

Olerup SSP® HLA-B*54

Product number:	101.569-06u – without <i>Taq</i> polymerase
Lot number:	30M
Expiry date:	2013-December-01
Number of tests:	6
Number of wells per test:	20
Storage - pre-aliquoted primers:	dark at -20°C
- PCR Master Mix:	-20°C
- Adhesive PCR seals	RT
- Product Insert	RT

This Product Description is only valid for Lot No. 30M.

CHANGES COMPARED TO THE PREVIOUS *OLERUP SSP*® HLA-B*54 LOT

The HLA-B*54 specificity and interpretation tables have been updated for the HLA-B alleles described since the previous *Olerup SSP*® HLA-B*54 lot was made (**Lot No. 08H**).

Four wells have been added to the HLA-B*54 kit, wells **17 to 20**.
The amplification patterns for some rare HLA-B*54 alleles
only differ by the length of the specific PCR products.

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

Well	5'-primer	3'-primer	rationale
3	-	Modified	Improved specificity.
11	Moved	Moved	Primer pair moved to well 16, for resolution of the B*54:18 and B*54:22 alleles.
16	Added	Added	Primer pair from well 11.
17	New	New	New primer pair for the B*54:20 allele.
18	New	New	New primer pair for the B*54:21 allele.
19	New	New	New primer pair for the B*54:23 allele.
20	New	New	New primer pair for the B*54:24 allele.

PRODUCT DESCRIPTION

HLA-B*54 SSP subtyping

CONTENT

The primer set contains 5'- and 3'-primers for identifying the B*54:01 to B*54:24 alleles.

PLATE LAYOUT

Each test consists of 20 PCR reactions in a 24 well PCR plate. Wells 21 to 24 are empty

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
17	18	19	20	empty	empty	empty	empty

The 24 well PCR plate is marked with 'HLA-B*54' in silver/gray ink.

Well No. 1 is marked with the Lot Number '30M'.

A faint row of numbers is seen between wells 1 and 2 or wells 7 and 8 of the PCR trays. These stem from the manufacture of the trays, and should be disregarded.

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

Please note: When removing each 24 well PCR plate, make sure that the remaining plates stay covered. Use a scalpel or a similar instrument to carefully cut the foil between the plates.

INTERPRETATION

The interpretation of HLA-B*54 SSP subtypings will be influenced by nine B*07, eight B*08, most B*13, most B*15, the B*18, nine B*27, most B*35, the B*37:01:04, most B*38, most B*39, most B*40, nine B*41, two B*42, fourteen B*44, twelve B*45, the B*46, most B*48, the B*49, the B*50, most B*51, the B*52, most B*53, most B*55, most B*56, many B*57, most B*58, most B*59, the B*67, the B*78, the B*81 and B*82 alleles when present on the other haplotype. In addition, the C*02:03 allele will be amplified by primer mix 9, the C*05:30 allele will be amplified by primer mix 3 and the C*07:102 allele will be weakly amplified by primer mix 4.

UNIQUELY IDENTIFIED ALLELES

All the HLA-B*54 alleles, i.e. **B*54:01 to B*54:24**, recognized by the HLA Nomenclature Committee in April 2011¹ will give rise to unique amplification patterns by the primers in the HLA-B*54 subtyping kit.

The B*54:17 and B*54:18 alleles may be distinguished by the different sizes of the specific PCR products generated by primer mix 16.

¹HLA-B alleles listed on the IMGT/HLA web page 2011-April-08, release 3.4.0, www.ebi.ac.uk/imgt/hla.

RESOLUTION IN HOMO- AND HETEROZYGOTES

A total of 25 alleles generate 24 amplification patterns that can be combined in 300 homozygous and heterozygous combinations. 128 of these genotypes do not give rise to unique amplification patterns. The different lengths of the specific PCR products were not considered in these calculations.

+++++---	-----	----	*54:02, *54:08N = *54:08N, *54:19
+++++---	-----	----	*54:02, *54:03 = *54:03, *54:19
+++++---	-----	----	*54:02, *54:11 = *54:11, *54:19
+++++---	-----	----	*54:02, *54:15 = *54:15, *54:19
+++++---	-----	----	*54:02, *54:04 = *54:04, *54:19
+++++---	-----	----	*54:02, *54:09 = *54:09, *54:19
+++++---	-----	----	*54:02, *54:14 = *54:14, *54:19
+++++---	-----	----	*54:02, *54:06 = *54:06, *54:19
+++++---	-----	----	*54:02, *54:20 = *54:19, *54:20
+++++---	-----	----	*54:02, *54:10 = *54:10, *54:19
+++++---	-----	----	*54:02, *54:22 = *54:19, *54:22
+++++---	-----	----	*54:02, *54:12 = *54:12, *54:19
+++++---	-----	----	*54:02, *54:13 = *54:13, *54:19
+++++---	-----	----	*54:02, *54:07 = *54:07, *54:19
+++++---	-----	----	*54:02, *54:16 = *54:16, *54:19
+++++---	-----	----	*54:02, *54:17 = *54:17, *54:19
+++++---	-----	----	*54:02, *54:21 = *54:19, *54:21
+++++---	-----	----	*54:02, *54:23 = *54:19, *54:23
+++++---	-----	----	*54:02, *54:24 = *54:19, *54:24
+++++---	-----	----	*54:01:01, *54:02 = *54:01:01, *54:19 = *54:01:02, *54:02 = *54:01:02, *54:19 = *54:02, *54:19 = *54:19, *54:19
+++-+---	-----	----	*54:03, *54:11 = *54:08N, *54:11 = *54:08N, *54:22
+++-+---	-----	----	*54:03, *54:15 = *54:08N, *54:15 = *54:08N, *54:16
+++-+---	-----	----	*54:01:01, *54:08N = *54:01:02, *54:08N = *54:03, *54:04 = *54:03, *54:08N = *54:04, *54:08N = *54:08N, *54:08N
+++-+---	-----	----	*54:01:01, *54:03 = *54:01:02, *54:03 = *54:03, *54:03
+++-+---	-----	----	*54:11, *54:16 = *54:15, *54:22
+++-+---	-----	----	*54:01:01, *54:11 = *54:01:02, *54:11 = *54:04, *54:22 = *54:11, *54:22
+++-+---	-----	----	*54:01:01, *54:15 = *54:01:02, *54:15 = *54:04, *54:16 = *54:15, *54:16
+++-+---	-----	----	*54:01:01, *54:04 = *54:01:02, *54:04
+++-+---	-----	----	*54:01:01, *54:05N = *54:01:02, *54:05N
+++-+---	-----	----	*54:01:01, *54:09 = *54:01:02, *54:09
+++-+---	-----	----	*54:01:01, *54:14 = *54:01:02, *54:14 = *54:06, *54:16 = *54:14, *54:16
+++-+---	-----	----	*54:01:01, *54:06 = *54:01:02, *54:06
+++-+---	-----	----	*54:01:01, *54:20 = *54:01:02, *54:20 = *54:10, *54:20 = *54:20, *54:20
+++-+---	-----	----	*54:01:01, *54:10 = *54:01:02, *54:10 = *54:10, *54:10
+++-+---	-----	----	*54:01:01, *54:22 = *54:01:02, *54:22 = *54:22, *54:22
+++-+---	-----	----	*54:01:01, *54:12 = *54:01:02, *54:12 = *54:12, *54:12
+++-+---	-----	----	*54:01:01, *54:13 = *54:01:02, *54:13 = *54:13, *54:13
+++-+---	-----	----	*54:01:01, *54:07 = *54:01:02, *54:07 = *54:07, *54:07
+++-+---	-----	----	*54:01:01, *54:16 = *54:01:02, *54:16 = *54:16, *54:16
+++-+---	-----	----	*54:01:01, *54:17 = *54:01:02, *54:17 = *54:17, *54:17
+++-+---	-----	----	*54:01:01, *54:21 = *54:01:02, *54:21 = *54:21, *54:21
+++-+---	-----	----	*54:01:01, *54:23 = *54:01:02, *54:23 = *54:23, *54:23
+++-+---	-----	----	*54:01:01, *54:24 = *54:01:02, *54:24 = *54:24, *54:24
+++-+---	-----	----	*54:01:01, *54:01:01 = *54:01:01, *54:01:02
++-+---+	-----	----	*54:04, *54:14 = *54:06, *54:15 = *54:14, *54:15
++-+---+	-----	----	*54:04, *54:11 = *54:11, *54:11
++-+---+	-----	----	*54:04, *54:15 = *54:15, *54:15
++-+---+	-----	----	*54:06, *54:09 = *54:09, *54:09
++-+---+	-----	----	*54:06, *54:14 = *54:14, *54:14

