

Olerup SSP® DRB1*14

Product number:	101.117-12u/03u – without <i>Taq</i> pol.
Lot number:	76K
Expiry date:	2013-May-01
Number of tests:	12 tests – Product No. 101.117-12u 3 tests – Product No. 101.117-03u
Number of wells per test:	48
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. 76K.

CHANGES COMPARED TO THE PREVIOUS **OLERUP SSP® DRB1*14** LOT

The DRB1*14 specificity and interpretation tables have been updated for the DRB1 alleles reported since the previous *Olerup SSP®* DRB1*14 lot (**Lot No. 43G**) was made.

Three wells have been added to the DRB1*14 kit,
wells **46 to 48**.

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

Well	5'-primer	3'-primer	rationale
3	-	-	Exchanged positive control primer pair.
13	-	Modified	Modified 3'-primer to improve specificity.
20	Moved	-	Primer pair moved to well 47, exchanged positive control primer pair.
24	-	Added	Primer added for the *14:90 allele.
26	Moved	Moved	Primer pair moved to well 48.
28	-	Added	Primer added for the *14:88 allele.
29	-	Added	Primer added for the *14:97 allele.
38	Exchanged	Exchanged	New primer pair for the *14:37 and 14:100 alleles.
41	-	Added	Primers added for the *14:90, 14:91 and 14:97 alleles.
43	-	Added	Primers added for the *14:82 and 14:95 alleles.

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46	New	New	New primer pairs for the *14:87, 14:88, 14:89 and 14:92N alleles.
47	Added	Added	Primer pair from well 20.
48	Added	Added	Primer pair from well 26, new primer for the *14:98 allele.

PRODUCT DESCRIPTION

DRB1*14 SSP subtyping

CONTENT

The primer set contains 5'- and 3'-primers for identifying the DRB1*14:01 to DRB1*14:100 alleles.

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 'DRB1*14' in silver/gray ink.

Well No. 1 is marked with the Lot No. '76K'.

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 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 DRB1*14 PCR-SSP subtypings will be influenced by nine DRB1*01, the DRB1*03, nine DRB1*04, most DRB1*08, most DRB1*11, all DRB1*12, all DRB1*13, six DRB1*15 alleles and the DRB1*16:08 allele, when present on the other haplotype. In addition, the DRB3*01:14 allele will be amplified by primer mixes 5, 18, 22, 24, 28 and 29, and the DRB3*02:16 allele will be amplified by primer mix 25.

UNIQUELY IDENTIFIED ALLELES

All the phenotypically different DRB1*14 alleles, i.e. **DRB1*14:01 to DRB1*14:100**, recognized by the HLA Nomenclature Committee in October 2010¹ will give rise to unique amplification patterns by the primers in the DRB1*14 subtyping kit.

The DRB1*14 subtyping kit cannot distinguish the DRB1*14:01:01-14:01:03 alleles, the DRB1*14:03:01 and 14:03:02 alleles, the DRB1*14:05:01 and 14:05:02 alleles, the DRB1*14:06:01 and 14:06:02 alleles, the DRB1*14:07:01 and 14:07:02 alleles, the DRB1*14:12:01 and 14:12:02 alleles, the DRB1*14:23:01-14:23:03 alleles or the DRB1*14:32:01 and 14:32:02 alleles.

¹DRB alleles listed on the IMGT/HLA web page 2010-October-15, release 3.2.0, www.ebi.ac.uk/imgt/hla.

RESOLUTION IN HOMO- AND HETEROZYGOTES

A total of 111 alleles generate 101 amplification patterns that can be combined in 5151 homozygous and heterozygous combinations. 998 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.

+++++-- --+----- -+----- --+----- +-----	*14:38, *14:48 = *14:47, *14:60
+++++-- --+----- -+----- --+----- +-----	*14:02, *14:88 = *14:47, *14:88 = *14:47, *14:92N
+++++-- --+----- -+----- --+----- +-----	*14:02, *14:38 = *14:38, *14:47 = *14:47, *14:54
+++++-- --+----- -+----- --+----- +-----	*14:02, *14:97 = *14:48, *14:75 = *14:48, *14:97
+++++-- --+----- -+----- --+----- +-----	*14:02, *14:60 = *14:48, *14:54 = *14:48, *14:60
+++++-- --+----- -+----- --+----- +-----	*14:51, *14:87 = *14:51, *14:92N
+++++-- --+----- -+----- --+----- +-----	*14:06:01, *14:99 = *14:29, *14:54 = *14:29, *14:99
+++++-- --+----- -+----- --+----- +-----	*14:21, *14:54 = *14:21, *14:70
+++++-- --+----- -+----- --+----- +-----	*14:33, *14:87 = *14:33, *14:92N
+++++-- --+----- -+----- --+----- +-----	*14:33, *14:54 = *14:33, *14:70
+++++-- --+----- -+----- --+----- +-----	*14:17, *14:54 = *14:17, *14:70
+++++-- --+----- -+----- --+----- +-----	*14:54, *14:80 = *14:70, *14:80
+++++-- --+----- -+----- --+----- +-----	*14:40, *14:90 = *14:75, *14:77 = *14:77, *14:90
+++++-- --+----- -+----- --+----- +-----	*14:26, *14:40 = *14:26, *14:77 = *14:54, *14:77
+++++-- --+----- -+----- --+----- +-----	*14:03:01, *14:88 = *14:38, *14:89 = *14:88, *14:89
+++++-- --+----- -+----- --+----- +-----	*14:03:01, *14:92N = *14:54, *14:89 = *14:89, *14:92N
+++++-- --+----- -+----- --+----- +-----	*14:41, *14:55 = *14:55, *14:77
+++++-- --+----- -+----- --+----- +-----	*14:40, *14:87 = *14:55, *14:89
+++++-- --+----- -+----- --+----- +-----	*14:03:01, *14:55 = *14:40, *14:55
+++++-- --+----- -+----- --+----- +-----	*14:03:01, *14:87 = *14:87, *14:89
+++++-- --+----- -+----- --+----- +-----	*14:05:01, *14:49 = *14:49, *14:56
+++++-- --+----- -+----- --+----- +-----	*14:05:03, *14:49 = *14:49, *14:62
+++++-- --+----- -+----- --+----- +-----	*14:08, *14:49 = *14:23:01, *14:49
+++++-- --+----- -+----- --+----- +-----	*14:26, *14:94 = *14:41, *14:75 = *14:41, *14:90 = *14:90, *14:94
+++++-- --+----- -+----- --+----- +-----	*14:26, *14:41 = *14:41, *14:54
+++++-- --+----- -+----- --+----- +-----	*14:88, *14:98 = *14:92N, *14:98
+++++-- --+----- -+----- --+----- +-----	*14:38, *14:98 = *14:54, *14:98
+++++-- --+----- -+----- --+----- +-----	*14:60, *14:94 = *14:94, *14:97
+++++-- --+----- -+----- --+----- +-----	*14:54, *14:94 = *14:75, *14:94
+++++-- --+----- -+----- --+----- +-----	*14:14, *14:49 = *14:44:01, *14:49
+++++-- --+----- -+----- --+----- +-----	*14:07:01, *14:49 = *14:44:02, *14:49
+++++-- --+----- -+----- --+----- +-----	*14:54, *14:78 = *14:62, *14:78
+++++-- --+----- -+----- --+----- +-----	*14:12:01, *14:55 = *14:55, *14:81
+++++-- --+----- -+----- --+----- +-----	*14:18, *14:32:01 = *14:18, *14:74
+++++-- --+----- -+----- --+----- +-----	*14:32:01, *14:81 = *14:74, *14:81
+++++-- --+----- -+----- --+----- +-----	*14:18, *14:87 = *14:18, *14:92N
+++++-- --+----- -+----- --+----- +-----	*14:20, *14:70 = *14:70, *14:81
+++++-- --+----- -+----- --+----- +-----	*14:07:01, *14:55 = *14:44:02, *14:55
+++++-- --+----- -+----- --+----- +-----	*14:05:01, *14:22 = *14:22, *14:56
+++++-- --+----- -+----- --+----- +-----	*14:05:03, *14:22 = *14:22, *14:62
+++++-- --+----- -+----- --+----- +-----	*14:05:01, *14:53 = *14:53, *14:56
+++++-- --+----- -+----- --+----- +-----	*14:05:01, *14:25 = *14:25, *14:56
+++++-- --+----- -+----- --+----- +-----	*14:05:01, *14:69 = *14:56, *14:69
+++++-- --+----- -+----- --+----- +-----	*14:05:01, *14:07:01 = *14:07:01, *14:56 = *14:44:01, *14:62
+++++-- --+----- -+----- --+----- +-----	*14:05:03, *14:07:01 = *14:07:01, *14:62 = *14:44:02, *14:62
+++++-- --+----- -+----- --+----- +-----	*14:07:01, *14:39 = *14:39, *14:44:02
+++++-- --+----- -+----- --+----- +-----	*14:08, *14:53 = *14:25, *14:72
+++++-- --+----- -+----- --+----- +-----	*14:08, *14:22 = *14:22, *14:23:01
+++++-- --+----- -+----- --+----- +-----	*14:25, *14:35 = *14:53, *14:54
+++++-- --+----- -+----- --+----- +-----	*14:22, *14:58 = *14:25, *14:54
+++++-- --+----- -+----- --+----- +-----	*14:32:01, *14:42 = *14:42, *14:74
+++++-- --+----- -+----- --+----- +-----	*14:32:01, *14:36 = *14:36, *14:74
+++++-- --+----- -+----- --+----- +-----	*14:07:01, *14:34 = *14:32:01, *14:44:01 = *14:44:01, *14:74
+++++-- --+----- -+----- --+----- +-----	*14:14, *14:32:01 = *14:14, *14:74
+++++-- --+----- -+----- --+----- +-----	*14:07:01, *14:16 = *14:16, *14:44:02

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++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:07:01, *14:32:01 = *14:07:01, *14:74 = *14:32:01, *14:44:02 = *14:44:02, *14:74
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:07:01, *14:99 = *14:44:02, *14:99
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:07:01, *14:72 = *14:35, *14:44:01
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:42, *14:87 = *14:42, *14:92N
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:14, *14:90 = *14:36, *14:75 = *14:36, *14:90
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:36, *14:87 = *14:36, *14:92N
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:14, *14:26 = *14:26, *14:36 = *14:36, *14:54
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:44:01, *14:87 = *14:44:01, *14:92N
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:07:01, *14:08 = *14:07:01, *14:23:01 = *14:44:01, *14:54
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:14, *14:87 = *14:14, *14:92N
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:07:01, *14:35 = *14:35, *14:44:02
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:07:01, *14:90 = *14:44:02, *14:90
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:07:01, *14:26 = *14:26, *14:44:02
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:01:01, *14:07:01 = *14:01:01, *14:44:02
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:07:01, *14:88 = *14:44:02, *14:88
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:07:01, *14:38 = *14:38, *14:44:02
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:07:01, *14:97 = *14:44:02, *14:97
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:07:01, *14:60 = *14:44:02, *14:60
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:07:01, *14:70 = *14:44:02, *14:70
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:07:01, *14:75 = *14:44:02, *14:75
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:07:01, *14:82 = *14:44:02, *14:82
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:07:01, *14:86 = *14:44:02, *14:86
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:07:01, *14:87 = *14:07:01, *14:92N = *14:44:02, *14:87 = *14:44:02, *14:92N
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:07:01, *14:54 = *14:44:02, *14:54
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:07:01, *14:76 = *14:07:01, *14:79
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:14, *14:22 = *14:22, *14:44:01
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:07:01, *14:22 = *14:22, *14:44:02
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:14, *14:53 = *14:44:01, *14:53
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:14, *14:25 = *14:25, *14:44:01
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:14, *14:69 = *14:44:01, *14:69
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:07:01, *14:14 = *14:07:01, *14:44:01
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:07:01, *14:07:01 = *14:07:01, *14:44:02
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:55, *14:76 = *14:55, *14:79
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:05:03, *14:55 = *14:54, *14:84 = *14:55, *14:62 = *14:62, *14:84
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:10, *14:55 = *14:55, *14:57
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:16, *14:55 = *14:32:01, *14:55 = *14:55, *14:74
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:08, *14:55 = *14:23:01, *14:55
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:62, *14:76 = *14:62, *14:79
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:39, *14:76 = *14:39, *14:79
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:31, *14:54 = *14:31, *14:58
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:04, *14:32:01 = *14:31, *14:32:01
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:32:01, *14:76 = *14:32:01, *14:79
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:54, *14:73 = *14:58, *14:73
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:28, *14:38 = *14:50, *14:99
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:04, *14:99 = *14:28, *14:54 = *14:28, *14:58 = *14:28, *14:99
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:76, *14:99 = *14:79, *14:99
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:76, *14:90 = *14:79, *14:90
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:26, *14:76 = *14:26, *14:79
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:54, *14:93 = *14:58, *14:93
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:54, *14:68 = *14:58, *14:68
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:01:01, *14:76 = *14:01:01, *14:79
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:04, *14:88 = *14:50, *14:88 = *14:50, *14:92N
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:04, *14:38 = *14:38, *14:50 = *14:50, *14:54 = *14:50, *14:58
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:76, *14:88 = *14:79, *14:88
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:38, *14:76 = *14:38, *14:79
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:76, *14:97 = *14:79, *14:97
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:60, *14:76 = *14:60, *14:79
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:54, *14:71 = *14:58, *14:71
++---++- --++---+ -+---+-+ +-----+ +-----+ +-----+ +-----+	*14:04, *14:54 = *14:04, *14:58

