701 = 4501,9401
-----+ +-+-----+----- +-----+----- +-----+----- 6001,6301 = 6301,8301
-----+ +-+-----+----- +-----+----- +-----+----- 6001,6201 = 6201,8301
-----+ +-+-----+----- +-----+----- +-----+----- 1002,7701 = 1002,9401
-----+ +-+-----+----- +-----+----- +-----+----- 1002,8001 = 5901,8001
-----+ +-+-----+----- +-----+----- +-----+----- 7701,8001 = 8001,9401
-----+ +-+-----+----- +-----+----- +-----+----- 6001,8001 = 8001,8301
-----+ +-+-----+----- +-----+----- +-----+----- 0402,7701 = 0402,9401
-----+ +-+-----+----- +-----+----- +-----+----- 0402,6001 = 0402,8301
-----+ +-+-----+----- +-----+----- +-----+----- 2301,6001 = 2301,8301
-----+ +-+-----+----- +-----+----- +-----+----- 5901,7701 = 5901,9401
-----+ +-+-----+----- +-----+----- +-----+----- 7701,8201 = 8201,9401
-----+ +-+-----+----- +-----+----- +-----+----- 6001,7701 = 6001,9401 =
-----+ +-+-----+----- +-----+----- +-----+----- 7701,8301 = 8301,9401
-----+ +-+-----+----- +-----+----- +-----+----- 0602,7701 = 0602,9401
-----+ +-+-----+----- +-----+----- +-----+----- 7701,7701 = 7701,9401
-----+ +-+-----+----- +-----+----- +-----+----- 6001,8201 = 8201,8301
-----+ +-+-----+----- +-----+----- +-----+----- 0602,6001 = 0602,8301
-----+ +-+-----+----- +-----+----- +-----+----- 6001,6001 = 6001,8301
-----+ +-+-----+----- +-----+----- +-----+----- 2301,3001 = 2301,5501
-----+ +-+-----+----- +-----+----- +-----+----- 2301,3401 = 3401,9401
-----+ +-+-----+----- +-----+----- +-----+----- 0601,3801 = 3801,6401N
-----+ +-+-----+----- +-----+----- +-----+----- 5501,9701 = 5801,9701
-----+ +-+-----+----- +-----+----- +-----+----- 0501,5501 = 0501,5801
-----+ +-+-----+----- +-----+----- +-----+----- 3801,5501 = 3801,5801
-----+ +-+-----+----- +-----+----- +-----+----- 1502,4501 = 1902,6701
-----+ +-+-----+----- +-----+----- +-----+----- 1502,3001 = 1502,5501
-----+ +-+-----+----- +-----+----- +-----+----- 3001,6301 = 5501,6301 =
-----+ +-+-----+----- +-----+----- +-----+----- 5801,6301
-----+ +-+-----+----- +-----+----- +-----+----- 3001,6201 = 5501,6201
-----+ +-+-----+----- +-----+----- +-----+----- 3001,9501 = 5501,9501
-----+ +-+-----+----- +-----+----- +-----+----- 1002,8601 = 5901,8601
-----+ +-+-----+----- +-----+----- +-----+----- 0601,8601 = 6901,8601
-----+ +-+-----+----- +-----+----- +-----+----- 0901,1102 = 0901,1602
-----+ +-+-----+----- +-----+----- +-----+----- 3001,8601 = 8601,9301
-----+ +-+-----+----- +-----+----- +-----+----- 1102,1701 = 1602,1701
-----+ +-+-----+----- +-----+----- +-----+----- 1102,5401 = 1602,5401
-----+ +-+-----+----- +-----+----- +-----+----- 1001,1102 = 1001,1602
-----+ +-+-----+----- +-----+----- +-----+----- 1102,5801 = 1602,5801
-----+ +-+-----+----- +-----+----- +-----+----- 1102,5501 = 1602,5501
-----+ +-+-----+----- +-----+----- +-----+----- 1102,3001 = 1602,3001 =
1602,9301

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-----	+--+-----	-+-----	-+++++--	-----	-----+---	1102,8601 = 1602,8601 = 8601,8601
-----	+--+-----	-----	---++----	-----	-----	1102,1602 = 1602,1602
-----	+--+-----	-----	---+-----	-----	-----+---	1002,1002 = 1002,5901
-----	+--+-----	+++++----	-+++++--	-+-----	-----	0901,9101 = 1401,1701
-----	+--+-----	++-++----	-+++++--	-----	-----	0901,9801 = 1701,3501
-----	+--+-----	+++++----	-+++++--	-----	-----	0601,0901 = 0901,6901
-----	+--+-----	+++++----	-+++++--	-----	-----	0601,1701 = 1701,6901
-----	+--+-----	+++++----	-++-----	-----	---+-----	0601,6401N = 6401N,6401N = 6401N,6901
-----	+--+-----	+++-----	-++-----	-----	-----	0601,0601 = 0601,6901
-----	+--+-----	++-++----	-+-----	-----	-----	0901,3001 = 0901,9301
-----	+--+-----	++-----	-+++++--	-----	-----	1701,3001 = 1701,9301
-----	+--+-----	+--+-----	---++----	-----	-----	1001,3001 = 1001,9301
-----	+--+-----	+--+-----	+--+-----	-----	-----	2101,5501 = 2101,5801
-----	+--+-----	+++++----	+--+-----	-----	-----	5501,7001 = 5801,7001
-----	+--+-----	+++++----	---++----	-+-----	-----	1401,9801 = 3501,9101
-----	+--+-----	+++++----	---++----	-+-----	-----	1401,6901 = 1401,9101
-----	+--+-----	+++-----	---++----	-+-----	-----	6901,9101 = 9101,9101
-----	+--+-----	+--+-----	---++----	-+-----	-----	3001,6701 = 5501,6701
-----	+--+-----	+--+-----	---++----	---++----	++-----	3001,3401 = 3401,5501
-----	+--+-----	+--+-----	+--+-----	---++----	-----	3001,5801 = 5501,5801 = 5801,5801
-----	+--+-----	+--+-----	---++----	---++----	-----	3001,5501 = 5501,5501

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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 DPB1 typing 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

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For one DPB1 typing, add at room temperature in a 0.5 ml tube:

53 x 2 μl = 106 μl DNA (30 ng/μl)

53 x 3 μl = 159 μl PCR Master Mix complete with *Taq* – mix well
before taking your aliquot

53 x 5 μl = 265 μl dH₂O

Mix well, dispense 10 μl of the DNA-PCR Master Mix-H₂O mixture into each of the 48 wells of a DPB1 typing. **Well No. 1 of the 48 well PCR plate is marked with '1'.** Close the 48 well PCR plate with the provided lids.