*54:17= *54:17 and 54:18

SPECIFICITY TABLE

HLA-B*54 SSP subtyping

Specificities and sizes of the PCR products of the 20 primer mixes used for HLA-B*54 SSP subtyping

Primer Mix	Size of spec. PCR product ¹	Size of control band ²	Amplified HLA-B*54 alleles ³	Other amplified HLA Class I alleles ⁴
1	215 bp	800 bp	*54:01:01, 54:02-54:24	*07:02:19, 15:01:04, 37:01:04, 40:94, 51:01:18, 58:01:08
2⁵	105 bp	1070 bp	*54:01:01-54:03, 54:05N, 54:07-54:08N, 54:10, 54:12-54:13, 54:16-54:24	*07:78, 13:02:01-13:03, 13:08Q-13:09, 13:14-13:16, 13:18-13:19, 13:27, 13:30-13:34, 13:37-13:38, 13:40-13:42, 13:44-13:45, 15:42, 35:60, 44:15, 44:18, 45:01, 45:03-45:08, 45:10-45:13, 46:11, 46:18, 49:01:01-49:03, 49:06-49:17, 50:01:01-50:02, 50:04-50:08, 50:10-50:11, 50:13, 51:15, 55:01:01-55:01:03, 55:01:05-55:01:06, 55:02:01-55:03, 55:05, 55:07, 55:09-55:12, 55:15-55:16, 55:18-55:19, 55:21-55:22, 55:24-55:26, 55:29-55:31, 55:33-55:38, 55:40-55:41, 55:43, 55:45-55:48, 55:50, 56:01:01-56:01:04, 56:07-56:08, 56:13-56:14, 56:16-56:17, 56:19N-56:20, 56:23-56:30, 59:01:01:01-59:01:01:02, 59:04-59:05
3⁶	160 bp	1070 bp	*54:01:01-54:01:02, 54:03-54:04, 54:06-54:24	*44:24, 51:39, C*05:30
4⁷	160 bp	1070 bp	*54:02, 54:19	*07:13, 07:110, 38:11, 67:02, C*07:102^w
5	180 bp	1070 bp	*54:03, 54:08N	*13:03, 15:73, 40:71, 44:10, 44:15, 44:18, 45:01, 45:04-45:07, 45:11-45:13, 46:11, 49:01:01-49:03, 49:06, 49:08-49:17, 50:01:01-50:02, 50:04-50:08, 50:10-50:13, 51:15, 51:62, 51:106, 56:01:01-56:02, 56:04, 56:07-56:08, 56:13-56:14, 56:16-56:17, 56:20, 56:24-56:30, 59:04, 82:01-82:03

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6^{5,8}	105 bp, 235 bp	1070 bp	*54:04, 54:08N, 54:11, 54:15	*07:84, 08:09, 13:35, 15:83, 27:14, 40:06:01:01-40:06:03, 40:44, 40:53, 40:70, 40:75, 40:83, 40:93, 40:95-40:96, 40:103, 40:109-40:110, 40:127, 40:131, 40:148, 40:161-40:162, 41:01, 41:05-41:07, 41:09, 41:12, 41:14, 41:16-41:17, 42:04, 44:20, 44:47, 44:100, 51:01:01-51:03, 51:05, 51:07:01-51:12, 51:14, 51:16- 51:24:04, 51:26-51:34, 51:36, 51:38-51:41N, 51:43-51:44N, 51:48-51:55, 51:57-51:58, 51:60- 51:61, 51:65-51:80, 51:82-51:91, 51:93-51:96, 51:98N, 51:100- 51:105, 51:107-51:113, 52:01:01:01-52:13, 52:15-52:24, 55:17, 55:20, 55:27-55:28, 56:05:01-56:06, 56:15, 56:21, 58:08, 59:02, 78:01-78:07
7⁵	140 bp	1070 bp	*54:05N	
8	280 bp	1070 bp	*54:06, 54:09, 54:14	*07:09, 07:11, 07:17, 08:28, 08:35, 08:37, 13:04, 13:10, 13:26, 15:01:01:01-15:01:04, 15:01:06- 15:08, 15:11:01-15:16:02, 15:18:01-15:21, 15:23-15:29, 15:31-15:36, 15:38:01-15:40, 15:43-15:44, 15:46-15:47, 15:49- 15:57, 15:60-15:62, 15:64-15:72, 15:74-15:76, 15:78:01-15:82, 15:84-15:85, 15:87-15:89, 15:91- 15:98, 15:101-15:129, 15:131- 15:132, 15:134-15:136, 15:138- 15:149N, 15:151-15:161, 15:163- 15:167, 15:169-15:176, 15:178- 15:187, 15:189-15:195, 15:197- 15:207, 15:209N-15:215, 15:217- 15:219, 15:221-15:223, 18:01:01- 18:15, 18:17N-18:25, 18:27- 18:40, 18:42-18:60, 18:62-18:63, 27:41, 35:01:01:01-35:01:26, 35:05:01-35:05:02, 35:07- 35:08:04, 35:10-35:11:02, 35:14:01-35:17, 35:19-35:21, 35:23-35:30, 35:32, 35:35, 35:37, 35:40N-35:43:02, 35:45-35:54, 35:57-35:58, 35:61-35:64, 35:66- 35:69, 35:71-35:72, 35:76-35:80,