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++-----+ --++----- -+-----+ ----- +-----+ +-----+	*14:75, *14:76 = *14:75, *14:79
++-----+ --++----- -+-----+ ----- +-----+ +-----+	*14:76, *14:82 = *14:79, *14:82
++-----+ --++----- -+-----+ ----- +-----+ +-----+	*14:76, *14:86 = *14:79, *14:86
++-----+ --++----- -+-----+ ----- +-----+ +-----+	*14:76, *14:92N = *14:79, *14:92N
++-----+ --++----- -+-----+ ----- +-----+ +-----+	*14:54, *14:76 = *14:54, *14:79 = *14:58, *14:79
++-----+ --++----- -+-----+ ----- +-----+ +-----+	*14:35, *14:76 = *14:35, *14:79
++-----+ --++----- -+-----+ ----- +-----+ +-----+	*14:70, *14:76 = *14:70, *14:79
++-----+ --++----- -+-----+ ----- +-----+ +-----+	*14:76, *14:87 = *14:79, *14:87
++-----+ ++-----+ +-----+ ----- +-----+ +-----+	*14:05:03, *14:39 = *14:10, *14:62 = *14:39, *14:62
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:32:01, *14:43 = *14:43, *14:74
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:32:01, *14:56 = *14:56, *14:74
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:32:01, *14:91 = *14:74, *14:91
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:32:01, *14:96 = *14:74, *14:96
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:32:01, *14:45 = *14:45, *14:74
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:05:01, *14:32:01 = *14:05:01, *14:74 = *14:34, *14:62
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:05:03, *14:16 = *14:16, *14:62
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:05:03, *14:32:01 = *14:05:03, *14:74 = *14:32:01, *14:62 = *14:62, *14:74
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:32:01, *14:100 = *14:74, *14:100
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:32:01, *14:65 = *14:65, *14:74
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:05:03, *14:99 = *14:62, *14:99
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:43, *14:87 = *14:43, *14:92N
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:43, *14:54 = *14:43, *14:62
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:05:01, *14:35 = *14:62, *14:72
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:05:01, *14:90 = *14:26, *14:91 = *14:90, *14:91
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:56, *14:87 = *14:56, *14:92N
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:54, *14:56 = *14:56, *14:62
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:05:01, *14:97 = *14:60, *14:91 = *14:91, *14:97
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:54, *14:100 = *14:62, *14:100
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:75, *14:96 = *14:86, *14:91
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:87, *14:91 = *14:91, *14:92N
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:05:01, *14:75 = *14:54, *14:91 = *14:62, *14:91 = *14:75, *14:91
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:87, *14:96 = *14:92N, *14:96
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:05:01, *14:86 = *14:54, *14:96 = *14:62, *14:96 = *14:86, *14:96
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:45, *14:87 = *14:45, *14:92N
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:05:01, *14:87 = *14:05:01, *14:92N
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:45, *14:54 = *14:45, *14:62
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:05:01, *14:54 = *14:05:01, *14:62 = *14:08, *14:62 = *14:23:01, *14:62
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:54, *14:65 = *14:62, *14:65
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:37, *14:54 = *14:37, *14:62
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:05:03, *14:35 = *14:35, *14:62
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:05:03, *14:90 = *14:62, *14:90
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:05:03, *14:26 = *14:26, *14:62
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:01:01, *14:05:03 = *14:01:01, *14:62
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:05:03, *14:88 = *14:62, *14:88
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:05:03, *14:38 = *14:38, *14:62
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:05:03, *14:97 = *14:62, *14:97
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:05:03, *14:60 = *14:60, *14:62
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:05:03, *14:70 = *14:62, *14:70
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:05:03, *14:75 = *14:62, *14:75
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:05:03, *14:82 = *14:62, *14:82
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:05:03, *14:86 = *14:62, *14:86
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:05:03, *14:87 = *14:05:03, *14:92N = *14:62, *14:87 = *14:62, *14:92N
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:05:03, *14:54 = *14:05:03, *14:62 = *14:54, *14:62 = *14:62, *14:62
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:32:01, *14:39 = *14:39, *14:74
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:10, *14:99 = *14:39, *14:99
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:08, *14:39 = *14:23:01, *14:39
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:39, *14:57 = *14:54, *14:57
++-----+ +-----+ +-----+ +-----+ +-----+ +-----+	*14:10, *14:58 = *14:39, *14:58

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++-----	-+-----	-----+	-----	-----	-----	*14:10, *14:90 = *14:39, *14:90
++-----	-+-----	-----+	-----	-----	-----	*14:10, *14:26 = *14:26, *14:39
++-----	-+-----	-----+	-----	-----	-----	*14:01:01, *14:10 = *14:01:01, *14:39
++-----	-+-----	-----+	-----	-----	-----	*14:10, *14:88 = *14:39, *14:88
++-----	-+-----	-----+	-----	-----	-----	*14:10, *14:38 = *14:38, *14:39
++-----	-+-----	-----+	-----	-----	-----	*14:10, *14:97 = *14:39, *14:97
++-----	-+-----	-----+	-----	-----	-----	*14:10, *14:60 = *14:39, *14:60
++-----	-+-----	-----+	-----	-----	-----	*14:10, *14:75 = *14:39, *14:75
++-----	-+-----	-----+	-----	-----	-----	*14:10, *14:82 = *14:39, *14:82
++-----	-+-----	-----+	-----	-----	-----	*14:10, *14:86 = *14:39, *14:86
++-----	-+-----	-----+	-----	-----	-----	*14:10, *14:92N = *14:39, *14:87 = *14:39, *14:92N
++-----	-+-----	-----+	-----	-----	-----	*14:10, *14:39 = *14:10, *14:54 = *14:39, *14:39 = *14:39, *14:54
++-----	-+-----	-----+	-----	-----	-----	*14:32:01, *14:99 = *14:74, *14:99
++-----	-+-----	-----+	-----	-----	-----	*14:08, *14:16 = *14:16, *14:23:01
++-----	-+-----	-----+	-----	-----	-----	*14:32:01, *14:95 = *14:74, *14:95
++-----	-+-----	-----+	-----	-----	-----	*14:32:01, *14:64 = *14:64, *14:74
++-----	-+-----	-----+	-----	-----	-----	*14:32:01, *14:72 = *14:34, *14:35 = *14:72, *14:74
++-----	-+-----	-----+	-----	-----	-----	*14:32:01, *14:59 = *14:59, *14:74
++-----	-+-----	-----+	-----	-----	-----	*14:08, *14:32:01 = *14:08, *14:74 = *14:23:01, *14:32:01 = *14:23:01, *14:74 = *14:34, *14:54
++-----	-+-----	-----+	-----	-----	-----	*14:32:01, *14:58 = *14:58, *14:74
++-----	-+-----	-----+	-----	-----	-----	*14:32:01, *14:35 = *14:35, *14:74
++-----	-+-----	-----+	-----	-----	-----	*14:32:01, *14:90 = *14:74, *14:90
++-----	-+-----	-----+	-----	-----	-----	*14:26, *14:32:01 = *14:26, *14:74
++-----	-+-----	-----+	-----	-----	-----	*14:01:01, *14:32:01 = *14:01:01, *14:74
++-----	-+-----	-----+	-----	-----	-----	*14:32:01, *14:88 = *14:74, *14:88
++-----	-+-----	-----+	-----	-----	-----	*14:32:01, *14:38 = *14:38, *14:74
++-----	-+-----	-----+	-----	-----	-----	*14:32:01, *14:97 = *14:74, *14:97
++-----	-+-----	-----+	-----	-----	-----	*14:32:01, *14:60 = *14:60, *14:74
++-----	-+-----	-----+	-----	-----	-----	*14:32:01, *14:70 = *14:70, *14:74
++-----	-+-----	-----+	-----	-----	-----	*14:32:01, *14:75 = *14:74, *14:75
++-----	-+-----	-----+	-----	-----	-----	*14:32:01, *14:82 = *14:74, *14:82
++-----	-+-----	-----+	-----	-----	-----	*14:32:01, *14:86 = *14:74, *14:86
++-----	-+-----	-----+	-----	-----	-----	*14:32:01, *14:92N = *14:74, *14:92N
++-----	-+-----	-----+	-----	-----	-----	*14:32:01, *14:54 = *14:54, *14:74
++-----	-+-----	-----+	-----	-----	-----	*14:32:01, *14:34 = *14:34, *14:74
++-----	-+-----	-----+	-----	-----	-----	*14:32:01, *14:87 = *14:74, *14:87
++-----	-+-----	-----+	-----	-----	-----	*14:32:01, *14:32:01 = *14:32:01, *14:74
++-----	-+-----	-----+	-----	-----	-----	*14:08, *14:99 = *14:23:01, *14:99
++-----	-+-----	-----+	-----	-----	-----	*14:87, *14:99 = *14:92N, *14:99
++-----	-+-----	-----+	-----	-----	-----	*14:54, *14:99 = *14:99, *14:99
++-----	-+-----	-----+	-----	-----	-----	*14:87, *14:95 = *14:92N, *14:95
++-----	-+-----	-----+	-----	-----	-----	*14:54, *14:95 = *14:64, *14:82 = *14:70, *14:95 = *14:82, *14:95
++-----	-+-----	-----+	-----	-----	-----	*14:64, *14:87 = *14:64, *14:92N
++-----	-+-----	-----+	-----	-----	-----	*14:54, *14:64 = *14:64, *14:70
++-----	-+-----	-----+	-----	-----	-----	*14:72, *14:87 = *14:72, *14:92N
++-----	-+-----	-----+	-----	-----	-----	*14:08, *14:35 = *14:23:01, *14:35 = *14:54, *14:72
++-----	-+-----	-----+	-----	-----	-----	*14:08, *14:90 = *14:23:01, *14:90
++-----	-+-----	-----+	-----	-----	-----	*14:08, *14:26 = *14:23:01, *14:26
++-----	-+-----	-----+	-----	-----	-----	*14:01:01, *14:08 = *14:01:01, *14:23:01
++-----	-+-----	-----+	-----	-----	-----	*14:08, *14:88 = *14:23:01, *14:88
++-----	-+-----	-----+	-----	-----	-----	*14:08, *14:38 = *14:23:01, *14:38
++-----	-+-----	-----+	-----	-----	-----	*14:08, *14:97 = *14:23:01, *14:97
++-----	-+-----	-----+	-----	-----	-----	*14:08, *14:60 = *14:23:01, *14:60
++-----	-+-----	-----+	-----	-----	-----	*14:59, *14:87 = *14:59, *14:92N
++-----	-+-----	-----+	-----	-----	-----	*14:54, *14:59 = *14:59, *14:70 = *14:59, *14:86
++-----	-+-----	-----+	-----	-----	-----	*14:08, *14:70 = *14:23:01, *14:70
++-----	-+-----	-----+	-----	-----	-----	*14:08, *14:75 = *14:23:01, *14:75
++-----	-+-----	-----+	-----	-----	-----	*14:08, *14:82 = *14:23:01, *14:82
++-----	-+-----	-----+	-----	-----	-----	*14:08, *14:86 = *14:23:01, *14:86
++-----	-+-----	-----+	-----	-----	-----	*14:08, *14:87 = *14:08, *14:92N = *14:23:01, *14:87 = *14:23:01, *14:92N

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++-----	---++---	+-----+	-----	+-----	-----	*14:08, *14:54 = *14:23:01, *14:54
++-----	---++---	+-----+	-----	+-----	-----	*14:58, *14:87 = *14:58, *14:92N
++-----	---++---	+-----+	-----	+-----	-----	*14:35, *14:87 = *14:35, *14:92N
++-----	---++---	+-----+	-----	+-----	-----	*14:26, *14:97 = *14:60, *14:90 = *14:90, *14:97
++-----	---++---	+-----+	-----	+-----	-----	*14:87, *14:90 = *14:90, *14:92N
++-----	---++---	+-----+	-----	+-----	-----	*14:26, *14:75 = *14:26, *14:90 = *14:54, *14:90 = *14:75, *14:90 = *14:90, *14:90
++-----	---++---	+-----+	-----	+-----	-----	*14:26, *14:87 = *14:26, *14:92N
++-----	---++---	+-----+	-----	+-----	-----	*14:26, *14:26 = *14:26, *14:54
++-----	---++---	+-----+	-----	+-----	-----	*14:01:01, *14:87 = *14:01:01, *14:92N
++-----	---++---	+-----+	-----	+-----	-----	*14:01:01, *14:01:01 = *14:01:01, *14:54
++-----	---++---	+-----+	-----	+-----	-----	*14:38, *14:87 = *14:38, *14:88 = *14:38, *14:92N = *14:54, *14:88 = *14:87, *14:88 = *14:88, *14:88 = *14:88, *14:92N
++-----	---++---	+-----+	-----	+-----	-----	*14:38, *14:38 = *14:38, *14:54
++-----	---++---	+-----+	-----	+-----	-----	*14:87, *14:97 = *14:92N, *14:97
++-----	---++---	+-----+	-----	+-----	-----	*14:54, *14:97 = *14:60, *14:75 = *14:60, *14:97 = *14:75, *14:97 = *14:97, *14:97
++-----	---++---	+-----+	-----	+-----	-----	*14:60, *14:87 = *14:60, *14:92N
++-----	---++---	+-----+	-----	+-----	-----	*14:54, *14:60 = *14:60, *14:60
++-----	---++---	+-----+	-----	+-----	-----	*14:70, *14:87 = *14:70, *14:92N
++-----	---++---	+-----+	-----	+-----	-----	*14:75, *14:87 = *14:75, *14:92N
++-----	---++---	+-----+	-----	+-----	-----	*14:54, *14:75 = *14:75, *14:75
++-----	---++---	+-----+	-----	+-----	-----	*14:82, *14:87 = *14:82, *14:92N
++-----	---++---	+-----+	-----	+-----	-----	*14:54, *14:82 = *14:82, *14:82
++-----	---++---	+-----+	-----	+-----	-----	*14:86, *14:87 = *14:86, *14:92N
++-----	---++---	+-----+	-----	+-----	-----	*14:54, *14:86 = *14:86, *14:86
++-----	---++---	+-----+	-----	+-----	-----	*14:54, *14:87 = *14:54, *14:92N = *14:87, *14:92N = *14:92N, *14:92N
++++++	+---++	+-----	-----	-----	-----	*14:05:01, *14:19 = *14:19, *14:43
++++++	+---++	+-----	-----	-----	-----	*14:02, *14:95 = *14:51, *14:95
++++++	+---++	+-----	-----	-----	-----	*14:02, *14:64 = *14:18, *14:30 = *14:51, *14:64
++++++	+---++	+-----	-----	-----	-----	*14:02, *14:59 = *14:51, *14:59
++++++	+---++	+-----	-----	-----	-----	*14:02, *14:18 = *14:18, *14:51
++++++	+---++	+-----	-----	-----	-----	*14:06:01, *14:64 = *14:17, *14:18 = *14:18, *14:33
++++++	+---++	+-----	-----	-----	-----	*14:09, *14:64 = *14:14, *14:33
++++++	+---++	+-----	-----	-----	-----	*14:14, *14:17 = *14:42, *14:80
++++++	+---++	+-----	-----	-----	-----	*14:30, *14:64 = *14:33, *14:42
++++++	+---++	+-----	-----	-----	-----	*14:09, *14:42 = *14:14, *14:30
++++++	+---++	+-----	-----	-----	-----	*14:05:01, *14:21 = *14:21, *14:43
++++++	+---++	+-----	-----	-----	-----	*14:17, *14:59 = *14:33, *14:59
++++++	+---++	+-----	-----	-----	-----	*14:23:01, *14:33 = *14:64, *14:80
++++++	+---++	+-----	-----	-----	-----	*14:17, *14:95 = *14:33, *14:95
++++++	+---++	+-----	-----	-----	-----	*14:17, *14:64 = *14:33, *14:64
++++++	+---++	+-----	-----	-----	-----	*14:05:01, *14:98 = *14:45, *14:98
++++++	+---++	+-----	-----	-----	-----	*14:05:01, *14:94 = *14:91, *14:94
++++++	+---++	+-----	-----	-----	-----	*14:20, *14:36 = *14:23:01, *14:41
++++++	+---++	+-----	-----	-----	-----	*14:18, *14:44:01 = *14:18, *14:44:02
++++++	+---++	+-----	-----	-----	-----	*14:14, *14:77 = *14:36, *14:40 = *14:36, *14:77
++++++	+---++	+-----	-----	-----	-----	*14:14, *14:41 = *14:36, *14:41
++++++	+---++	+-----	-----	-----	-----	*14:05:01, *14:78 = *14:23:01, *14:78
++++++	+---++	+-----	-----	-----	-----	*14:05:01, *14:18 = *14:05:03, *14:18
++++++	+---++	+-----	-----	-----	-----	*14:18, *14:95 = *14:20, *14:95 = *14:81, *14:95
++++++	+---++	+-----	-----	-----	-----	*14:18, *14:64 = *14:20, *14:64 = *14:64, *14:81
++++++	+---++	+-----	-----	-----	-----	*14:18, *14:59 = *14:20, *14:59 = *14:59, *14:81
++++++	+---++	+-----	-----	-----	-----	*14:18, *14:18 = *14:18, *14:20 = *14:18, *14:81
++++++	+---++	+-----	-----	-----	-----	*14:20, *14:81 = *14:81, *14:81
++++++	+---++	+-----	-----	-----	-----	*14:43, *14:44:01 = *14:43, *14:44:02
++++++	+---++	+-----	-----	-----	-----	*14:05:01, *14:42 = *14:05:03, *14:42
++++++	+---++	+-----	-----	-----	-----	*14:05:01, *14:36 = *14:05:03, *14:36
++++++	+---++	+-----	-----	-----	-----	*14:44:01, *14:100 = *14:44:02, *14:100
++++++	+---++	+-----	-----	-----	-----	*14:44:01, *14:91 = *14:44:02, *14:91
++++++	+---++	+-----	-----	-----	-----	*14:44:01, *14:96 = *14:44:02, *14:96
++++++	+---++	+-----	-----	-----	-----	*14:44:01, *14:45 = *14:44:02, *14:45
++++++	+---++	+-----	-----	-----	-----	*14:05:01, *14:44:01 = *14:05:01, *14:44:02 = *14:05:03,

