

Olerup SSP™ HLA-B*40

Product number: 101.523-24 – licensed for PCR
101.523-03 – licensed for PCR
101.523-24u – not licensed for PCR
101.523-03u – not licensed for PCR
Lot number: Y10
Expiry date: 2009-August-01
Number of tests: 24 tests – Product No. 101.523-24
3 tests – Product No. 101.523-03
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. Y10.

CHANGES COMPARED TO THE PREVIOUS OLERUP SSP™ HLA-B*40 LOT

The HLA-B*40 specificity and interpretation tables have been updated for the HLA-B alleles described since the previous Olerup SSP™ HLA-B*40 lot was made (**Lot No. V62**).

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

Tube	5'-primer	3'-primer	rationale
6	-	Modified	Increased yield of specific PCR product.
16	Modified	-	Increased specificity of specific primer pair.
22	Removed	Removed	B*4022N primer pair removed.
24	-	Added	Primer added for the B*4076 allele.
28	Modified	-	Increased specificity of specific primer pair.
34	Modified	-	Increased specificity of specific primer pair.
35	-	Modified	Increased specificity of specific primer pair.
42	Exchanged	Exchanged	B*4065 primer pair exchanged.
44	-	Added	Primer added for the B*4078 allele.
45	Added	Added	Primer pair from vial 46 added. Primer added for the B*4067 allele.
46	New	New	New primer pair for the B*4074 allele.
48	-	Added	Primer added for the B*4073 allele.

Change in revision R01 compared to R00:

1. Interpretation Table on pages 32 and 33 has been re-formatted.

PRODUCT DESCRIPTION

HLA-B*40 SSP subtyping

CONTENT

The primer set contains 5'- and 3'-primers for identifying the B*4001 to B*4078 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 'B*40 Y10'.

Well No. 1 is marked with '1'.

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

Please note: When removing each 48 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 HLA-B*40 SSP subtypings will be influenced by many other HLA-B alleles when present on the other haplotype. In addition, the Cw*0206 allele will be amplified by primer mix 5, the HLA-Cw*0305, 0325 and 0327 alleles will be amplified by primer mixes 4, 8 and 13, the Cw*0334 allele will be amplified by primer mix 33, the Cw*0738 allele will be amplified by primer mixes 16, 31 and 34, the Cw*0746 allele will be amplified by primer mix 39, the Cw*0808 alleles by primer mixes 6 and 29 and the Cw*17 alleles faintly by primer mix 7, 23 and 33.

UNIQUELY IDENTIFIED ALLELES

All the HLA-B*40 alleles, i.e. B*4001 to B*4078, recognized by the HLA Nomenclature Committee in October 2007¹ will give rise to unique amplification patterns by the primers in the HLA-B*40 subtyping kit.

The HLA-B*40 subtyping kit cannot distinguish the B*400101 to B*400105 alleles or the B*400201 to B*400203 alleles or the B*40060101 to B*400602 alleles or the B*401402 and B*401403 alleles.

¹*Nomenclature for factors of the HLA system, 1998. Tissue Antigens 1999; 53: 407-446 and HLA-B 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 76 phenotypically different HLA-B*40 alleles give rise to 77 amplification patterns, which can be combined in 3 003 homozygous and heterozygous combinations. 698 of these genotypes do not give rise to unique amplification patterns. The different sizes of the PCR products by primer mixes 16, 20, 23, 24, 42, 44, 45 and 48 were not considered in these calculations.

+++++---	----+---	+--+---+	---+--++	-----	-----+	4024,4061 = 4024,4073
+++++---	----+---	+--+---+	---+--++	---+-----	-----	4018,4060 = 4024,4060
+++++---	----+---	+--+---+	---+--++	-----	-----+	4018,4061 = 4018,4073
+++++---	----+---	+--+---+	---+--++	-----	-----	4009,4052 = 4018,4052
+++++---	----+---	+--+---+	---+--++	-----	-----	4009,4033 = 4018,4033
+++++---	----+---	+--+---+	---+--++	-----	-----+	4027,4061 = 4027,4073
+++++---	----+---	+--+---+	---+--++	-----	-----+	4005,4061 = 4005,4073
+++++---	---+--++	+--+---+	---+--++	-----	+-----	4008,4047 = 4013,4025
+++++---	---+--++	+--+---+	---+--++	-----	+-----	4001,4008 = 4008,4025 =
						4008,4062
+++++---	---+--++	+--+---+	---+--++	-----	-----	4001,4013 = 4007,4019
+++++---	---+---	+--+---+	---+--++	---+-----	-----+	4035,4061 = 4035,4073
+++++---	----+---	+--+---+	---+--++	-----	-----+	4009,4061 = 4009,4073
+++++---	-----+	+--+---+	---+--++	-----	-----	4019,4036 = 4029,4047
+++++---	-----+	+--+---+	+--+--++	-----	-----	4019,4043 = 4047,4050
+++++---	-----+	+--+---+	---+--++	-----	---+-----	4019,4054 = 4047,4078
+++++---	-----+	+--+---+	---+--++	-----	---+-----	4019,4055 = 4047,4056
+++++---	-----+	+--+---+	---+--++	-----	-----+	4019,4063 = 4047,4057
+++++---	-----+	+--+---+	---+--++	-----	-----+	4019,4061 = 4019,4073
+++++---	-----+	+--+---+	---+--++	-----	-----	4001,4019 = 4002,4047
+++++---	-----+	+--+---+	---+--++	---+-----	-----	4019,4049 = 4040,4047
+++++---	-----	+--+---+	---+--++	-----	-----	4029,4076 = 4036,4037
+++++---	-----	+--+---+	+--+--++	-----	-----	4029,4043 = 4036,4050
+++++---	-----	+--+---+	---+--++	-----	-----	4002,4048 = 4029,4048
+++++---	-----	+--+---+	---+--++	---+-----	-----	4029,4049 = 4036,4040
+++++---	-----	+--+---+	---+--++	-----	---+-----	4029,4054 = 4036,4078
+++++---	-----	+--+---+	---+--++	-----	---+-----	4029,4055 = 4036,4056
+++++---	-----	+--+---+	---+--++	-----	-----+	4029,4063 = 4036,4057
+++++---	-----	+--+---+	---+--++	-----	-----+	4029,4061 = 4029,4073
+++++---	-----	+--+---+	---+--++	-----	-----	4001,4029 = 4002,4036 =
						4029,4036
+++++---	-----	+--+---+	+--+--++	-----	-----	4037,4043 = 4050,4076
+++++---	-----	+--+---+	---+--++	-----	---+-----	4037,4054 = 4076,4078
+++++---	-----	+--+---+	---+--++	-----	---+-----	4037,4055 = 4056,4076
+++++---	-----	+--+---+	---+--++	-----	-----+	4037,4063 = 4057,4076
+++++---	-----	+--+---+	---+--++	-----	-----+	4037,4061 = 4037,4073

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++++-----	-----	+-----+--	---+--++	-----	-----	4001,4037 = 4002,4076 = 4037,4076
++++-----	-----	+-----+--	+--+--++	---+-----	-----	4040,4043 = 4049,4050
++++-----	-----	+-----+--	+--+--++	-----	---+-----	4043,4078 = 4050,4054
++++-----	-----	+-----+--	+--+--++	-----	-----+---	4043,4056 = 4050,4055
++++-----	-----	+-----+--	+--+--++	-----	-----+--	4043,4057 = 4050,4063
++++-----	-----	+-----+--	+--+--++	-----	-----++	4050,4061 = 4050,4073
++++-----	-----	+-----+--	+--+--++	-----	-----	4001,4050 = 4002,4043 = 4043,4050
++++-----	-----	+-----+--	---+--++	---+-----	---+-----	4040,4054 = 4049,4078
++++-----	-----	+-----+--	---+--++	---+-----	-----+---	4040,4055 = 4049,4056
++++-----	-----	+-----+--	---+--++	---+-----	-----+--	4040,4063 = 4049,4057
++++-----	-----	+-----+--	---+--++	---+-----	-----	4001,4040 = 4002,4049
++++-----	-----	+-----+--	---+--++	-----	-----+---	4054,4056 = 4055,4078
++++-----	-----	+-----+--	---+--++	-----	---+-----	4054,4057 = 4063,4078
++++-----	-----	+-----+--	---+--++	-----	---+-----	4061,4078 = 4073,4078
++++-----	-----	+-----+--	---+--++	-----	---+-----	4001,4078 = 4002,4054 = 4054,4078
++++-----	-----	+-----+--	---+--++	-----	-----+--	4055,4057 = 4056,4063
++++-----	-----	+-----+--	---+--++	-----	-----+--	4056,4061 = 4056,4073
++++-----	-----	+-----+--	---+--++	-----	-----+---	4001,4056 = 4002,4055 = 4055,4056
++++-----	-----	+-----+--	---+--++	-----	-----++	4057,4061 = 4057,4073
++++-----	-----	+-----+--	---+--++	-----	-----+--	4001,4057 = 4002,4063 = 4057,4063
++++-----	-----	+-----+--	---+--++	-----	-----++	4002,4061 = 4002,4073
++++-----	-----	+-----+--	---+--++	-----	-----++	4039,4061 = 4039,4073
++++-----	-----	-----+--	---+--++	-----	-----+---	4002,4067 = 4056,4067
+++++-----	-----+---	+-----+--	---+--++	-----	-----++	4003,4061 = 4003,4073
+++++-----	+-----+---	+-----+--	---+--++	-----+---	-----	4006,4052 = 4038,4044 = 4052,4075
+++++-----	+-----+---	+-----+--	---+--++	-----	-----++	4044,4061 = 4044,4073
+++++-----	+-----+---	+-----+--	---+--++	-----	-----	4001,4044 = 4006,4033 = 4033,4075
+++++-----	-----+---	+-----+--	---+--++	-----+---	-----+---	4011,4052 = 4020,4038 = 4052,4074
+++++-----	-----+---	+-----+--	---+--++	-----	-----+--	4020,4061 = 4020,4073
+++++-----	-----+---	+-----+--	---+--++	-----	-----+---	4001,4020 = 4011,4033 = 4020,4074 = 4033,4074
+++++-----	+-----+---	+-----+--	---+--++	-----	-----	4006,4046 = 4046,4075
+++++-----	+-----+---	+-----+--	---+--++	-----+---	-----+---	4011,4012 = 4012,4074
+++++-----	+-----+---	+-----+--	---+--++	-----	-----+---	4011,4046 = 4046,4074
+++++-----	+-----+---	+-----+--	---+--++	---+-----	-----++	4061,4071 = 4071,4073
+++++-----	+--+-----	+-----+--	---+--++	-----	+-----	4006,4025 = 4025,4075
+++++-----	+--+-----	+-----+--	---+--++	-----	-----	4006,4047 = 4047,4075
+++++-----	+-----+---	+-----+--	---+--++	-----	-----	4006,4069 = 4069,4075
+++++-----	+-----+---	+--+-----	---+--++	---+-----	-----	4006,4060 = 4060,4070 = 4060,4075
+++++-----	+-----+---	+--+-----	---+--++	-----	-----++	4061,4070 = 4070,4073
+++++-----	+-----+---	+-----+--	---+--++	-----	-----	4006,4048 = 4048,4075
+++++-----	+-----+---	+-----+--	---+--++	-----	-----	4006,4036 = 4036,4075
+++++-----	+-----+---	+-----+--	---+--++	-----	-----	4006,4076 = 4075,4076
+++++-----	+-----+---	+-----+--	+--+--++	-----	-----	4006,4043 = 4043,4075
+++++-----	+-----+---	+-----+--	---+--++	-----	-----	4006,4022N = 4022N,4075
+++++-----	+-----+---	+-----+--	---+--++	-----+---	-----	4006,4038 = 4038,4075
+++++-----	+-----+---	+-----+--	---+--++	---+-----	-----	4006,4042 = 4042,4075
+++++-----	+-----+---	+-----+--	---+--++	-----+---	-----	4006,4066 = 4066,4075
+++++-----	+-----+---	+-----+--	---+--++	-----	+-----	4006,4062 = 4062,4075
+++++-----	+-----+---	+-----+--	---+--++	-----	---+-----	4006,4065 = 4065,4075