				35:82, 35:86, 35:89-35:94, 35:97, 35:99-35:105, 35:107-35:108:02, 35:110-35:126, 35:130N-35:135, 35:137-35:148, 35:158-35:159, 35:161, 39:07, 39:43, 40:03, 40:20, 40:38, 40:52, 40:59-40:60, 40:105, 40:158-40:159, 42:09, 44:17, 44:43:01-44:43:02, 45:09, 46:01:01-46:10, 46:12-46:17, 46:19-46:27, 48:02:01-48:02:02, 48:14, 48:23, 48:25, 49:04-49:05, 51:37, 51:45, 51:63, 51:97, 53:01:01-53:03, 53:05-53:06, 53:08:01-53:18, 53:20-53:24, 55:14, 55:23, 55:32, 56:03, 56:09, 56:18, 56:31-56:32, 57:01:01-57:01:11, 57:06, 57:08, 57:10-57:11, 57:13-57:16, 57:18-57:27, 57:29-57:31, 57:33-57:38, 57:40-57:41, 57:43-57:44, 58:01:01-58:02, 58:04-58:07, 58:09-58:19, 58:21-58:26, 58:29-58:33
9	200 bp	1070 bp	*54:09	*07:48, 08:13, 08:25, 08:40 ^w , 08:55, 13:10-13:11, 15:05:01-15:05:02, 15:31, 15:48, 15:52, 15:55, 15:91, 15:107, 15:114, 15:123-15:124, 15:136, 15:151, 15:185-15:186, 15:188, 15:224, 18:01:01-18:01:05, 18:01:07-18:01:13, 18:03-18:07:02, 18:09-18:12, 18:13 ^w , 18:14, 18:17N, 18:20, 18:23N-18:26, 18:28-18:29, 18:31-18:51, 18:53-18:55, 18:58-18:63, 27:07, 27:11, 27:32-27:34, 27:43, 27:70, 35:05:01-35:05:02, 35:22, 35:31-35:32, 35:51, 35:66 ^w , 35:68:02, 35:72, 35:89, 35:97, 35:114, 35:151, 38:01:01-38:09, 38:11-38:19, 38:21, 38:23, 38:25-38:29, 39:01:01:01-39:01:01:02L, 39:01:03-39:05:02, 39:07, 39:10, 39:12-39:17, 39:19:01-39:20, 39:22-39:23, 39:25N-39:32, 39:37-39:41, 39:43-39:49, 39:51-39:56, 39:58-39:59, 39:61, 39:63, 40:01:01-40:01:03,

				40:01:05-40:01:11, 40:01:13-40:02:08, 40:02:10-40:03, 40:07-40:11:01, 40:12-40:14:03, 40:18-40:22N, 40:24-40:25, 40:27:01-40:27:02, 40:29, 40:31, 40:33, 40:35-40:40, 40:42-40:43, 40:45-40:50, 40:52, 40:54-40:58, 40:61-40:63, 40:65-40:67, 40:69, 40:71-40:74, 40:76-40:82, 40:84-40:85, 40:87:01-40:92, 40:94, 40:97, 40:99, 40:101-40:102, 40:104-40:108, 40:111-40:119, 40:121-40:123, 40:124:02, 40:126, 40:128 ^w , 40:130, 40:132-40:135, 40:138-40:142N, 40:144N-40:147, 40:149-40:157, 40:163-40:164, 44:31, 44:54, 44:65, 44:82, 46:06, 46:13:01-46:13:03, 46:19, 46:21:01-46:21:02, 46:26, 48:01:01-48:01:03, 48:03:01, 48:04, 48:06-48:07, 48:09-48:14, 48:16, 48:18, 48:20, 48:22-48:23, 48:24 ^w , 51:81, 53:14, 55:04, 55:08, 55:49, 55:51, 56:02, 56:04, 56:10, 56:18, 56:31, 58:16, 58:18, 58:20, 58:27, 67:01:01-67:03, 81:01-81:05, C*02:03
10	225 bp	1070 bp	*54:10, 54:20	*07:78, 07:84, 13:18, 13:31, 13:41, 15:04, 15:137, 39:33, 40:161, 51:05, 51:29, 51:54, 51:61, 51:82, 52:21, 52:24, 55:09, 55:21, 55:37
11	185 bp	1070 bp	*54:11, 54:22	
12⁵	150 bp	1070 bp	*54:12	
13⁵	135 bp	1070 bp	*54:13	
14	210 bp	800 bp	*54:07	
15⁵	95 bp	1070 bp	*54:14-54:16	*07:84, 13:04, 13:35, 15:04, 15:16:01-15:16:02, 15:67, 15:95, 15:155, 15:222, 35:37, 40:44, 40:159, 44:20, 44:47, 44:100, 45:09, 49:04-49:05, 51:37, 51:90, 51:92, 52:12, 55:23, 55:27, 55:46
16⁹	210 bp, 340 bp	1070 bp	*54:17-54:18	

17	210 bp	1070 bp	*54:20	*07:78, 07:84, 13:16, 13:31 ^w , 15:04 ^w , 15:16:01-15:16:02, 15:42, 15:67, 15:95, 15:137 ^w , 40:95, 40:148, 40:161, 49:01:01, 49:01:03-49:10, 49:12-49:17, 50:01:01-50:02, 50:04-50:11, 50:13, 51:01:01-51:03, 51:07:01- 51:07:02, 51:11N-51:14, 51:16- 51:18, 51:21-51:24:04, 51:26- 51:30, 51:32-51:35, 51:37-51:39, 51:41N, 51:43, 51:48-51:53, 51:55, 51:57-51:58, 51:60, 51:61 ^w , 51:63, 51:65-51:71, 51:74-51:80, 51:82-51:86, 51:88- 51:90, 51:92, 51:94-51:96, 51:98N-51:107, 51:109-51:113, 52:01:01:01- 52:02, 52:04-52:09, 52:11-52:18, 52:20, 52:21 ^w , 52:22-52:24, 55:01:01-55:01:06, 55:03, 55:05, 55:09, 55:11, 55:15, 55:17, 55:21 ^w , 55:24-55:25, 55:28- 55:29, 55:31, 55:33, 55:36, 55:38, 55:40, 55:44-55:45, 56:05:01- 56:06, 56:21, 56:25, 58:08, 78:01-78:03, 78:05-78:07
18	295 bp	1070 bp	*54:21	*40:149, 55:10, 56:16, 82:01- 82:03
19	230 bp	1070 bp	*54:23	
20	205 bp	1070 bp	*54:24	

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 HLA-B*54 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 base pairs or more. Size differences shorter than 20 base pairs are not given. For high resolution SSP kits the respective length of the specific PCR product(s) of the alleles amplified by these primer mixes is given.

Nonspecific amplifications, i.e. a ladder or a smear of bands, may sometimes be seen. GC-rich primers have a higher tendency of giving rise to nonspecific amplifications than other primers.

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

PCR fragments migrating faster than the control bands, but slower than a 400 bp fragment may be seen in some gel read-outs. Such bands can be disregarded and do not influence the interpretation of the SSP typings.

Some primers may give rise to primer oligomer artifacts. Sometimes this phenomenon is an inherent feature of the primer pair(s) of a primer mix. More often it is due to other factors such as too low amount of DNA in the PCR reactions, taking too long time in setting up the PCR reactions, working at elevated room temperature or using thermal cyclers that are not pre-heated.

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

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Lot-specific information

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Well 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*54 subtyping.

In addition, well 14 contains the primer pair giving rise to the shorter, 800 bp, internal positive control in order to allow kit identification.

In the presence of a specific amplification the intensity of the control band often decreases.

³The B*54:17 and B*54:18 alleles may be distinguished by the different sizes of the specific PCR products generated by primer mix 16.

⁴Due to the sharing of sequence motifs between HLA-B alleles non-HLA-B*54 alleles will be amplified by primer mixes 1 to 6, 8 to 10, 15, 17 and 18. In addition, the C*02:03 allele will be amplified by primer mix 9, the C*05:30 allele will be amplified by primer mix 3 and the C*07:102 allele will be weakly amplified by primer mix 4.

⁵Specific PCR fragments shorter than 150 base pairs have a lower intensity than longer PCR bands.

⁶Primer mix 3 may give a lower yield of specific PCR product than the other B*54 primer mixes.

⁷Primer mix 4 may have tendencies of non-specific amplification.