101.311-24u/04u – not licensed for PCR

For one DPB1 typing, add at room temperature in a 0.5 ml tube:

53 x 2 μl = 106 μl DNA (30 ng/μl)

53 x 3 μl = 159 μl PCR Master Mix without *Taq* – mix well before
taking your aliquot

4.2 μl *Taq* polymerase (5 units/μl)

53 x 5 μl – 4,2 μl = 260.8 μl dH₂O

Mix well, dispense 10 μl of the DNA-PCR Master Mix-*Taq*-H₂O mixture into each of the 48 wells of a DPB1 typing. **Well No. 1 of the 48 well PCR plate is marked with '1'.** Close the 48 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 <i>Olerup</i> 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

DPB1 SSP typing

Specificities and sizes of the PCR products of the 48 primer mixes used for DPB1 SSP typing

Primer Mix	Approx. size of spec. PCR product ¹	Size of control band ²	Amplified DPB1 alleles
1³	245 bp	515 bp	010101-010103, 030101-030102, 0502, 0902, 1301, 1302, 1402, 1702, 2102, 2501, 260101-260102, 2901, 3701, 4401, 5001, 5201, 5601, 6101N, 7801, 7901, 8801, 9001, 9201
2³	220 bp	515 bp	010101-010103, 030101-030102, 0502, 1402, 1702, 1801, 200101-200102, 2102, 2501, 260101-260102, 2701, 3601, 5001, 5201, 5601, 6101N, 7801, 7901, 8501, 8701, 8901, 9001, 9201
3^{3,4,5}	100 bp	430 bp	010101-010103, 0302, 040101-040102, 0902, 110101-110102, 1301, 1302, 1501, 2002, 2102, 260101-260102, 2701, 3101, 3301, 3901, 4001, 5601, 6501, 6601, 7201, 7401, 8501, 8901, 9001, 9601, 9901
4^{3,4}	140 bp	430 bp	010101-010103, 0302, 040101-040102, 2102, 2401, 260101-260102, 2701, 2801, 3101, 3901, 4001, 4901, 5101, 5301, 5601, 6501, 6601, 7201, 7601, 8501, 8901, 9001, 9201, 9601, 9901
5	235 bp	515 bp	010101-010103, 0801, 0802, 1901, 2102, 5001, 5701, 6501, 6801, 7301, 7501, 8401, 9001
6	165 bp	430 bp	010101-010103, 0902, 1301, 2102, 260101-260102, 6501
7	160 bp	430 bp	010101-010103, 0902, 1301, 1302, 2102, 260101-260102, 5601, 6501, 7601, 9001, 9201
8	210 bp	515 bp	0102, 020102-020106, 0202, 0203, 040101-040102, 0402, 0403, 0501, 0602, 0801, 0802, 1502, 1601, 1802, 1901, 1902, 2201, 2301, 2401, 3201, 3301, 3801, 3901, 4001, 4601, 4701,

			4801, 4901, 5101, 5301, 6001, 6201, 6301, 6501, 6801, 7101, 7501, 7701, 8001, 8101, 8201, 8401, 9401, 9601, 9701, 9901
9³	165 bp	430 bp	0102, 020102-020105, 020106 ^{weakly} , 0202, 0203, 0402, 0403, 0501, 0601, 0602, 0802, 1002, 1102, 1502, 1601, 1602, 1701, 1801, 1802, 1901, 1902, 200101-200102, 2101, 2201, 2301, 3001, 3201, 3401, 3601, 3801, 4101, 4601, 4701, 4801, 5501, 5801, 5901, 6001, 6201, 6301, 6401N, 6901, 7101, 7701, 8001, 8201, 8301, 8601, 8701, 9101, 9301, 9401, 9501, 9701, 9801
10	220 bp	515 bp	020102-020106, 0202, 0203, 0403, 0801, 0802, 1601, 1802, 1901, 2201, 3201, 3301, 4101, 4601, 4701, 4801, 7101, 8101, 9501
11	190 bp	515 bp	020102-020106, 040101-040102, 0402, 0602, 1002, 1102, 1602, 1802, 2301, 2401, 3201, 3301, 4101, 4601, 4701, 5101, 5901, 6001, 6601, 7101, 7201, 7301, 7501, 7701, 8001, 8101, 8201, 8301, 8601, 9401, 9901
12^{3,4}	80 bp	515 bp	020102, 020103 ^{weakly} , 020104-020106, 0601, 0801, 0901, 1001, 1102, 1601, 1602, 1701, 1802, 2901, 3201, 3701, 4101, 4401, 4601, 4801, 6401N, 8101, 8601, 8801, 9301
13	180 bp	430 bp	0102, 0202, 0203, 0501, 0802, 1901, 2201, 2401, 3801, 4701, 9701
14⁴	105 bp	430 bp	0102, 0202, 0203, 0501, 1702, 2101, 2201, 3601, 3801, 9701
15	200 bp	430 bp	0102, 0202, 0203, 1502, 1902, 4801, 9501, 9901
16^{3,4}	80 bp	430 bp	030101-030102, 0402, 0502, 0602, 1002, 1401, 1402, 1801, 1902, 200101-200102, 2501, 2801, 3501, 4501, 4901, 5001, 5101, 5301, 5701, 5901, 6001, 6101N, 6801, 7001, 7301, 7501, 7601, 7701, 7801, 7901, 8001, 8201, 8301, 9101, 9201, 9801
17	260 bp	515 bp	030101-030102, 0502, 0601, 0901, 0902, 1001, 110101-110102, 1301, 1302, 1401, 1402, 1701, 1702,