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+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:44:01 = *14:14, *14:56 = *14:44:01, *14:56 = *14:44:02, *14:56
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:05:01, *14:14 = *14:05:03, *14:14
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:34, *14:44:01 = *14:34, *14:44:02
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:44:01, *14:72 = *14:44:02, *14:72
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:08, *14:44:01 = *14:08, *14:44:02
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:44:01, *14:95 = *14:44:02, *14:95
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:44:01, *14:64 = *14:44:02, *14:64
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:44:01, *14:59 = *14:44:02, *14:59
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:23:01, *14:44:01 = *14:23:01, *14:44:02
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:14, *14:93 = *14:44:01, *14:93
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:14, *14:68 = *14:44:01, *14:68
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:11, *14:44:01 = *14:11, *14:44:02
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:42, *14:44:01 = *14:42, *14:44:02
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:36, *14:44:01 = *14:36, *14:44:02
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:14, *14:36 = *14:36, *14:36
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:14, *14:44:01 = *14:14, *14:44:02 = *14:44:01, *14:44:01 = *14:44:01, *14:44:02
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:05:01, *14:84 = *14:23:01, *14:84
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:05:01, *14:93 = *14:56, *14:93
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:05:01, *14:68 = *14:56, *14:68
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:04, *14:34 = *14:31, *14:34
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:34, *14:76 = *14:34, *14:79
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:08, *14:76 = *14:08, *14:79
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:72, *14:76 = *14:72, *14:79
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:05:01, *14:34 = *14:05:03, *14:34
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:05:01, *14:11 = *14:05:03, *14:11
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:05:01, *14:72 = *14:05:03, *14:72
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:05:01, *14:08 = *14:05:03, *14:08
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:05:01, *14:43 = *14:05:03, *14:43 = *14:23:01, *14:43 = *14:43, *14:43
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:05:01, *14:65 = *14:23:01, *14:65
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:05:01, *14:37 = *14:23:01, *14:37
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:05:01, *14:95 = *14:05:03, *14:95
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:05:01, *14:64 = *14:05:03, *14:64
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:05:01, *14:56 = *14:05:03, *14:56 = *14:23:01, *14:56 = *14:56, *14:56
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:05:01, *14:59 = *14:05:03, *14:59 = *14:59, *14:96
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:05:01, *14:100 = *14:05:03, *14:100 = *14:23:01, *14:100
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:05:01, *14:91 = *14:05:03, *14:91 = *14:23:01, *14:91 = *14:91, *14:91
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:05:01, *14:96 = *14:05:03, *14:96 = *14:23:01, *14:96 = *14:96, *14:96
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:05:01, *14:45 = *14:05:03, *14:45 = *14:23:01, *14:45 = *14:45, *14:45
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:05:01, *14:05:01 = *14:05:01, *14:05:03 = *14:05:01, *14:23:01 = *14:05:03, *14:23:01
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:08, *14:34 = *14:23:01, *14:34
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:08, *14:08 = *14:08, *14:23:01
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:23:01, *14:59 = *14:59, *14:59
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:64, *14:95 = *14:95, *14:95
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:16, *14:77 = *14:74, *14:77
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:03:01, *14:16 = *14:16, *14:40 = *14:40, *14:74
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:03:01, *14:22 = *14:22, *14:27
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:03:01, *14:53 = *14:27, *14:53
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:03:01, *14:25 = *14:25, *14:27 = *14:27, *14:69
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:04, *14:49 = *14:31, *14:49
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:49, *14:76 = *14:49, *14:79
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:22, *14:28 = *14:25, *14:28
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:22, *14:50 = *14:25, *14:50
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:22, *14:71 = *14:25, *14:71
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:04, *14:22 = *14:04, *14:25 = *14:22, *14:31 = *14:25, *14:31
+---+---+ +---+---+ +---+---+ +---+---+ +---+---+ +---+---+	*14:22, *14:93 = *14:25, *14:93

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----	----	----	----	----	*14:22, *14:68 = *14:25, *14:68
----	----	----	----	----	*14:22, *14:76 = *14:22, *14:79 = *14:25, *14:79
----	----	----	----	----	*14:22, *14:73 = *14:25, *14:73 = *14:69, *14:73
----	----	----	----	----	*14:04, *14:53 = *14:31, *14:53
----	----	----	----	----	*14:04, *14:69 = *14:31, *14:69
----	----	----	----	----	*14:22, *14:25 = *14:22, *14:69
----	----	----	----	----	*14:25, *14:53 = *14:53, *14:69
----	----	----	----	----	*14:25, *14:25 = *14:25, *14:69
----	----	----	----	----	*14:16, *14:84 = *14:74, *14:84
----	----	----	----	----	*14:04, *14:16 = *14:16, *14:31
----	----	----	----	----	*14:16, *14:76 = *14:16, *14:79
----	----	----	----	----	*14:04, *14:74 = *14:31, *14:74
----	----	----	----	----	*14:74, *14:76 = *14:74, *14:79
----	----	----	----	----	*14:10, *14:16 = *14:16, *14:57 = *14:57, *14:74
----	----	----	----	----	*14:15, *14:16 = *14:15, *14:74
----	----	----	----	----	*14:16, *14:16 = *14:16, *14:74
----	----	----	----	----	*14:02, *14:78 = *14:13, *14:78
----	----	----	----	----	*14:03:01, *14:17 = *14:12:01, *14:30
----	----	----	----	----	*14:03:01, *14:80 = *14:09, *14:12:01
----	----	----	----	----	*14:06:01, *14:85 = *14:12:01, *14:13
----	----	----	----	----	*14:02, *14:12:01 = *14:03:01, *14:06:01
----	----	----	----	----	*14:19, *14:33 = *14:21, *14:51
----	----	----	----	----	*14:02, *14:33 = *14:17, *14:51 = *14:33, *14:51
----	----	----	----	----	*14:13, *14:21 = *14:21, *14:24
----	----	----	----	----	*14:02, *14:21 = *14:17, *14:19 = *14:19, *14:21
----	----	----	----	----	*14:02, *14:17 = *14:06:01, *14:30
----	----	----	----	----	*14:02, *14:80 = *14:06:01, *14:09
----	----	----	----	----	*14:02, *14:63 = *14:13, *14:63 = *14:13, *14:67
----	----	----	----	----	*14:02, *14:85 = *14:03:01, *14:13 = *14:13, *14:85
----	----	----	----	----	*14:02, *14:50 = *14:04, *14:47 = *14:47, *14:50
----	----	----	----	----	*14:02, *14:51 = *14:51, *14:51
----	----	----	----	----	*14:13, *14:19 = *14:19, *14:24
----	----	----	----	----	*14:02, *14:19 = *14:19, *14:19
----	----	----	----	----	*14:02, *14:13 = *14:13, *14:13 = *14:13, *14:24
----	----	----	----	----	*14:02, *14:98 = *14:47, *14:98
----	----	----	----	----	*14:02, *14:47 = *14:47, *14:47
----	----	----	----	----	*14:02, *14:48 = *14:48, *14:48
----	----	----	----	----	*14:04, *14:29 = *14:06:01, *14:28 = *14:28, *14:29
----	----	----	----	----	*14:06:01, *14:52 = *14:20, *14:52
----	----	----	----	----	*14:06:01, *14:33 = *14:20, *14:33
----	----	----	----	----	*14:06:01, *14:29 = *14:20, *14:29 = *14:29, *14:29
----	----	----	----	----	*14:06:01, *14:21 = *14:20, *14:21
----	----	----	----	----	*14:06:01, *14:17 = *14:17, *14:20
----	----	----	----	----	*14:06:01, *14:80 = *14:20, *14:80
----	----	----	----	----	*14:06:01, *14:83 = *14:20, *14:83 = *14:83, *14:83
----	----	----	----	----	*14:06:01, *14:06:01 = *14:06:01, *14:20
----	----	----	----	----	*14:09, *14:17 = *14:30, *14:80
----	----	----	----	----	*14:17, *14:33 = *14:33, *14:33
----	----	----	----	----	*14:17, *14:21 = *14:21, *14:21
----	----	----	----	----	*14:04, *14:52 = *14:31, *14:52
----	----	----	----	----	*14:41, *14:84 = *14:77, *14:84
----	----	----	----	----	*14:03:01, *14:84 = *14:40, *14:84
----	----	----	----	----	*14:03:01, *14:78 = *14:24, *14:78 = *14:63, *14:78 = *14:67, *14:78 = *14:78, *14:85
----	----	----	----	----	*14:03:01, *14:73 = *14:27, *14:73
----	----	----	----	----	*14:03:01, *14:57 = *14:40, *14:57
----	----	----	----	----	*14:03:01, *14:27 = *14:27, *14:27
----	----	----	----	----	*14:03:01, *14:15 = *14:15, *14:40
----	----	----	----	----	*14:03:01, *14:77 = *14:40, *14:41 = *14:40, *14:77 = *14:41, *14:77 = *14:77, *14:77
----	----	----	----	----	*14:03:01, *14:40 = *14:40, *14:40
----	----	----	----	----	*14:03:01, *14:63 = *14:24, *14:63 = *14:63, *14:63 = *14:63, *14:67 = *14:63, *14:85 = *14:67, *14:85
----	----	----	----	----	*14:03:01, *14:85 = *14:24, *14:85 = *14:85, *14:85

SPECIFICITY TABLE

DRB1*14 SSP subtyping

Specificities and sizes of the PCR products of the 48 primer mixes used for DRB1*14 SSP subtyping

Primer Mix	Size of spec. PCR product ¹	Size of contr. band ²	Amplified DRB1*14 alleles ³	Other amplified DRB alleles ^{3,4}
1	210 bp	515 bp	*14:01:01-14:01:03, 14:05:01-14:05:03, 14:07:01-14:08, 14:14, 14:18, 14:23:01-14:23:03, 14:26, 14:32:01-14:32:02, 14:34-14:36, 14:38-14:39, 14:42-14:45, 14:54, 14:55 ^w , 14:56, 14:58- 14:60, 14:62, 14:64-14:65, 14:70, 14:72, 14:75, 14:81- 14:82, 14:86-14:88, 14:90- 14:92N, 14:95-14:97, 14:99-14:100	*11:13:01-11:13:02, 11:17, 11:52, 11:89
2⁸	175 bp	430 bp	*14:01:01-14:01:03, 14:07:01-14:07:02, 14:16, 14:22, 14:25-14:26, 14:32:01-14:32:02, 14:35, 14:38-14:39, 14:49, 14:53- 14:55, 14:58, 14:60, 14:62, 14:69-14:70, 14:74-14:75, 14:82, 14:86-14:88, 14:90, 14:92N, 14:97, 14:99	*03:10, 13:43, 13:45
3^{5,6}	140 bp	430 bp	*14:02, 14:06:01-14:06:02, 14:09, 14:13, 14:17, 14:19, 14:21, 14:29-14:30, 14:33, 14:46-14:48, 14:51-14:52, 14:80, 14:83	*13:10, 13:85
4^{5,7}	85 bp	430 bp	*14:02-14:03:02, 14:06:01- 14:06:02, 14:12:01-14:13, 14:18-14:20, 14:24, 14:27, 14:29, 14:40-14:41, 14:47- 14:49, 14:51, 14:63, 14:67, 14:77-14:78, 14:81, 14:83, 14:85, 14:89, 14:94, 14:98	*03:02:01-03:03, 03:27, 03:29, 03:38, 03:53, 13:15, 13:19, 13:26, 13:53, 13:57, 13:85-13:86
5	260 bp	430 bp	*14:02-14:03:02, 14:07:01- 14:07:02, 14:09, 14:13- 14:14, 14:19, 14:22,	*03:02:01-03:02:02, 03:05:01-03:05:03, 03:09, 03:14, 03:17, 03:27, 03:29,