⁸Primer mix 6: Specific PCR fragment of 105 bp in the B*54:04, 54:11 and 54:15 and the B* 07:84, 08:09, 13:35, 15:83, 27:14, 40:06:01:01-40:06:03, 40:44, 40:53, 40:70, 40:75, 40:83, 40:93, 40:95-40:96, 40:103, 40:109-40:110, 40:127, 40:131, 40:148, 40:161-40:162, 41:01, 41:05-41:07, 41:09, 41:12, 41:14, 41:16-41:17, 42:04, 44:20, 44:47, 44:100, 51:01:01-51:03, 51:05, 51:07:01-51:12, 51:14, 51:16-51:24:04, 51:26-51:34, 51:36, 51:38-51:41N, 51:43-51:44N, 51:48-51:55, 51:57-51:58, 51:60-51:61, 51:65-51:80, 51:82-51:91, 51:93-51:96, 51:98N, 51:100-51:105, 51:107-51:113, 52:01:01:01-52:13, 52:15-52:24, 55:17, 55:20, 55:27-55:28, 56:05:01-56:06, 56:15, 56:21, 58:08, 59:02 and 78:01-78:07 alleles. Specific PCR fragment of 235 bp in the B*54:08N allele.

⁹Primer mix 16: Specific PCR fragment of 210 bp in the B*54:18 allele. Specific PCR fragment of 340 bp in the B* 54:17 allele.

‘w’, may be weakly amplified.

INTERPRETATION TABLE												
HLA-B*54 SSP subtyping												
Amplification patterns of the B*54:01 to 54:24 alleles												
	Well ⁵											
	1	2	3	4	5	6	7	8	9	10	11	12
Length of spec.	215	105	160	160	180	105	140	280	200	225	185	150
PCR product(s)						235						
Length of int. pos. control ¹	800	1070	1070	1070	1070	1070	1070	1070	1070	1070	1070	1070
5'-primer ²	1 st I	357	106	103	420	357	106	419	369	357	357	206
	5' -CAG 3'	5' -Tgg 3'	5' -CCA 3'	5' -CCT 3'	5' -TTA 3'	5' -Tgg 3'	5' -CCA 3'	5' -gTC 3'	5' -TAC 3'	5' -Tgg 3'	5' -Tgg 3'	5' -Agg 3'
				103								
				5' -CCT 3'								
				110								
				5' -gTT 3'								
3'-primer(s) ³	175	420	226	226	553	419	207	3 rd I	527	539	499	317
	5' -CCg 3'	5' -gCT 3'	5' -CAC 3'	5' -CAC 3'	5' -CTA 3'	5' -CgT 3'	5' -TCC 3'	5' -TAT 3'	5' -CCA 3'	5' -TCC 3'	5' -ggA 3'	5' -ggA 3'
					559	553			527			
					5' -Cag 3'	5' -CTA 3'			5' -CCA 3'			
Well No.	1	2	3	4	5	6	7	8	9	10	11	12
HLA-B allele												
*54:01:01	1	2	3									
*54:01:02		2	3									
*54:02	1	2		4								
*54:03	1	2	3		5							
*54:04	1		3			6						
*54:05N	1	2					7					
*54:06	1		3					8				
*54:07	1	2	3									
*54:08N	1	2	3		5	6						
*54:09	1		3					8	9			
*54:10	1	2	3							10		
*54:11	1		3			6					11	
*54:12	1	2	3									12
*54:13	1	2	3									
Well No.	1	2	3	4	5	6	7	8	9	10	11	12

INTERPRETATION TABLE															
HLA-B*54 SSP subtyping															
Amplification patterns of the B*54:01 to 54:24 alleles															
Well ⁵															
13	14	15	16	17	18	19	20								
135	210	95	210	210	295	230	205	Length of spec.							
			340					PCR product(s)							
1070	800	1070	1070	1070	1070	1070	1070	Length of int. pos. control ¹							
133	106	357	89	357	15	106	106	5'-primer ²							
5' -CCg 3'	5' -CCA 3'	5' -Tgg 3'	5' -gAA 3'	5' -Tgg 3'	5' -gCA 3'	5' -CCA 3'	5' -CCA 3'								
			709												
			5' -Agg 3'												
226	275	412	259	527	142	294	272	3'-primer(s) ³							
5' -CAC 3'	5' -CCA 3'	5' -gTC 3'	5' -gTT 3'	5' -CCT 3'	5' -TgA 3'	5' -CgC 3'	5' -TgA 3'								
		412	916												
		5' -gTC 3'	5' -gAT 3'												
13	14	15	16	17	18	19	20	Well No.							
								HLA-B allele							
								*54:01:01							
								*54:01:02							
								*54:02							
								*54:03							
								*54:04							
								*54:05N							
								*54:06							
	14							*54:07							
								*54:08N							
								*54:09							
								*54:10							
								*54:11							
								*54:12							
13								*54:13							
13	14	15	16	17	18	19	20	Well No.							

Lot No.: **30M**

Lot-specific information

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Length of spec.	215	105	160	160	180	105	140	280	200	225	185	150
PCR product(s)						235						
Well No.	1	2	3	4	5	6	7	8	9	10	11	12
*54:14	1		3					8				
*54:15	1		3			6						
*54:16	1	2	3									
*54:17, 54:18 ⁴	1	2	3									
*54:19	1	2	3	4								
*54:20	1	2	3							10		
*54:21	1	2	3									
*54:22	1	2	3								11	
*54:23	1	2	3									
*54:24	1	2	3									
*07:02:19, 37:01:04	1											
*07:09, 07:11, 07:17, 08:28, 08:35, 08:37, 13:26, 15:01:01:01-15:01:03, 15:01:06-15:03:03, 15:06-15:08, 15:11:01-15:15, 15:18:01-15:21, 15:23-15:29, 15:32-15:36, 15:38:01-15:40, 15:43-15:44, 15:46-15:47, 15:49-15:51, 15:53-15:54, 15:56-15:57, 15:60-15:62, 15:64-15:66, 15:68-15:72, 15:74-15:76, 15:78:01-15:82, 15:84-15:85, 15:87-15:89, 15:92-15:94N, 15:96-15:98, 15:101-15:106, 15:108-15:113, 15:115-15:122, 15:125-15:129, 15:131-15:132, 15:134-15:135, 15:138-15:149N, 15:152-15:154, 15:156-15:161, 15:163-15:167, 15:169-15:176, 15:178-15:184, 15:187, 15:189-15:195, 15:197-15:207, 15:209N-15:215, 15:217-15:219, 15:221, 15:223, 18:01:06, 18:02, 18:08, 18:15, 18:18-18:19, 18:21-18:22, 18:27, 18:30, 18:52, 18:56-18:57, 27:41, 35:01:01:01-35:01:26, 35:07-35:08:04, 35:10-35:11:02, 35:14:01-35:17, 35:19-35:21, 35:23-35:30, 35:35, 35:40N-35:43:02, 35:45-35:50, 35:52-35:54, 35:57-35:58, 35:61-35:64, 35:67-35:68:01, 35:69, 35:71, 35:76-35:80, 35:82, 35:86, 35:90-35:94, 35:99-35:105, 35:107-35:108:02, 35:110-35:113, 35:115-35:126, 35:130N-35:135, 35:137-35:148, 35:158-35:159, 35:161, 40:59-40:60, 40:158, 42:09, 44:17, 44:43:01-44:43:02, 46:01:01-46:05, 46:07N-46:10, 46:12, 46:14-46:17, 46:20, 46:22-46:25, 46:27, 48:02:01-48:02:02, 48:25, 51:45, 51:97, 53:01:01-53:03, 53:05-53:06, 53:08:01-53:13, 53:15-53:18, 53:20-53:24, 55:14, 55:32, 56:03, 56:09, 56:32, 57:01:01-57:01:11, 57:06, 57:08, 57:10-57:11, 57:13-57:16, 57:18-57:27, 57:29-57:31, 57:33-57:38, 57:40-57:41, 57:43-57:44, 58:01:01-58:01:07, 58:01:09-58:02, 58:04-58:07, 58:09-58:15, 58:17N, 58:19, 58:21-58:26, 58:29-58:33								8				
Well No.	1	2	3	4	5	6	7	8	9	10	11	12