			200101-200102, 2101, 2501, 260101-260102, 2701, 2901, 3001, 3501, 3601, 3701, 4401, 4501, 5201, 5401, 5501, 5601, 5801, 6101N, 6401N, 6701, 6901, 7001, 7601, 7801, 7901, 8501, 8701, 8801, 9101, 9201, 9301, 9801
18	180 bp	430 bp	030101-030102, 0502, 0601, 0901, 1401, 1402, 1701, 200101-200102, 2901, 3501, 4401, 6101N, 6401N, 6901, 7001, 7601, 7801, 8601, 8801, 9101, 9201, 9801
19	200 bp	430 bp	030101-030102, 0502, 0601, 110101-110102, 1401, 1402, 1702, 200101-200102, 2501, 2901, 4401, 4501, 5201, 5601, 6101N, 6401N, 6701, 6901, 7001, 7401, 7601, 7801, 8701, 9101, 9201
20	235 bp	515 bp	030101-030102, 0502, 0901, 0902, 1001, 1301, 1302, 1401, 1402, 1702, 2501, 260101-260102, 2901, 3501, 3701, 4401, 4501, 5201, 5401, 5601, 6101N, 6701, 7001, 7601, 7801, 7901, 8801, 9201
21^{3,4}	100 bp	430 bp	030101-030102, 0502, 0901, 1401, 1402, 2901, 3501, 4401, 5001, 5701, 6101N, 7001, 7601, 7801, 8801, 9201
22³	185 bp	430 bp	040101-040102, 2002, 2401, 3301, 3901, 4901, 5101, 6601, 7201, 8101, 9601, 9901
23⁴	145 bp	430 bp	0102, 0501, 1502, 1702, 1902, 3401, 3601, 3801, 6201, 6301, 9701
24⁶	195, 265 bp	515 bp	0203, 0302, 0403, 0501, 0801, 0802, 1601, 1901, 2201, 3101, 3801, 5701, 6301, 6501, 6801, 8401, 9701
25⁷	190, 265 bp	515 bp	0501, 1702, 2101, 2201, 3601, 3801, 4401, 5801, 6301, 7001, 9701
26⁴	75 bp	430 bp	0601, 0901, 1701, 2901, 4401, 4601, 6401N, 8601, 8801
27⁴	95 bp	430 bp	0601, 1002, 1701, 200101-200102, 4601, 6401N, 6901, 8001, 8601, 9101, 9801
28	200 bp	515 bp	0901, 0902, 1001, 1102, 1301, 1302, 1602, 1701, 2002, 2101, 260101-260102, 2701, 3001, 3501, 3601, 3701, 5401, 5501, 5801, 6601, 7901,

			8501, 8601, 8801, 9301, 9801
29	220 bp	515 bp	0901, 1001, 1602, 1701, 3001, 5401, 5501, 5801, 8601
30	185 bp	430 bp	0901, 1401, 1701, 3501, 7601, 8601, 9101, 9801
31⁴	120 bp	430 bp	010101-010103, 0302, 0403, 0501, 0801, 0802, 0902, 1001, 110101-110102, 1301, 1302, 1601, 1702, 1901, 2101, 2102, 2201, 2501, 260101-260102, 2701, 3001, 3101, 3601, 3701, 3801, 4501, 5201, 5401, 5501, 5601, 5801, 6301, 6501, 6701, 6801, 7901, 8401, 8501, 8701, 8901, 9001, 9301, 9701
32^{4,8}	75, 195 bp	430 bp	110101-110102, 7801
33⁴	140 bp	430 bp	0902, 1301, 1302, 2002, 3301, 8101
34	210 bp	515 bp	1401, 4501, 6701, 7601, 9101
35	195 bp	430 bp	1501, 7401
36	260 bp	515 bp	1501, 1801, 2801, 3401, 4001, 5301, 6201
37⁹	185, 255 bp	515 bp	0102 [?] , 0203 [?] , 0302 [?] , 0402, 0403 [?] , 0601 [?] , 0801 [?] , 1001-1102 [?] , 1302 [?] , 1402 [?] , 1501, 1502-1802 [?] , 1902-2701 [?] , 2801, 290101-3901 [?] , 4001, 4101 [?] , 4401-5201 [?] , 5301, 5401-7301 [?] , 7401, 7501-9901 [?]
38⁴	100 bp	515 bp	0403, 1502, 2301, 3401, 5201, 5501, 5801, 6201, 6301, 6701, 7101, 8701, 9501
39	210 bp	515 bp	0302, 1002, 2801, 3101, 3401, 5701, 5901, 7201, 7301, 9501
40^{4,10}	95, 180 bp	430 bp	0102 [?] , 0203 [?] , 0302 [?] , 0403 [?] , 0601 [?] , 0801 [?] , 0902, 1001-1102 [?] , 1302 [?] , 1402 [?] , 1502-1802 [?] , 1902-2901 [?] , 3001, 3101-4101 [?] , 4401-5301 [?] , 5401, 5501-9901 [?]
41^{4,11}	75, 230 bp	515 bp	3101, 3401, 7701, 9401
42^{4,12}	140, 185, 285 bp	430 bp	3201, 8201, 9701
43^{4,13}	65, 190 bp	430 bp	0102 [?] , 0203 [?] , 0302 [?] , 0403 [?] , 0501, 0502, 0601 [?] , 0801 [?] , 1001-1102 [?] , 1302 [?] , 1402 [?] , 1502-1802 [?] , 1901,

			1902-3301 [?] , 3401, 3501-4101 [?] , 4401-6101N [?] , 6201, 6301-9901 [?]
44 ¹⁴	195, 245, 275 bp	430 bp	1402, 2102, 3801, 6401N
45 ^{4,15}	120, 190, 245 bp	430 bp	1002, 1802, 2002, 3901, 4601, 4901, 8001, 8601, 9601
46	210 bp	515 bp	4101, 6001, 8301, 9601
47 ¹⁶	165, 255 bp	515 bp	0102 [?] , 020102-020106, 0202, 0203 [?] , 0302 [?] , 040101-040102, 0403 [?] , 0601 [?] , 0602, 0801 [?] , 0802, 1001-1102 [?] , 1302 [?] , 1402 [?] , 1502-1802 [?] , 1902-4101 [?] , 4401, 4501-9901 [?]
48 ¹⁷	210, 280 bp	515 bp	6101N, 8501

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 DPB1 SSP typings.

When the primers in a primer mix can give rise to specific PCR products of more than one length this is indicated if the size difference is 20 bp or more. Size differences shorter than 20 bp are not 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 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 DPB1 typing.

In addition, tubes number 2, 5, 8, 10, 11, 12, 17, 20, 24, 25, 28, 29, 34, 36, 37, 38, 39, 41, 46, 47 and 48 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.

³Primer mixes 1, 2, 3, 4, 9, 12, 16, 21 and 22 may yield less specific PCR products than the other DPB1 primer mixes.

⁴Specific PCR fragments shorter than 150 base pairs are less intense and not as sharp as longer specific bands.

⁵Primer mix 3 may give rise to non-specific amplifications and primer dimer formation.