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+++-----	+-----	+-----	---+--+	-----	---+-----	4006,4054 = 4054,4075
+++-----	+-----	+-----	---+--+	-----	---+-----	4006,4055 = 4055,4075
+++-----	+-----	+-----	---+--+	-----	---+-----	4006,4074 = 4053,4074 =
						4074,4075
+++-----	+-----	+-----	---+--+	-----	---+-----	4006,4063 = 4063,4075
+++-----	+-----	+-----	---+--+	-----	---+-----	4006,4061 = 4006,4073 =
						4073,4075
+++-----	+-----	+-----	---+--+	-----	---+-----	4001,4006 = 4001,4075
+++-----	+-----	---+-----	---+--+	-----	---+-----	4006,4023 = 4023,4075
+++-----	+-----	---+-----	---+--+	-----	---+-----	4006,4051 = 4051,4075
+++-----	+-----	---+-----	---+--+	-----	---+-----	4006,4067 = 4067,4075
+++-----	---+-----	---+-----	---+--+	-----	---+-----	4001,4068 = 4025,4068 =
						4062,4068
+++-----	---+-----	+-----	---+--+	-----	---+-----	4007,4011 = 4007,4074
+++-----	---+-----	+-----	---+--+	-----	---+-----	4011,4025 = 4025,4074
+++-----	---+-----	+-----	---+--+	-----	---+-----	4010,4011 = 4010,4074
+++-----	---+-----	+-----	---+--+	-----	---+-----	4011,4047 = 4047,4074
+++-----	---+-----	+++-----	---+--+	-----	---+-----	4026,4061 = 4026,4073
+++-----	---+-----	+++-----	---+--+	-----	---+-----	4001,4026 = 4011,4069 =
						4026,4069 = 4026,4074 =
						4069,4074
+++-----	-----	---+-----	---+---	+++-----	-----	4004,4060 = 4060,4064
+++-----	-----	---+-----	---+---	+++-----	-----	4011,4060 = 4060,4074
+++-----	-----	---+-----	---+---	+++-----	-----	4004,4061 = 4004,4073
+++-----	-----	---+-----	---+---	+++-----	-----	4028,4061 = 4028,4073
+++-----	-----	---+-----	---+---	+++-----	-----	4001,4028 = 4028,4066
+++-----	-----	---+-----	---+---	+++-----	-----	4011,4021 = 4021,4074
+++-----	-----	---+-----	---+---	+++-----	-----	4011,4048 = 4048,4074
+++-----	-----	---+-----	---+---	+++-----	-----	4011,4036 = 4036,4074
+++-----	-----	---+-----	---+---	+++-----	-----	4011,4076 = 4074,4076
+++-----	-----	---+-----	---+---	+++-----	-----	4011,4043 = 4043,4074
+++-----	-----	---+-----	---+---	+++-----	-----	4011,4022N = 4022N,4074
+++-----	-----	---+-----	---+---	+++-----	-----	4011,4038 = 4038,4074
+++-----	-----	---+-----	---+---	+++-----	-----	4061,4064 = 4064,4073
+++-----	-----	---+-----	---+---	+++-----	-----	4011,4042 = 4042,4074
+++-----	-----	---+-----	---+---	+++-----	-----	4011,4049 = 4049,4074
+++-----	-----	---+-----	---+---	+++-----	-----	4011,4066 = 4066,4074
+++-----	-----	---+-----	---+---	+++-----	-----	4011,4062 = 4062,4074
+++-----	-----	---+-----	---+---	+++-----	-----	4011,4065 = 4065,4074
+++-----	-----	---+-----	---+---	+++-----	-----	4011,4054 = 4054,4074
+++-----	-----	---+-----	---+---	+++-----	-----	4011,4055 = 4055,4074 =
						4067,4074
+++-----	-----	---+-----	---+---	+++-----	-----	4011,4063 = 4063,4074
+++-----	-----	---+-----	---+---	+++-----	-----	4011,4061 = 4011,4073 =
						4061,4074 = 4073,4074
+++-----	-----	---+-----	---+---	+++-----	-----	4001,4011 = 4001,4074 =
						4011,4074 = 4074,4074
+++-----	-----	---+-----	---+---	+++-----	-----	4032,4061 = 4032,4073
+++-----	-----	---+-----	---+---	+++-----	-----	4001,4032 = 4023,4031
+++-----	-----	---+-----	---+---	+++-----	-----	4031,4055 = 4031,4067
+++-----	-----	---+-----	---+---	+++-----	-----	4031,4061 = 4031,4073
+++-----	-----	---+-----	---+---	+++-----	-----	4015,4061 = 4015,4073
+++-----	-----	---+-----	---+---	+++-----	-----	4016,4061 = 4016,4073
+++-----	-----	---+-----	---+---	+++-----	-----	4001,4016 = 4023,4045
+++-----	-----	---+-----	---+---	+++-----	-----	4045,4055 = 4045,4067
+++-----	-----	---+-----	---+---	+++-----	-----	4045,4061 = 4045,4073
+++-----	-----	---+-----	---+---	+++-----	-----	4001,4058 = 4058,4065
+++-----	-----	---+-----	---+---	+++-----	-----	4036,4059 = 4048,4059
+++-----	-----	---+-----	---+---	+++-----	-----	4055,4059 = 4059,4067

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++-+---	-----	+--+-----	---+---++	+-----+	---+-----	4059,4061 = 4059,4073
++-+---	-----	+--+-----	---+---++	+-----+	---+-----	4001,4059 = 4038,4059
++-+---	-----	+--+-----	---+---++	++-----	---+-----	4042,4059 = 4059,4060
++-+---	-----	+--+-----	---+---++	+-----+	---+-----	4033,4059 = 4052,4059
++-+---	-----	+--+-----	---+---++	+-----+	-----	4033,4060 = 4052,4060
++-+---	-----	+-----+	---+---++	-----+	-----	4036,4052 = 4048,4052
++-+---	-----	+-----	---+---++	-----+	-----+	4052,4055 = 4052,4067
++-+---	-----	+-----	---+---++	-----+	-----+	4052,4061 = 4052,4073
++-+---	-----	+-----	---+---++	-----+	-----	4001,4052 = 4033,4038 =
						4038,4052
++-+---	-----	+-----	---+---+	-----	-----+	4033,4055 = 4033,4067
++-+---	-----	+-----	---+---+	-----	-----+	4033,4061 = 4033,4073
++-+---	-----	+-----	---+---++	-----+	-----	4033,4052 = 4052,4052
++-+---	-----	+-----	---+---++	-----+	-----+	4012,4055 = 4012,4067
++-+---	-----	+-----	---+---+	-----+	-----	4001,4012 = 4012,4046
++-+---	-----	+-----	---+---+	-----	-----+	4046,4055 = 4046,4067
++-+---	-----	+-----	---+---+	-----	-----+	4046,4061 = 4046,4073
++-+---	-----	+-----	---+---+	-----	-----	4001,4046 = 4046,4046
++-+---	+-----	+-----	---+---+	-----	-----+	4053,4061 = 4053,4073
++-+---	+-----	+-----	---+---+	-----	-----+	4007,4055 = 4007,4067
++-+---	+-----	+-----	---+---+	-----	-----+	4055,4077 = 4067,4077
++-+---	+-----	+-----	---+---+	-----	-----+	4061,4077 = 4073,4077
++-+---	+-----	+-----	---+---+	-----	+-----	4025,4055 = 4025,4067
++-+---	+-----	+-----	---+---+	-----	+-----	4025,4061 = 4025,4073
++-+---	+-----	+-----	---+---+	-----	+-----	4001,4025 = 4025,4025 =
						4025,4062
++-+---	+-----	+-----	---+---+	+-----	-----+	4010,4055 = 4010,4067
++-+---	+-----	+-----	---+---+	-----	-----+	4047,4055 = 4047,4067
++-+---	+-----	+-----	---+---+	-----	-----+	4047,4061 = 4047,4073
++-+---	+-----	+--+-----	+--+---++	-----	-----	401401,4023 = 4023,4072
++-+---	+-----	+--+-----	+--+---++	-----	-----+	401401,4055 = 401401,4067
++-+---	+-----	+--+-----	+--+---++	-----	-----+	401401,4061 = 401401,4073
++-+---	+-----	+-----	---+---+	-----	-----+	4055,4072 = 4067,4072
++-+---	+-----	+-----	---+---+	-----	-----+	4061,4072 = 4072,4073
++-+---	+-----	+-----	---+---+	-----	-----+	4055,4069 = 4067,4069
++-+---	+-----	+-----	---+---+	-----	-----+	4061,4069 = 4069,4073
++-+---	+-----	+-----	---+---+	-----	-----	4001,4069 = 4069,4069
++-+---	+-----	+--+-----	---+---++	+-----	-----	4036,4060 = 4048,4060
++-+---	+-----	+--+-----	---+---++	+-----	-----+	4055,4060 = 4060,4067
++-+---	+-----	+--+-----	---+---++	+-----	-----+	4060,4061 = 4060,4073
++-+---	+-----	+--+-----	---+---++	+-----	-----	4001,4060 = 4038,4060
++-+---	+-----	+--+-----	---+---++	+-----	-----	4042,4060 = 4060,4060
++-+---	+-----	+--+-----	+--+---++	-----	-----+	4023,4061 = 4023,4073
++-+---	+-----	+--+-----	+--+---++	-----	-----	4001,4023 = 4014,4023
++-+---	+-----	+--+-----	---+---+	-----	-----+	4014,4055 = 4014,4067
++-+---	+-----	+--+-----	---+---+	-----	-----+	4014,4061 = 4014,4073
++-+---	+-----	+-----	---+---+	-----	-----+	4021,4055 = 4021,4067
++-+---	+-----	+-----	---+---++	-----	-----	4036,4038 = 4038,4048
++-+---	+-----	+-----	---+---++	-----	-----+	4048,4055 = 4048,4067
++-+---	+-----	+-----	---+---++	-----	-----+	4048,4061 = 4048,4073
++-+---	+-----	+-----	---+---++	-----	-----	4001,4048 = 4036,4048 =
						4048,4048
++-+---	+-----	+-----	---+---+	-----	-----+	4036,4055 = 4036,4067
++-+---	+-----	+-----	---+---+	-----	-----+	4036,4061 = 4036,4073
++-+---	+-----	+-----	---+---+	-----	-----	4001,4036 = 4036,4036
++-+---	+-----	+-----	---+---+	+-----	---+-----	4034,4055 = 4034,4067
++-+---	+-----	+-----	---+---+	+-----	---+-----	4034,4061 = 4034,4073
++-+---	+-----	+-----	---+---+	+-----	---+-----	4001,4034 = 4030,4076 =
						4034,4076