Lot No.: **30M**

Lot-specific information

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135	210	95	210	210	295	230	205	Length of spec.
			340					PCR product(s)
13	14	15	16	17	18	19	20	Well No.
		15						*54:14
		15						*54:15
		15						*54:16
			16					*54:17, 54:18 ⁴
								*54:19
				17				*54:20
					18			*54:21
								*54:22
						19		*54:23
							20	*54:24
								*07:02:19, 37:01:04
								*07:09, 07:11, 07:17, 08:28, 08:35, 08:37, 13:26, 15:01:01:01-15:01:03, 15:01:06-15:03:03, 15:06-15:08, 15:11:01-15:15, 15:18:01-15:21, 15:23-15:29, 15:32-15:36, 15:38:01-15:40, 15:43-15:44, 15:46-15:47, 15:49-15:51, 15:53-15:54, 15:56-15:57, 15:60-15:62, 15:64-15:66, 15:68-15:72, 15:74-15:76, 15:78:01-15:82, 15:84-15:85, 15:87-15:89, 15:92-15:94N, 15:96-15:98, 15:101-15:106, 15:108-15:113, 15:115-15:122, 15:125-15:129, 15:131-15:132, 15:134-15:135, 15:138-15:149N, 15:152-15:154, 15:156-15:161, 15:163-15:167, 15:169-15:176, 15:178-15:184, 15:187, 15:189-15:195, 15:197-15:207, 15:209N-15:215, 15:217-15:219, 15:221, 15:223, 18:01:06, 18:02, 18:08, 18:15, 18:18-18:19, 18:21-18:22, 18:27, 18:30, 18:52, 18:56-18:57, 27:41, 35:01:01:01-35:01:26, 35:07-35:08:04, 35:10-35:11:02, 35:14:01-35:17, 35:19-35:21, 35:23-35:30, 35:35, 35:40N-35:43:02, 35:45-35:50, 35:52-35:54, 35:57-35:58, 35:61-35:64, 35:67-35:68:01, 35:69, 35:71, 35:76-35:80, 35:82, 35:86, 35:90-35:94, 35:99-35:105, 35:107-35:108:02, 35:110-35:113, 35:115-35:126, 35:130N-35:135, 35:137-35:148, 35:158-35:159, 35:161, 40:59-40:60, 40:158, 42:09, 44:17, 44:43:01-44:43:02, 46:01:01-46:05, 46:07N-46:10, 46:12, 46:14-46:17, 46:20, 46:22-46:25, 46:27, 48:02:01-48:02:02, 48:25, 51:45, 51:97, 53:01:01-53:03, 53:05-53:06, 53:08:01-53:13, 53:15-53:18, 53:20-53:24, 55:14, 55:32, 56:03, 56:09, 56:32, 57:01:01-57:01:11, 57:06, 57:08, 57:10-57:11, 57:13-57:16, 57:18-57:27, 57:29-57:31, 57:33-57:38, 57:40-57:41, 57:43-57:44, 58:01:01-58:01:07, 58:01:09-58:02, 58:04-58:07, 58:09-58:15, 58:17N, 58:19, 58:21-58:26, 58:29-58:33
13	14	15	16	17	18	19	20	Well No.

Length of spec.	215	105	160	160	180	105	140	280	200	225	185	150
PCR product(s)						235						
Well No.	1	2	3	4	5	6	7	8	9	10	11	12
*07:13, 07:110				4								
*07:48, 08:13, 08:25, 08:55, 13:11, 15:48, 15:188, 15:224, 18:26, 18:41, 18:61, 27:07, 27:11, 27:32-27:34, 27:43, 27:70, 35:22, 35:31, 35:151, 38:01:01-38:09, 38:12-38:19, 38:21, 38:23, 38:25-38:29, 39:01:01:01-39:01:01:02L, 39:01:03-39:05:02, 39:10, 39:12-39:17, 39:19:01-39:20, 39:22-39:23, 39:25N-39:32, 39:37-39:41, 39:44-39:49, 39:51-39:56, 39:58-39:59, 39:61, 39:63, 40:01:01-40:01:03, 40:01:05-40:01:11, 40:01:13-40:02:08, 40:02:10-40:02:12, 40:07-40:11:01, 40:12-40:14:03, 40:18-40:19, 40:21-40:22N, 40:24-40:25, 40:27:01-40:27:02, 40:29, 40:31, 40:33, 40:35-40:37, 40:39-40:40, 40:42-40:43, 40:45-40:50, 40:54-40:58, 40:61-40:63, 40:65-40:67, 40:69, 40:72:01-40:74, 40:76-40:82, 40:84-40:85, 40:87:01-40:92, 40:97, 40:99, 40:101-40:102, 40:104, 40:106-40:108, 40:111-40:119, 40:121-40:123, 40:124:02, 40:126, 40:130, 40:132-40:135, 40:138-40:142N, 40:144N-40:147, 40:150-40:157, 40:163-40:164, 44:31, 44:54, 44:65, 44:82, 48:01:01-48:01:03, 48:03:01, 48:04, 48:06-48:07, 48:09-48:13, 48:16, 48:18, 48:20, 48:22, 51:81, 55:04, 55:08, 55:49, 55:51, 56:10, 58:20, 58:27, 67:01:01-67:01:02, 67:03, 81:01-81:05, C*02:03									9			
*07:78, 55:09		2								10		
*07:84						6				10		
*08:09, 15:83, 27:14, 40:06:01:01-40:06:03, 40:53, 40:70, 40:75, 40:83, 40:93, 40:96, 40:103, 40:109-40:110, 40:127, 40:131, 40:162, 41:01, 41:05-41:07, 41:09, 41:12, 41:14, 41:16-41:17, 42:04, 51:08-51:10, 51:19-51:20, 51:31, 51:36, 51:40, 51:44N, 51:72-51:73, 51:87, 51:91, 51:93, 51:108, 52:03, 52:10, 52:19, 55:20, 56:15, 59:02, 78:04						6						
*08:40, 40:128, 48:24									w			
*13:02:01-13:02:10, 13:08Q-13:09, 13:14-13:15, 13:19, 13:27, 13:30, 13:32-13:34, 13:37-13:38, 13:40, 13:42, 13:44-13:45, 35:60, 45:03, 45:08, 45:10, 46:18, 55:02:01-55:02:06, 55:07, 55:12, 55:16, 55:18-55:19, 55:22, 55:26, 55:30, 55:34-55:35, 55:41, 55:43, 55:47-55:48, 55:50, 56:19N, 56:23, 59:01:01:01-59:01:01:02, 59:05		2										
Well No.	1	2	3	4	5	6	7	8	9	10	11	12