⁶Primer mix 24: Specific PCR fragment of 195 bp in the DPB1*0203 allele. Specific PCR fragment of 265 bp in the DPB1*0302, 0403, 0501, 0801, 0802, 1601, 1901, 2201, 3101, 3801, 5701, 6301, 6501, 6801, 8401 and 9701 alleles.

⁷Primer mix 25: Specific PCR fragment of 190 bp in the DPB1*0501, 1702, 2101, 2201, 3601, 3801, 4401, 5801, 6301 and 9701 alleles. Specific PCR fragment of 265 bp in the DPB1*7001 allele.

⁸Primer mix 32: Specific PCR fragment of 75 bp in the DPB1*7801 allele. Specific PCR fragment of 195 bp in the DBB1*110101-110102 alleles.

⁹Primer mix 37: Specific PCR fragment of 185 bp in the DPB1*1501, 2801, 5301, 4001 and 7401 alleles. Specific PCR fragment of 255 bp in the DPB1*0402 allele. The 3rd exon of many DPB1 alleles is not sequenced and thus the primer pair in primer mix 37 matching the DPB1*0402 sequence motif in the 3rd exon may amplify other DPB1 alleles.

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¹⁰Primer mix 40: Specific PCR fragment of 95 bp in the DPB1*0902 allele. Specific PCR fragment of 180 bp in the DPB1*3001 and 5401 alleles. The 1st exon of most DPB1 alleles is not sequenced and thus the primer pair in primer mix 40 matching the DPB1*0902 sequence motif in the 1st exon may amplify other DPB1 alleles.

¹¹Primer mix 41: Specific PCR fragment of 75 bp in the DPB1*7701 allele. Specific PCR fragment of 230 bp in the DPB1*3101, 3401 and 9401 alleles.

¹²Primer mix 42: Specific PCR fragment of 140 bp in the DPB1*9701 allele. Specific PCR fragment of 185 bp in the DPB1*3201 allele. Specific PCR fragment of 285 bp in the DPB1*8201 allele.

¹³Primer mix 43: Specific PCR fragment of 65 bp in the DPB1*0501, 0502 and 1901 alleles. Specific PCR fragment of 190 bp in the DPB1*3401 and 6201 alleles. The 4th exon of most DPB1 alleles is not sequenced and thus the primer pair in primer mix 43 matching the DPB1*0501, 0502 and 1901 sequence motif in the 4th exon may amplify other DPB1 alleles.

¹⁴Primer mix 44: Specific PCR fragment of 195 bp in the DPB1*1402 and 2102 alleles. Specific PCR fragment of 245 bp in the DPB1*3801 allele. Specific PCR fragment of 275 bp in the DPB1*6401N allele.

¹⁵Primer mix 45: Specific PCR fragment of 120 bp in the DPB1*1002, 4601, 8001 and 8601 alleles. Specific PCR fragment of 190 bp in the DPB1*2002, 3901, 4901 and 9601 alleles. Specific PCR fragment of 245 bp in the DPB1*1802 allele.

¹⁶Primer mix 47: Specific PCR fragment of 165 bp in the DPB1*4401 allele. Specific PCR fragment of 255 bp in the DPB1*020102-0202, 040101-040102, 0602 and 0802 alleles.

The 3rd exon of many DPB1 alleles is not sequenced and thus the primer pair in primer mix 47 matching the DPB1*0201, 0202, 0401, 0602 and 0802 sequence motif in the 3rd exon may amplify other DPB1 alleles.

¹⁷Primer mix 48: Specific PCR fragment of 210 bp in the DPB1*6101N allele. Specific PCR fragment of 280 bp in the DPB1*8501 allele.

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

INTERPRETATION TABLE																								
DPB1 SSP typing																								
Amplification patterns of the DPB1*0101 to DPB1*9901 alleles																								
	Tube ⁶																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Length of spec.	245	220	100	140	235	165	160	210	165	220	190	80	180	105	200	80	260	180	200	235	100	185	145	195
PCR product																								265
Length of int.	515	515	430	430	515	430	430	515	430	515	515	515	430	430	430	430	515	430	430	515	430	430	430	515
pos. control ¹																								
5'-primer(s) ²	9	9	36	36	11	35	36	9	35	9	35	56	9	35	28	56	11	11	11	11	57	36	35	9
	5'-Tg T ³	5'-Tg T ³	5'-C gC ³	5'-C gC ³	5'-g gg ³	5'-g TA ³	5'-C gC ³	5'-T TT ³	5'-Ag C ³	5'-T TT ³	5'-g TT ³	5'-T gA ³	5'-T TT ³	5'-Ag C ³	5'-gA g ³	5'-T gA ³	5'-g TT ³	5'-g TT ³	5'-g TT ³	5'-g TT ³	5'-gAC ³	5'-C gC ³	5'-Ag C ³	5'-T TT ³
			36	36	11	35	36		36						35		11	11	11	11		36		
			5'-C gC ³	5'-C gC ³	5'-g gg ³	5'-g TA ³	5'-C gC ³		5'-C gT ³						5'-Ag C ³		5'-g TT ³	5'-g TT ³	5'-g TT ³	5'-g TT ³		5'-C gC ³		
3'-primer(s) ³	76	69	55	69	76	76	76	65	76	69	84	69	55	55	84	69	84	57	65	76	76	84	69	60
	5'-CA T ³	5'-CTT ³	5'-C Ag ³	5'-CTT ³	5'-CA T ³	5'-CA T ³	5'-CA T ³	5'-gAT ³	5'-TAT ³	5'-CTC ³	5'-C gC ³	5'-CTC ³	5'-gC C ³	5'-gC C ³	5'-C gC ³	5'-CTT ³	5'-C gT ³	5'-TA g ³	5'-gAg ³	5'-CA T ³	5'-CA T ³	5'-C gC ³	5'-CTT ³	5'-gTg ³
								65	76															84
								5'-g gT ³	5'-CAT ³															5'-C gT ³
Tube No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
DPB1 allele ⁴																								
*010101-010103	+	+	+	+	+	+	+																	
*0102								+	+				+	+	+							+		
*020102, 020104-020105								+	+	+	+	+												
*020103								+	+	+	+	W												
*020106								+	W	+	+	+												
*0202								+	+	+			+	+	+									
*0203								+	+	+			+	+	+									+
*030101-030102	+	+														+	+	+	+	+				
*0302			+	+																				+
Tube No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