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++-----	-----	+-----+	---+--+	-----	-----+	4055,4076 = 4067,4076
++-----	-----	+-----+	---+--+	-----	-----+	4061,4076 = 4073,4076
++-----	-----	+-----	+--+--+	-----	-----+	4043,4055 = 4043,4067
++-----	-----	+-----	+--+--+	-----	-----+	4043,4061 = 4043,4073
++-----	-----	+-----	+--+--+	-----	-----	4001,4043 = 4043,4043
++-----	-----	+-----	---+--+	-----	-----+	4022N,4055 = 4022N,4067
++-----	-----	+-----	---+--+	-----	-----+	4022N,4061 = 4022N,4073
++-----	-----	+-----	---+--+	-----	-----	4001,4022N = 4022N,4022N
++-----	-----	+-----	---+---	-----	-----+	4038,4055 = 4038,4067
++-----	-----	+-----	---+---	-----	-----+	4038,4061 = 4038,4073
++-----	-----	+-----	---+---	-----	-----	4001,4038 = 4038,4038
++-----	-----	+-----	---+---	-----	-----	4030,4055 = 4030,4067
++-----	-----	+-----	---+---	-----	-----	4030,4061 = 4030,4073
++-----	-----	+-----	---+---	-----	-----	4042,4055 = 4042,4067
++-----	-----	+-----	---+---	-----	-----	4042,4061 = 4042,4073
++-----	-----	+-----	---+---	-----	-----	4049,4055 = 4049,4067
++-----	-----	+-----	---+---	-----	-----	4051,4061 = 4051,4073
++-----	-----	+-----	---+---	-----	-----	4055,4066 = 4066,4067
++-----	-----	+-----	---+---	-----	-----	4061,4066 = 4066,4073
++-----	-----	+-----	---+---	-----	-----	4001,4066 = 4066,4066
++-----	-----	+-----	---+---	-----	-----	4055,4062 = 4062,4067
++-----	-----	+-----	---+---	-----	-----	4061,4062 = 4062,4073
++-----	-----	+-----	---+---	-----	-----	4001,4062 = 4062,4062
++-----	-----	+-----	---+---	-----	-----	4055,4065 = 4065,4067
++-----	-----	+-----	---+---	-----	-----	4061,4065 = 4065,4073
++-----	-----	+-----	---+---	-----	-----	4001,4065 = 4065,4065
++-----	-----	+-----	---+---	-----	-----	4054,4055 = 4054,4067
++-----	-----	+-----	---+---	-----	-----	4054,4061 = 4054,4073
++-----	-----	+-----	---+---	-----	-----	4001,4054 = 4054,4054
++-----	-----	+-----	---+---	-----	-----	4055,4063 = 4063,4067
++-----	-----	+-----	---+---	-----	-----	4055,4061 = 4055,4073 =
						4061,4067 = 4067,4073
++-----	-----	+-----	---+---	-----	-----	4001,4055 = 4001,4067 =
						4055,4055 = 4055,4067
++-----	-----	+-----	---+---	-----	-----	4061,4063 = 4063,4073
++-----	-----	+-----	---+---	-----	-----	4001,4061 = 4001,4073 =
						4061,4073 = 4073,4073
+++++---	-----	+-----	---+---	-----	-----	4010,4010 = 4010,4049
+++++---	-----	+-----	---+---	-----	-----	4003,4045 = 4027,4031
+++++---	-----	+-----	---+---	-----	-----	4003,4016 = 4027,4032
+++++---	-----	+-----	---+---	-----	-----	4002,4003 = 4003,4027 =
						4018,4027
+++++---	-----	+-----	---+---	-----	-----	4003,4009 = 4003,4018
+++++---	-----	+-----	---+---	-----	-----	4006,4031 = 4031,4075
+++++---	-----	+-----	---+---	-----	-----	4006,4024 = 4018,4070 =
						4024,4053 = 4024,4070 =
						4024,4075
+++++---	-----	+-----	---+---	-----	-----	4006,4032 = 4032,4075
+++++---	-----	+-----	---+---	-----	-----	4006,4018 = 4018,4053 =
						4018,4075
+++++---	-----	+-----	---+---	-----	-----	4009,4044 = 4018,4044
+++++---	-----	+-----	---+---	-----	-----	4018,4068 = 4024,4068
+++++---	-----	+-----	---+---	-----	-----	4009,4059 = 4018,4059 =
						4024,4059
+++++---	-----	+-----	---+---	-----	-----	4002,4031 = 4018,4045
+++++---	-----	+-----	---+---	-----	-----	4009,4031 = 4018,4031
+++++---	-----	+-----	---+---	-----	-----	4004,4018 = 4004,4024 =
						4024,4064
+++++---	-----	+-----	---+---	-----	-----	4018,4028 = 4024,4028

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++++--	---+---	--+--+	-----+	-----	-----	4009,4024 = 4018,4024 = 4024,4024
++++--	---+---	--+--+	-+---++	-----	-----	4002,4032 = 4016,4018
++++--	---+---	--+--+	-+---++	-----	-----	4009,4032 = 4018,4032
++++--	---+---	-----+	---+---	-----	-----	4009,4020 = 4018,4020
++++--	---+---	-----+	-----+	-----	-----	4009,4018 = 4018,4018
+++++--	+-----	-----+	-----+	-----	-----	4006,4027 = 4027,4053 = 4027,4075
+++--+	-----	-----+	-----+	-----	-----	4002,4027 = 4027,4027
++++--+	+-----	-----	-----+	-----	-----	4005,4006 = 4005,4053 = 4005,4075
++++---+	--+-----	-----+	-----+	--+-----	-----	4005,4035 = 4035,4071
++++---	++-+---	-----+	-----+	-----	+-----	4006,4008 = 4008,4053
++++---	++-+---	-----+	-----+	-----	-----	4006,4013 = 4013,4053
++++---	++-+---	-----+	-----+	--+-----	-----	4006,4035 = 4035,4053 = 4035,4075
++++---	+---+---	-----+	-----+	-----	-----	4006,4009 = 4009,4053 = 4009,4075
++++---	+-----+	-----+	-----+	-----	-----	4006,4019 = 4019,4053 = 4019,4075
++++---	+-----+	--+--+	-+---++	-----	-----	4006,4015 = 4015,4075
++++---	+-----	++-+---	-----+	-----	-----	4006,4045 = 4045,4075
++++---	+-----	--+--+	-+---++	-----	-----	4006,4016 = 4016,4075
++++---	+-----	-----+	-----+	-----	-----	4006,4029 = 4029,4053 = 4029,4075
++++---	+-----	-----+	-----+	-----	-----	4006,4037 = 4037,4053 = 4037,4075
++++---	+-----	-----+	+---+---	-----	-----	4006,4050 = 4050,4053 = 4050,4075
++++---	+-----	-----+	-----+	---+-----	-----	4006,4040 = 4040,4053
++++---	+-----	-----+	-----+	-----	---+-----	4006,4078 = 4053,4078 = 4075,4078
++++---	+-----	-----+	-----+	-----	---+---	4006,4056 = 4053,4056 = 4056,4075
++++---	+-----	-----+	-----+	-----	-----+	4006,4057 = 4053,4057 = 4057,4075
++++---	+-----	-----+	-----+	-----	-----	4002,4006 = 4002,4053 = 4002,4075
++++---	+-----	-----	---+---	-----	-----	4006,4039 = 4039,4053 = 4039,4075
++++---	-++-+---	--+--+	---+---	+-----	+-----	4002,4068 = 4004,4008
++++---	--+-----+	+---+---	---+---	--+-----	-----	4035,4072 = 4035,4077
++++---	--+-----	-----+	-----+	--+-----	-----	4002,4035 = 4035,4035
++++---	-----	+---+---	-----+	+-----	--+-----	4002,4034 = 4030,4037 = 4034,4037
++++---	-----	-----+	-----+	-----	-----	4002,4029 = 4029,4029
++++---	-----	-----+	-----+	-----	-----	4002,4037 = 4037,4037
++++---	-----	-----+	+---+---	-----	-----	4002,4050 = 4050,4050
++++---	-----	-----+	-----+	-----	---+---	4002,4078 = 4078,4078
++++---	-----	-----+	-----+	-----	---+---	4002,4056 = 4056,4056
++++---	-----	-----+	-----+	-----	-----+	4002,4057 = 4057,4057
+++--+	+---+---	-----+	-----+	-----	-----	4003,4006 = 4003,4053 = 4003,4075
+++--+	+-----	++-+---	---+---	+-----	--+-----	4006,4059 = 4059,4070 = 4059,4075
+++--+	+-----	-----	---+---	-----	-----+	4006,4020 = 4011,4044 = 4020,4053 = 4020,4075
+++--+	+-----	-----	-----+	-----	-----	4006,4044 = 4044,4053 = 4044,4075

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-++-+---	-----	+--+-----	---+---++	+-----+	---+-----	4004,4059 = 4059,4064
-++-----	+-----	-----	-----+--+	---+-----	-----	4006,4071 = 4053,4071 = 4071,4075
-++-----	+++-----	---+-----	---+---++	+-----	+-----	4006,4068 = 4053,4068 = 4068,4070
-++-----	+--+-----	+-----	---+---++	-----	-----	4006,4077 = 4075,4077
-++-----	+-----	+--+-----	---+---++	-----	-----	4006,401401 = 401401,4075
-++-----	+-----	+-----	---+---++	-----	-----	4006,4072 = 4072,4075
-++-----	+-----	+--+-----	---+---++	-----	-----	4006,4014 = 4014,4075
-++-----	+-----	+-----	---+---++	+-----	---+-----	4006,4034 = 4034,4075
-++-----	+-----	+-----	---+---++	+-----	---+-----	4006,4030 = 4030,4075
-++-----	+-----	+-----	---+---++	-----	-----	4006,4026 = 4026,4053 = 4026,4075
-++-----	+-----	---+-----	---+---++	+-----	-----	4004,4006 = 4004,4053 = 4004,4070 = 4004,4075 = 4064,4070
-++-----	+-----	---+-----	---+---++	---+---	-----	4006,4028 = 4028,4053 = 4028,4070 = 4028,4075
-++-----	+-----	---+-----	---+---++	-----	-----	4006,4070 = 4053,4070 = 4070,4070 = 4070,4075
-++-----	+-----	-----	---+---++	+-----	-----	4006,4064 = 4053,4064 = 4064,4075
-++-----	+-----	-----	---+---++	-----	-----	4006,4011 = 4011,4053 = 4011,4075
-++-----	+-----	-----	---+---++	-----	-----	4006,4006 = 4006,4053 = 4006,4075 = 4053,4075
-++-----	---+-----	---+-----	---+---++	+-----	+-----	4004,4068 = 4064,4068
-++-----	-----	---+-----	---+---++	---+---	-----	4004,4028 = 4028,4064
-++-----	-----	---+-----	---+---++	+-----	-----	4004,4004 = 4004,4064
-+++-+---	---+---	+--+---+	-+---+---	-----	-----	401401,4032 = 4032,4072
-+++-+---	---+---	+--+---+	-+---+---	-----	-----	401401,4031 = 4031,4072
-+++-+---	---+---	+--+---+	-+---+---	-----	-----	4016,4031 = 4032,4045
-+++-+---	---+---	+--+---+	-+---+---	-----	-----	4015,4077 = 4016,4077
-+++-+---	---+---	+--+---+	-+---+---	-----	-----	401401,4015 = 401401,4016 = 4014,4015 = 4015,4072 = 4016,4072
-+++-+---	---+---	+--+---+	-+---+---	-----	-----	401401,4045 = 4045,4072
-+++-+---	---+---	---+---+	-+---+---	-----	-----	4015,4015 = 4015,4016
-+++-+---	---+---	+--+---+	---+---+	-----	-----	401401,4077 = 4014,4077
-+++-+---	---+---	+--+---+	---+---+	-----	-----	4072,4077 = 4077,4077
-+++-+---	---+---	+--+---+	---+---+	-----	-----	401401,401401 = 401401,4014 = 401401,4072 = 4014,4072
-+-----	-----	+-----	---+---+	+-----	---+-----	4030,4034 = 4034,4034

(4014 = 401402 and 401403)

LICENSES

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GUARANTEE

Olerup SSP AB guarantees that the primers in the HLA-B*40 subtyping kit have 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

101.523-24/03 – licensed for PCR

For one HLA-B*40 subtyping, 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 an HLA-B*40 subtyping. **Well No. 1 of the 48 well PCR plate is marked with '1'**. Close the 48 well PCR plate with the provided lids.