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			14:24-14:25, 14:27, 14:30, 14:36, 14:40-14:42, 14:44:01-14:44:02, 14:47- 14:49, 14:51, 14:53, 14:63, 14:67, 14:69, 14:77, 14:85, 14:89, 14:94, 14:98	03:35, 03:38, 03:40-03:41, 03:53, 11:01:01-11:01:12, 11:08:01-11:12:02, 11:14:01-11:15, 11:19:01- 11:20, 11:23-11:24, 11:26- 11:29, 11:31-11:33, 11:37, 11:39, 11:45, 11:49, 11:51, 11:53, 11:61-11:62, 11:64, 11:66, 11:68-11:69, 11:72- 11:75, 11:79-11:82, 11:87, 11:90-11:91, 11:93-11:97, 13:02:01-13:02:03, 13:03:01-13:03:06, 13:05:01-13:05:02, 13:07:01-13:07:02, 13:12- 13:14:03, 13:21:01- 13:21:02, 13:23, 13:25- 13:26, 13:29-13:31, 13:33:01-13:34, 13:36- 13:39, 13:41, 13:45-13:47, 13:49-13:50:02, 13:55- 13:56, 13:60, 13:62-13:63, 13:65-13:66:02, 13:73- 13:74, 13:82, 13:85-13:86, 13:88, 13:90, 13:95-13:97, 13:99-13:101, DRB3*01:14
6⁸	260 bp	515 bp	*14:01:01-14:01:03, 14:05:01-14:06:02, 14:08, 14:12:01-14:12:02, 14:16- 14:18, 14:20-14:21, 14:23:01-14:23:03, 14:26, 14:29, 14:32:01-14:35, 14:37-14:39, 14:43, 14:45, 14:54-14:56, 14:58-14:60, 14:62, 14:64-14:65, 14:70, 14:72, 14:74-14:75, 14:78, 14:80-14:84, 14:86-14:88, 14:90-14:92N, 14:95-14:97, 14:99-14:100	*03:01:01:01-03:01:09, 03:03-03:04, 03:06-03:08, 03:10-03:13:02, 03:15- 03:16, 03:18-03:26, 03:28, 03:30-03:34, 03:36-03:37, 03:39, 03:43-03:52, 03:54- 03:56, 03:58, 08:20, 11:02:01-11:04:06, 11:06:01-11:07, 11:13:01- 11:13:02, 11:16-11:18, 11:21, 11:25, 11:34-11:36, 11:38, 11:40-11:44, 11:46- 11:48, 11:50, 11:52, 11:54:01-11:60, 11:63, 11:65:01-11:65:02, 11:70, 11:76-11:78, 11:83-11:85, 11:88-11:89, 11:92, 11:98, 13:01:01-13:01:08, 13:04, 13:06, 13:08-13:11:02, 13:15, 13:18-13:20, 13:22, 13:24, 13:27-13:28, 13:32, 13:35, 13:40, 13:42-13:44,

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				13:48, 13:51-13:54, 13:57-13:59, 13:61, 13:64, 13:68-13:72, 13:75-13:81, 13:83-13:84, 13:87, 13:89, 13:91-13:94, 13:98, 13:102
7	225 bp	430 bp	*14:03:01-14:03:02, 14:12:01-14:12:02, 14:27, 14:40, 14:55, 14:63, 14:67, 14:77-14:78, 14:84-14:85, 14:89	*08:20, 11:23, 11:25, 11:45, 11:55, 11:64, 13:13, 13:18, 13:47, 13:55
8	170 bp	430 bp	*14:04, 14:28, 14:31, 14:50, 14:61, 14:68, 14:71, 14:73, 14:76, 14:79, 14:93	*08:08, 08:11 ^w
9^{5,10}	130 bp, 250 bp	430 bp	*14:05:01-14:05:03, 14:37, 14:43, 14:45, 14:56, 14:62, 14:65, 14:78, 14:84, 14:91, 14:96, 14:100	*03:12, 04:10-04:12, 04:67, 04:91, 08:06, 08:10, 08:12, 08:22, 13:04, 13:32, 13:48, 13:58, 13:72, 13:75, 13:81, 13:89, 13:93-13:94, 15:12
10⁶	175 bp	430 bp	*14:10, 14:39, 14:57	*04:62, 04:69
11^{5,11}	85 bp, 170 bp, 215 bp	430 bp	*14:11, 14:16, 14:22, 14:25, 14:31-14:32:02, 14:34, 14:49, 14:52-14:53, 14:69, 14:74	*01:14, 04:62, 08:05, 08:18, 08:24-08:25, 08:31, 08:40-08:41, 11:67, 12:01:01-12:21, 12:23-12:26, 13:17, 13:43, 13:45
12⁷	225 bp	515 bp	*14:01:01-14:01:03, 14:05:01-14:05:03, 14:07:01-14:08, 14:14, 14:18, 14:23:01-14:23:03, 14:26, 14:33, 14:35-14:36, 14:38-14:39, 14:42-14:45, 14:51, 14:54, 14:56, 14:58-14:60, 14:62, 14:64, 14:70, 14:72, 14:75, 14:82, 14:86, 14:88, 14:90-14:92N, 14:95-14:97, 14:99	*03:11:01-03:11:02, 03:17, 03:24, 03:27, 03:35, 11:17, 11:52-11:54:02, 11:89, 13:76
13⁵	115 bp	430 bp	*14:01:01-14:01:03, 14:04, 14:07:01-14:08, 14:10, 14:16, 14:22, 14:26, 14:28, 14:31-14:32:02, 14:34-14:35, 14:38-14:39, 14:49-14:50, 14:54-14:55, 14:60-14:62, 14:68, 14:70-14:75, 14:79, 14:82, 14:86-14:88, 14:90, 14:92N-14:93, 14:97, 14:99	*03:10, 11:52, 13:43

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14 ^{5,12}	60 bp, 130 bp	515 bp	*14:22, 14:25, 14:27, 14:53, 14:73	*08:08, 11:09, 11:28:01- 11:28:02, 11:58:01- 11:58:02, 11:83, 11:87, 13:05:01-13:05:02, 13:18, 13:26, 13:42, 13:50:01- 13:50:02, 16:08
15 ⁹	185 bp	430 bp	*14:28-14:29, 14:99	*03:20, 12:05, 12:14-12:15
16 ⁵	105 bp	430 bp	*14:05:01-14:05:02, 14:08, 14:11, 14:14, 14:18, 14:23:01-14:23:03, 14:34, 14:36, 14:42-14:44:01, 14:45, 14:56, 14:59, 14:64, 14:72, 14:91, 14:95-14:96, 14:100	*01:02:01-01:02:05, 01:23, 01:26, 01:34, 11:01:05, 11:01:10, 11:04:03, 11:06:02, 11:13:01- 11:13:02, 11:17, 11:52, 11:54:01, 12:04, 12:09, 13:01:03, 13:76
17	220 bp	430 bp	*14:19, 14:21, 14:43	*11:73, 11:79, 11:93, 13:03:01-13:03:06, 13:10, 13:33:01-13:33:03, 13:37, 13:66:01-13:66:02, 13:81, 13:85, 13:88-13:90, 13:94- 13:95, 13:101
18 ^{5,7}	85 bp	430 bp	*14:01:01-14:01:03, 14:05:01-14:05:03, 14:07:01-14:09, 14:14, 14:16-14:17, 14:21- 14:23:03, 14:25-14:26, 14:30, 14:32:01-14:39, 14:42-14:45, 14:53-14:56, 14:58-14:60, 14:62, 14:64- 14:65, 14:69, 14:72, 14:74- 14:75, 14:80, 14:82, 14:84, 14:86-14:88, 14:90- 14:92N, 14:95-14:97, 14:99-14:100	*03:01:01:01-03:01:09, 03:04-03:26, 03:28, 03:30- 03:37, 03:39-03:41, 03:43- 03:52, 03:54-03:58, 08:20, 11:01:01-11:04:06, 11:06:01-11:21, 11:23- 11:29, 11:31-11:66, 11:68- 11:70, 11:73-11:91, 11:93- 11:98, 13:01:01-13:14:03, 13:16, 13:18, 13:20-13:25, 13:27-13:52, 13:54-13:56, 13:58-13:66:02, 13:68- 13:84, 13:87-13:100, 13:102, DRB3*01:14
19 ⁵	145 bp	430 bp	*14:15-14:16, 14:40, 14:55, 14:57, 14:77, 14:84	*08:09, 08:21, 08:35, 13:08, 13:19, 13:57, 13:64, 13:72, 13:76, 13:83
20 ^{5,13}	110 bp, 160 bp, 215 bp	430 bp	*14:04, 14:15, 14:25, 14:28, 14:31, 14:50, 14:53, 14:58, 14:68-14:69, 14:71, 14:73, 14:76, 14:79, 14:93	*08:01:01-08:04:05, 08:06- 08:17, 08:19-08:23, 08:26- 08:28, 08:30:01-08:30:02, 08:32-08:39, 11:23, 11:25, 11:45, 11:55, 11:64, 11:67, 13:13, 13:45, 13:47, 13:55
21 ¹⁴	170 bp, 215 bp	515 bp	*14:13, 14:24, 14:37, 14:63, 14:65, 14:78, 14:85	*03:12, 11:69, 11:82, 13:03:01-13:04, 13:09, 13:12-13:13,

				13:21:01-13:21:02, 13:30, 13:32-13:33:03, 13:38, 13:48-13:49, 13:55, 13:58, 13:65-13:66:02, 13:75, 13:81, 13:88-13:90, 13:93-13:95, 13:101
22⁵	145 bp	430 bp	*14:01:01-14:03:02, 14:05:01-14:09, 14:12:01-14:14, 14:16, 14:18-14:20, 14:22-14:27, 14:29, 14:32:01-14:32:02, 14:34, 14:36-14:41, 14:43-14:45, 14:47-14:49, 14:51, 14:54-14:56, 14:58-14:60, 14:62-14:63, 14:67, 14:69-14:70, 14:74-14:75, 14:77-14:78, 14:80-14:92N, 14:94, 14:96-14:100	*03:02:01-03:03, 03:06, 03:17, 03:26-03:27, 03:31, 03:35, 03:38, 03:41, 08:20, 11:17, 11:37, 11:41, 11:48, 11:50, 11:52, 11:56, 11:83, 13:03:01-13:03:06, 13:07:01-13:08, 13:12-13:13, 13:19, 13:26, 13:32-13:33:03, 13:36-13:38, 13:40, 13:47-13:49, 13:53, 13:55, 13:58, 13:60, 13:65, 13:70, 13:72, 13:76, 13:81, 13:84-13:85, 13:88-13:90, 13:94-13:95, 13:101, DRB3*01:14
23⁵	145 bp	430 bp	*14:17, 14:21, 14:30, 14:33, 14:35, 14:42, 14:53, 14:64-14:65, 14:72, 14:95	*03:01:01:01-03:01:09, 03:04-03:05:03, 03:07-03:15, 03:18-03:25, 03:28-03:30, 03:32-03:34, 03:36-03:37, 03:39-03:40, 03:43-03:52, 03:54-03:58, 11:01:01-11:01:06, 11:01:08-11:04:06, 11:06:01-11:16, 11:18-11:21, 11:23-11:29, 11:31-11:36, 11:38-11:40, 11:42-11:47, 11:49, 11:51, 11:53-11:55, 11:57-11:66, 11:68-11:70, 11:72-11:82, 11:84-11:87, 11:89-11:98, 13:01:01-13:02:04, 13:04-13:06, 13:09-13:11:02, 13:14:01-13:16, 13:18, 13:20-13:25, 13:27-13:31, 13:34, 13:39, 13:41-13:46, 13:50:01-13:52, 13:54, 13:56-13:57, 13:59, 13:61-13:64, 13:66:01-13:66:02, 13:68-13:69, 13:71, 13:73-13:75, 13:77-13:79, 13:82-13:83, 13:86-13:87, 13:91-13:93, 13:96-13:100, 13:102

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Lot-specific information

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24 ^{5,15}	75 bp, 115 bp, 135 bp, 165 bp	430 bp	*14:26, 14:36, 14:41, 14:77, 14:90	*03:18, 03:43, 11:76, 13:34, 13:64, 13:92, DRB3*01:14
25 ^{5,16}	120 bp, 210 bp, 250 bp	430 bp	*14:07:01-14:07:02, 14:22, 14:25, 14:44:01-14:44:02, 14:49, 14:53, 14:56, 14:68-14:69, 14:93	*01:14, 03:35, 04:62, 04:69, 08:08, 08:15, 13:45, DRB3*02:16
26	250 bp	515 bp	*14:01:01-14:01:03	
27 ^{6,8}	220 bp	515 bp	*14:46	
28 ^{8,17}	160 bp, 230 bp	430 bp	*14:38, 14:47, 14:50, 14:88, 14:98	*03:01:02, 03:02:02, 03:05:03, 03:11:02, 03:13:02, 03:17, 03:24, 03:27, 03:35, 11:27:01, 11:84, 12:22, 13:33:02-13:33:03, 13:61, DRB3*01:14
29 ^{5,8,18}	125 bp, 175 bp	515 bp	*14:48, 14:60, 14:97	*03:26, 03:33, 03:38, 03:44, 11:44, 11:49-11:50, 11:85, 13:31, 13:46, 13:54, 13:77, 13:100, DRB3*01:14
30	200 bp	430 bp	*14:06:01-14:06:02, 14:12:01-14:12:02, 14:17-14:18, 14:21, 14:29, 14:33, 14:52, 14:59, 14:64, 14:70, 14:78, 14:80-14:81, 14:83, 14:95	*03:01:01:01-03:01:09, 03:03, 03:06-03:08, 03:10-03:13:02, 03:15-03:16, 03:18-03:20, 03:22-03:24, 03:26, 03:28, 03:32-03:34, 03:36-03:37, 03:39, 03:42, 03:45-03:48, 03:50-03:51, 03:54-03:56, 03:58, 11:16, 11:40, 11:58:01, 11:59, 11:83, 13:01:01-13:01:08, 13:06, 13:09-13:10, 13:15, 13:18, 13:20, 13:27-13:28, 13:32, 13:35, 13:40, 13:42-13:43, 13:51, 13:53, 13:59, 13:61, 13:69, 13:71, 13:77-13:80, 13:87, 13:91-13:93, 13:98, 13:102, 15:03:01:01-15:03:01:02, 15:23, 15:32
31 ⁵	80 bp	515 bp	*14:35, 14:53, 14:72	*03:10, 11:31, 11:96, 13:43, 13:45
32 ^{5,8,19}	100 bp, 145 bp	430 bp	*14:13, 14:19, 14:21, 14:63, 14:78, 14:85	*03:12, 13:10, 13:32, 13:65, 13:85, 13:93
33	175 bp	430 bp	*14:01:01-14:01:03, 14:07:01-14:08, 14:16, 14:22, 14:25-14:26,	*03:10, 13:43, 13:45

