

## Olerup SSP® HLA-B\*49

Product number:	101.547-06u – without <i>Taq</i> polymerase
Lot number:	86K
Expiry date:	2013-July-01
Number of tests:	6
Number of wells per test:	16
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. 86K.**

### CHANGES COMPARED TO THE PREVIOUS *OLERUP SSP*® HLA-B\*49 LOT.

The HLA-B\*49 specificity and interpretation tables have been updated for the HLA-B alleles described since the previous *Olerup SSP*® HLA-B\*49 lot was made (**Lot No. 05H**).

Five wells has been added to the HLA-B\*49 kit,  
wells **12** to **16**.  
The amplification patterns for some rare HLA-B\*49 alleles  
only differ by the length of the specific PCR products.

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

Well	5'-primer	3'-primer	rationale
6	Added	-	Increased yield of specific PCR product.
12	New	New	New primer pair for the B*49:10 allele.
13	New	New	New primer pair for the B*49:11 allele.
14	New	New	New primer pair for the B*49:12 allele.
15	New	New	New primer pairs for the B*49:13 and B*49:14 alleles.
16	New	New	New primer pair for the B*49:15 allele.

## PRODUCT DESCRIPTION

### HLA-B\*49 SSP typing

#### CONTENT

The primer set contains 5'- and 3'-primers for identifying the B\*49:01 to B\*49:15 alleles.

#### PLATE LAYOUT

Each HLA-B\*49 test consists of 16 PCR reactions in a 16 well cut PCR plate.

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>

The 16 well PCR plate is marked with 'HLA-B\*49' in silver/gray ink.

Well No. 1 is marked with the Lot No. '86K'.

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 heat-sealed with a PCR-compatible foil.

**Please note:** When removing each 16 well PCR plate, make sure that the remaining plates stay sealed. Use a scalpel or a similar instrument to carefully cut the foil between the plates.

#### INTERPRETATION

The interpretation of HLA-B\*49 SSP subtypings will be influenced by two B\*07, three B\*08, most B\*13, twelve B\*15, two B\*18, two B\*27, three B\*35, the B\*37:10, eight B\*39, several B\*40, eight B\*41, the B\*42:04, most B\*44, the B\*45, two B\*46, the B\*47, the B\*50, most B\*51, the B\*52, the B\*53:22, most B\*54, most B\*55, most B\*56, two B\*57, two B\*58, the B\*59, the B\*73 and the B\*78 alleles when present on the other haplotype.

#### UNIQUELY IDENTIFIED ALLELES

All the HLA-B\*49, i.e. **B\*49:01 to B\*49:15**, recognized by the HLA Nomenclature Committee in October 2010<sup>1</sup> will be amplified by the primers in the HLA-B\*49 SSP kit.

The HLA-B\*49 subtyping kit cannot distinguish the B\*49:01:01 and B\*49:01:02 alleles.

The B\*49:13 and 49:14 alleles can be distinguished by the different sizes of the specific PCR products generated by primer mix 15.

<sup>1</sup>HLA-B alleles listed on the IMGT/HLA web page 2010-October-17, release 3.2.0, [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla).

### RESOLUTION IN HOMO- AND HETEROZYGOTES

A total of 16 alleles generate 14 amplification patterns that can be combined in 105 homozygous and heterozygous combinations. 44 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.