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Lot-specific information

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135	210	95	210	210	295	230	205	Length of spec.
			340					PCR product(s)
13	14	15	16	17	18	19	20	Well No.
								*07:13, 07:110
								*07:48, 08:13, 08:25, 08:55, 13:11, 15:48, 15:188, 15:224, 18:26, 18:41, 18:61, 27:07, 27:11, 27:32- 27:34, 27:43, 27:70, 35:22, 35:31, 35:151, 38:01:01- 38:09, 38:12-38:19, 38:21, 38:23, 38:25-38:29, 39:01:01:01-39:01:01:02L, 39:01:03-39:05:02, 39:10, 39:12-39:17, 39:19:01-39:20, 39:22-39:23, 39:25N-39:32, 39:37-39:41, 39:44-39:49, 39:51- 39:56, 39:58-39:59, 39:61, 39:63, 40:01:01- 40:01:03, 40:01:05-40:01:11, 40:01:13-40:02:08, 40:02:10-40:02:12, 40:07-40:11:01, 40:12- 40:14:03, 40:18-40:19, 40:21-40:22N, 40:24-40:25, 40:27:01-40:27:02, 40:29, 40:31, 40:33, 40:35- 40:37, 40:39-40:40, 40:42-40:43, 40:45-40:50, 40:54-40:58, 40:61-40:63, 40:65-40:67, 40:69, 40:72:01-40:74, 40:76-40:82, 40:84-40:85, 40:87:01- 40:92, 40:97, 40:99, 40:101-40:102, 40:104, 40:106- 40:108, 40:111-40:119, 40:121-40:123, 40:124:02, 40:126, 40:130, 40:132-40:135, 40:138-40:142N, 40:144N-40:147, 40:150-40:157, 40:163-40:164, 44:31, 44:54, 44:65, 44:82, 48:01:01-48:01:03, 48:03:01, 48:04, 48:06-48:07, 48:09-48:13, 48:16, 48:18, 48:20, 48:22, 51:81, 55:04, 55:08, 55:49, 55:51, 56:10, 58:20, 58:27, 67:01:01-67:01:02, 67:03, 81:01-81:05, C*02:03
				17				*07:78, 55:09
		15		17				*07:84
								*08:09, 15:83, 27:14, 40:06:01:01-40:06:03, 40:53, 40:70, 40:75, 40:83, 40:93, 40:96, 40:103, 40:109- 40:110, 40:127, 40:131, 40:162, 41:01, 41:05-41:07, 41:09, 41:12, 41:14, 41:16-41:17, 42:04, 51:08- 51:10, 51:19-51:20, 51:31, 51:36, 51:40, 51:44N, 51:72-51:73, 51:87, 51:91, 51:93, 51:108, 52:03, 52:10, 52:19, 55:20, 56:15, 59:02, 78:04
								*08:40, 40:128, 48:24
								*13:02:01-13:02:10, 13:08Q-13:09, 13:14-13:15, 13:19, 13:27, 13:30, 13:32-13:34, 13:37-13:38, 13:40, 13:42, 13:44-13:45, 35:60, 45:03, 45:08, 45:10, 46:18, 55:02:01-55:02:06, 55:07, 55:12, 55:16, 55:18-55:19, 55:22, 55:26, 55:30, 55:34- 55:35, 55:41, 55:43, 55:47-55:48, 55:50, 56:19N, 56:23, 59:01:01:01-59:01:01:02, 59:05
13	14	15	16	17	18	19	20	Well No.

Lot No.: **30M**

Lot-specific information

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Length of spec.	215	105	160	160	180	105	140	280	200	225	185	150
PCR product(s)						235						
Well No.	1	2	3	4	5	6	7	8	9	10	11	12
*13:03, 44:15, 44:18, 45:01, 45:04-45:07, 45:11-45:13, 46:11, 49:01:02, 49:11, 51:15, 56:01:01-56:01:04, 56:07-56:08, 56:13-56:14, 56:17, 56:20, 56:24, 56:26-56:30, 59:04		2			5							
*13:04, 15:155, 15:222, 35:37, 40:159, 45:09, 55:23								8				
*13:10, 15:05:01-15:05:02, 15:31, 15:52, 15:55, 15:91, 15:107, 15:114, 15:123-15:124, 15:136, 15:151, 15:185-15:186, 18:01:01-18:01:05, 18:01:07-18:01:13, 18:03-18:07:02, 18:09-18:12, 18:14, 18:17N, 18:20, 18:23N-18:25, 18:28-18:29, 18:31-18:40, 18:42-18:51, 18:53-18:55, 18:58-18:60, 18:62-18:63, 35:05:01-35:05:02, 35:32, 35:51, 35:68:02, 35:72, 35:89, 35:97, 35:114, 39:07, 39:43, 40:03, 40:20, 40:38, 40:52, 40:105, 46:06, 46:13:01-46:13:03, 46:19, 46:21:01-46:21:02, 46:26, 48:14, 48:23, 53:14, 56:18, 56:31, 58:16, 58:18								8	9			
*13:16, 15:42, 49:07, 55:01:01-55:01:03, 55:01:05-55:01:06, 55:03, 55:05, 55:11, 55:15, 55:24-55:25, 55:29, 55:31, 55:33, 55:36, 55:38, 55:40, 55:45		2										
*13:18, 13:41, 55:37		2								10		
*13:31, 55:21		2								10		
*13:35, 40:44, 44:20, 44:47, 44:100, 55:27						6						
*15:01:04, 58:01:08	1							8				
*15:04								8	10			
*15:16:01-15:16:02, 15:67, 15:95, 49:04-49:05, 51:37								8				
*15:73, 44:10, 50:12, 51:62					5							
*15:137										10		
*18:13, 35:66								8	w			
*38:11, 67:02				4					9			
*39:33										10		
*40:71, 56:02, 56:04					5				9			
*40:94	1								9			
Well No.	1	2	3	4	5	6	7	8	9	10	11	12

Lot No.: **30M**

Lot-specific information

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135	210	95	210	210	295	230	205	Length of spec.
			340					PCR product(s)
13	14	15	16	17	18	19	20	Well No.
								*13:03, 44:15, 44:18, 45:01, 45:04-45:07, 45:11-45:13, 46:11, 49:01:02, 49:11, 51:15, 56:01:01-56:01:04, 56:07-56:08, 56:13-56:14, 56:17, 56:20, 56:24, 56:26-56:30, 59:04
		15						*13:04, 15:155, 15:222, 35:37, 40:159, 45:09, 55:23
								*13:10, 15:05:01-15:05:02, 15:31, 15:52, 15:55, 15:91, 15:107, 15:114, 15:123-15:124, 15:136, 15:151, 15:185-15:186, 18:01:01-18:01:05, 18:01:07-18:01:13, 18:03-18:07:02, 18:09-18:12, 18:14, 18:17N, 18:20, 18:23N-18:25, 18:28-18:29, 18:31-18:40, 18:42-18:51, 18:53-18:55, 18:58-18:60, 18:62-18:63, 35:05:01-35:05:02, 35:32, 35:51, 35:68:02, 35:72, 35:89, 35:97, 35:114, 39:07, 39:43, 40:03, 40:20, 40:38, 40:52, 40:105, 46:06, 46:13:01-46:13:03, 46:19, 46:21:01-46:21:02, 46:26, 48:14, 48:23, 53:14, 56:18, 56:31, 58:16, 58:18
				17				*13:16, 15:42, 49:07, 55:01:01-55:01:03, 55:01:05-55:01:06, 55:03, 55:05, 55:11, 55:15, 55:24-55:25, 55:29, 55:31, 55:33, 55:36, 55:38, 55:40, 55:45
								*13:18, 13:41, 55:37
				w				*13:31, 55:21
		15						*13:35, 40:44, 44:20, 44:47, 44:100, 55:27
								*15:01:04, 58:01:08
		15		w				*15:04
		15		17				*15:16:01-15:16:02, 15:67, 15:95, 49:04-49:05, 51:37
								*15:73, 44:10, 50:12, 51:62
				w				*15:137
								*18:13, 35:66
								*38:11, 67:02
								*39:33
								*40:71, 56:02, 56:04
								*40:94
13	14	15	16	17	18	19	20	Well No.