Lot No.: **76K**

Lot-specific information

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			14:32:01-14:32:02, 14:34-14:35, 14:38-14:39, 14:49, 14:53-14:55, 14:58, 14:60, 14:62, 14:69-14:70, 14:74-14:75, 14:82, 14:86-14:88, 14:90, 14:92N, 14:97, 14:99	
34	205 bp	515 bp	*14:04, 14:11, 14:28, 14:31, 14:50, 14:68, 14:71, 14:93	
35	250 bp	430 bp	*14:04, 14:11, 14:15, 14:28, 14:31, 14:50, 14:52, 14:71, 14:73, 14:76, 14:79	*08:04:01, 08:04:04-08:04:05, 08:06, 08:10, 08:12, 08:22, 08:28, 08:31, 11:67, 12:01:01-12:15, 12:17-12:21, 12:23-12:26, 13:17
36⁵	130 bp	515 bp	*14:63, 14:67, 14:78	*11:16, 11:20, 13:01:01-13:01:06, 13:01:08-13:02:04, 13:06, 13:10, 13:15-13:16, 13:27-13:28, 13:31-13:32, 13:34-13:36, 13:39-13:41, 13:51, 13:53, 13:59, 13:61, 13:65, 13:67, 13:69, 13:73, 13:77, 13:79-13:80, 13:85, 13:87, 13:91-13:93, 13:96, 13:98-13:99, 13:102-13:103
37	175 bp	430 bp		*03:08, 11:01:01-11:04:06, 11:06:01-11:21, 11:23-11:29, 11:31-11:66, 11:68-11:70, 11:72-11:98
38	215 bp	515 bp	*14:37, 14:100	*13:72
39	155 bp	430 bp	*14:18, 14:33, 14:51, 14:59, 14:64, 14:95	*03:11:01
40	250 bp	430 bp	*14:71	
41^{5,20}	115 bp, 165 bp, 245 bp	430 bp	*14:75, 14:90-14:91, 14:94, 14:97	*03:04, 03:26, 03:33, 03:44, 11:29, 11:44, 11:47, 11:49-11:50, 11:63, 11:85, 13:60, 13:84
42	225 bp	515 bp	*14:76, 14:79, 14:93	
43	200 bp	430 bp	*14:82, 14:95	
44	220 bp	515 bp	*14:83	
45⁵	125 bp	515 bp	*14:59, 14:86, 14:96	

46 ^{5,21}	105 bp, 165 bp, 220 bp	515 bp	*14:87-14:89, 14:92N	
47 ^{5,7}	60 bp	430 bp	*14:63, 14:67, 14:78	*04:12, 04:18, 04:86, 08:03:02, 08:10, 08:12, 08:14-08:15, 08:19, 08:23, 08:27, 08:30:01-08:30:02, 08:32-08:38, 11:45, 13:13, 15:21
48 ^{5,22}	65 bp, 190 bp, 225 bp	430 bp	*14:45, 14:98	*03:35, 11:27:01, 11:84, 12:22, 13:33:02-13:33:03, 13:61

¹Alleles are assigned by the presence of specific PCR product(s). However, the sizes of the specific PCR products may be helpful in the interpretation of DRB1*14 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 lengths of the specific PCR product(s) of the alleles amplified by these primer mixes are given.

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

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

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

Some primers may give rise to primer oligomer artifacts. Sometimes this phenomenon is an 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.

Well number 1 contains the primer pair giving rise to the longer, 515 bp, internal positive control band in order to help in the correct orientation of the DRB1*14 subtyping.

In addition, wells number 6, 12, 14, 21, 26, 27, 29, 31, 34, 36, 38, 42 and 44 to 46 contain the primer pair giving rise to the longer, 515 bp, internal positive control band in order to allow kit identification.

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

³For several DRB alleles only partial second exon nucleotide sequences are available. In these instances it is not known whether some of the primers of the SSP sets are completely matched with the target sequences or not. We assume that unknown sequences in the first hyperpolymorphic region of the second exon of DRB alleles are conserved within allelic groups and that unknown sequences of codons 87 to 92 are identical with the DRB1*01:01 consensus sequence.

⁴Due to the sharing of sequence motifs within the DR52 group of DRB1 alleles, non-DRB1*13 alleles will be amplified by primer mixes 1 to 25, 28 to 33, 35 to 39, 41, 47 and 48. In addition, the DRB3*01:14 allele will be amplified by primer mixes 5, 18, 22, 24, 28 and 29, and the DRB3*02:16 allele will be amplified by primer mix 25.

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

⁶Primer mixes 3, 10 and 27 have a tendency of giving rise to nonspecific amplifications.

⁷Primer mixes 4, 12, 18 and 47 may yield less specific PCR product than the other DRB1*14 primer mixes.

⁸Primer mixes 2, 6, 27 to 29 and 32 have tendencies of giving rise to primer oligomer formation.

⁹Primer mix 15 has a tendency of giving rise to a weaker positive control band than the other DRB1*14 primer mixes.

¹⁰Primer mix 9: Specific PCR fragment of 130 bp in the DRB1* 14:62, 14:65 and 14:78 and the DRB1*03:12, 04:10-04:12, 04:67, 04:91, 08:06, 08:10, 08:12, 08:22, 13:04, 13:32, 13:48, 13:58, 13:75, 13:81, 13:89, 13:93-13:94 and 15:12 alleles. Specific PCR fragment of 250 bp in the DRB1*14:05:01-14:05:03, 14:37, 14:43, 14:45, 14:56, 14:84, 14:91, 14:96 and 14:100 and the DRB1*13:72 alleles.

¹¹Primer mix 11: Specific PCR fragment of 85 bp in the DRB1*14:16, 14:22, 14:25, 14:32:01-14:32:02, 14:34, 14:49, 14:53, 14:69 and 14:74 and the DRB1*01:14, 04:62, 13:43 and 13:45 alleles. Specific PCR fragment of 170 bp in the DRB1*14:11 and DRB1*11:67 alleles. Specific PCR fragment of 215 bp in the DRB1*14:52 and the DRB1* 08:05, 08:18, 08:24-08:25, 08:40, 12:01:01-12:03, 12:05-12:21, 12:23-12:26 and 13:17 alleles. Specific PCR fragment of 85 and 215 bp in the DRB1*14:31 allele. Specific PCR fragment of 170 and 215 bp in the DRB1*08:31, 08:4 and 12:04 alleles.

¹²Primer mix 14: Specific PCR fragment of 60 bp in the DRB1*14:22, 14:25, 14:53 and 14:73 and the DRB1*08:08 alleles. Specific PCR fragment of 130 bp in the DRB1*14:27 and the DRB1*11:09, 11:28:01-11:28:02, 11:58:01-11:58:02, 11:83, 11:87, 13:05:01-13:05:02, 13:18, 13:26, 13:42, 13:50:01-13:50:02 and 16:08 alleles.

¹³Primer mix 20: Specific PCR fragment of 110 bp in the DRB1*14:25, 14:53, 14:58 and 14:69 and DRB1*13:45 alleles. Specific PCR fragment of 160 bp in the DRB1*14:04, 14:28, 14:31, 14:50, 14:68, 14:71, 14:73, 14:76, 14:79, 14:93, 08:20, 11:23, 11:25, 11:45, 11:55, 11:64, 13:13, 13:47, 13:55 alleles. Specific PCR fragment of 215 bp in the DRB1*14:15 and the DRB1*08:03:02, 08:09, 08:21, 08:27, 08:32, 08:35 and 08:38 alleles. Specific PCR fragments of 160 and 215 bp in the DRB1*08:01:01-08:02:03, 08:04:01-08:04:05, 08:06, 08:07, 08:10, 08:12-08:17, 08:19, 08:22, 08:23, 08:26, 08:28, 08:30:01-08:30:02, 08:33, 08:34, 08:36, 08:37, 08:39 and 11:67 alleles. Specific PCR fragments of 110, 160 and 215 bp in the DRB1*08:08 and 08:11 alleles. Not all specific PCR fragments may be obtained in alleles being amplified by more than one primer pair.

¹⁴Primer mix 21: Specific PCR fragment of 170 bp in DRB1*14:13, 14:63, 14:65, 14:78 and 14:85 and the DRB1*03:12, 13:03:01-13:04, 13:12-13:13, 13:21:01-13:21:02, 13:30, 13:32-13:33:03, 13:38, 13:48-13:49, 13:55, 13:58, 13:65-13:66:02, 13:75, 13:81, 13:88-13:90, 13:93-13:95, 13:101 alleles. Specific PCR fragment of 215 bp in the DRB1*14:24 and 14:37 and the DRB1*11:69, 11:82 and 13:09 alleles.

¹⁵Primer mix 24: Specific PCR fragment of 75 bp in the DRB1*14:26 and the DRB1*13:92 alleles. Specific PCR fragment of 115 bp in the DRB1*14:36, 14:41 and 14:77 and the DRB1*03:18, 03:43, 11:76, 13:34 and 13:64 and in the DRB3*01:14 alleles. Specific PCR fragment of 135 bp in the DRB1*1436 and DRB1*0318 alleles. Specific PCR fragment of 165 bp in the DRB1*14:90 allele.

¹⁶Primer mix 25: Specific PCR fragment of 120 bp in the DRB1*14:07:01-14:07:02, 14:22, 14:25, 14:49, 14:53, 14:68-14:69 and 14:93 and the DRB1*01:14, 04:62, 04:69, 08:08, 08:15 and 13:45 and in the DRB3*02:16 alleles. Specific PCR fragment of 210 bp in the DRB1*14:56 allele. Specific PCR fragment of 250 bp in the DRB1*14:44:01-14:44:02 and the DRB1*03:35 alleles.

¹⁷Primer mix 28: Specific PCR fragment of 160 bp in the DRB1*14:88 allele. Specific PCR fragment of 230 bp in the DRB1*14:38, 14:47, 14:50 and 14:98 and the DRB1*03:01:02, 03:02:02, 03:05:03, 03:11:02, 03:13:02, 03:17, 03:24, 03:27, 03:35, 11:27:01, 11:84, 12:22, 13:33:02-13:33:03 and 13:61 and in the DRB3*01:14 alleles.

¹⁸Primer mix 29: Specific PCR fragment of 125 bp in the DRB1*14:60 and 14:97 and the DRB1*03:26, 03:33, 03:44, 11:44, 11:49-11:50 and 11:85 alleles. Specific PCR fragment of 175 bp in the DRB1*14:48 and the DRB1*03:38, 13:31, 13:46, 13:54, 13:77 and 13:100 and the DRB3*01:14 alleles.

¹⁹Primer mix 32: Specific PCR fragment of 100 bp in the DRB1*14:13, 14:63, 14:78 and 14:85 and the DRB1*03:12, 13:32, 13:65 and 13:93 alleles. Specific PCR fragment of 145 bp in the DRB1*14:19 and 14:21 and the DRB1*03:12, 13:10 and 13:85 alleles.

²⁰Primer mix 41: Specific PCR fragment of 115 bp in the DRB1*14:91, 14:94 and 14:97 and in the DRB1*03:04, 03:26, 03:33, 03:44, 11:29, 11:44, 11:47, 11:49-11:50, 11:63, 11:85, 13:60 and 13:84 alleles. Specific PCR fragment of 165 bp in the DRB1*14:90 allele. Specific PCR fragment of 245 bp in the DRB1*14:75 allele.

²¹Primer mix 46: Specific PCR fragment of 105 bp in the DRB1*14:92N allele. Specific PCR fragment of 165 bp in the DRB1*14:88 allele. Specific PCR fragment of 220 bp in the DRB1*14:87 and 14:89 alleles.

²²Primer mix 48: Specific PCR fragment of 65 bp in the DRB1*14:98 and the DRB1*11:27:01, 11:84, 12:22, 13:33:02-13:33:03 and 13:61 alleles. Specific PCR fragment of 190 bp in the DRB1*14:45 allele. Specific PCR fragment of 225 bp in the DRB1*03:35 allele.

‘w’, might be weakly amplified.

INTERPRETATION TABLE																								
DRB1*14 SSP subtyping																								
Amplification patterns of the DRB1*14:01 to DRB1*14:100 alleles																								
	Well 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.	210	175	140	85	260	260	225	170	130	175	85	225	115	60	185	105	220	85	145	110	170	145	145	75
PCR product(s)									250		170			130						215	160			
											215									215				
Length of int. pos. control ¹	515	430	430	430	430	515	430	430	430	430	430	515	430	515	430	430	430	430	430	430	515	430	430	430
5'-primer(s) ²	5'-gTC 5' 13(125)	5'-gTC 5' 13(125)	5'-AgA 5' 37(196)	5'-gTC 5' 13(125)	5'-gTC 5' 13(125)	5'-gTC 5' 13(125)	5'-gTC 5' 13(125)	5'-ggg 5' 13(125)	5'-CAA 5' 16(135)	5'-ACC 5' 11(118)	5'-gTT 5' 16(133)	5'-gTC 5' 13(125)	5'-CAg 5' 34(189)	5'-AgA 5' 37(196)	5'-AgA 5' 37(196)	5'-gAT 5' 57(258)	5'-gTC 5' 13(125)	5'-gTC 5' 13(125)	5'-gTT 5' 37(197)	5'-gTT 5' 16(133)	5'-gTC 5' 13(125)	5'-gTC 5' 13(125)	5'-gTC 5' 13(125)	5'-gTC 5' 13(125)
								5'-gTT 5' 16(133)	5'-CTA 5' 57(256)	5'-ACA 5' 13(125)	5'-AgC 5' 60(265)			5'-AgA 5' 37(196)	5'-gTT 5' 37(197)				5'-CAA 5' 34(189)					
														5'-AgC 5' 60(265)										
3'-primer(s) ³	5'-TCC 5' 70(296)	5'-CAg 5' 57(257)	5'-CTg 5' 70(295)	5'-CTC 5' 28(171)	5'-CAC 5' 86(344)	5'-CCA 5' 86(344)	5'-CAg 5' 74(307)	5'-CAg 5' 57(257)	5'-CCA 5' 86(344)	5'-CAg 5' 57(257)	5'-CCT 5' 58(260)	5'-CCT 5' 74(308)	5'-gTg 5' 60(265)	5'-gAA 5' 67(286)	5'-CAg 5' 85(341)	5'-CAA 5' 78(321)	5'-CTT 5' 71(298)	5'-CTg 5' 28(171)	5'-CTC 5' 71(298)	5'-CAg 5' 57(257)	5'-gCT 5' 57(256)	5'-ggT 5' 47(227)	5'-ggA 5' 47(227)	5'-ACT 5' 25(161)
			5'-CTT 5' 71(298)								5'-CgC 5' 74(307)	5'-CCT 5' 74(308)					5'-ggC 5' 77(316)	5'-CTg 5' 28(171)	5'-CAg 5' 74(307)	5'-CAg 5' 74(307)	5'-CgC 5' 71(298)			
												5'-CCT 5' 74(308)												5'-CCC 5' 55(250)
Well No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