+++++--- ----- \*49:01:01, \*49:02 = \*49:02, \*49:06  
++-++++--- ----- \*49:03, \*49:06 = \*49:06, \*49:09  
+-+++++--- ----- \*49:01:01, \*49:06 = \*49:06, \*49:06  
+---+++++--- ----- \*49:03, \*49:05 = \*49:05, \*49:09  
+---+++++--- ----- \*49:03, \*49:04 = \*49:04, \*49:09  
+---+++++ +----- \*49:03, \*49:07 = \*49:07, \*49:09  
+---+++++ -+----- \*49:03, \*49:08 = \*49:08, \*49:09  
+---+++++ ----+----- \*49:03, \*49:10 = \*49:09, \*49:10  
+---+++++ -----+---- \*49:03, \*49:11 = \*49:09, \*49:11  
+---+++++ -----+--- \*49:03, \*49:12 = \*49:09, \*49:12  
+---+++++ -----+- \*49:03, \*49:13 = \*49:09, \*49:13  
+---+++++ -----++ \*49:03, \*49:15 = \*49:09, \*49:15  
+---+++++ ----- \*49:01:01, \*49:03 = \*49:01:01, \*49:09 = \*49:03, \*49:09 = \*49:09, \*49:09  
+---+++++ +----- \*49:01:01, \*49:07 = \*49:07, \*49:07  
+---+++++ -+----- \*49:01:01, \*49:08 = \*49:08, \*49:08  
+---+++++ ----+----- \*49:01:01, \*49:10 = \*49:10, \*49:10  
+---+++++ -----+---- \*49:01:01, \*49:11 = \*49:11, \*49:11  
+---+++++ -----+--- \*49:01:01, \*49:12 = \*49:12, \*49:12  
+---+++++ -----+- \*49:01:01, \*49:13 = \*49:13, \*49:13  
+---+++++ -----++ \*49:01:01, \*49:15 = \*49:15, \*49:15  
+-----++ ----- \*49:04, \*49:05 = \*49:05, \*49:05

\*49:01:01 = \*49:01:01-49:01:02

\*49:13 = \*49:13 and \*49:14

## SPECIFICITY TABLE

### HLA-B\*49 SSP subtyping

Specificities and sizes of the PCR products of the 16 primer mixes used for HLA-B\*49 SSP subtyping

Primer Mix	Size of spec. PCR product <sup>1</sup>	Size of control band <sup>2</sup>	Amplified HLA-B*49 alleles <sup>3</sup>	Other amplified HLA-B alleles <sup>4</sup>
<b>1</b>	145 bp	<b>800 bp</b>	*49:01:01-49:01:02, 49:04-49:15	*40:13, 40:19, 40:109, 40:117, 44:18, 44:25, 44:50, 44:95
<b>2<sup>6,8</sup></b>	145 bp, 255 bp	1070 bp	*49:02, 49:06	*13:23, 18:09, 27:01, 37:10, 40:47, 40:96, 40:157, 44:15, 44:55, 44:103, 58:13
<b>3</b>	145 bp	1070 bp	*49:02	*40:47, 40:96, 40:110, 40:157, 44:02:01:01-44:02:12, 44:02:14-44:05:02, 44:07, 44:10, 44:12-44:17, 44:19N-44:24, 44:26-44:39, 44:41-44:43:02, 44:45, 44:47-44:49, 44:51-44:56N, 44:58N-44:59, 44:61N-44:74, 44:76-44:82, 44:84-44:89, 44:91-44:94, 44:96-44:115, 47:04
<b>4<sup>9</sup></b>	170 bp, 205 bp	1070 bp	*49:03, 49:09	*13:15, 18:04, 40:01:11, 40:58, 44:02:10, 44:34, 51:07:01, 51:62, 51:106, 52:01:02, 52:01:04, 52:02-52:03, 52:09, 52:21
<b>5<sup>5</sup></b>	105 bp	1070 bp	*49:01:01-49:03, 49:06-49:15	*07:78, 13:02:01-13:03, 13:08Q-13:09, 13:14-13:16, 13:18-13:19, 13:27, 13:30-13:34, 13:37-13:38, 13:40, 15:42, 35:60, 44:15, 44:18, 45:01, 45:03-45:08, 45:10-45:13, 46:11, 46:18, 50:01:01-50:02, 50:04-50:08, 50:10-50:11, 51:15, 54:01-54:03, 54:05N, 54:07-54:08N, 54:10, 54:12-54:13, 54:16-54:23, 55:01:01-55:03, 55:05, 55:07, 55:09-55:12, 55:15-55:16, 55:18-55:19, 55:21-55:22, 55:24-55:26, 55:29-55:31, 55:33-55:38, 55:40-55:41, 55:43, 55:45-55:48, 56:01:01-56:01:04, 56:07-56:08, 56:13-56:14, 56:16-56:17, 56:19N-56:20, 56:23-56:30, 59:01, 59:04-59:05
<b>6<sup>7</sup></b>	160 bp	1070 bp	*49:01:01-49:03, 49:06-49:15	*13:01:01-13:03, 13:06-13:09, 13:11-13:12, 13:14-13:17, 13:19-13:20, 13:22:01-13:23, 13:25, 13:27-13:30, 13:32-13:34, 13:36-13:40, 15:42,