INTERPRETATION TABLE																											
DPB1 SSP typing																											
Amplification patterns of the DPB1*0101 to DPB1*9901 alleles																											
Tube ⁶																											
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48				
190	75	95	200	220	185	120	75	140	210	195	260	185	100	210	95	75	140	65	195	120	205	165	210	Length of spec.			
265							195					255			180	230	185	190	245	190		255	280	PCR product			
																	285		275	245							
515	430	430	515	515	430	430	430	430	515	430	515	515	515	515	430	515	430	430	430	430	515	515	515	Length of int.			
																								pos. control ¹			
9	57	57	11	9	9	57	33	36	9	33	11	36	35	9	-22	in ⁵	9	35	7	17	9	35	11	5'-primer(s) ²			
5'-Tg g ³	5'-gAC ³	5'-gAC ³	5'-g TT ³	5'-Tg C ³	5'-Tg C ³	5'-gAg ³	5'-gg C ³	5'-C gC ³	5'-Tg C ³	5'-gg C ³	5'-g gg ³	5'-C gC ³	5'-Ag C ³	5'-T TT ³	5'-gCA ³	5'-CAT ³	5'-T TT ³	5'-Ag C ³	5'-TAA ³	5'-AC A ³	5'-T TT ³	5'-Ag C ³	5'-g TT ³				
35			11				33	36		33	11	36	36		9	9		##	17	35		##	11				
5'-Ag C ³			5'-g TT ³				5'-gg C ³	5'-C gC ³		5'-gg C ³	5'-g gg ³	5'-C gC ³	5'-C gT ³		5'-Tg C ³	5'-T TT ³		5'-AAG ³	5'-AC C ³	5'-g TA ³		5'-CC T ³	5'-g TT ³				
							73					##							32	57							
							5'-g CT ³					5'-CC T ³							5'-CC C ³	5'-gAC ³							
84	69	76	65	69	57	84	84	69	65	84	84	84	55	65	-4	12	43	84	84	84	64	76	67	3'-primer(s) ³			
5'-C gT ³	5'-CTC ³	5'-TAT ³	5'-gAT ³	5'-CTC ³	5'-TA g ³	5'-C gT ³	5'-C gT ³	5'-CTC ³	5'-gAg ³	5'-C gA ³	5'-C gA ³	5'-C gA ³	5'-C Ag ³	5'-gAg ³	5'-CAC ³	5'-g CA ³	5'-CCA ³	5'-C gA ³	5'-C gT ³	5'-C gC ³	5'-gTg ³	5'-CA T ³	5'-CTA ³				
		76										##			55	70	57	##			65	##	91				
		5'-CAT ³										5'-CAT ³			5'-gC C ³	5'-CCA ³	5'-A CA ³	5'-CAT ³			5'-gAA ³	5'-CAG ³	5'-g gT ³				
																72	91				65		91				
																5'-CAA ³	5'-g gT ³				5'-g gT ³		5'-g gT ³				
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	Tube No.			
																								DPB1 allele ⁴			
						+																		*010101-010103			
												?			?			?				?		*0102			
																						+		*020102, 020104-020105			
																						+		*020103			
																						+		*020106			
																						+		*0202			
												?			?			?				?		*0203			
						+						?		+	?			?				?		*030101-030102			
																								*0302			
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	Tube No.			

Length of spec.	245	220	100	140	235	165	160	210	165	220	190	80	180	105	200	80	260	180	200	235	100	185	145	195
PCR product																								265
Tube No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
*040101-040102			+	+				+			+											+		
*0402								+	+		+					+								
*0403								+	+	+														+
*0501								+	+				+	+									+	+
*0502	+	+														+	+	+	+	+	+			
*0601									+			+					+	+	+					
*0602								+	+		+					+								
*0801					+			+		+		+												+
*0802					+			+	+	+			+											+
*0901												+					+	+		+	+			
*0902	+		+			+	+										+			+				
*1001												+					+			+				
*1002									+		+					+								
*110101-110102			+														+		+					
*1102									+		+	+												
*1301	+		+			+	+										+			+				
*1302	+		+				+										+			+				
*1401																+	+	+	+	+	+			
*1402	+	+														+	+	+	+	+	+			
*1501			+																					
*1502								+	+						+								+	+
*1601								+	+	+		+												+
*1602									+		+	+												
*1701									+			+					+	+						
*1702	+	+												+			+		+	+			+	
*1801		+							+							+								
*1802								+	+	+	+	+												
*1901					+			+	+	+			+											+
*1902								+	+						+	+							+	
*200101-200102		+							+							+	+	+	+					
*2002			+																			+		
*2101									+					+			+							
*2102	+	+	+	+	+	+	+																	
*2201								+	+	+			+	+										+
*2301								+	+		+													
*2401				+				+			+		+									+		
*2501	+	+														+	+		+	+				
*260101-260102	+	+	+	+		+	+										+			+				
*2701		+	+	+													+							
Tube No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

190	75	95	200	220	185	120	75	140	210	195	260	185	100	210	95	75	140	65	195	120	205	165	210	Length of spec.
265							195					255			180	230	185	190	245	190		255	280	PCR product
																	285		275	245				
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	Tube No.
																						+		*040101-040102
												+												*0402
						+						?	+		?			?				?		*0403
+						+												+						*0501
																		+						*0502
	+	+										?			?			?				?		*0601
																						+		*0602
							+					?			?			?				?		*0801
							+															+		*0802
	+			+	+	+																		*0901
						+		+							+									*0902
						+	+					?			?			?				?		*1001
		+										?		+	?			?		+		?		*1002
						+	+					?			?			?				?		*110101-110102
						+						?			?			?				?		*1102
						+		+			+													*1301
				+		+		+				?			?			?				?		*1302
					+				+															*1401
												?			?			?	+			?		*1402
											+	+	+											*1501
												?	+		?			?				?		*1502
						+						?			?			?				?		*1601
				+	+							?			?			?				?		*1602
	+	+	+	+	+							?			?			?				?		*1701
+						+						?			?			?				?		*1702
										+		?			?			?				?		*1801
												?			?			?		+		?		*1802
						+												+						*1901
												?			?			?				?		*1902
		+										?			?			?				?		*200101-200102
			+					+				?			?			?		+		?		*2002
+			+			+						?			?			?				?		*2101
						+						?			?			?	+			?		*2102
+						+						?			?			?				?		*2201
												?	+		?			?				?		*2301
												?			?			?				?		*2401
						+						?			?			?				?		*2501
			+			+						?			?			?				?		*260101-260102
			+			+						?			?			?				?		*2701
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	Tube No.