101.523-24u/03u – not licensed for PCR

For one HLA-B*40 subtyping, 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 an HLA-B*40 subtyping. **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 *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

HLA-B*40 SSP subtyping

Specificities and sizes of the PCR products of the 48 primer mixes used for HLA-B*40 SSP subtyping

Primer Mix	Approx. size of spec. PCR product ¹	Size of control band ²	Amplified HLA-B*40 alleles ³	Other amplified HLA class I alleles ⁴
1	175 bp	800 bp	400101-400105, 4007, 4010, 4012, 4021-4023, 4025, 4033, 4036, 4038, 4042, 4043, 4046-4049, 4051, 4052, 4054, 4055, 4060-4063, 4065-4067, 4069, 4073, 4074, 4076	9516, 9524, 4431, 4606, 480301-480302
2	215 bp	1070 bp	400101-400602, 4009, 4011, 401401-4016, 4018-4020, 4022N-4039, 4042-4048, 4050-4057, 4059, 4060, 4062-4067, 4069-4074, 4076-4078	1571, 180101-1803, 1805, 1806, 1808-1815, 1817N-1824, 1826, 1827, 2718, 2729, 3563, 370101-3713, 4101-4108, 4415, 4418, 4455, 4501-4505, 4507, 4901-4905, 5001, 5002, 5004
3⁵	130 bp	1070 bp	400201-400602, 4008, 4009, 4011, 4013, 4018-4020, 4024, 4026-4029, 4035, 4037, 4039, 4040, 4044, 4050, 4056, 4057, 4064, 4068, 4070, 4071, 4074, 4075, 4078	
4⁵	95 bp	800 bp	400201-400203, 4005, 4008, 4009, 4013, 4015, 4016, 4018, 4019, 4024, 4027, 4029, 4031, 4032, 4035, 4037, 4039, 4040, 4045,	070201-0706, 0708, 0710, 0713, 0715, 0716, 0719-0760, 080101-0808N, 0810, 0811, 0813-0815, 0817-0827, 0829-0834, 1545, 2707, 2711, 2724, 2732-2734,

			4050, 4056-4058, 4078	3522, 3531, 3707, 3709, 3914, 3929, 4102, 4104, 4201, 4202, 420501- 420502, 4207, 4208, 4454, 480101-480102, 4804-4806, 4808-4813, 4815, 4816, 4818, 4819, 5504, 8101-8103, Cw*0305, Cw*0325, Cw*0327
5	190 bp	800 bp	4003, 4018, 4020, 4024, 4031-4033, 4044, 4052, 4059	070201-0704, 0707- 0713, 0715, 0716, 071801-071802, 0721- 0723, 0725-0727, 0729, 0730, 0733, 0735-0739, 0741, 0742, 0744-0752, 0754-0759, 1540, 1547, 1549, 1552, 9514, 9517, 9524, 9538, 1810, 1821, 2734, 3515, 3533, 3566, 3707, 4606, 4808, 5713, Cw*0206
6^{5,6}	95 bp	1070 bp	4003, 4027	0709, 0711, 0717, 0828, 1405, 1507, 1555, 1568, 9526, 1814, 3505, 3551, 3558, 3566, 3572, 3903, 3924, 3937, 4206, 4209, 4612, 4807, 4814 Cw*0808
7^{5,7}	105 bp	800 bp	4012, 4046	0727, 0750, 0804, 0817, 1503, 1547, 1554, 1561, 1562, 1564, 1568, 1569, 1591, 1598, 9503, 9523, 9527, 9531, 9532, 2718, 2729, 3803, 390201- 390202, 3908, 391301- 391302, 3923, 3939, 4440, 4444, 480101- 4805, 4807-4819, 5518
8	235 bp	1070 bp	4005, 4071	0720, 0724, 0760, 0821, 0825, 1507, 1545, 1555, 1568, 9526, 3505, 3516, 3517, 3522, 3530, 3551, 3558, 3572, 4454, 4612, Cw*0305, Cw*0325, Cw*0327
9^{7,8}	160 bp	1070 bp	40060101-	2714, 5110, 5411, 7301

			400602, 4044, 4053, 4070, 4075	
10^{5,8}	215 bp	1070 bp	4007, 4008, 4013, 4068	1807, 2723, 3550
11⁵	135 bp	1070 bp	4035, 4077	1301-130204, 1307N- 1311, 1313-1320, 1540, 1547, 1549, 1552, 9514, 9517, 9524, 9538, 1810, 2701-270402, 270502- 2706, 2708-2710, 2712- 2714, 2716-2719, 2721, 2723, 2726, 2727, 2729- 2732, 2735, 2737, 3515, 3533, 3566, 3702, 4416, 4421, 47010101-4705, 4812, 4814, 5116, 5131, 5134, 5208, 5509, 5522, 5524
12⁵	95 bp	1070 bp	4008, 4025, 4068	3519, 3547, 4412
13⁵	90 bp	1070 bp	4003, 4009, 4018, 4024, 4031, 4032	070201-0704, 0708- 0711, 0713, 0715-0717, 0719-0731, 0733, 0735- 0739, 0741-0752, 0754- 0760, 0807, 0828, 1507, 1545, 1555, 1568, 1814, 1822, 2734, 3505, 3516, 3517, 3530, 3551, 3558, 3566, 3572, 3707, 3709, 3929, 4104, 4209, 4454, 4612, 4808, Cw*0305, Cw*0325, Cw*0327
14⁵	90 bp	800 bp	4010	1546, 9506, 3547
15⁸	150 bp	800 bp	4013, 4019, 4047	3706, 44020101-4405, 4407, 4410-4439, 4441- 4443, 4445, 4447- 4456N, 47010101- 47010102, 4703-4705, 4901, 4902, 4904, 4905 3566, 420501-420502, 4812, Cw*0738
16^{5,6,11}	75, 160 bp	800 bp	401401, 4015, 4072, 4077	
17⁵	120 bp	800 bp	400101-400105, 4007, 4010, 4012, 401401-401403, 4021, 4022N, 4025, 4030, 4031,	0725, 0748, 2736, 3566, 4108, 420501-420502, 4431, 4606, 480101- 480102, 480301-480302, 4806, 4807, 4809-4812,

			4033, 4034, 4036, 4038, 4042, 4043, 4045-4049, 4052, 4054, 4055, 4059- 4063, 4065, 4066, 4069, 4072-4074, 4076, 4077	4814, 4816-4819, 8101- 8103
18^{5,10}	105 bp	1070 bp	4026, 4069	070503 ^{weakly} , 150102, 1509, 5106
19	310 bp	1070 bp	4004, 4024, 4028, 4059, 4060, 4068, 4070	0712, 1301-1304, 1306- 1309, 1311-1320, 1516, 1520, 1534, 1542, 1562, 1567, 1585, 1586, 1595, 9537, 1822, 2714, 350101-3511, 3513-3515, 3518-3521, 3523-3530, 3533-3538, 3540N-3542, 3545-3550, 3552-3558, 3560, 3562-3566, 3568- 3572, 3574-3578, 3582, 3583, 4104, 4107, 4410, 4415, 4418, 4448, 4501- 4507, 4611, 4802, 4817, 4901-4905, 5001, 5002, 5115, 530101-5306, 5308-5313, 5401-5405N, 5407, 5408N, 5410-5413, 550101-5503, 5505, 5507, 5509-5513, 5515, 5516, 5518-5528, 5601, 5602, 5607-5611, 5613- 5617, 5619N, 5620, 5705, 5801, 5802, 5804- 5807, 5809-5815, 5901, 5902, 8201, 8202
20^{5,9,12}	135, 285 bp	1070 bp	401401-4016, 4023, 4031, 4032, 4045	070201-071802, 0720- 0732, 0734-0739, 0741- 0752, 0754-0759, 9538, 3566, 3707, 4108, 420501-420502, 480101- 480102, 4805-4812, 4814-4816, 4818, 4819, 8101-8103
21^{5,6}	145 bp	800 bp	4021	1309, 15010101-150104, 150106, 1502, 1504- 1508, 151101-1512, 1514, 1515, 1519-1521, 1525-1528, 1530-1535,

				1538-1540, 1542, 1544, 1545, 1548, 1550, 1555- 1558, 1560, 1563, 1565, 1566, 1570, 1571, 1573, 1575-1579N, 1581-1586, 1588, 1592, 1594N, 1596, 1597, 9501, 9502, 9504, 9505, 9507, 9509- 9513, 9516-9518, 9520- 9522, 9525, 9526, 9528, 9529, 9535-9539, 3546, 460101-4603, 4605-4612, 5712
22¹²	235 bp	800 bp	400201-400203, 4003, 4008, 4009, 4013, 4015, 4016, 4018, 4019, 4024, 4027, 4029, 4031, 4032, 4035, 4037, 4040, 4045, 4050, 4056-4058, 4078	070201-0706, 0708-0711, 0713, 0715-0717, 0721- 0723, 0725-0730, 0732, 0733, 0735-0742, 0744- 0759, 2707, 2711, 2724, 2732-2734, 3531, 3566, 3707, 480101-480102, 4804-4816, 4818, 4819, 8101-8103
23^{5,7,13}	95, 120 bp	800 bp	4029, 4036, 4048	4807, 4817
24¹⁴	165, 250 bp	800 bp	4034, 4037, 4076	3705
25⁵	125 bp	1070 bp	4043, 4050	4506
26⁵	120 bp	1070 bp	4015, 4016, 4023, 4032	070201-071802, 0720- 0724, 0726-0732, 0734- 0739, 0741-0747, 0749N, 0750, 0752, 0754-0759, 9538, 3707, 4805, 4808, 4815
27	180 bp	800 bp	4022N	
28	325 bp	1070 bp	400101-400105, 4004, 4007, 4010- 4012, 401401- 401403, 4020- 4023, 4025, 4026, 4028, 4033, 4036, 4038, 4042, 4043, 4046-4049, 4051, 4052, 4054, 4055, 4059-4069, 4072- 4074, 4076, 4077	0707, 0712, 0714, 071801-071802, 0812, 0816, 1301, 1306, 1307N, 1310-1313, 1317, 1320, 1321, 1401-1404, 140601-1407N, 15010101-150104, 150106-1503, 1505, 1506, 1508-1515, 15170101-1521, 1523- 1540, 1543, 1544, 1546- 1554, 1556-1558, 1560- 1566, 1569-1582, 1584-

				1594N, 1596-1599, 9501-9511N, 9513-9517, 9519-9525, 9527, 9528, 9531-9536, 9538, 9539, 180101-180103, 1803-1813, 1815, 1817N-1821, 1823N-1826, 2719, 2721, 2730, 350101-350402, 3506-3515, 3518-3521, 3523-3529, 3532-3536, 3538-3550, 3552-3554, 3556, 3557, 3559, 3561-3565Q, 3567-3571, 3574-3579, 3582, 3583, 370101-370104, 3703N-3706, 3708, 3710-3713, 380101-3817, 39010101-39010102L, 390103-390202, 3904, 3905, 3907-391302, 3915, 3917-3920, 3922, 3923, 3925N-3928, 3930-3932, 3935, 3936, 3938Q-3943, 410301-410302, 4108, 44020101-4414, 4416, 4417, 4419N, 4421-4446, 4448-4453, 4455-4457, 460101-4610, 47010101-4703, 4802-480302, 4817, 5104, 5106, 5142, 5145, 530101-5313, 5406, 5409, 5508, 5602-5604, 5609-5612, 5618, 5705, 5711, 5801, 5802, 5804-5807, 5809-5813, 5815, 670101-6702, 8201, 8202, 8301 0719, 0731, 0734, 0743, 080101-0808N, 0810, 0813-0815, 0817-0820, 0822-0824, 0826-0834, 1405, 1814, 3709, 3903, 3914, 3924, 3929, 3937, 4102, 4104, 4201, 4202, 420501-4209, 5504,
29	235 bp	800 bp	4039	Cw*0808
30	190 bp	1070 bp	400101-400203, 4004, 40060101-	070501-0706, 0732, 0740, 0753, 1301-