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				15:86, 35:60, 39:17, 40:48, 40:71, 44:10, 46:11, 46:18, 50:01:01-50:02, 50:04-50:08, 50:10-50:12, 51:15, 51:62, 51:106, 54:01-54:03, 54:05N, 54:07-54:08N, 54:12-54:13, 54:17-54:19, 54:21-54:23, 55:01:01-55:03, 55:05, 55:07, 55:10-55:12, 55:15-55:16, 55:18-55:19, 55:22, 55:24-55:26, 55:29-55:31, 55:33-55:36, 55:38-55:45, 55:47-55:48, 56:01:01-56:02, 56:04, 56:07-56:08, 56:10, 56:14, 56:16-56:17, 56:19N-56:20, 56:23-56:30, 59:01, 59:04-59:05
<b>7<sup>5</sup></b>	105 bp	1070 bp	*49:04-49:05	*13:04, 15:04, 15:16, 15:67, 15:95, 15:137, 15:155, 35:37, 39:06:01-39:06:02, 39:33-39:34, 39:50, 39:57, 39:62, 40:86, 45:02, 45:09, 50:09, 51:13:01-51:13:02, 51:37, 51:63, 51:92, 51:97, 52:14, 54:14, 55:13, 55:23, 55:32, 56:22, 59:03, 73:01-73:02
<b>8<sup>5</sup></b>	70 bp	1070 bp	*49:05	*07:78, 07:84, 08:09, 13:02:01-13:02:05, 13:02:07-13:04, 13:08Q-13:09, 13:14-13:16, 13:18-13:19, 13:27, 13:30-13:35, 13:37-13:38, 13:40, 15:04, 15:16, 15:42, 15:67, 15:83, 15:95, 15:137, 15:155, 27:14, 35:60, 39:06:01-39:06:02, 39:33-39:34, 39:50, 39:57, 39:62, 40:06:01:01-40:06:03, 40:44, 40:53, 40:70, 40:75, 40:83, 40:86, 40:93, 40:95-40:96, 40:103, 40:109-40:110, 40:127, 40:131, 40:148, 41:01, 41:05-41:07, 41:09, 41:12, 41:14, 41:16, 42:04, 44:20, 44:47, 44:100, 46:11, 46:18, 51:01:01-51:01:18, 51:01:20-51:03, 51:05, 51:07:01-51:16, 51:18-51:24:04, 51:26-51:41N, 51:43-51:44N, 51:48-51:55, 51:57-51:58, 51:60-51:61, 51:63, 51:65-51:80, 51:82-51:93, 51:95-51:106, 52:01:01-52:22, 54:01-54:05N, 54:07-54:08N, 54:10-54:14, 54:16-54:23, 55:01:01-55:03, 55:05, 55:07, 55:09-55:13, 55:15-55:26, 55:28-55:48, 56:01:01-56:01:04, 56:05:01-56:08, 56:13-56:17, 56:19N-56:30, 58:08, 59:01-59:05, 73:01-73:02, 78:01-78:07