Length of spec.	245	220	100	140	235	165	160	210	165	220	190	80	180	105	200	80	260	180	200	235	100	185	145	195
PCR product																								265
Tube No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
*2801				+												+								
*2901	+											+					+	+	+	+	+			
*3001									+								+							
*3101			+	+																				+
*3201								+	+	+	+	+												
*3301			+					+		+	+											+		
*3401									+														+	
*3501																+	+	+		+	+			
*3601		+							+					+			+						+	
*3701	+											+					+			+				
*3801								+	+				+	+									+	+
*3901			+	+				+														+		
*4001			+	+				+																
*4101									+	+	+	+												
*4401	+											+					+	+	+	+	+			
*4501																+	+		+	+				
*4601								+	+	+	+	+												
*4701								+	+	+	+		+											
*4801								+	+	+		+			+									
*4901				+				+								+						+		
*5001	+	+			+											+					+			
*5101				+				+			+					+						+		
*5201	+	+															+		+	+				
*5301				+				+								+								
*5401																	+			+				
*5501									+								+							
*5601	+	+	+	+			+										+		+	+				
*5701					+											+					+			+
*5801									+								+							
*5901									+		+					+								
*6001								+	+		+					+								
*6101N	+	+														+	+	+	+	+	+			
*6201								+	+														+	
*6301								+	+														+	+
*6401N									+			+					+	+	+					
*6501			+	+	+	+	+	+																+
*6601			+	+							+											+		
*6701																	+		+	+				
*6801					+			+								+								+
Tube No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

190	75	95	200	220	185	120	75	140	210	195	260	185	100	210	95	75	140	65	195	120	205	165	210	Length of spec.
265							195					255			180	230	185	190	245	190		255	280	PCR product
																	285		275	245				
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	Tube No.
											+	+		+	?			?				?		*2801
	+											?			?			?				?		*2901
			+	+		+						?			+			?				?		*3001
						+						?		+	?	+		?				?		*3101
												?			?		+	?				?		*3201
								+				?			?			?				?		*3301
											+	?	+	+	?	+		+				?		*3401
			+		+							?			?			?				?		*3501
+			+			+						?			?			?				?		*3601
			+			+						?			?			?				?		*3701
+						+						?			?			?	+			?		*3801
												?			?			?		+		?		*3901
											+	+			?			?				?		*4001
												?			?			?			+	?		*4101
+	+											?			?			?				+		*4401
						+		+				?			?			?				?		*4501
	+	+										?			?			?		+		?		*4601
												?			?			?				?		*4701
												?			?			?				?		*4801
												?			?			?		+		?		*4901
												?			?			?				?		*5001
												?			?			?				?		*5101
						+						?	+		?			?				?		*5201
											+	+			?			?				?		*5301
			+	+		+						?			+			?				?		*5401
			+	+		+						?	+		?			?				?		*5501
						+						?			?			?				?		*5601
												?		+	?			?				?		*5701
+			+	+		+						?	+		?			?				?		*5801
												?		+	?			?				?		*5901
												?			?			?			+	?		*6001
												?			?			?				?	+	*6101N
											+	?	+		?			+				?		*6201
+						+						?	+		?			?				?		*6301
	+	+										?			?			?	+			?		*6401N
						+						?			?			?				?		*6501
			+									?			?			?				?		*6601
						+			+			?	+		?			?				?		*6701
						+						?			?			?				?		*6801
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	Tube No.

Length of spec.	245	220	100	140	235	165	160	210	165	220	190	80	180	105	200	80	260	180	200	235	100	185	145	195
PCR product																								265
Tube No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
*6901									+								+	+	+					
*7001																+	+	+	+	+	+			
*7101								+	+	+	+													
*7201			+	+							+											+		
*7301					+						+					+								
*7401			+																+					
*7501					+			+			+					+								
*7601				+			+									+	+	+	+	+	+			
*7701								+	+		+					+								
*7801	+	+														+	+	+	+	+	+			
*7901	+	+														+	+			+				
*8001								+	+		+					+								
*8101								+		+	+	+										+		
*8201								+	+		+					+								
*8301									+		+					+								
*8401					+			+																+
*8501		+	+	+													+							
*8601									+		+	+						+						
*8701		+							+								+		+					
*8801	+											+					+	+		+	+			
*8901		+	+	+																				
*9001	+	+	+	+	+		+																	
*9101									+							+	+	+	+					
*9201	+	+		+			+									+	+	+	+	+	+			
*9301									+			+					+							
*9401								+	+		+													
*9501									+	+					+									
*9601			+	+				+														+		
*9701								+	+				+	+									+	+
*9801									+							+	+	+						
*9901			+	+				+			+				+							+		
DPB1 allele ⁴																								
Tube No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

190	75	95	200	220	185	120	75	140	210	195	260	185	100	210	95	75	140	65	195	120	205	165	210	Length of spec. PCR product
265							195					255			180	230	185	190	245	190		255	280	
																	285		275	245				
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	Tube No.
		+										?			?			?				?		*6901
+												?			?			?				?		*7001
												?	+		?			?				?		*7101
												?		+	?			?				?		*7201
												?		+	?			?				?		*7301
										+		?			?			?				?		*7401
												?			?			?				?		*7501
										+		?			?			?				?		*7601
												?			?	+		?				?		*7701
							+					?			?			?				?		*7801
			+			+						?			?			?				?		*7901
		+										?			?			?		+		?		*8001
								+				?			?			?				?		*8101
												?			?		+	?				?		*8201
												?			?			?			+	?		*8301
						+						?			?			?				?		*8401
			+			+						?			?			?				?	+	*8501
	+	+	+	+	+							?			?			?		+		?		*8601
						+						?	+		?			?				?		*8701
	+		+									?			?			?				?		*8801
						+						?			?			?				?		*8901
						+						?			?			?				?		*9001
		+			+					+		?			?			?				?		*9101
												?			?			?				?		*9201
			+			+						?			?			?				?		*9301
												?			?	+		?				?		*9401
												?	+	+	?			?				?		*9501
												?			?			?		+	+	?		*9601
+						+						?			?		+	?				?		*9701
		+	+		+							?			?			?				?		*9801
												?			?			?				?		*9901
																								DPB1 allele ⁴
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	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 DPB1 typing.

In addition, tubes number 2, 5, 8, 10, 11, 12, 17, 20, 24, 25, 28, 29, 34, 36, 37, 38, 39, 41, 46, 47 and 48 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.

⁴The sequence of the DPB1*02011 allele has been shown to be identical to DPB1*02012.