			4008, 4010-4016, 4019, 4021-4023, 4025, 4027, 4029, 4030, 4034-4038, 4040, 4043, 4045- 4050, 4053-4058, 4061, 4062, 4064- 4070, 4072-4078	130204, 1307N-1309, 1311, 1313-1321, 2707, 2711, 2720, 2724, 2727, 2733, 3531, 4431, 480101-480102, 480301- 4807, 4809-4816, 4818, 4819, 5110, 5116, 5131, 5134, 5208, 5509, 5522, 5524, 8101-8103
31	225 bp	1070 bp	4038, 4048, 4052, 4059, 4060	0709, 0711, 0717, 9538, 3566, 4606, 4814, Cw*0738
32	255 bp	1070 bp	400101-4009, 4011, 401401- 4016, 4018, 4020, 4022N-4039, 4042-4046, 4048, 4050-4057, 4059- 4075, 4077, 4078	1571, 180101-1803, 1805-1808, 1810-1815, 1817N-1824, 1826, 1827, 2708, 2712, 2718, 2726, 2733, 3550, 3563, 3705, 3711, 3931, 4101-4104, 4106-4108, 4202, 4209, 4501-4507, 5001, 5002, 5004, 5402, 5516, 7301
33⁷	245 bp	1070 bp	4004, 4030, 4034, 4059, 4064, 4068	0712, 0714, 071801- 071802, 1301, 1307N, 1313, 1317, 1320, 1321, 2719, 2730, 3515, 3533, 4416, 4421, 4817, 5713, Cw*0334
34	235 bp	1070 bp	4042, 4060	0714, 0717, 0728, 2736, 4817, Cw*0738
35⁵	140 bp	800 bp	4035, 4071	1405, 1507, 1545, 1555, 1568, 9526, 1814, 2732, 3505, 3522, 3551, 3558, 3566, 3572, 3903, 3914, 3924, 3929, 3937, 4454, 4612, 4812, 4814
36⁵	135 bp	1070 bp	4010, 4040, 4049, 4058	1546, 1553, 9506, 3547, 44020101-4405, 4409- 4414, 4416, 4417, 4419N-4439, 4441-4443, 4445-4448, 4450-4454, 4456N, 47010101-4705
37^{5,9}	95 bp	1070 bp	4028, 4051	1401-1407N, 1537, 1538, 1815, 1819, 3521, 510101-510108, 5103, 5104, 5106, 5107, 5111N-5114, 5116-5118, 5121, 5122, 5124, 5126-

				5130, 5132, 5133, 5135, 5137-5139, 5141N, 5143, 5145, 5146, 5148-5151, 520101-5202, 5204-5209, 5306, 560501-5606, 5621, 5808, 7801-7803, 7805
38⁵	125 bp	1070 bp	4028, 4066	350402, 5104, 5146
39	330 bp	1070 bp	4012	1503, 1509, 1510, 1518, 1523, 1529, 1537, 1546, 1547, 1549, 1551-1554, 1561, 1562, 1564, 1569, 1572, 1574, 1580, 1590, 1591, 1593, 1598, 1599, 9503, 9506, 9508, 9514, 9515, 9519, 9523, 9524, 9527, 9531-9534, Cw*0746
40⁵	120 bp	1070 bp	4038, 4052, 4059, 4060	9516, 9524, 4606
41	200 bp	1070 bp	4008, 4025, 4062, 4068	180101-1803, 1805-1811, 1813-1815, 1817N-1824, 1826, 1827, 2723, 3550, 3708, 3907, 3931, 4202 ^{weakly} , 4209 ^{weakly} , 5402 ^{weakly} , 5516 ^{weakly} , 7301 ^{weakly}
42^{5,15}	95, 165 bp	1070 bp	4058, 4065	4434
43	185 bp	1070 bp	4030, 4034, 4059	4817
44^{5,16}	110, 205 bp	800 bp	4054, 4078	
45^{6,17}	85, 135 bp	1070 bp	4055, 4056, 4067	
46	545 bp	1070 bp	4011, 4020, 4026, 4074	1571, 180101-180103, 1803, 1805-1807, 1809- 1813, 1815, 1817N, 1819-1821, 1823N, 1824, 1826, 2719, 2721, 2730, 3712, 3931
47⁵	135 bp	800 bp	4057, 4063	0720, 0724
48¹⁸	215, 245 bp	1070 bp	4061, 4073	1806

¹ Alleles are assigned by the presence of specific PCR product(s). However, the sizes of the specific PCR products may be helpful in the interpretation of HLA-B*40 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 6 and 21.

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.

² The internal positive control primer pairs amplify segments of the human growth hormone gene. The two different control primer pairs give rise to either an internal positive control band of 1070 base pairs, for most tubes, or a band of 800 base pairs, for some tubes.

Tube number 1 contains the primer pair giving rise to the shorter, 800 bp, internal positive control band in order to help in the correct orientation of the HLA-B*40 subtyping.

In addition, tubes number 4, 5, 7, 14, 15, 16, 17, 21, 22, 23, 24, 27, 29, 35, 44 and 47 contain the primer pair giving rise to the shorter, 800 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.

³ For several HLA-B alleles first exon nucleotide sequences are not 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 exon are conserved within allelic groups.

⁴ Due to the sharing of sequence motifs between HLA-B alleles non-HLA-B*40 alleles will be amplified by primer mixes 1, 2, 4 to 26, 28 to 43 and 46 to 48.

In addition, the Cw*0206 allele will be amplified by primer mix 5, the HLA-Cw*0305, 0325 and 0327 alleles will be amplified by primer mixes 4, 8 and 13, the Cw*0334 allele will be amplified by primer mix 33, the Cw*0738 allele will be amplified by primer mixes 16, 31 and 34, the Cw*0746 allele will be amplified by primer mix 39, the Cw*0808 alleles by primer mixes 6 and 29 and the Cw*17 alleles faintly by primer mix 7, 23 and 33.

⁵ Short specific PCR fragments are less intense and not as sharp as longer specific bands.

⁶ Primer mixes 6, 16, 21 and 45 has a tendency of giving rise to nonspecific amplifications.

⁷ Primer mixes 7, 23 and 33 may faintly amplify the Cw*17 alleles.

⁸ Primer mixes 9, 10 and 15 have a tendency to give rise to a primer dimer artifact.

⁹ Primer mixes 20 and 37 may give rise to less specific PCR product than the other B*40 primer mixes.

¹⁰ Primer mix 18 may faintly amplify the B*13 alleles.

¹¹ Primer mix 16: Specific PCR fragment of 75 bp in the B*4015 allele. Specific PCR fragment of 160 bp in the B*401401, B*4072, B*4077 and B*3566, B*420501-420502 and B*4812 and Cw*0738 alleles.

¹² Primer mix 20: Specific PCR fragment of 135 bp in the B*401401-401403, B*4023 and the B*0707, B*0712, B*0714 and B*071801-071802 alleles. Specific PCR fragment of 285 bp in the B*4031 and B*480101-480102, B*4806, B*4807, B*4809, B*4811 and B*8101 to 8103 alleles. Specific PCR fragments of 135 and 285 bp in the B*4015, B*4016, B*4032, B*4045 and B*070201 to 0706, B*0708 to 0711, B*0713, B*0715 to 0717, B*0720 to 0732, B*0734 to 0739, B*0741 to 07502, B*0754-0759, B*3566, B*3707, B*420501-420502, B*4805, B*4808, B*4810, B*4812 and B*4814 to 4816, B*4818 and B*4819 alleles. (Both specific fragments may not always be obtained.)

¹³ Primer mix 23: Specific PCR fragment of 95 bp in the B*4029 allele. Specific PCR fragment of 120 bp in the B*4036, B*4048 and B*4807 and B*4817 alleles.

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¹⁴Primer mix 24: Specific PCR fragment of 165 bp in the B*4034 allele. Specific PCR fragment of 250 bp in the B*4037, B*4076 and B*3705 alleles .

¹⁵Primer mix 42: Specific PCR fragment of 95 bp in the B*4058 and B*4434 alleles. Specific PCR fragment of 165 bp in the B*4065 allele.

¹⁶Primer mix 44: Specific PCR fragment of 110 bp in the B*4078 allele. Specific PCR fragment of 205 bp in the B*4054 allele.

¹⁷Primer mix 45: Specific PCR fragment of 85 in the B*4056 allele. Specific PCR fragment of 135 bp in the B*4055 and B*4067 alleles.

¹⁸Primer mix 48: Specific PCR fragment of 215 bp in the B*4061 allele. Specific PCR fragment of 245 bp in the B*4073 and B*1806 alleles.

INTERPRETATION TABLE																								
HLA-B*40 SSP subtyping																								
Amplification patterns of the B*4001 to B*4078 alleles																								
	Tube ⁵																							
	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.	175	215	130	95	190	95	105	235	160	215	135	95	90	90	150	75	120	105	310	135	145	235	95	165
PCR product																160				285			120	250
Length of int.	800	1070	1070	800	800	1070	800	1070	1070	1070	1070	1070	1070	800	800	800	800	1070	1070	1070	800	800	800	800
pos. control ¹																								
5'-primer(s) ²	363	97	106	363	412	363	206	363	357	97	463	206	363	144	206	486	527	206	379	363	209	363	257	97
	5'-Agg ³	5'-TCC ³	5'-CCg ³	5'-AgC ³	5'-ATg ³	5'-AgC ³	5'-AgA ³	5'-AgC ³	5'-Tgg ³	5'-TCC ³	5'-TgA ³	5'-gAA ³	5'-AgC ³	5'-gCA ³	5'-gAA ³	5'-ACC ³	5'-TgT ³	5'-gAA ³	5'-ACC ³	5'-AgC ³	5'-ggC ³	5'-AgC ³	5'-CCC ³	5'-TCC ³
																570		369		512			419	436
																5'-gAT ³		5'-TAC ³		5'-gTg ³			5'-gTT ³	5'-AgA ³
3'-primer(s) ³	499	272	193	419	559	418	272	559	477	272	559	259	412	193	317	605	605	263	3 rd	605	311	559	311	302
	5'-ggA ³	5'-Tgg ³	5'-CgT ³	5'-CgT ³	5'-CTC ³	5'-gTT ³	5'-Tgg ³	5'-CAG ³	5'-gCg ³	5'-TgA ³	5'-CTC ³	5'-gTT ³	5'-gTC ³	5'-CgT ³	5'-ggA ³	5'-gCT ³	5'-gCT ³	5'-gTA ³	5'-TAT ³	5'-gCT ³	5'-ggT ³	5'-CTC ³	5'-ggT ³	
						419												435					499	312
						5'-Cgg ³												5'-TCT ³				5'-ggA ³	5'-AgT ³	
						419																	559	
					5'-CgA ³																		5'-CTC 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
HLA-B allele ⁴																								
*400101-400105	+	+															+							
*400201-400203		+	+	+																		+		
*4003		+	+		+	+							+									+		
*4004		+	+																+					
*4005		+	+	+				+																
*40060101-400602		+	+						+															
*4007	+									+							+							
*4008			+	+						+		+										+		
*4009		+	+	+									+									+		
*4010	+													+			+							
*4011		+	+																					
*4012	+						+										+							
*4013			+	+						+					+							+		
*401401		+														+	+			+				
*401402-401403		+															+			+				
*4015		+		+												+				+		+		
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