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<b>9</b>	245 bp	1070 bp	*49:07	*07:78, 07:84, 13:02:01-13:02:09, 13:08Q-13:09, 13:14-13:16, 13:18-13:19, 13:27, 13:30-13:35, 13:37-13:38, 13:40, 27:14, 39:50, 40:06:01:01-40:06:03, 40:44, 40:53, 40:70, 40:75, 40:83, 40:86, 40:93, 40:95-40:96, 40:103, 40:109-40:110, 40:127, 40:131, 40:148, 45:10, 51:10, 51:16, 51:31, 51:34, 51:82, 51:93, 52:08, 55:09, 55:22, 55:24, 73:01-73:02
<b>10</b>	250 bp	<b>800 bp</b>	*49:08	
<b>11</b>	505 bp	1070 bp		*08:03, 08:52, 44:06, 44:18, 44:25, 44:95, 51:08, 51:20, 51:36, 51:44N, 51:97, 52:19, 53:22, 57:09, 57:24
<b>12</b>	135 bp	1070 bp	*49:10	*15:46, 15:53, 15:106, 35:47, 40:10:01-40:10:02, 40:40, 40:49, 40:58, 40:110, 40:129, 44:02:01:01-44:05:02, 44:09-44:14, 44:16-44:17, 44:19N-44:39, 44:41-44:43:02, 44:45-44:48, 44:50-44:54, 44:56N, 44:58N-44:59, 44:61N-44:80, 44:82, 44:84-44:102, 44:104-44:110, 44:112-44:115, 47:01:01:01-47:07
<b>13<sup>7</sup></b>	150 bp	1070 bp	*49:11	*13:01:01-13:03, 13:06-13:09, 13:11-13:12, 13:14-13:15, 13:17, 13:18 <sup>W</sup> , 13:19, 13:22:01-13:23, 13:25, 13:27-13:30, 13:32-13:34, 13:36-13:40, 15:86, 35:60, 40:48, 40:71, 44:10, 46:11, 46:18, 51:15, 54:01-54:03, 54:05N, 54:07-54:08N, 54:10 <sup>W</sup> , 54:12-54:13, 54:17-54:19, 54:21-54:23, 55:02:01-55:02:06, 55:07, 55:10, 55:12, 55:16, 55:18-55:19, 55:22, 55:26, 55:30, 55:34-55:35, 55:37 <sup>W</sup> , 55:39, 55:41-55:43, 55:47-55:48, 56:01:01-56:02, 56:04, 56:07-56:08, 56:10, 56:14, 56:16-56:17, 56:19N-56:20, 56:23-56:24, 56:26-56:29, 59:01, 59:04-59:05
<b>14</b>	190 bp	1070 bp	*49:12	
<b>15<sup>7,10</sup></b>	160 bp, 290 bp	1070 bp	*49:13- 49:14	
<b>16</b>	135 bp	1070 bp	*49:15	

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<sup>1</sup> Alleles are assigned by the presence of specific PCR product(s). However, the sizes of the specific PCR products may be helpful in the interpretation of HLA-B\*49 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.

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

Well number 1 contains the primer pair giving rise to the shorter, 800 bp, internal positive control band in order to help in the correct orientation of the HLA-B\*49 SSP subtyping. In addition, well number 10 contains the primer pair giving rise to the shorter, 800 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.

<sup>3</sup> The B\*49:13 and 49:14 alleles can be distinguished by the different sizes of the specific PCR products generated by primer mix 15.

<sup>4</sup> Due to the sharing of sequence motifs between HLA-B alleles some non-HLA-B\*49 alleles will be amplified by primer mixes 1 to 9 and 11 to 13.

<sup>5</sup> Short specific PCR fragments are less intense and not as sharp as longer specific bands.

<sup>6</sup> Primer mix 2 may generate a false band of about 800 base pairs. This band should be disregarded when interpreting the HLA-B\*49 SSP typings.

<sup>7</sup> Primer mixes 6, 13 and 15 may have a tendency of giving rise to nonspecific amplifications.

<sup>8</sup> Primer mix 2: Specific PCR fragment of 145 bp in the B\*49:06 and the B\*58:13 alleles. Specific PCR fragment of 255 bp in the B\*49:02 and in the B\*13:23, 18:09, 27:01, 37:10, 40:47, 40:96, 40:157, 44:15, 44:55 and 44:103 alleles.

<sup>9</sup> Primer mix 4: Specific PCR fragment of 170 bp in the B\*49:03 and in the B\*18:04, 40:01:11, 40:58, 44:02:10, 44:34, 51:07:01, 52:01:02, 52:01:04, 52:02-52:03, 52:09 and 52:21 alleles. Specific PCR fragment of 205 bp in the B\*49:09 and in the B\*13:15, 51:62 and 51:106 alleles.

<sup>10</sup> Primer mix 15: Specific PCR fragment of 160 bp in the B\*49:13 allele. Specific PCR fragment of 290 bp in the B\*49:14 allele.

‘w’, may be weakly amplified.