DPB1*0701 has never been assigned.

DPB1*1201 has never been assigned.

The sequence of the DPB1*4201 allele has been shown to be identical to DPB1*3101.

The sequence of the DPB1*4301 allele has been shown to be identical to DPB1*2801.

⁵Matching sequences within the 1st intron.

⁶Primer mix 24: Specific PCR fragment of 195 bp in the DPB1*0203 allele. Specific PCR fragment of 265 bp in the DPB1*0302, 0403, 0501, 0801, 0802, 1601, 1901, 2201, 3101, 3801, 5701, 6301, 6501, 6801, 8401 and 9701 alleles.

Primer mix 25: Specific PCR fragment of 190 bp in the DPB1*0501, 1702, 2101, 2201, 3601, 3801, 4401, 5801, 6301 and 9701 alleles. Specific PCR fragment of 265 bp in the DPB1*7001 allele.

Primer mix 32: Specific PCR fragment of 75 bp in the DPB1*7801 allele. Specific PCR fragment of 195 bp in the DBB1*110101-110102 alleles.

Primer mix 37: Specific PCR fragment of 185 bp in the DPB1*1501, 2801, 5301, 4001 and 7401 alleles. Specific PCR fragment of 255 bp in the DPB1*0402 allele. The 3rd exon of many DPB1 alleles is not sequenced and thus the primer pair in primer mix 47 matching the DPB1*0402 sequence motif in the 3rd exon may amplify other DPB1 alleles.

Primer mix 40: Specific PCR fragment of 95 bp in the DPB1*0902 allele. Specific PCR fragment of 180 bp in the DPB1*3001 and 5401 alleles. The 1st exon of most DPB1 alleles is not sequenced and thus the primer pair in primer mix 40 matching the DPB1*0902 sequence motif in the 1st exon may amplify other DPB1 alleles.

Primer mix 41: Specific PCR fragment of 75 bp in the DPB1*7701 allele. Specific PCR fragment of 230 bp in the DPB1*3101, 3401 and 9401 alleles.

Primer mix 42: Specific PCR fragment of 140 bp in the DPB1*9701 allele. Specific PCR fragment of 185 bp in the DPB1*3201 allele. Specific PCR fragment of 285 bp in the DPB1*8201 allele.

Primer mix 43: Specific PCR fragment of 65 bp in the DPB1*0501, 0502 and 1901 alleles. Specific PCR fragment of 190 bp in the DPB1*3401 and 6201 alleles. The 4th exon of most DPB1 alleles is not sequenced and thus the primer pair in primer mix 43 matching the DPB1*0501, 0502 and 1901 sequence motif in the 4th exon may amplify other DPB1 alleles.

Primer mix 44: Specific PCR fragment of 195 bp in the DPB1*1402 and 2102 alleles. Specific PCR fragment of 245 bp in the DPB1*3801 allele. Specific PCR fragment of 275 bp in the DPB1*6401N allele.

101.311-24/04 – licensed for PCR**101.311-24u/04u – not licensed for PCR****Lot No.: Y21****www.olerup.com**

Primer mix 45: Specific PCR fragment of 120 bp in the DPB1*1002, 4601, 8001 and 8601 alleles. Specific PCR fragment of 190 bp in the DPB1*2002, 3901, 4901 and 9601 alleles. Specific PCR fragment of 245 bp in the DPB1*1802 allele.

Primer mix 47: Specific PCR fragment of 165 bp in the DPB1*4401 allele. Specific PCR fragment of 255 bp in the DPB1*020102-0202, 040101-040102, 0602 and 0802 alleles.

The 3rd exon of many DPB1 alleles is not sequenced and thus the primer pair in primer mix 47 matching the DPB1*0201, 0202, 0401, 0602 and 0802 sequence motif in the 3rd exon may amplify other DPB1 alleles.

Primer mix 48: Specific PCR fragment of 210 bp in the DPB1*6101N allele. Specific PCR fragment of 280 bp in the DPB1*8501 allele.

'w', might be weakly amplified.

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

CELL LINE VALIDATION SHEET																																	
DPB1 SSP kit																																	
					Tube																												
						17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32												
				Lot No.:		200737517	200737518	200737519	200737520	200737521	200737522	200737523	200737524	200737525	200737526	200737527	200737528	200737529	200737530	200737531	200737532												
	cell line		DPB1																														
1	9001	SA	*0402		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											
2	9280	LK707	*0401		-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-											
3	9011	E4181324	*0201	*0401	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-											
4	9275	GU373	*0402	*1701	+	+	-	-	-	-	-	-	-	-	+	+	+	+	+	+	-	-											
5	9009	KAS011	*0401	*1401	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-	+	-	-											
6	9353	SM	*0501		-	-	-	-	-	-	-	+	+	+	-	-	-	-	-	-	+	-											
7	9020	QBL	*0202		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											
8	9007	DEM	*0301	*0401	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-											
9	9026	YAR	*0401		-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-											
10	9107	LKT3	*0501		-	-	-	-	-	-	-	+	+	+	-	-	-	-	-	-	+	-											
11	9051	PITOUT	*0401		-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-											
12	9052	DBB	*0401		-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-											
13	9067	BTB	*0401		-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-											
14	9071	OLGA	*0301	*0402	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-											
15	9075	DKB	*0401		-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-											
16	9037	SWEIG007	*0402		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											
17	9008	WILJON	*0201	*2301	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											
18	9257	32367	*0402	*1801	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											
19	9038	BM16	*0201		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											
20	9059	SLE005	*0301		+	+	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-											
21	9064	AMALA	*0402		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											
22	9056	KOSE	*0201	*1301	+	-	-	+	-	-	-	-	-	-	-	-	+	-	-	+	-	-											
23	9124	IHL	*0201		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											
24	9035	JBUSH	*0401		-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-											
25	9049	IBW9	*0101		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-											
26	9285	WT49	*0401		-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-											
27	9191	CH1007	*0301	*0902	+	+	+	+	+	+	-	-	-	-	-	-	+	-	-	+	-	-											
28	9320	BEL5GB	*0201	*0401	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-											
29	9050	MOU	*0201		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											
30	9021	RSH	*0101	*0402	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-											
31	9019	DUCAF	*0202		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											
32	9297	HAG	*0201	*0301	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-											
33	9098	MT14B	*0402		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											
34	9104	DHIF	*0401		-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-											
35	9302	SSTO	*0401		-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-											
36	9024	KT17	*0501		-	-	-	-	-	-	-	+	+	+	-	-	-	-	-	-	+	-											
37	9065	HHKB	*0401		-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-											
38	9099	LZL	*0402		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											
39	9315	CML	*0401	*1401	+	+	+	+	+	+	+	-	-	-	-	-	-	-	-	+	-	-											
40	9134	WHONP199	*0501		-	-	-	-	-	-	-	+	+	+	-	-	-	-	-	-	+	-											
41	9055	H0301	*0501		-	-	-	-	-	-	-	+	+	+	-	-	-	-	-	-	+	-											
42	9066	TAB089	*0202		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											
43	9076	T7526	*0902		+	-	-	+	-	-	-	-	-	-	-	-	+	-	-	+	-	-											
44	9057	TEM	*0401		-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-											
45	9239	SHJO	*0301	*0402	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-											
46	9013	SCHU	*0402		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											
47	9045	TUBO	*0201	*0402	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											
48	9303	TER-ND	*0201	*0401	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-											