INTERPRETATION TABLE																																															
DRB1*14 SSP subtyping																																															
Amplification patterns of the DRB1*14:01 to DRB1*14:100 alleles																																															
Well ⁵																																															
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48																								
120	250	220	160	125	200	80	100	175	205	250	130	175	215	155	250	115	225	200	220	125	105	60	65	Length of spec. PCR product(s)																							
430	515	515	430	515	430	515	430	430	515	430	515	430	515	430	430	430	515	430	515	515	430	430	Length of int. pos. control ¹																								
5'-CAA ⁺	5'-ACT ⁺	5'-gCT ⁺	5'-gTC ⁺	5'-gTC ⁺	5'-gAC ⁺	5'-gTT ⁺	5'-AgA ⁺	5'-gTC ⁺	5'-gTT ⁺	5'-gTT ⁺	5'-AgA ⁺	5'-gTC ⁺	5'-CAA ⁺	5'-AgA ⁺	5'-gTT ⁺	5'-gTC ⁺	5'-gTT ⁺	5'-gTA ⁺	5'-TCA ⁺	5'-gAg ⁺	5'-gTC ⁺	5'-ACA ⁺	5'-CAA ⁺	5'-primer(s) ²																							
5'-AgC ⁺			5'-gTT ⁺		5'-AgA ⁺																	5'-AAg ⁺																									
60(265)			16(133)		37(196)																	70(295)																									
73(304)	5'-ggA ⁺	5'-CTT ⁺	5'-CTg ⁺	5'-gCT ⁺	5'-gCg ⁺	5'-CCA ⁺	5'-gTg ⁺	5'-gCT ⁺	5'-CCg ⁺	5'-TCC ⁺	5'-CCA ⁺	5'-gAT ⁺	5'-CCT ⁺	5'-CCg ⁺	5'-CCT ⁺	5'-CAT ⁺	5'-Cgg ⁺	5'-AgT ⁺	5'-CAA ⁺	5'-CCA ⁺	5'-CAA ⁺	5'-CTA ⁺	5'-CAg ⁺	5'-gAT ⁺	3'-primer(s) ³																						
86(344)	5'-CAC ⁺			5'-TAA ⁺	5'-CCT ⁺			5'-CTT ⁺				5'-gAT ⁺	5'-CCT ⁺				5'-gCg ⁺				5'-gCT ⁺		5'-AAT ⁺																								
				5'-CgA ⁺	57(257)							5'-CCT ⁺	58(260)				5'-CCC ⁺	55(250)			5'-CTg ⁺	70(295)																									
																						</																									

Length of spec.	210	175	140	85	260	260	225	170	130	175	85	225	115	60	185	105	220	85	145	110	170	145	145	75
PCR product(s)									250		170	225		130						160	215			115
										215										215				135
																								165
Well 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
DRB1 allele ⁴																								
*14:01:01-14:01:03	1	2				6						12	13					18				22		
*14:02			3	4	5																	22		
*14:03:01-14:03:02				4	5		7															22		
*14:04								8					13							20				
*14:05:01-14:05:02	1					6			9			12				16		18				22		
*14:05:03	1					6			9			12						18				22		
*14:06:01-14:06:02			3	4		6																22		
*14:07:01-14:07:02	1	2			5							12	13					18				22		
*14:08	1					6						12	13			16		18				22		
*14:09			3		5													18				22		
*14:10										10			13											
*14:11											11					16								
*14:12:01-14:12:02				4		6	7															22		
*14:13			3	4	5																21	22		
*14:14	1				5							12				16		18				22		
*14:15																			19	20				
*14:16		2				6					11		13					18	19			22		
*14:17			3			6												18					23	
*14:18	1			4		6						12				16						22		
*14:19			3	4	5												17					22		
*14:20				4		6																22		
*14:21			3			6											17	18					23	
*14:22		2			5						11		13	14				18				22		
*14:23:01-14:23:03	1					6						12				16		18				22		
*14:24				4	5																21	22		
*14:25		2			5						11			14				18		20		22		
*14:26	1	2				6						12	13					18				22		24
*14:27				4	5		7							14								22		
*14:28								8					13		15					20				
*14:29			3	4		6									15							22		
*14:30			3		5													18					23	
*14:31								8			11		13							20				
*14:32:01-14:32:02	1	2				6					11		13					18				22		
*14:33			3			6						12						18					23	
*14:34	1					6					11		13			16		18				22		
*14:35	1	2				6						12	13					18					23	
Well 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

Lot No.: **76K**

Lot-specific information

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120	250	220	160	125	200	80	100	175	205	250	130	175	215	155	250	115	225	200	220	125	105	60	65	Length of spec.
210			230	175			145									165					165		190	PCR product(s)
250																245					220		225	
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	Well No.
																								DRB1 allele ⁴
	26							33																*14:01:01-14:01:03
																								*14:02
																								*14:03:01-14:03:02
										34	35													*14:04
																								*14:05:01-14:05:02
																								*14:05:03
					30																			*14:06:01-14:06:02
25								33																*14:07:01-14:07:02
								33																*14:08
																								*14:09
																								*14:10
										34	35													*14:11
					30																			*14:12:01-14:12:02
							32																	*14:13
																								*14:14
										35														*14:15
								33																*14:16
					30																			*14:17
					30									39										*14:18
							32																	*14:19
					30																			*14:20
					30		32																	*14:21
25								33																*14:22
																								*14:23:01-14:23:03
																								*14:24
25								33																*14:25
								33																*14:26
																								*14:27
										34	35													*14:28
					30																			*14:29
																								*14:30
										34	35													*14:31
								33																*14:32:01-14:32:02
					30									39										*14:33
								33																*14:34
						31		33																*14:35
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	Well No.

Lot No.: **76K**

Lot-specific information

www.olerup-ssp.com

Length of spec.	210	175	140	85	260	260	225	170	130	175	85	225	115	60	185	105	220	85	145	110	170	145	145	75
PCR product(s)									250		170			130						215	160	215		115
										215										215				165
Well 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
*14:36	1				5							12				16		18				22		24
*14:37						6			9									18			21	22		
*14:38	1	2				6						12	13					18				22		
*14:39	1	2				6				10		12	13					18				22		
*14:40				4	5		7												19			22		
*14:41				4	5																	22		24
*14:42	1				5							12				16		18					23	
*14:43	1					6			9			12				16	17	18				22		
*14:44:01	1				5							12				16		18				22		
*14:44:02	1				5							12						18				22		
*14:45	1					6			9			12				16		18				22		
*14:46			3																					
*14:47			3	4	5																	22		
*14:48			3	4	5																	22		
*14:49		2		4	5						11		13									22		
*14:50								8					13							20				
*14:51			3	4	5							12										22		
*14:52			3								11													
*14:53		2			5						11			14				18		20			23	
*14:54	1	2				6						12	13					18				22		
*14:55	w	2				6	7						13					18	19			22		
*14:56	1					6			9			12				16		18				22		
*14:57										10									19					
*14:58	1	2				6						12						18		20		22		
*14:59	1					6						12				16		18				22		
*14:60	1	2				6						12	13					18				22		
*14:61								8					13											
*14:62	1	2				6			9			12	13					18				22		
*14:63				4	5		7														21	22		
*14:64	1					6						12				16		18					23	
*14:65	1					6			9									18			21		23	
*14:67				4	5		7															22		
*14:68								8					13							20				
*14:69		2				5					11							18		20		22		
*14:70	1	2				6						12	13									22		
*14:71								8					13							20				
*14:72	1					6						12	13			16		18					23	
*14:73								8					13	14						20				
Well 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

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120	250	220	160	125	200	80	100	175	205	250	130	175	215	155	250	115	225	200	220	125	105	60	65	Length of spec.
210			230	175			145									165					165		190	PCR product(s)
250																245					220		225	
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	Well No.
																								*14:36
													38											*14:37
			28					33																*14:38
								33																*14:39
																								*14:40
																								*14:41
																								*14:42
																								*14:43
25																								*14:44:01
25																								*14:44:02
																						48		*14:45
		27																						*14:46
			28																					*14:47
				29																				*14:48
25								33																*14:49
			28						34	35														*14:50
													39											*14:51
				30					35															*14:52
25					31			33																*14:53
								33																*14:54
								33																*14:55
25																								*14:56
																								*14:57
								33																*14:58
				30									39						45					*14:59
				29				33																*14:60
																								*14:61
								33																*14:62
						32				36											47			*14:63
				30									39											*14:64
																								*14:65
										36											47			*14:67
25									34															*14:68
25								33																*14:69
				30				33																*14:70
									34	35				40										*14:71
						31																		*14:72
									35															*14:73
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	Well No.

Lot No.: **76K**

Lot-specific information

www.olerup-ssp.com

Length of spec.	210	175	140	85	260	260	225	170	130	175	85	225	115	60	185	105	220	85	145	110	170	145	145	75
PCR product(s)									250		170			130						160	215			115
										215										215				165
Well 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
*14:74		2				6					11		13					18				22		
*14:75	1	2				6						12	13					18				22		
*14:76								8												20				
*14:77				4	5		7												19			22		24
*14:78				4		6	7		9												21	22		
*14:79								8					13							20				
*14:80			3			6												18				22		
*14:81	1			4		6																22		
*14:82	1	2				6						12	13					18				22		
*14:83			3	4		6																22		
*14:84						6	7		9									18	19			22		
*14:85				4	5		7														21	22		
*14:86	1	2				6						12	13					18				22		
*14:87	1	2				6							13					18				22		
*14:88	1	2				6						12	13					18				22		
*14:89				4	5		7															22		
*14:90	1	2				6						12	13					18				22		24
*14:91	1					6			9			12				16		18				22		
*14:92N	1	2				6						12	13					18				22		
*14:93								8					13							20				
*14:94				4	5																	22		
*14:95	1					6						12				16		18					23	
*14:96	1					6			9			12				16		18				22		
*14:97	1	2				6						12	13					18				22		
*14:98				4	5																	22		
*14:99	1	2				6						12	13		15			18				22		
*14:100	1					6			9							16		18				22		
*01:02:01-01:02:05, 01:23, 01:26, 01:34																16								
*01:14											11													
Well 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

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120	250	220	160	125	200	80	100	175	205	250	130	175	215	155	250	115	225	200	220	125	105	60	65	Length of spec.
210			230	175			145									165					165		190	PCR product(s)
250																245					220		225	
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	Well No.
								33																*14:74
								33								41								*14:75
										35							42							*14:76
																								*14:77
					30		32				36											47		*14:78
										35							42							*14:79
					30																			*14:80
					30																			*14:81
								33									43							*14:82
					30													44						*14:83
																								*14:84
							32																	*14:85
								33												45				*14:86
								33													46			*14:87
			28					33													46			*14:88
																					46			*14:89
								33								41								*14:90
																41								*14:91
								33													46			*14:92N
25									34								42							*14:93
																41								*14:94
					30									39				43						*14:95
																				45				*14:96
					29			33								41								*14:97
			28																			48		*14:98
								33																*14:99
													38											*14:100
																								*01:02:01-01:02:05, 01:23, 01:26, 01:34
25																								*01:14
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	Well No.

Lot No.: **76K**

Lot-specific information

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Length of spec.	210	175	140	85	260	260	225	170	130	175	85	225	115	60	185	105	220	85	145	110	170	145	145	75	
PCR product(s)									250		170			130						145	160	215			115
											215									215				135	
																								165	
Well 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	
*03:01:01:01-03:01:01:02, 03:01:03-03:01:09, 03:07, 03:13:01, 03:15, 03:19, 03:22-03:23, 03:28, 03:32, 03:34, 03:36-03:37, 03:39, 03:45-03:48, 03:50-03:51, 03:54-03:56, 03:58, 13:01:07, 13:20, 13:71, 13:78						6												18					23		
*03:01:02, 03:13:02						6												18					23		
*03:02:01				4	5																	22			
*03:02:02				4	5																	22			
*03:03				4		6																22			
*03:04						6												18					23		
*03:05:01-03:05:02, 03:09, 03:14, 03:40, 13:14:01-13:14:03, 13:23, 13:25, 13:29, 13:56, 13:62-13:63, 13:74, 13:82, 13:97						5												18					23		
*03:05:03					5													18					23		
*03:06						6												18				22			
*03:08, 11:40, 11:59						6												18					23		
*03:10		2				6							13					18					23		
*03:11:01						6						12						18					23		
*03:11:02, 03:24						6						12						18					23		
*03:12						6			9									18			21		23		
*03:16						6												18							
*03:17					5							12						18				22			
*03:18						6												18					23	24	
*03:20						6								15				18					23		
*03:21, 03:25, 03:30, 03:49, 03:52, 13:11:01-13:11:02, 13:22, 13:24, 13:44, 13:52, 13:68						6												18					23		
*03:26						6												18				22			
Well 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	

Lot No.: **76K**

Lot-specific information

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120	250	220	160	125	200	80	100	175	205	250	130	175	215	155	250	115	225	200	220	125	105	60	65	Length of spec.
210			230	175			145									165					165		190	PCR product(s)
250																245					220		225	
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	Well No.
					30																			*03:01:01:01-03:01:01:02, 03:01:03:01:09, 03:07, 03:13:01, 03:15, 03:19, 03:22-03:23, 03:28, 03:32, 03:34, 03:36-03:37, 03:39, 03:45-03:48, 03:50-03:51, 03:54-03:56, 03:58, 13:01:07, 13:20, 13:71, 13:78
			28		30																			*03:01:02, 03:13:02
																								*03:02:01
			28																					*03:02:02
					30																			*03:03
																41								*03:04
																								*03:05:01-03:05:02, 03:09, 03:14, 03:40, 13:14:01-13:14:03, 13:23, 13:25, 13:29, 13:56, 13:62-13:63, 13:74, 13:82, 13:97
			28																					*03:05:03
					30																			*03:06
					30							37												*03:08, 11:40, 11:59
					30	31		33																*03:10
					30									39										*03:11:01
			28		30																			*03:11:02, 03:24
					30		32																	*03:12
					30																			*03:16
			28																					*03:17
					30																			*03:18
					30																			*03:20
																								*03:21, 03:25, 03:30, 03:49, 03:52, 13:11:01-13:11:02, 13:22, 13:24, 13:44, 13:52, 13:68
				29	30											41								*03:26
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	Well No.