<b>INTERPRETATION TABLE</b>								
<b>HLA-B*49 SSP subtyping</b>								
Amplification patterns of the B*49:01 to B*49:15 alleles								
	Well <sup>5</sup>							
	1	2	3	4	5	6	7	8
Length of spec.	145	145	145	170	105	160	105	70
PCR product(s)		255		205				
Length of int.								
pos. control <sup>1</sup>	800	1070	1070	1070	1070	1070	1070	1070
5'-primer <sup>2</sup>	206	97	206	141	357	420	357	357
	5' -gAA 3'	5' -TCC 3'	5' -gAA 3'	5' -ATT 3'	5' -Tgg 3'	5' -TTA 3'	5' -Tgg 3'	5' -Tgg 3'
		454		420				
		5' -ACA 3'		5' -TTA 3'				
3'-primer(s) <sup>3</sup>	309	309	309	272	420	538	419	387
	5' -ATC 3'	5' -gTg 3'	5' -gTg 3'	5' -Tgg 3'	5' -gCT 3'	5' -CAg 3'	5' -Cgg 3'	5' -TCC 3'
		559		583			419	
		5' -CAg 3'		5' -gTg 3'			5' -CgA 3'	
Well No.	1	2	3	4	5	6	7	8
HLA-B allele								
*49:01:01-49:01:02	1				5	6		
*49:02		2	3		5	6		
*49:03				4	5	6		
*49:04	1						7	
*49:05	1						7	8
*49:06	1	2			5	6		
*49:07	1				5	6		
*49:08	1				5	6		
*49:09	1			4	5	6		
*49:10	1				5	6		
*49:11	1				5	6		
*49:12	1				5	6		
*49:13, 49:14 <sup>4</sup>	1				5	6		
*49:15	1				5	6		
*07:78, 13:31, 55:09					5			8
*07:84, 13:35, 27:14, 40:06:01:01- 40:06:03, 40:44, 40:53, 40:70, 40:75, 40:83, 40:93, 40:95, 40:103, 40:127, 40:131, 40:148, 51:10, 51:16, 51:31, 51:34, 51:82, 51:93, 52:08								8
Well No.	1	2	3	4	5	6	7	8



INTERPRETATION TABLE								
HLA-B*49 SSP subtyping								
Amplification patterns of the B*49:01 to B*49:15 alleles								
Well <sup>5</sup>								
9	10	11	12	13	14	15	16	
245	250	505	135	150	190	160	135	Length of spec. PCR product(s)
						290		
1070	800	1070	1070	1070	1070	1070	1070	Length of int. pos. control <sup>1</sup>
357	357	317	97	420	357	357	176	5'-primer <sup>2</sup>
5' -Tgg 3'	5' -Tgg 3'	5' -gCT 3'	5' -TCT 3'	5' -TTA 3'	5' -Tgg 3'	5' -Tgg 3'	5' -gAC 3'	
559	565	538	193	527	505	476	272	3'-primer(s) <sup>3</sup>
5' -CTC 3'	5' -CAg 3'	5' -gTC 3'	5' -CgT 3'	5' -CCA 3'	5' -gCT 3'	5' -CCC 3'	5' -Tgg 3'	
						608		
						5' -gCT 3'		
9	10	11	12	13	14	15	16	Well No. HLA-B allele
								*49:01:01-49:01:02
								*49:02
								*49:03
								*49:04
								*49:05
								*49:06
9								*49:07
	10							*49:08
								*49:09
			12					*49:10
				13				*49:11
					14			*49:12
						15		*49:13, 49:14 <sup>4</sup>
							16	*49:15
9								*07:78, 13:31, 55:09
9								*07:84, 13:35, 27:14, 40:06:01-01-40:06:03, 40:44, 40:53, 40:70, 40:75, 40:83, 40:93, 40:95, 40:103, 40:127, 40:131, 40:148, 51:10, 51:16, 51:31, 51:34, 51:82, 51:93, 52:08
9	10	11	12	13	14	15	16	Well No.