HLA-B*40 SSP subtyping

Amplification patterns of the B*4001 to B*4078 alleles

CE
0088

Length of spec.	175	215	130	95	190	95	105	235	160	215	135	95	90	90	150	75	120	105	310	135	145	235	95	165
PCR product																160				285			120	250
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
*4016		+		+																+		+		
*4018		+	+	+	+								+									+		
*4019		+	+	+											+							+		
*4020		+	+		+																			
*4021	+																+				+			
*4022N	+	+															+							
*4023	+	+																		+				
*4024		+	+	+	+								+						+			+		
*4025	+	+										+					+							
*4026		+	+															+						
*4027		+	+	+		+																+		
*4028		+	+																+					
*4029		+	+	+																		+	+	
*4030		+															+							
*4031		+		+	+								+				+			+		+		
*4032		+		+	+								+							+		+		
*4033	+	+			+												+							
*4034		+															+							+
*4035		+	+	+							+											+		
*4036	+	+															+						+	
*4037		+	+	+																		+		+
*4038	+	+															+							
*4039		+	+	+																				
*4040			+	+																		+		
*4042	+	+															+							
*4043	+	+															+							
*4044		+	+		+			+																
*4045		+		+													+			+		+		
*4046	+	+				+											+							
*4047	+	+													+		+							
*4048	+	+															+						+	
*4049	+																+							
*4050		+	+	+																		+		
*4051	+	+																						
*4052	+	+			+												+							
*4053		+						+																
*4054	+	+															+							
*4055	+	+															+							
*4056		+	+	+																		+		
*4057		+	+	+																		+		
*4058				+																		+		
*4059		+			+												+		+					
*4060	+	+															+		+					
*4061	+																+							
*4062	+	+															+							
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

125	120	180	325	235	190	225	255	245	235	140	135	95	125	330	120	200	95	185	110	85	545	135	215	Length of spec.
																	165		205	135			245	PCR product
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.
	+				+		+																	*4016
							+																	*4018
					+																			*4019
			+				+														+			*4020
			+		+																			*4021
		+	+		+		+																	*4022N
	+		+		+		+																	*4023
							+																	*4024
			+		+		+									+								*4025
			+				+														+			*4026
					+		+																	*4027
			+				+					+	+											*4028
					+		+																	*4029
					+		+	+										+						*4030
							+																	*4031
	+						+																	*4032
			+				+																	*4033
					+		+	+										+						*4034
					+		+			+														*4035
			+		+		+																	*4036
					+		+																	*4037
			+		+	+	+								+									*4038
				+			+																	*4039
					+						+													*4040
			+				+		+															*4042
+			+		+		+																	*4043
							+																	*4044
					+		+																	*4045
			+		+		+																	*4046
			+		+																			*4047
			+		+	+	+																	*4048
			+		+						+													*4049
+					+		+																	*4050
			+				+					+												*4051
			+			+	+								+									*4052
					+		+																	*4053
			+		+		+												+					*4054
			+		+		+													+				*4055
					+		+													+				*4056
					+		+															+		*4057
					+						+						+							*4058
			+			+	+	+							+			+						*4059
			+			+	+		+						+									*4060
			+		+		+																+	*4061
			+		+		+									+								*4062
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.	175	215	130	95	190	95	105	235	160	215	135	95	90	90	150	75	120	105	310	135	145	235	95	165
PCR product																160				285			120	250
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
*4063	+	+															+							
*4064		+	+																					
*4065	+	+															+							
*4066	+	+															+							
*4067	+	+																						
*4068			+							+		+							+					
*4069	+	+															+	+						
*4070		+	+						+										+					
*4071		+	+					+																
*4072		+														+	+							
*4073	+	+															+							
*4074	+	+	+														+							
*4075			+						+															
*4076	+	+															+							+
*4077		+									+					+	+							
*4078		+	+	+																		+		
*070201-0704, 0708, 0710, 0713, 0715, 0716, 0721-0723, 0726, 0729, 0730, 0735-0739, 0741, 0742, 0744-0747, 0749N, 0752, 0754-0759				+	+									+						+		+		
*070501-070502, 0706, 0732				+																+		+		
*070503				+														W		+		+		
*0707					+															+				
*0709, 0711					+	+							+							+		+		
*0712					+														+	+				
*0714																				+				
*0717						+							+							+		+		
*071801-071802					+															+				
*0719, 0807				+									+											
*0720, 0724				+				+					+							+				
*0725, 0748				+	+								+				+			+		+		
*0727, 0750, 4808				+	+		+						+							+		+		
*0728				+									+							+		+		
*0731, 0743				+									+							+				
*0733				+	+								+									+		
*0734				+																+				
*0740, 0753, 2707, 2711, 2724, 3531				+																		+		
*0751				+	+								+							+		+		
*0760				+				+					+											
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

125	120	180	325	235	190	225	255	245	235	140	135	95	125	330	120	200	95	185	110	85	545	135	215	Length of spec.
																	165		205	135			245	PCR product
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.
			+				+															+		*4063
			+		+		+	+																*4064
			+		+		+										+							*4065
			+		+		+						+											*4066
			+		+		+														+			*4067
			+		+		+	+								+								*4068
			+		+		+																	*4069
					+		+																	*4070
							+			+														*4071
			+		+		+																	*4072
			+		+		+																+	*4073
			+		+		+														+			*4074
					+		+																	*4075
			+		+																			*4076
			+		+		+																	*4077
					+		+												+					*4078
	+																							*070201-0704, 0708, 0710, 0713, 0715, 0716, 0721-0723, 0726, 0729, 0730, 0735-0739, 0741, 0742, 0744-0747, 0749N, 0752, 0754-0759
	+				+																			*070501-070502, 0706, 0732
	+				+																			*070503
	+		+																					*0707
	+					+																		*0709, 0711
	+		+					+																*0712
	+		+					+	+															*0714
	+					+			+															*0717
	+		+					+																*071801-071802
				+																				*0719, 0807
	+																					+		*0720, 0724
																								*0725, 0748
	+																							*0727, 0750, 4808
	+								+															*0728
	+			+																				*0731, 0743
																								*0733
	+			+																				*0734
					+																			*0740, 0753, 2707, 2711, 2724, 3531
																								*0751
																								*0760
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.	175	215	130	95	190	95	105	235	160	215	135	95	90	90	150	75	120	105	310	135	145	235	95	165
PCR product																160				285			120	250
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
*080101-0803, 0805, 0806, 0808N, 0810, 0813-0815, 0818-0820, 0822-0824, 0826, 0827, 0829-0834, 4201, 4207, 4208, 5504				+																				
*0804, 0817				+			+																	
*0811				+																				
*0812, 0816, 1513, 15170101-151702, 1524, 1536, 1543, 1587, 1589, 1804, 1825, 3512, 3532, 3539, 3543, 3544, 3559, 3561, 3567, 3579, 380101-380202, 3804-3817, 39010101-39010102L, 390103-390104, 3904, 3905, 3909-3912, 3915, 3917-3920, 3922, 3925N-3928, 3930																								
*0821, 0825				+				+																
*0828						+							+											
*1301, 1307N, 1313, 1317, 1320											+								+					
*130201-130204, 1308Q, 1314-1316, 1318, 1319, 5509, 5522, 5524											+								+					
*1303, 1304, 1516, 1567, 1595, 3537, 3555, 3560, 5115, 5401, 5403-5405N, 5407, 5408N, 5410, 5412, 5413, 550101-5503, 5505, 5507, 5510-5513, 5515, 5519-5521, 5523, 5525-5528, 5601, 5607, 5608, 5613-5617, 5619N, 5620, 5814, 5901, 5902																			+					
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

125	120	180	325	235	190	225	255	245	235	140	135	95	125	330	120	200	95	185	110	85	545	135	215	Length of spec.	
																	165		205	135			245	PCR product	
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.	
				+																				*080101-0803, 0805, 0806, 0808N, 0810, 0813-0815, 0818-0820, 0822-0824, 0826, 0827, 0829-0834, 4201, 4207, 4208, 5504	
				+																				*0804, 0817	
																								*0811	
			+																					*0812, 0816, 1513, 15170101-151702, 1524, 1536, 1543, 1587, 1589, 1804, 1825, 3512, 3532, 3539, 3543, 3544, 3559, 3561, 3567, 3579, 380101-380202, 3804-3817, 39010101-39010102L, 390103-390104, 3904, 3905, 3909-3912, 3915, 3917-3920, 3922, 3925N-3928, 3930	
				+																				*0821, 0825	
					+																			*0828	
			+		+			+																*1301, 1307N, 1313, 1317, 1320	
					+																			*130201-130204, 1308Q, 1314-1316, 1318, 1319, 5509, 5522, 5524	
																								*1303, 1304, 1516, 1567, 1595, 3537, 3555, 3560, 5115, 5401, 5403-5405N, 5407, 5408N, 5410, 5412, 5413, 550101-5503, 5505, 5507, 5510-5513, 5515, 5519-5521, 5523, 5525-5528, 5601, 5607, 5608, 5613-5617, 5619N, 5620, 5814, 5901, 5902	
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.	175	215	130	95	190	95	105	235	160	215	135	95	90	90	150	75	120	105	310	135	145	235	95	165
PCR product																160				285			120	250
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
*1306, 1312, 350101-350401, 3506-3511, 3513-351402, 3518, 352001-352002, 3523-3529, 3534-3536, 3538, 3540N-3542, 3545, 3548, 3549, 3552-3554, 3556, 3557, 3562, 3564, 3565Q, 3568-3571, 3574-3578, 3582, 3583, 530101-5305, 5308-5313, 5602, 5609-5611, 5705, 5801, 5802, 5804-5807, 5809-5813, 5815, 8201, 8202																			+					
*1309											+								+		+			
*1310											+													
*1311											+								+					
*1321																								
*1401-1404, 140601-1407N, 5145																								
*1405						+																		
*15010101-15010102N, 150103-150104, 150106, 1502, 1505, 1506, 1508, 151101-1512, 1514, 1515, 1519, 1521, 1525-1528, 1530-1533, 1535, 1539, 1544, 1548, 1550, 1556-1558, 1560, 1563, 1565, 1566, 1570, 1573, 1575-1579N, 1581, 1582, 1584, 1588, 1592, 1594N, 1596, 1597, 9501, 9502, 9504, 9505, 9507, 9509, 9511N, 9513, 9520-9522, 9525, 9528, 9535, 9536, 9539, 460101-4603, 4605, 4607N-4610																					+			
*150102																		+			+			
*1503, 1554, 1561, 1564, 1569, 1591, 1598, 9503, 9523, 9527, 9531, 9532							+																	
*1504, 1583, 9512, 9518, 9529, 5712																					+			
*1507, 1555, 4612						+		+					+								+			
*1509																		+						
*1510, 1518, 1523, 1529, 1551, 1572, 1574, 1580, 1590, 1593, 1599, 9508, 9515, 9519, 9533, 9534																								
*1520, 1534, 1585, 1586, 3546																			+		+			
*1537																								
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