Lot No.: **76K**

Lot-specific information

www.olerup-ssp.com

Length of spec.	210	175	140	85	260	260	225	170	130	175	85	225	115	60	185	105	220	85	145	110	170	145	145	75
PCR product(s)									250		170			130						215	160	215		115
										215										215				165
Well 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
*03:27				4	5							12									22			
*03:29, 13:86				4	5																	23		
*03:31, 13:70						6												18			22			
*03:33						6												18				23		
*03:35					5							12						18			22			
*03:38				4	5																22			
*03:41, 13:07:01- 13:07:02					5													18			22			
*03:42, 15:03:01:01- 15:03:01:02, 15:23, 15:32																								
*03:43						6												18				23	24	
*03:44						6												18				23		
*03:53				4	5																			
*03:57																		18				23		
*04:10-04:11, 04:67, 04:91, 15:12									9															
*04:12									9															
*04:18, 04:86, 15:21																								
*04:62										10	11													
*04:69										10														
*08:01:01-08:02:03, 08:04:02-08:04:03, 08:07, 08:13, 08:16- 08:17, 08:26, 08:39																				20				
*08:03:02, 08:14, 08:19, 08:23, 08:27, 08:30:01-08:30:02, 08:32-08:34, 08:36- 08:38																				20				
*08:04:01, 08:04:04- 08:04:05, 08:28																				20				
*08:05, 08:18, 08:24- 08:25, 08:40-08:41, 12:16											11													
*08:06, 08:22									9												20			
*08:08								8						14							20			
*08:09, 08:21																			19	20				
Well 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

Lot No.: **76K**

Lot-specific information

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120	250	220	160	125	200	80	100	175	205	250	130	175	215	155	250	115	225	200	220	125	105	60	65	Length of spec.
210			230	175			145									165					165		190	PCR product(s)
250																245					220		225	
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	Well No.
			28																					*03:27
																								*03:29, 13:86
																								*03:31, 13:70
				29	30											41								*03:33
25			28																			48		*03:35
				29																				*03:38
																								*03:41, 13:07:01- 13:07:02
					30																			*03:42, 15:03:01:01- 15:03:01:02, 15:23, 15:32
																								*03:43
				29												41								*03:44
																								*03:53
																								*03:57
																								*04:10-04:11, 04:67, 04:91, 15:12
																					47			*04:12
																					47			*04:18, 04:86, 15:21
25																								*04:62
25																								*04:69
																								*08:01:01-08:02:03, 08:04:02-08:04:03, 08:07, 08:13, 08:16- 08:17, 08:26, 08:39
																					47			*08:03:02, 08:14, 08:19, 08:23, 08:27, 08:30:01-08:30:02, 08:32-08:34, 08:36- 08:38
										35														*08:04:01, 08:04:04- 08:04:05, 08:28
																								*08:05, 08:18, 08:24- 08:25, 08:40-08:41, 12:16
										35														*08:06, 08:22
25																								*08:08
																								*08:09, 08:21
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	Well No.

Lot No.: **76K**

Lot-specific information

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Length of spec.	210	175	140	85	260	260	225	170	130	175	85	225	115	60	185	105	220	85	145	110	170	145	145	75
PCR product(s)									250		170			130						160	215			115
											215									215				135
																								165
Well 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
*08:10, 08:12									9											20				
*08:11								w												20				
*08:15																				20				
*08:20					6	7											18		20		22			
*08:31, 12:01:01- 12:03:02, 12:06-12:08, 12:10-12:13, 12:17- 12:21, 12:23-12:26, 13:17											11													
*08:35																			19	20				
*11:01:01-11:01:04, 11:01:06, 11:01:08- 11:01:09, 11:01:11- 11:01:12, 11:08:01- 11:08:02, 11:10:01- 11:12:02, 11:14:01- 11:15, 11:19:01- 11:19:02, 11:24, 11:26, 11:27:02, 11:32- 11:33, 11:39, 11:51, 11:61-11:62, 11:66, 11:68, 11:74-11:75, 11:80-11:81, 11:90- 11:91, 11:94-11:95, 11:97					5													18				23		
*11:01:05, 11:01:10					5											16		18					23	
*11:01:07					5													18						
*11:02:01-11:04:02, 11:04:04-11:04:06, 11:06:01, 11:07, 11:18, 11:21, 11:34- 11:36, 11:38, 11:42- 11:43, 11:46, 11:57, 11:60, 11:65:01- 11:65:02, 11:70, 11:77- 11:78, 11:98						6												18					23	
*11:04:03, 11:06:02					6											16		18					23	
Well 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

Lot No.: **76K**

Lot-specific information

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120	250	220	160	125	200	80	100	175	205	250	130	175	215	155	250	115	225	200	220	125	105	60	65	Length of spec.
210			230	175			145									165					165		190	PCR product(s)
250																245					220		225	
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	Well No.
										35												47		*08:10, 08:12
																								*08:11
25																						47		*08:15
																								*08:20
										35														*08:31, 12:01:01-12:03:02, 12:06-12:08, 12:10-12:13, 12:17-12:21, 12:23-12:26, 13:17
																						47		*08:35
																								*11:01:01-11:01:04, 11:01:06, 11:01:08-11:01:09, 11:01:11-11:01:12, 11:08:01-11:08:02, 11:10:01-11:12:02, 11:14:01-11:15, 11:19:01-11:19:02, 11:24, 11:26, 11:27:02, 11:32-11:33, 11:39, 11:51, 11:61-11:62, 11:66, 11:68, 11:74-11:75, 11:80-11:81, 11:90-11:91, 11:94-11:95, 11:97
												37												*11:01:05, 11:01:10
												37												*11:01:07
																								*11:02:01-11:04:02, 11:04:04-11:04:06, 11:06:01, 11:07, 11:18, 11:21, 11:34-11:36, 11:38, 11:42-11:43, 11:46, 11:57, 11:60, 11:65:01-11:65:02, 11:70, 11:77-11:78, 11:98
												37												*11:04:03, 11:06:02
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	Well No.

Lot No.: **76K**

Lot-specific information

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Length of spec.	210	175	140	85	260	260	225	170	130	175	85	225	115	60	185	105	220	85	145	110	170	145	145	75
PCR product(s)									250		170			130						160	215			115
										215										215				135
																								165
Well 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
*11:09, 11:28:01-11:28:02, 11:87					5									14				18					23	
*11:13:01-11:13:02	1					6										16		18					23	
*11:16						6												18					23	
*11:17	1					6						12				16		18				22		
*11:20					5													18					23	
*11:23, 11:64					5		7											18		20			23	
*11:25, 11:55						6	7											18		20			23	
*11:27:01					5													18					23	
*11:29					5													18					23	
*11:31, 11:96					5													18					23	
*11:37					5													18				22		
*11:41, 11:48, 11:56						6												18				22		
*11:44, 11:85						6												18					23	
*11:45					5		7											18		20			23	
*11:47, 11:63						6												18					23	
*11:49					5													18					23	
*11:50						6												18				22		
*11:52	1					6						12	13			16		18				22		
*11:53					5							12						18					23	
*11:54:01						6						12				16		18					23	
*11:54:02						6						12						18					23	
*11:58:01						6								14				18					23	
*11:58:02						6								14				18					23	
*11:67											11									20				
*11:69, 11:82					5													18			21		23	
*11:72					5																		23	
*11:73, 11:79, 11:93					5												17	18					23	
*11:76						6												18					23	24
*11:83						6								14				18			22			
*11:84						6												18					23	
*11:86																		18					23	
*11:88						6												18						
*11:89	1					6						12						18					23	
*11:92						6																	23	
*12:04, 12:09											11					16								
*12:05, 12:14-12:15											11				15									
*12:22																								
Well 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

Lot No.: **76K**

Lot-specific information

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120	250	220	160	125	200	80	100	175	205	250	130	175	215	155	250	115	225	200	220	125	105	60	65	Length of spec.
210			230	175			145									165					165		190	PCR product(s)
250																245					220		225	
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	Well No.
												37												*11:09, 11:28:01-11:28:02, 11:87
												37												*11:13:01-11:13:02
				30							36	37												*11:16
												37												*11:17
											36	37												*11:20
												37												*11:23, 11:64
												37												*11:25, 11:55
			28									37										48		*11:27:01
												37				41								*11:29
					31							37												*11:31, 11:96
												37												*11:37
												37												*11:41, 11:48, 11:56
				29								37				41								*11:44, 11:85
												37									47			*11:45
												37				41								*11:47, 11:63
				29								37				41								*11:49
				29								37				41								*11:50
												37												*11:52
												37												*11:53
												37												*11:54:01
												37												*11:54:02
				30								37												*11:58:01
												37												*11:58:02
										35														*11:67
												37												*11:69, 11:82
												37												*11:72
												37												*11:73, 11:79, 11:93
												37												*11:76
				30								37												*11:83
			28									37										48		*11:84
												37												*11:86
												37												*11:88
												37												*11:89
												37												*11:92
										35														*12:04, 12:09
										35														*12:05, 12:14-12:15
			28																			48		*12:22
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	Well No.

Lot No.: **76K**

Lot-specific information

www.olerup-ssp.com

Length of spec.	210	175	140	85	260	260	225	170	130	175	85	225	115	60	185	105	220	85	145	110	170	145	145	75	
PCR product(s)									250		215	170			130					215	160	215			165
																								135	
																								115	
Well 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	
*13:01:01-13:01:02, 13:01:04-13:01:06, 13:01:08, 13:06, 13:27- 13:28, 13:51, 13:59, 13:69, 13:79, 13:87, 13:91, 13:98, 13:102						6												18					23		
*13:01:03						6										16		18					23		
*13:02:01-13:02:03, 13:39, 13:41, 13:73, 13:96, 13:99						5												18					23		
*13:02:04, 13:16																		18					23		
*13:03:01-13:03:06, 13:33:01, 13:88, 13:90, 13:95						5											17	18			21	22			
*13:04, 13:75						6			9									18			21		23		
*13:05:01-13:05:02, 13:50:01-13:50:02						5								14				18					23		
*13:08						6												18	19			22			
*13:09						6												18			21		23		
*13:10			3			6											17	18					23		
*13:12, 13:38, 13:49						5												18			21	22			
*13:13						5		7										18		20	21	22			
*13:15				4		6																	23		
*13:18						6	7							14				18					23		
*13:19				4		6													19			22			
*13:21:01-13:21:02, 13:30						5												18			21		23		
*13:26				4		5								14								22			
*13:31						5												18					23		
*13:32						6			9									18			21	22			
*13:33:02-13:33:03						5											17	18			21	22			
*13:34						5												18					23	24	
*13:35, 13:80						6												18							
*13:36						5												18				22			
*13:37						5											17	18				22			
*13:40						6												18				22			
*13:42						6								14				18					23		
Well 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	

Lot No.: **76K**

Lot-specific information

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120	250	220	160	125	200	80	100	175	205	250	130	175	215	155	250	115	225	200	220	125	105	60	65	Length of spec.
210			230	175			145									165					165		190	PCR product(s)
250																245					220		225	
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	Well No.
					30						36													*13:01:01-13:01:02, 13:01:04-13:01:06, 13:01:08, 13:06, 13:27- 13:28, 13:51, 13:59, 13:69, 13:79, 13:87, 13:91, 13:98, 13:102
					30						36													*13:01:03
											36													*13:02:01-13:02:03, 13:39, 13:41, 13:73, 13:96, 13:99
											36													*13:02:04, 13:16
																								*13:03:01-13:03:06, 13:33:01, 13:88, 13:90, 13:95
																								*13:04, 13:75
																								*13:05:01-13:05:02, 13:50:01-13:50:02
																								*13:08
					30																			*13:09
					30	32					36													*13:10
																								*13:12, 13:38, 13:49
																						47		*13:13
					30						36													*13:15
					30																			*13:18
																								*13:19
																								*13:21:01-13:21:02, 13:30
																								*13:26
					29						36													*13:31
					30	32					36													*13:32
			28																			48		*13:33:02-13:33:03
											36													*13:34
					30						36													*13:35, 13:80
											36													*13:36
																								*13:37
					30						36													*13:40
					30																			*13:42
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	Well No.

Length of spec.	210	175	140	85	260	260	225	170	130	175	85	225	115	60	185	105	220	85	145	110	170	145	145	75	
PCR product(s)									250		215	170			130					215	160	215			115
											215									215				165	
Well 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	
*13:43		2				6					11		13					18					23		
*13:45		2				5					11							18		20			23		
*13:46, 13:100						5												18					23		
*13:47						5		7										18		20		22			
*13:48, 13:58						6				9								18			21	22			
*13:53				4		6																22			
*13:54						6												18					23		
*13:55						5		7										18		20	21	22			
*13:57				4		6													19				23		
*13:60						5												18				22			
*13:61						6												18					23		
*13:64						6												18	19				23	24	
*13:65						5												18			21	22			
*13:66:01-13:66:02						5											17	18			21		23		
*13:67, 13:103																									
*13:72						6				9								18	19			22			
*13:76						6						12				16		18	19			22			
*13:77						6												18					23		
*13:81, 13:89, 13:94						6				9							17	18			21	22			
*13:83						6												18	19				23		
*13:84						6												18				22			
*13:85			3	4	5												17					22			
*13:92						6												18					23	24	
*13:93						6				9								18			21		23		
*13:101						5											17				21	22			
*16:08														14											
DRB3*01:14						5												18				22		24	
DRB3*02:16																									
DRB1 allele ⁵																									
Well 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 430 base pairs, for most wells, or a band of 515 base pairs, for some wells.

Well number 1 contains the primer pair giving rise to the longer, 515 bp, internal positive control band in order to help in the correct orientation of the DRB1*14 subtyping.

In addition, wells number 6, 12, 14, 21, 26, 27, 29, 31, 34, 36, 38, 42 and 44 to 46 contain the primer pair giving rise to the longer, 515 bp, internal positive control band in order to allow kit identification.

120	250	220	160	125	200	80	100	175	205	250	130	175	215	155	250	115	225	200	220	125	105	60	65	Length of spec.
210			230	175			145									165					165		190	PCR product(s)
250																245					220		225	
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	Well No.
					30	31		33																*13:43
25						31		33																*13:45
				29																				*13:46, 13:100
																								*13:47
																								*13:48, 13:58
					30						36													*13:53
				29																				*13:54
																								*13:55
																								*13:57
																41								*13:60
			28		30						36											48		*13:61
																								*13:64
							32				36													*13:65
																								*13:66:01-13:66:02
											36													*13:67, 13:103
													38											*13:72
																								*13:76
				29	30						36													*13:77
																								*13:81, 13:89, 13:94
																								*13:83
																41								*13:84
							32				36													*13:85
					30						36													*13:92
					30	32					36													*13:93
																								*13:101
																								*16:08
			28	29																				DRB3*01:14
25																								DRB3*02:16
																								DRB1 allele ⁵
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	Well No.

²The codon, and in parenthesis the nucleotide, in the 2nd and 3rd exon, matching the specificity-determining 3'-end of the primer is given. Codon and 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 codon, and in parenthesis the nucleotide, in the 2nd and 3rd exon, matching the specificity-determining 3'-end of the primer is given in the anti-sense direction. Codon and 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.

⁴The DRB1*1466 allele has been renamed to DRB1*14:32:02

⁵Primer mix 9: Specific PCR fragment of 130 bp in the DRB1* 14:62, 14:65 and 14:78 and the DRB1*03:12, 04:10-04:12, 04:67, 04:91, 08:06, 08:10, 08:12, 08:22, 13:04, 13:32, 13:48, 13:58, 13:75, 13:81, 13:89, 13:93-13:94 and 15:12 alleles. Specific PCR fragment of 250 bp in the DRB1*14:05:01-14:05:03, 14:37, 14:43, 14:45, 14:56, 14:84, 14:91, 14:96 and 14:100 and the DRB1*13:72 alleles.