Lot No.: **30M**

Lot-specific information

www.olerup-ssp.com

Length of spec.	215	105	160	160	180	105	140	280	200	225	185	150
PCR product(s)						235						
Well No.	1	2	3	4	5	6	7	8	9	10	11	12
*40:95, 40:148, 51:01:01-51:01:17, 51:01:19-51:03, 51:07:01-51:07:02, 51:11N-51:12, 51:14, 51:16-51:18, 51:21-51:24:04, 51:26-51:28, 51:30, 51:32-51:34, 51:38, 51:41N, 51:43, 51:48-51:53, 51:55, 51:57-51:58, 51:60, 51:65-51:71, 51:74-51:80, 51:83-51:86, 51:88-51:89, 51:94-51:96, 51:98N, 51:100-51:105, 51:107, 51:109-51:113, 52:01:01-52:02, 52:04-52:09, 52:11, 52:13, 52:15-52:18, 52:20, 52:22-52:23, 55:17, 55:28, 56:05:01-56:06, 56:21, 58:08, 78:01-78:03, 78:05-78:07						6						
*40:149									9			
*40:161, 51:29, 51:82, 52:24						6				10		
*44:24, C*05:30			3									
*49:01:01, 49:01:03-49:03, 49:06, 49:08-49:10, 49:12-49:17, 50:01:01-50:02, 50:04-50:08, 50:10-50:11, 50:13, 56:25		2			5							
*50:09, 51:13:01-51:13:02, 51:35, 51:99, 52:14, 55:01:04, 55:44												
*51:01:18	1					6						
*51:05, 51:54						6				10		
*51:39			3			6						
*51:61, 52:21						6				10		
*51:63								8				
*51:90, 52:12						6						
*51:92												
*51:106					5							
*55:10		2										
*55:46		2										
*56:16		2			5							
*82:01-82:03					5							
C*07:102				w								
HLA-B allele												
Well No.	1	2	3	4	5	6	7	8	9	10	11	12

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 wells, or a band of 800 base pairs, for some wells.

Well 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*54 subtyping.

In addition, well 14 contains the primer pair giving rise to the shorter, 800 bp, internal positive control in order to allow kit identification.

²The nucleotide position, in the 1st, 2nd, 3rd or 4th exon or the 1st intron, matching the specificity-determining 3'-end of the primer is given. Nucleotide numbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

³The nucleotide position, in the 2nd, 3rd 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 on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

Lot No.: **30M**

Lot-specific information

www.olerup-ssp.com

135	210	95	210	210	295	230	205	Length of spec.
			340					PCR product(s)
13	14	15	16	17	18	19	20	Well No.
				17				*40:95, 40:148, 51:01:01-51:01:17, 51:01:19-51:03, 51:07:01-51:07:02, 51:11N-51:12, 51:14, 51:16-51:18, 51:21-51:24:04, 51:26-51:28, 51:30, 51:32-51:34, 51:38, 51:41N, 51:43, 51:48-51:53, 51:55, 51:57-51:58, 51:60, 51:65-51:71, 51:74-51:80, 51:83-51:86, 51:88-51:89, 51:94-51:96, 51:98N, 51:100-51:105, 51:107, 51:109-51:113, 52:01:01-01-52:02, 52:04-52:09, 52:11, 52:13, 52:15-52:18, 52:20, 52:22-52:23, 55:17, 55:28, 56:05:01-56:06, 56:21, 58:08, 78:01-78:03, 78:05-78:07
					18			*40:149
				17				*40:161, 51:29, 51:82, 52:24
								*44:24, C*05:30
				17				*49:01:01, 49:01:03-49:03, 49:06, 49:08-49:10, 49:12-49:17, 50:01:01-50:02, 50:04-50:08, 50:10-50:11, 50:13, 56:25
				17				*50:09, 51:13:01-51:13:02, 51:35, 51:99, 52:14, 55:01:04, 55:44
				17				*51:01:18
								*51:05, 51:54
				17				*51:39
				w				*51:61, 52:21
				17				*51:63
		15		17				*51:90, 52:12
		15		17				*51:92
				17				*51:106
					18			*55:10
		15						*55:46
					18			*56:16
					18			*82:01-82:03
								C*07:102
								HLA-B allele
13	14	15	16	17	18	19	20	Well No.

⁴The B*54:17 and B*54:18 alleles may be distinguished by the different sizes of the specific PCR products generated by primer mix 16.

⁵Primer mix 6: Specific PCR fragment of 105 bp in the B*54:04, 54:11 and 54:15 and the B* 07:84, 08:09, 13:35, 15:83, 27:14, 40:06:01:01-40:06:03, 40:44, 40:53, 40:70, 40:75, 40:83, 40:93, 40:95-40:96, 40:103, 40:109-40:110, 40:127, 40:131, 40:148, 40:161-40:162, 41:01, 41:05-41:07, 41:09, 41:12, 41:14, 41:16-41:17, 42:04, 44:20, 44:47, 44:100, 51:01:01-51:03, 51:05, 51:07:01-51:12, 51:14, 51:16-51:24:04, 51:26-51:34, 51:36, 51:38-51:41N, 51:43-51:44N, 51:48-51:55, 51:57-51:58, 51:60-51:61, 51:65-51:80, 51:82-51:91, 51:93-51:96, 51:98N, 51:100-51:105, 51:107-51:113, 52:01:01:01-52:13, 52:15-52:24, 55:17, 55:20, 55:27-55:28, 56:05:01-56:06, 56:15, 56:21, 58:08, 59:02 and 78:01-78:07 alleles. Specific PCR fragment of 235 bp in the B*54:08N allele.

Primer mix 16: Specific PCR fragment of 210 bp in the B*54:18 allele. Specific PCR fragment of 340 bp in the B* 54:17 allele.

‘w’, may be weakly amplified.