125	120	180	325	235	190	225	255	245	235	140	135	95	125	330	120	200	95	185	110	85	545	135	215	Length of spec.
																	165		205	135			245	PCR product
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.
			+																					*1306, 1312, 350101-350401, 3506-3511, 3513-351402, 3518, 352001-352002, 3523- 3529, 3534-3536, 3538, 3540N-3542, 3545, 3548, 3549, 3552-3554, 3556, 3557, 3562, 3564, 3565Q, 3568- 3571, 3574-3578, 3582, 3583, 530101-5305, 5308-5313, 5602, 5609-5611, 5705, 5801, 5802, 5804-5807, 5809-5813, 5815, 8201, 8202
					+																			*1309
			+																					*1310
			+		+																			*1311
			+		+			+																*1321
			+									+												*1401-1404, 140601-1407N, 5145
				+						+		+												*1405
			+																					*15010101-15010102N, 150103-150104, 150106, 1502, 1505, 1506, 1508, 151101-1512, 1514, 1515, 1519, 1521, 1525-1528, 1530 1533, 1535, 1539, 1544, 1548, 1550, 1556-1558, 1560, 1563, 1565, 1566, 1570, 1573, 1575-1579N, 1581, 1582, 1584, 1588, 1592, 1594N, 1596, 1597, 9501, 9502, 9504, 9505, 9507, 9509 9511N, 9513, 9520-9522, 9525, 9528, 9535, 9536, 9539, 460101-4603, 4605, 4607N-4610
			+																					*150102
			+											+										*1503, 1554, 1561, 1564, 1569, 1591, 1598, 9503, 9523, 9527, 9531, 9532
																								*1504, 1583, 9512, 9518, 9529, 5712
										+														*1507, 1555, 4612
			+											+										*1509
			+											+										*1510, 1518, 1523, 1529, 1551, 1572, 1574, 1580, 1590, 1593, 1599, 9508, 9515, 9519, 9533, 9534
			+																					*1520, 1534, 1585, 1586, 3546
			+									+		+										*1537
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.	175	215	130	95	190	95	105	235	160	215	135	95	90	90	150	75	120	105	310	135	145	235	95	165
PCR product																160				285			120	250
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
*1538																					+			
*1540, 9517					+						+										+			
*1542, 4611																			+		+			
*1545				+				+					+								+			
*1546, 9506														+										
*1547					+		+				+													
*1549, 1552, 9514					+						+													
*1553																								
*1562							+												+					
*1568						+	+	+					+											
*1571		+																			+			
*9516	+																				+			
*9524	+				+						+													
*9526						+		+														+		
*9537																			+		+			
*9538					+						+									+	+			
*180101-180103, 1803, 1805, 1811, 1813, 1817N, 1820, 1823N, 1824, 1826		+																						
*1802, 1827		+																						
*1806		+																						
*1807										+														
*1808, 1818		+																						
*1809		+																						
*1810		+			+						+													
*1812		+																						
*1814		+				+							+											
*1815, 1819		+																						
*1821		+			+																			
*1822		+											+						+					
*2701-270402, 270502- 2706, 2709, 2710, 2713, 2716, 2717, 2731, 2735, 2737											+													
*2708, 2712, 2726											+													
*2714								+		+									+					
*2718		+					+				+													
*2719, 2730											+													
*2720																								
*2721											+													
*2723										+	+													
*2727, 5131, 5134											+													
*2729		+					+				+													
*2732				+							+											+		
*2733				+																		+		
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

125	120	180	325	235	190	225	255	245	235	140	135	95	125	330	120	200	95	185	110	85	545	135	215	Length of spec.
																	165		205	135			245	PCR product
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.
			+									+												*1538
			+																					*1540, 9517
																								*1542, 4611
										+														*1545
			+								+			+										*1546, 9506
			+											+										*1547
			+											+										*1549, 1552, 9514
			+								+			+										*1553
			+											+										*1562
										+														*1568
			+				+														+			*1571
			+												+									*9516
			+											+	+									*9524
										+														*9526
																								*9537
+			+			+																		*9538
			+				+									+					+			*180101-180103, 1803, 1805, 1811, 1813, 1817N, 1820, 1823N, 1824, 1826
							+									+								*1802, 1827
			+				+									+					+	+		*1806
			+				+									+					+			*1807
			+				+									+								*1808, 1818
			+													+					+			*1809
			+				+									+					+			*1810
			+				+									+					+			*1812
				+			+			+						+								*1814
			+				+					+				+					+			*1815, 1819
			+				+									+					+			*1821
							+									+								*1822
																								*2701-270402, 270502- 2706, 2709, 2710, 2713, 2716, 2717, 2731, 2735, 2737
							+																	*2708, 2712, 2726
																								*2714
							+																	*2718
			+					+													+			*2719, 2730
					+																			*2720
			+																		+			*2721
																+								*2723
					+																			*2727, 5131, 5134
																								*2729
										+														*2732
					+		+																	*2733
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.	175	215	130	95	190	95	105	235	160	215	135	95	90	90	150	75	120	105	310	135	145	235	95	165	
PCR product																160				285				120	250
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	
*2734				+	+								+									+			
*2736																	+								
*350402																			+						
*3505, 3558, 3572						+		+					+						+						
*3515, 3533					+						+								+						
*3516, 3517								+					+												
*3519												+							+						
*3521, 5306																			+						
*3522				+				+																	
*3530								+					+						+						
*3547												+		+					+						
*3550										+									+						
*3551		+				+		+					+												
*3563		+																	+						
*3566					+	+					+		+			+	+		+	+		+			
*370101-370104, 3703N, 3704, 3710		+																							
*3702		+									+														
*3705		+																						+	
*3706, 4455		+													+										
*3707		+		+	+								+							+		+			
*3708		+																							
*3709		+		+									+												
*3711, 410301-410302		+																							
*3712		+																							
*3713		+																							
*3803, 390201-390202, 3908, 391301-391302, 3923, 3939, 4440, 4444							+																		
*3903, 3924, 3937						+																			
*3907																									
*3914				+																					
*3929				+									+												
*3931																									
*4101, 4106, 5004		+																							
*4102		+		+																					
*4104		+		+									+						+						
*4105		+																							
*4107, 4501-4505, 4507, 5001, 5002		+																	+						
*4108		+															+			+					
*4202				+																					
*420501-420502				+												+	+			+					
*4206						+																			
*4209						+							+												
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	

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.
125	120	180	325	235	190	225	255	245	235	140	135	95	125	330	120	200	95	185	110	85	545	135	215	Length of spec.
																	165		205	135			245	PCR product
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.
																								*2734
									+															*2736
			+										+											*350402
										+														*3505, 3558, 3572
			+					+																*3515, 3533
																								*3516, 3517
			+																					*3519
			+									+												*3521, 5306
										+														*3522
																								*3530
			+								+													*3547
			+				+									+								*3550
										+														*3551
			+				+																	*3563
					+					+														*3566
			+																					*370101-370104, 3703N, 3704, 3710
																								*3702
			+				+																	*3705
			+																					*3706, 4455
+																								*3707
			+													+								*3708
				+																				*3709
			+				+																	*3711, 410301-410302
			+																		+			*3712
			+																					*3713
			+																					*3803, 390201-390202, 3908, 391301-391302, 3923, 3939, 4440, 4444
				+						+														*3903, 3924, 3937
			+													+								*3907
				+						+														*3914
				+						+														*3929
			+				+									+					+			*3931
							+																	*4101, 4106, 5004
				+			+																	*4102
				+			+																	*4104
																								*4105
							+																	*4107, 4501-4505, 4507, 5001, 5002
			+				+																	*4108
				+			+									W								*4202
				+																				*420501-420502
				+																				*4206
				+			+									W								*4209
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.	175	215	130	95	190	95	105	235	160	215	135	95	90	90	150	75	120	105	310	135	145	235	95	165	
PCR product																160				285				120	250
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	
*44020101-4405, 4411, 4413, 4414, 4417, 4419N, 4422-4430, 4432, 4433, 4435-4439, 4441-4443, 4445, 4450-4453, 4456N															+										
*4407, 4449															+										
*4409, 4446																									
*4410, 4448															+				+						
*4412												+			+										
*4415, 4418, 4901, 4902, 4904, 4905		+													+				+						
*4416, 4421											+				+										
*4420, 4447															+										
*4431	+														+		+								
*4434															+										
*4454				+				+					+		+										
*4506																			+						
*4606	+				+												+				+				
*47010101-47010102, 4703											+				+										
*4702											+														
*4704, 4705											+				+										
*480101-480102, 4809-4811, 4816, 4818, 4819				+			+										+			+		+			
*4802							+												+						
*480301-480302	+						+										+								
*4804, 4813				+			+															+			
*4805, 4815				+			+													+		+			
*4806, 8101-8103				+													+			+		+			
*4807						+	+										+			+		+	+		
*4812				+			+				+					+	+			+		+			
*4814						+	+				+						+			+		+			
*4817							+										+		+				+		
*4903		+																	+						
*510101-510108, 5103, 5107, 5111N-5114, 5117, 5118, 5121, 5122, 5124, 5126-5130, 5132, 5133, 5135, 5137-5139, 5141N, 5143, 5148-5151, 520101-5202, 5204-5207, 5209, 560501-5606, 5621, 5808, 7801-7803, 7805																									
*5104																									
*5106																		+							
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	

125	120	180	325	235	190	225	255	245	235	140	135	95	125	330	120	200	95	185	110	85	545	135	215	Length of spec.
																	165		205	135			245	PCR product
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.
			+								+													*44020101-4405, 4411, 4413, 4414, 4417, 4419N, 4422-4430, 4432, 4433, 4435-4439, 4441-4443, 4445, 4450-4453, 4456N
			+																					*4407, 4449
			+								+													*4409, 4446
			+								+													*4410, 4448
			+								+													*4412
																								*4415, 4418, 4901, 4902, 4904, 4905
			+					+			+													*4416, 4421
											+													*4420, 4447
			+		+						+													*4431
			+								+						+							*4434
										+	+													*4454
+							+																	*4506
			+			+								+										*4606
			+								+													*47010101-47010102, 4703
			+								+													*4702
											+													*4704, 4705
					+																			*480101-480102, 4809-4811, 4816, 4818, 4819
			+																					*4802
			+		+																			*480301-480302
					+																			*4804, 4813
+					+																			*4805, 4815
					+																			*4806, 8101-8103
					+						+													*4807
					+						+													*4812
					+	+					+													*4814
			+					+	+									+						*4817
																								*4903
												+												*510101-510108, 5103, 5107, 5111N-5114, 5117, 5118, 5121, 5122, 5124, 5126-5130, 5132, 5133, 5135, 5137-5139, 5141N, 5143, 5148-5151, 520101-5202, 5204-5207, 5209, 560501-5606, 5621, 5808, 7801-7803, 7805
			+									+	+											*5104
			+									+												*5106
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.	175	215	130	95	190	95	105	235	160	215	135	95	90	90	150	75	120	105	310	135	145	235	95	165
PCR product																160				285			120	250
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
*5110									+															
*5116, 5208										+														
*5146																								
*5402, 5516																			+					
*5411									+										+					
*5518							+												+					
*5713					+																			
*7301									+															
HLA-B 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
Cw*0206					+																			
Cw*0305, 0325, 0327				+				+					+											
Cw*0334																								
Cw*0738																+								
Cw*0746																								
Cw*0808						+																		
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

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 1070 base pairs, for most tubes, or a band of 800 base pairs, for some tubes.

Tube number 1 contains the primer pair giving rise to the shorter, 800 bp, internal positive control band in order to help in the correct orientation of the HLA-B*40 subtyping. .

In addition, tubes number 4, 5, 7, 14, 15, 16, 17, 21, 22, 23, 24, 27, 29, 35, 44 and 47 contain the primer pair giving rise to the shorter, 800 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 nucleotide position, in the 1st, 2nd, 3rd or 4th exon, matching the specificity-determining 3'-end of the primer is given. Nucleotide numbering as in *Tissue Antigens* 1998, 51:II, 417-466. The sequence of the 3 terminal nucleotides of the primer is given.

³The nucleotide position, in the 2nd, 3rd exon or 5th exon or the 3rd intron, matching the specificity-determining 3'-end of the primer is given in the anti-sense direction. Nucleotide numbering as in *Tissue Antigens* 1998, 51:II, 417-466. The sequence of the 3 terminal nucleotides of the primer is given.

⁴The nucleotide sequence of the B*4017 allele has been shown to be identical B*4016.
The nucleotide sequence of the B*4041 allele has been shown to be identical B*4040.