Primer mix 11: Specific PCR fragment of 85 bp in the DRB1*14:16, 14:22, 14:25, 14:32:01-14:32:02, 14:34, 14:49, 14:53, 14:69 and 14:74 and the DRB1*01:14, 04:62, 13:43 and 13:45 alleles. Specific PCR fragment of 170 bp in the DRB1*14:11 and DRB1*11:67 alleles. Specific PCR fragment of 215 bp in the DRB1*14:52 and the DRB1* 08:05, 08:18, 08:24-08:25, 08:40, 12:01:01-12:03, 12:05-12:21, 12:23-12:26 and 13:17 alleles. Specific PCR fragment of 85 and 215 bp in the DRB1*14:31 allele. Specific PCR fragment of 170 and 215 bp in the DRB1*08:31, 08:4 and 12:04 alleles.

Primer mix 14: Specific PCR fragment of 60 bp in the DRB1*14:22, 14:25, 14:53 and 14:73 and the DRB1*08:08 alleles. Specific PCR fragment of 130 bp in the DRB1*14:27 and the DRB1*11:09, 11:28:01-11:28:02, 11:58:01-11:58:02, 11:83, 11:87, 13:05:01-13:05:02, 13:18, 13:26, 13:42, 13:50:01-13:50:02 and 16:08 alleles.

Primer mix 20: Specific PCR fragment of 110 bp in the DRB1*14:25, 14:53, 14:58 and 14:69 and DRB1*13:45 alleles. Specific PCR fragment of 160 bp in the DRB1*14:04, 14:28, 14:31, 14:50, 14:68, 14:71, 14:73, 14:76, 14:79, 14:93, 08:20, 11:23, 11:25, 11:45, 11:55, 11:64, 13:13, 13:47, 13:55 alleles. Specific PCR fragment of 215 bp in the DRB1*14:15 and the DRB1*08:03:02, 08:09, 08:21, 08:27, 08:32, 08:35 and 08:38 alleles. Specific PCR fragments of 160 and 215 bp in the DRB1*08:01:01-08:02:03, 08:04:01-08:04:05, 08:06, 08:07, 08:10, 08:12-08:17, 08:19, 08:22, 08:23, 08:26, 08:28, 08:30:01-08:30:02, 08:33, 08:34, 08:36, 08:37, 08:39 and 11:67 alleles. Specific PCR fragments of 110, 160 and 215 bp in the DRB1*08:08 and 08:11 alleles. Not all specific PCR fragments may be obtained in alleles being amplified by more than one primer pair.

Primer mix 21: Specific PCR fragment of 170 bp in DRB1*14:13, 14:63, 14:65, 14:78 and 14:85 and the DRB1*03:12, 13:03:01-13:04, 13:12-13:13, 13:21:01-13:21:02, 13:30, 13:32-13:33:03, 13:38, 13:48-13:49, 13:55, 13:58, 13:65-13:66:02, 13:75, 13:81, 13:88-13:90, 13:93-13:95, 13:101 alleles. Specific PCR fragment of 215 bp in the DRB1*14:24 and 14:37 and the DRB1*11:69, 11:82 and 13:09 alleles.

Primer mix 24: Specific PCR fragment of 75 bp in the DRB1*14:26 and the DRB1*13:92 alleles. Specific PCR fragment of 115 bp in the DRB1*14:36, 14:41 and 14:77 and the DRB1*03:18, 03:43, 11:76, 13:34 and 13:64 and in the DRB3*01:14 alleles. Specific PCR fragment of 135 bp in the DRB1*1436 and DRB1*0318 alleles. Specific PCR fragment of 165 bp in the DRB1*14:90 allele.

Primer mix 25: Specific PCR fragment of 120 bp in the DRB1*14:07:01-14:07:02, 14:22, 14:25, 14:49, 14:53, 14:68-14:69 and 14:93 and the DRB1*01:14, 04:62, 04:69, 08:08, 08:15 and 13:45 and in the DRB3*02:16 alleles. Specific PCR fragment of 210 bp in the DRB1*14:56 allele. Specific PCR fragment of 250 bp in the DRB1*14:44:01-14:44:02 and the DRB1*03:35 alleles.

Primer mix 28: Specific PCR fragment of 160 bp in the DRB1*14:88 allele. Specific PCR fragment of 230 bp in the DRB1*14:38, 14:47, 14:50 and 14:98 and the DRB1*03:01:02, 03:02:02, 03:05:03, 03:11:02, 03:13:02, 03:17, 03:24, 03:27, 03:35, 11:27:01, 11:84, 12:22, 13:33:02-13:33:03 and 13:61 and in the DRB3*01:14 alleles.

Primer mix 29: Specific PCR fragment of 125 bp in the DRB1*14:60 and 14:97 and the DRB1*03:26, 03:33, 03:44, 11:44, 11:49-11:50 and 11:85 alleles. Specific PCR fragment of 175 bp in the DRB1*14:48 and the DRB1*03:38, 13:31, 13:46, 13:54, 13:77 and 13:100 and the DRB3*01:14 alleles.

Primer mix 32: Specific PCR fragment of 100 bp in the DRB1*14:13, 14:63, 14:78 and 14:85 and the DRB1*03:12, 13:32, 13:65 and 13:93 alleles. Specific PCR fragment of 145 bp in the DRB1*14:19 and 14:21 and the DRB1*03:12, 13:10 and 13:85 alleles.

Primer mix 41: Specific PCR fragment of 115 bp in the DRB1*14:91, 14:94 and 14:97 and in the DRB1*03:04, 03:26, 03:33, 03:44, 11:29, 11:44, 11:47, 11:49-11:50, 11:63, 11:85, 13:60 and 13:84 alleles. Specific PCR fragment of 165 bp in the DRB1*14:90 allele. Specific PCR fragment of 245 bp in the DRB1*14:75 allele.

Primer mix 46: Specific PCR fragment of 105 bp in the DRB1*14:92N allele. Specific PCR fragment of 165 bp in the DRB1*14:88 allele. Specific PCR fragment of 220 bp in the DRB1*14:87 and 14:89 alleles.

Primer mix 48: Specific PCR fragment of 65 bp in the DRB1*14:98 and the DRB1*11:27:01, 11:84, 12:22, 13:33:02-13:33:03 and 13:61 alleles. Specific PCR fragment of 190 bp in the DRB1*14:45 allele. Specific PCR fragment of 225 bp in the DRB1*03:35 allele.

‘w’, might be weakly amplified.

CELL LINE VALIDATION SHEET																				
DRB1*14 SSP subtyping kit																				
					Well															
					17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
				Prod. No.:	200737317	200737318	200737319	201079920	200737321	200737322	200737323	201079924	200737325	201079926	200737327	201079928	201079929	200737330	200737331	200737332
	IHWC cell line	DRB1																		
1	9001 SA	*01:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	9280 LK707	*15:02	*04:05		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	9011 E4181324	*15:02			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	9275 GU373	*03:01			-	+	-	-	-	-	+	-	-	-	-	-	-	+	-	-
5	9009 KAS011	*16:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	9353 SM	*04:07	*08:03		-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
7	9020 QBL	*03:01			-	+	-	-	-	-	+	-	-	-	-	-	-	+	-	-
8	9025 DEJ	*04:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	9026 YAR	*04:02			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	9107 LKT3	*04:05			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	9051 PITOUT	*07:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	9052 DBB	*07:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	9004 JESTHOM	*01:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	9071 OLGA	*08:02			-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
15	9075 DKB	*09:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	9037 SWEIG007	*11:01			-	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-
17	9282 CTM3953540	*03:01	*13:01		-	+	-	-	-	-	+	-	-	-	-	-	-	+	-	-
18	9257 32367	*09:01	*11:01		-	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-
19	9038 BM16	*12:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	9059 SLE005	*13:02			-	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-
21	9064 AMALA	*14:02			-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
22	9056 KOSE	*13:02	*14:54		-	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-
23	9124 IHL	*08:03	*14:14		-	+	-	+	-	+	-	-	-	-	-	-	-	-	-	-
24	9035 JBUSH	*11:01			-	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-
25	9049 IBW9	*07:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	9285 WT49	*03:01			-	+	-	-	-	-	+	-	-	-	-	-	-	+	-	-
27	9191 CH1007	*04:05	*10:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	9320 BEL5GB	*04:16	*07:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	9050 MOU	*07:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	9021 RSH	*03:02			-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
31	9019 DUCAF	*03:01			-	+	-	-	-	-	+	-	-	-	-	-	-	+	-	-
32	9297 HAG	*13:03			+	+	-	-	+	+	-	-	-	-	-	-	-	-	-	-
33	9098 MT14B	*04:04			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34	9104 DHIF	*11:01			-	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-
35	9302 SSTO	*04:03			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
36	9024 KT17	*04:03	*04:06		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
37	9065 HHKB	*13:01			-	+	-	-	-	-	+	-	-	-	-	-	-	+	-	-
38	9099 LZL	*14:02			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39	9315 CML	*03:01	*04:01		-	+	-	-	-	-	+	-	-	-	-	-	-	+	-	-
40	9134 WHONP199	*07:01	*09:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41	9055 H0301	*13:02			-	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-
42	9066 TAB089	*08:03			-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
43	9076 T7526	*09:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44	9057 TEM	*14:01			-	+	-	-	-	+	-	-	-	+	-	-	-	-	-	-
45	9239 SHJO	*07:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
46	9013 SCHU	*15:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
47	9045 TUBO	*11:04	*12:01		-	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-
48	9303 TER-ND	*01:03			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

CELL LINE VALIDATION SHEET																				
DRB1*14 SSP subtyping kit																				
					Well															
					33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
				Prod. No.:	201079933	200852034	200852035	200965036	200852037	201079938	200852039	200852040	201079941	200852042	201079943	200965044	200965045	201079946	201079947	201079948
	IHWC cell line	DRB1																		
1	9001 SA	*01:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	9280 LK707	*15:02	*04:05		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	9011 E4181324	*15:02			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	9275 GU373	*03:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	9009 KAS011	*16:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	9353 SM	*04:07	*08:03		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
7	9020 QBL	*03:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	9025 DEU	*04:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	9026 YAR	*04:02			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	9107 LKT3	*04:05			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	9051 PITOUT	*07:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	9052 DBB	*07:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	9004 JESTHOM	*01:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	9071 OLGA	*08:02			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	9075 DKB	*09:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	9037 SWEIG007	*11:01			-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
17	9282 CTM3953540	*03:01	*13:01		-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
18	9257 32367	*09:01	*11:01		-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
19	9038 BM16	*12:01			-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
20	9059 SLE005	*13:02			-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
21	9064 AMALA	*14:02			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	9056 KOSE	*13:02	*14:54		+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
23	9124 IHL	*08:03	*14:14		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
24	9035 JBUSH	*11:01			-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
25	9049 IBW9	*07:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	9285 WT49	*03:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	9191 CH1007	*04:05	*10:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	9320 BEL5GB	*04:16	*07:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	9050 MOU	*07:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	9021 RSH	*03:02			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31	9019 DUCAF	*03:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	9297 HAG	*13:03			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	9098 MT14B	*04:04			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34	9104 DHIF	*11:01			-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
35	9302 SSTO	*04:03			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
36	9024 KT17	*04:03	*04:06		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
37	9065 HHKB	*13:01			-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
38	9099 LZL	*14:02			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39	9315 CML	*03:01	*04:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40	9134 WHONP199	*07:01	*09:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41	9055 H0301	*13:02			-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
42	9066 TAB089	*08:03			-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
43	9076 T7526	*09:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44	9057 TEM	*14:01			+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45	9239 SHJO	*07:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
46	9013 SCHU	*15:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
47	9045 TUBO	*11:04	*12:01		-	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-
48	9303 TER-ND	*01:03			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

CERTIFICATE OF ANALYSIS

Olerup SSP® DRB1*14 SSP

Product number: 101.117-12u/03u – without *Taq* pol.
Lot number: 76K
Expiry date: 2013-May-01
Number of tests: 12 tests – Product No. 101.117-12u
 3 tests – Product No. 101.117-03u
Number of wells per test: 48

Well specifications:

Well No.	Production No.	Well No.	Production No.	Well No.	Production No.
1	2007-373-01	17	2007-373-17	33	2010-799-33
2	2007-373-02	18	2007-373-18	34	2008-520-34
3	2010-799-03	19	2007-373-19	35	2008-520-35
4	2007-373-04	20	2010-799-20	36	2009-650-36
5	2007-373-05	21	2007-373-21	37	2008-520-37
6	2007-373-06	22	2007-373-22	38	2010-799-38
7	2007-373-07	23	2007-373-23	39	2008-520-39
8	2009-650-08	24	2010-799-24	40	2008-520-40
9	2009-650-09	25	2007-373-25	41	2010-799-41
10	2007-373-10	26	2010-799-26	42	2008-520-42
11	2007-373-11	27	2007-373-27	43	2010-799-43
12	2007-373-12	28	2010-799-28	44	2009-650-44
13	2010-799-13	29	2010-799-29	45	2009-650-45
14	2009-650-14	30	2007-373-30	46	2010-799-46
15	2007-373-15	31	2007-373-31	47	2010-799-47
16	2007-373-16	32	2007-373-32	48	2010-799-48

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

No DNAs carrying the alleles to be amplified by primer solutions 10, 14, 15, 19, 24, 27 to 29, 31, 38 to 46 and 48 were available.

The specificities of the primers in primer solutions 10, 14, 15, 19, 24, 27 to 29, 31, 38, 39, 42, 43, 45 and 48 were tested by separately adding one additional 5'-primer, respectively, one or several additional 3'-primers.

In primer solutions 40 and 47 it was only possible to test the 5'-primers, the 3'-primers were not possible to test.

In primer solution 44 it was only possible to test the 3'-primer, the 5'-primer was not possible to test.

In primer solutions 9, 10 and 14 one of the 5'-primers was not possible to test, and in primer solutions 17, 24, 25, 28, 29, 37, 41 and 48 one or more of the 3'-primers were not possible to test.

Additional primers in primer solutions 11, 20, 21, 25, 30, 32 and 41 were tested by separately adding one 5'-primer and/or one 3'-primer.

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

Date of approval: 2010-December-10

Approved by:

Quality Control, Supervisor

Declaration of Conformity

Product name: *Olerup SSP*® DRB1*14

Product number: 101.117-12u/03u

Lot number: 76K

Intended use: DRB1*14 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 9001:2008 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*, Hasselstigen 1, SE-133 33 Saltsjöbaden, Sweden.

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

Notified Body: Lloyd's Register Quality Assurance Limited, Hiramford, Middlemarch Office Village, Siskin Drive, Coventry CV3 4FJ, United Kingdom. (Notified Body number: 0088.)

Saltsjöbaden, Sweden
2010-December-10

Olle Olerup
Managing Director

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