CELL LINE VALIDATION SHEET																					
HLA-B*54 SSP subtyping kit																					
					Well																
						1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
				Prod. No.:		201187101	201187102	201187103	201071104	200623405	200623406	200737207	201187108	200737209	200737210	201187111	200737212	200737213	200737214	200854415	201187116
	IHCW cell line		B*																		
1	9001	SA	*07:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	9280	LK707	*52:01	*73:01	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
3	9011	E4181324	*52:01		-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
4	9275	GU373	*15:10	*53:01	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
5	9009	KAS011	*37:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	9353	SM	*39:01	*51:01	-	-	-	-	-	-	+	-	-	+	-	-	-	-	-	-	-
7	9020	QBL	*18:01		-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-
8	9025	DEU	*35:01		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
9	9026	YAR	*38:01		-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
10	9107	LKT3	*54:01		+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	9051	PITOUT	*44:03		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	9052	DBB	*57:01		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
13	9025	JESTHOM	*27:05		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	9071	OLGA	*15:01	*15:20	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
15	9075	DKB	*40:01		-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
16	9037	SWEIG007	*40:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	9282	CTM3953540	*08:01	*55:01	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	9257	32367	*14:01	*56:01	-	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
19	9038	BM16	*18:01		-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-
20	9059	SLE005	*40:01		-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
21	9064	AMALA	*15:01		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
22	9056	KOSE	*35:03		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	9124	IHL	*40:02	*56:02	-	-	-	-	+	-	-	-	-	+	-	-	-	-	-	-	-
24	9035	JBUSH	*38:01		-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
25	9049	IBW9	*14:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	9285	WT49	*58:01		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
27	9191	CH1007	*07:05	*51:01	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
28	9320	BEL5GB	*44:02	*44:03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	9050	MOU	*44:03		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	9021	RSH	*42:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31	9019	DUCAF	*18:01		-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-
32	9297	HAG	*41:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	9098	MT14B	*40:01		-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
34	9104	DHIF	*38:01		-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
35	9302	SSTO	*44:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
36	9024	KT17	*15:01	*35:01	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
37	9065	HHKB	*07:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38	9099	LZL	*15:01		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
39	9315	CML	*08:01	*27:05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40	9134	WHONP199	*13:02	*46:01	-	+	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
41	9055	H0301	*14:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
42	9066	TAB089	*46:01		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
43	9076	T7526	*46:01		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
44	9057	TEM	*38:01		-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
45	9239	SHJO	*42:01	*50:01	-	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
46	9013	SCHU	*07:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
47	9045	TUBO	*51:01		-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
48	9303	TER-ND	*35:01	*44:03	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-

CELL LINE VALIDATION SHEET								
HLA-B*54 SSP subtyping kit								
					Well			
					17	18	19	20
				Prod. No.:	201187117	201187118	201187119	201187120
	IHWC cell line		B*					
1	9001	SA	*07:02		-	-	-	-
2	9280	LK707	*52:01 *73:01		+	-	-	-
3	9011	E4181324	*52:01		+	-	-	-
4	9275	GU373	*15:10 *53:01		-	-	-	-
5	9009	KAS011	*37:01		-	-	-	-
6	9353	SM	*39:01 *51:01		+	-	-	-
7	9020	QBL	*18:01		-	-	-	-
8	9025	DEU	*35:01		-	-	-	-
9	9026	YAR	*38:01		-	-	-	-
10	9107	LKT3	*54:01		-	-	-	-
11	9051	PITOUT	*44:03		-	-	-	-
12	9052	DBB	*57:01		-	-	-	-
13	9025	JESTHOM	*27:05		-	-	-	-
14	9071	OLGA	*15:01 *15:20		-	-	-	-
15	9075	DKB	*40:01		-	-	-	-
16	9037	SWEIG007	*40:02		-	-	-	-
17	9282	CTM3953540	*08:01 *55:01		+	-	-	-
18	9257	32367	*14:01 *56:01		-	-	-	-
19	9038	BM16	*18:01		-	-	-	-
20	9059	SLE005	*40:01		-	-	-	-
21	9064	AMALA	*15:01		-	-	-	-
22	9056	KOSE	*35:03		-	-	-	-
23	9124	IHL	*40:02 *56:02		-	-	-	-
24	9035	JBUSH	*38:01		-	-	-	-
25	9049	IBW9	*14:02		-	-	-	-
26	9285	WT49	*58:01		-	-	-	-
27	9191	CH1007	*07:05 *51:01		+	-	-	-
28	9320	BEL5GB	*44:02 *44:03		-	-	-	-
29	9050	MOU	*44:03		-	-	-	-
30	9021	RSH	*42:01		-	-	-	-
31	9019	DUCAF	*18:01		-	-	-	-
32	9297	HAG	*41:02		-	-	-	-
33	9098	MT14B	*40:01		-	-	-	-
34	9104	DHIF	*38:01		-	-	-	-
35	9302	SSTO	*44:02		-	-	-	-
36	9024	KT17	*15:01 *35:01		-	-	-	-
37	9065	HHKB	*07:02		-	-	-	-
38	9099	LZL	*15:01		-	-	-	-
39	9315	CML	*08:01 *27:05		-	-	-	-
40	9134	WHONP199	*13:02 *46:01		-	-	-	-
41	9055	H0301	*14:02		-	-	-	-
42	9066	TAB089	*46:01		-	-	-	-
43	9076	T7526	*46:01		-	-	-	-
44	9057	TEM	*38:01		-	-	-	-
45	9239	SHJO	*42:01 *50:01		+	-	-	-
46	9013	SCHU	*07:02		-	-	-	-
47	9045	TUBO	*51:01		+	-	-	-
48	9303	TER-ND	*35:01 *44:03		-	-	-	-

CERTIFICATE OF ANALYSIS

Olerup SSP® HLA-B*54 SSP

Product number: 101.569-06u – without *Taq* polymerase
Lot number: 30M
Expiry date: 2013-December-01
Number of tests: 6
Number of wells per test: 20

Well specifications:

Well No.	Production No.	Well No.	Production No.	Well No.	Production No.
1	2011-871-01	9	2007-372-09	17	2011-871-17
2	2011-871-02	10	2007-372-10	18	2011-871-18
3	2011-871-03	11	2011-871-11	19	2011-871-19
4	2010-711-04	12	2007-372-12	20	2011-871-20
5	2006-234-05	13	2007-372-13		
6	2006-234-06	14	2007-372-14		
7	2007-372-07	15	2008-544-15		
8	2011-871-08	16	2011-871-16		

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 4, 7, 11 to 14, 16, 19 and 20 were available. The specificities of the primers in primer solutions 4, 11, 12 and 16 were tested by separately adding one additional 5'-primer, respectively one additional 3'-primer. In primer solutions 7, 14, 19 and 20 it was only possible to test the 5'-primer, the 3'-primers were not possible to test. In primer solution 13 it was only possible to test the 3'-primer, the 5'-primer was not possible to test. One 5'-primer in primer solutions 4 and 16 and one 3'-primer in primer solution 5 and 6 was not possible to test. In addition, one 3'-primer in primer solution 15 was tested by separately adding an additional 5'-primer.

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

Date of approval: 2011-July-01

Approved by:

Quality Control, Supervisor

Lot No.: **30M**

Lot-specific information

www.olerup-ssp.com

Declaration of Conformity

Product name: *Olerup* SSP® HLA-B*54
Product number: 101.569-06u
Lot number: 30M

Intended use: HLA-B*54 high resolution histocompatibility testing

Manufacturer: *Olerup* SSP AB
Franzengatan 5
SE-112 51 Stockholm, Sweden
Phone: +46-8-717 88 27
Fax: +46-8-717 88 18

We, *Olerup* SSP AB, hereby declare that this product, to which this Declaration of Conformity relates is in conformity with the following Standard(s) and other normative document(s) ISO 9001:2008 and ISO 13485:2003, 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, Franzengatan 5, SE-112 51 Stockholm, 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.)

Stockholm, Sweden
2011-July-01

Olle Olerup
Managing Director

Lot No.: **30M**

Lot-specific information

www.olerup-ssp.com

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E-mail: info-ssp@olerup.com

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Web page: <http://www.olerup.com>

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E-mail: info.us@olerup.com

Web page: <http://www.olerup.com>

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