125	120	180	325	235	190	225	255	245	235	140	135	95	125	330	120	200	95	185	110	85	545	135	215	Length of spec.
																	165		205	135			245	PCR product
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.
				+																				*5110
				+								+												*5116, 5208
												+	+											*5146
							+									W								*5402, 5516
																								*5411
																								*5518
								+																*5713
							+									W								*7301
																								HLA-B 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.
																								Cw*0206
																								Cw*0305, 0325, 0327
								+																Cw*0334
						+			+															Cw*0738
														+										Cw*0746
				+																				Cw*0808
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.

⁵Primer mix 16: Specific PCR fragment of 75 bp in the B*4015 allele. Specific PCR fragment of 160 bp in the B*401401, B*4072, B*4077 and B*3566, B*420501-420502 and B*4812 and Cw*0738 alleles.

Primer mix 20: Specific PCR fragment of 135 bp in the B*401401-401403, B*4023 and the B*0707, B*0712, B*0714 and B*071801-071802 alleles. Specific PCR fragment of 285 bp in the B*4031 and B*480101-480102, B*4806, B*4807, B*4809, B*4811 and B*8101 to 8103 alleles. Specific PCR fragments of 135 and 285 bp in the B*4015, B*4016, B*4032, B*4045 and B*070201 to 0706, B*0708 to 0711, B*0713, B*0715 to 0717, B*0720 to 0732, B*0734 to 0739, B*0741 to 07502, B*0754-0759, B*3566, B*3707, B*420501-420502, B*4805, B*4808, B*4810, B*4812 and B*4814 to 4816, B*4818 and B*4819 alleles. (Both specific fragments may not always be obtained.)

Primer mix 23: Specific PCR fragment of 95 bp in the B*4029 allele. Specific PCR fragment of 120 bp in the B*4036, B*4048 and B*4807 and B*4817 alleles.

Primer mix 24: Specific PCR fragment of 165 bp in the B*4034 allele. Specific PCR fragment of 250 bp in the B*4037, B*4076 and B*3705 alleles.

Primer mix 42: Specific PCR fragment of 95 bp in the B*4058 and B*4434 alleles. Specific PCR fragment of 165 bp in the B*4065 allele.

Primer mix 44: Specific PCR fragment of 110 bp in the B*4078 allele. Specific PCR fragment of 205 bp in the B*4054 allele.

Primer mix 45: Specific PCR fragment of 85 in the B*4056 allele. Specific PCR fragment of 135 bp in the B*4055 and B*4067 alleles.

Primer mix 48: Specific PCR fragment of 215 bp in the B*4061 allele. Specific PCR fragment of 245 bp in the B*4073 and B*1806 alleles.

'w', might be weakly amplified.

CELL LINE VALIDATION SHEET																					
HLA-B*40 SSP subtyping kit																					
					Tube																
						1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
				Prod. No.:		200418301	200509902	200418303	200418304	200418305	200736406	200509907	200418308	200509909	200509910	200418311	200509912	200418313	200418314	200509915	200736416
	cell line		B*																		
1	9001	SA	*0702			-	-	-	+	+	-	-	-	-	-	-	-	+	-	-	-
2	9280	LK707	*5201		*7301	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
3	9011	E4181324	*52011			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	9275	GU373	*1510		*5301	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	9009	KAS011	*3701			-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	9353	SM	*3901		*5101	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	9020	QBL	*1801			-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	9007	DEM	*5701			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	9026	YAR	*3801			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	9107	LKT3	*5401			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	9051	PITOUT	*4403			-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
12	9052	DBB	*5701			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	9067	BTB	*2705			-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
14	9071	OLGA	*1501		*1520	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	9075	DKB	*4001			+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	9037	SWEIG007	*4002			-	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-
17	9008	WILJON	*1801			-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	9257	32367	*1401		*5601	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	9038	BM16	*1801			-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	9059	SLE005	*4001			+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	9064	AMALA	*1501			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	9056	KOSE	*3503			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	9124	IHL	*4002		*5602	-	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-
24	9035	JBUSH	*3801			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	9049	IBW9	*1402			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	9285	WT49	*5801			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	9191	CH1007	*0705		*5101	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
28	9320	BEL5GB	*4402		*4403	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
29	9050	MOU	*4403			-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
30	9021	RSH	*4201			-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
31	9019	DUCAF	*1801			-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	9297	HAG	*4102			-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-
33	9098	MT14B	*4001			+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34	9104	DHIF	*3801			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35	9302	SSTO	*4402			-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
36	9024	KT17	*1501		*3501	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
37	9065	HHKB	*0702			-	-	-	+	+	-	-	-	-	-	-	-	+	-	-	-
38	9099	LZL	*1501			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39	9315	CML	*0801		*2705	-	-	-	+	-	-	-	-	-	-	+	-	-	-	-	-
40	9134	WHONP199	*1302		*4601	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
41	9055	H0301	*1402			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
42	9066	TAB089	*4601			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43	9076	T7526	*4601			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44	9057	TEM	*3801			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45	9239	SHJO	*4201		*5001	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-
46	9013	SCHU	*0702			-	-	-	+	+	-	-	-	-	-	-	-	+	-	-	-
47	9045	TUBO	*5101			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
48	9303	TER-ND	*3501		*4403	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-

CELL LINE VALIDATION SHEET																																
HLA-B*40 SSP subtyping kit																																
					Tube																											
					17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32												
				Prod. No.:	200418317	200736418	200418319	200622720	200509921	200736422	200736423	200736424	200418325	200509926	200418327	200736428	200509929	200418330	200418331	200418332												
	cell line		B*																													
1	9001	SA	*0702		-	-	-	+	-	+	-	-	-	+	-	-	-	-	-	-	-											
2	9280	LK707	*5201		*7301	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											
3	9011	E4181324	*52011			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											
4	9275	GU373	*1510		*5301	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-											
5	9009	KAS011	*3701			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											
6	9353	SM	*3901		*5101	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											
7	9020	QBL	*1801			-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-											
8	9007	DEM	*5701			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											
9	9026	YAR	*3801			-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-											
10	9107	LKT3	*5401			-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-											
11	9051	PITOUT	*4403			-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-											
12	9052	DBB	*5701			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											
13	9067	BTB	*2705			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											
14	9071	OLGA	*1501		*1520	-	-	+	-	+	-	-	-	-	-	-	+	-	-	-	-											
15	9075	DKB	*4001			+	-	-	-	-	-	-	-	-	-	-	+	-	+	-	+											
16	9037	SWEIG007	*4002			-	-	-	-	-	+	-	-	-	-	-	-	-	+	-	+											
17	9008	WILJON	*1801			-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	+											
18	9257	32367	*1401		*5601	-	-	+	-	-	-	-	-	-	-	-	+	-	-	-	-											
19	9038	BM16	*1801			-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	+											
20	9059	SLE005	*4001			+	-	-	-	-	-	-	-	-	-	-	+	-	+	-	+											
21	9064	AMALA	*1501			-	-	-	-	+	-	-	-	-	-	-	+	-	-	-	-											
22	9056	KOSE	*3503			-	-	+	-	-	-	-	-	-	-	-	+	-	-	-	-											
23	9124	IHL	*4002		*5602	-	-	+	-	-	+	-	-	-	-	-	+	-	+	-	+											
24	9035	JBUSH	*3801			-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-											
25	9049	IBW9	*1402			-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-											
26	9285	WT49	*5801			-	-	+	-	-	-	-	-	-	-	-	+	-	-	-	-											
27	9191	CH1007	*0705		*5101	-	-	-	+	-	+	-	-	-	+	-	-	-	-	+	-											
28	9320	BEL5GB	*4402		*4403	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-											
29	9050	MOU	*4403			-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-											
30	9021	RSH	*4201			-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-											
31	9019	DUCAF	*1801			-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-											
32	9297	HAG	*4102			-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-											
33	9098	MT14B	*4001			+	-	-	-	-	-	-	-	-	-	-	+	-	+	-	+											
34	9104	DHIF	*3801			-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-											
35	9302	SSTO	*4402			-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-											
36	9024	KT17	*1501		*3501	-	-	+	-	+	-	-	-	-	-	-	+	-	-	-	-											
37	9065	HHKB	*0702			-	-	-	+	-	+	-	-	-	+	-	-	-	-	-	-											
38	9099	LZL	*1501			-	-	-	-	+	-	-	-	-	-	-	+	-	-	-	-											
39	9315	CML	*0801		*2705	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-											
40	9134	WHONP199	*1302		*4601	-	-	+	-	+	-	-	-	-	-	-	+	-	+	-	-											
41	9055	H0301	*1402			-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-											
42	9066	TAB089	*4601			-	-	-	-	+	-	-	-	-	-	-	+	-	-	-	-											
43	9076	T7526	*4601			-	-	-	-	+	-	-	-	-	-	-	+	-	-	-	-											
44	9057	TEM	*3801			-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-											
45	9239	SHJO	*4201		*5001	-	-	+	-	-	-	-	-	-	-	-	+	-	+	+	-											
46	9013	SCHU	*0702			-	-	-	+	-	+	-	-	-	-	+	-	-	-	-	-											
47	9045	TUBO	*5101			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											
48	9303	TER-ND	*3501		*4403	-	-	+	-	-	-	-	-	-	-	-	+	-	-	-	-											

CERTIFICATE OF ANALYSIS

Olerup SSP™ HLA-B*40 SSP

Product number: 101.523-24 – licensed for PCR
101.523-24u – not licensed for PCR
Lot number: Y10
Expiry date: 2009-August-01
Number of tests: 24 tests – Product No. 101.523-24
3 tests – Product No. 101.523-03
Number of tubes per test: 48

Tube specifications:

Tube No.	Production No.	Tube No.	Production No.	Tube No.	Production No.
1	2004-183-01	17	2004-183-17	33	2005-099-33
2	2005-099-02	18	2007-364-18	34	2007-364-34
3	2004-183-03	19	2004-183-19	35	2007-364-35
4	2004-183-04	20	2006-227-20	36	2005-099-36
5	2004-183-05	21	2005-099-21	37	2005-099-37
6	2004-183-06	22	2007-364-22	38	2007-364-38
7	2007-364-07	23	2007-364-23	39	2005-099-39
8	2004-183-08	24	2007-364-24	40	2005-099-40
9	2005-099-09	25	2004-183-25	41	2006-227-41
10	2005-099-10	26	2005-099-26	42	2007-364-42
11	2004-183-11	27	2004-183-27	42	2005-099-43
12	2005-099-12	28	2007-364-28	43	2007-364-44
13	2004-183-13	29	2005-099-29	45	2007-364-45
14	2004-183-14	30	2004-183-30	46	2007-364-46
15	2005-099-15	31	2004-183-31	47	2007-364-47
16	2007-364-16	32	2004-183-32	48	2007-364-48

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 10, 12, 14, 16, 18, 23, 24, 25, 27, 33, 34, 38, 40, and 42 to 48 were available. The specificities of the primers in primer solutions 10, 12, 14, 16, 18, 23, 24, 25, 33, 34, 38, 40, 42 and 43 were tested by separately adding one or two additional 5'-primers, respectively one or two additional 3'-primers. One of the 3'-primers in primer solutions 16, 23 and 24 were not possible to test. In primer solutions 27, 44 and 48 it was only possible to test the 5'-primers, the 3'-primers were not possible to test. In primer solutions 45, 46 and 47 it was only possible to test the 3'-primers, the 5'-primers were not possible to test. Additional primers in primer solutions 7 and 31 were tested by separately adding one additional 5'-primer and/or one additional 3'-primer.

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

Date of approval: 2007-December-10

Approved by:

Quality Control, Supervisor

Declaration of Conformity

Product name: Olerup SSP™ HLA-B*40
Product number: 101.523-24/03, 101.523-24u/03u
Lot number: Y10

Intended use: HLA-B*40 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-10

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.

HLA-B*40
101.523-24/03 – licensed for PCR
101.523-24u/03u – not licensed for PCR
Lot No.: **Y10**

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