CELL LINE VALIDATION SHEET																				
DPB1 SSP kit																				
					Tube															
					33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
				Lot No.:	200737533	200737534	200737535	200737536	200737537	200737538	200737539	200737540	200737541	200737542	200737543	200737544	200737545	200737546	200737547	200737548
	cell line		DPB1																	
1	9001	SA	*0402		-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
2	9280	LK707	*0401		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
3	9011	E4181324	*0201	*0401	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
4	9275	GU373	*0402	*1701	-	-	-	-	-	-	-	+	-	-	-	-	-	-	+	-
5	9009	KAS011	*0401	*1401	-	+	-	-	-	-	-	-	-	-	-	-	-	-	+	-
6	9353	SM	*0501		-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
7	9020	QBL	*0202		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
8	9007	DEM	*0301	*0401	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
9	9026	YAR	*0401		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
10	9107	LKT3	*0501		-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
11	9051	PITOUT	*0401		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
12	9052	DBB	*0401		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
13	9067	BTB	*0401		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
14	9071	OLGA	*0301	*0402	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
15	9075	DKB	*0401		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
16	9037	SWEIG007	*0402		-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
17	9008	WILJON	*0201	*2301	-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	-
18	9257	32367	*0402	*1801	-	-	-	+	-	-	-	-	-	-	-	-	-	-	+	-
19	9038	BM16	*0201		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
20	9059	SLE005	*0301		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	9064	AMALA	*0402		-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
22	9056	KOSE	*0201	*1301	+	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
23	9124	IHL	*0201		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
24	9035	JBUSH	*0401		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	9049	IBW9	*0101		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	9285	WT49	*0401		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
27	9191	CH1007	*0301	*0902	+	-	-	-	-	-	-	+	-	-	+	-	-	-	-	-
28	9320	BEL5GB	*0201	*0401	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
29	9050	MOU	*0201		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
30	9021	RSH	*0101	*0402	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	-
31	9019	DUCAF	*0202		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
32	9297	HAG	*0201	*0301	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
33	9098	MT14B	*0402		-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
34	9104	DHIF	*0401		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
35	9302	SSTO	*0401		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
36	9024	KT17	*0501		-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
37	9065	HHKB	*0401		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
38	9099	LZL	*0402		-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
39	9315	CML	*0401	*1401	-	+	-	-	-	-	-	-	-	-	-	-	-	-	+	-
40	9134	WHONP199	*0501		-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
41	9055	H0301	*0501		-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
42	9066	TAB089	*0202		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
43	9076	T7526	*0902		+	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
44	9057	TEM	*0401		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
45	9239	SHJO	*0301	*0402	-	-	-	-	-	-	-	-	-	-	+	-	-	-	+	-
46	9013	SCHU	*0402		-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
47	9045	TUBO	*0201	*0402	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	-
48	9303	TER-ND	*0201	*0401	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-

CERTIFICATE OF ANALYSIS

Olerup SSPTM DPB1 SSP

Product number: 101.311-24/04 – licensed for PCR
101.311-24u/04u – not licensed for PCR
Lot number: Y21
Expiry date: 2009-August-01
Number of tests: 24 tests – Product No. 101.311-24
4 tests – Product No. 101.311-04
Number of tubes per test: 48

Tube specifications:

Tube No.	Production No.	Tube No.	Production No.	Tube No.	Production No.
1	2007-375-01	17	2007-375-17	33	2007-375-33
2	2007-375-02	18	2007-375-18	34	2007-375-34
3	2007-375-03	19	2007-375-19	35	2007-375-35
4	2007-375-04	20	2007-375-20	36	2007-375-36
5	2007-375-05	21	2007-375-21	37	2007-375-37
6	2007-375-06	22	2007-375-22	38	2007-375-38
7	2007-375-07	23	2007-375-23	39	2007-375-39
8	2007-375-08	24	2007-375-24	40	2007-375-40
9	2007-375-09	25	2007-375-25	41	2007-375-41
10	2007-375-10	26	2007-375-26	42	2007-375-42
11	2007-375-11	27	2007-375-27	42	2007-375-43
12	2007-375-12	28	2007-375-28	43	2007-375-44
13	2007-375-13	29	2007-375-29	45	2007-375-45
14	2007-375-14	30	2007-375-30	46	2007-375-46
15	2007-375-15	31	2007-375-31	47	2007-375-47
16	2007-375-16	32	2007-375-32	48	2007-375-48

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 41, 44 and 46 were available. Additional 5'-primers in primer solutions 15, 25 and 32 were not possible to test. Additional 3'-primers in primer solutions 8, 24 and 48 were not possible to test. In primer solutions 41 and 46 it was only possible to test the 5'-primers, the 3'-primers were not possible to test. In primer solution 44 it was only possible to test the 3'-primer and one of the 5'-primers, the other the 5'-primer was not possible to test.

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

Date of approval: 2007-November-20

Approved by:

Quality Control, Supervisor

Declaration of Conformity

Product name: Olerup SSP™ DPB1
Product number: 101.311-24/04, 101.311-24u/04u
Lot number: Y21

Intended use: DPB1 high resolution histocompatibility testing

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

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

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

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

Saltsjöbaden, Sweden
2007-November-20

Olle Olerup
Managing Director

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.

Olerup SSPTM is a trademark of *Olerup* SSP AB.

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

ARMSTM is a trademark of Zeneca Ltd.

DPB1
101.311-24/04 – licensed for PCR
101.311-24u/04u – not licensed for PCR
Lot No.: **Y21**

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