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Length of spec.	145	145	145	170	105	160	105	70
PCR product(s)		255		205				
Well No.	1	2	3	4	5	6	7	8
*08:03, 08:52, 44:06, 53:22, 57:09, 57:24								
*08:09, 15:83, 41:01, 41:05-41:07, 41:09, 41:12, 41:14, 41:16, 42:04, 51:01:01-51:01:18, 51:01:20-51:03, 51:05, 51:07:02, 51:09:01-51:09:02, 51:11N-51:12, 51:14, 51:18-51:19, 51:21-51:24:04, 51:26-51:30, 51:32-51:33, 51:35, 51:38-51:41N, 51:43, 51:48-51:55, 51:57-51:58, 51:60-51:61, 51:65-51:80, 51:83-51:91, 51:95-51:96, 51:98N-51:105, 52:01:01, 52:01:03, 52:01:05-52:01:06, 52:04-52:07, 52:10-52:13, 52:15-52:18, 52:20, 52:22, 54:04, 54:11, 55:17, 55:20, 55:28, 56:05:01-56:06, 56:15, 56:21, 58:08, 59:02, 78:01-78:07								8
*13:01:01-13:01:05, 13:06-13:07N, 13:11-13:12, 13:17, 13:22:01-13:22:02, 13:25, 13:28-13:29, 13:36, 13:39, 15:86, 40:48, 40:71, 56:02, 56:04, 56:10						6		
*13:02:01-13:02:05, 13:02:07-13:02:09, 13:08Q-13:09, 13:14, 13:19, 13:27, 13:30, 13:32-13:34, 13:37-13:38, 13:40, 55:22					5	6		8
*13:02:06					5	6		
*13:03, 35:60, 46:11, 46:18, 51:15, 54:01-54:03, 54:05N, 54:07-54:08N, 54:12-54:13, 54:17-54:19, 54:21-54:23, 55:02:01-55:02:06, 55:07, 55:10, 55:12, 55:16, 55:18-55:19, 55:26, 55:30, 55:34-55:35, 55:41, 55:43, 55:47-55:48, 56:01:01-56:01:04, 56:07-56:08, 56:14, 56:16-56:17, 56:19N-56:20, 56:23-56:24, 56:26-56:29, 59:01, 59:04-59:05					5	6		8
Well No.	1	2	3	4	5	6	7	8

Lot No.: **86K**

Lot-specific information

www.olerup-ssp.com

245	250	505	135	150	190	160	135	Length of spec. PCR product(s)
9	10	11	12	13	14	15	16	Well No.
		11						*08:03, 08:52, 44:06, 53:22, 57:09, 57:24
								*08:09, 15:83, 41:01, 41:05-41:07, 41:09, 41:12, 41:14, 41:16, 42:04, 51:01:01-51:01:18, 51:01:20- 51:03, 51:05, 51:07:02, 51:09:01- 51:09:02, 51:11N-51:12, 51:14, 51:18-51:19, 51:21-51:24:04, 51:26-51:30, 51:32-51:33, 51:35, 51:38-51:41N, 51:43, 51:48- 51:55, 51:57-51:58, 51:60-51:61, 51:65-51:80, 51:83-51:91, 51:95- 51:96, 51:98N-51:105, 52:01:01, 52:01:03, 52:01:05-52:01:06, 52:04-52:07, 52:10-52:13, 52:15- 52:18, 52:20, 52:22, 54:04, 54:11, 55:17, 55:20, 55:28, 56:05:01- 56:06, 56:15, 56:21, 58:08, 59:02, 78:01-78:07
				13				*13:01:01-13:01:05, 13:06- 13:07N, 13:11-13:12, 13:17, 13:22:01-13:22:02, 13:25, 13:28- 13:29, 13:36, 13:39, 15:86, 40:48, 40:71, 56:02, 56:04, 56:10
9				13				*13:02:01-13:02:05, 13:02:07- 13:02:09, 13:08Q-13:09, 13:14, 13:19, 13:27, 13:30, 13:32-13:34, 13:37-13:38, 13:40, 55:22
9				13				*13:02:06 *13:03, 35:60, 46:11, 46:18, 51:15, 54:01-54:03, 54:05N, 54:07-54:08N, 54:12-54:13, 54:17- 54:19, 54:21-54:23, 55:02:01- 55:02:06, 55:07, 55:10, 55:12, 55:16, 55:18-55:19, 55:26, 55:30, 55:34-55:35, 55:41, 55:43, 55:47- 55:48, 56:01:01-56:01:04, 56:07- 56:08, 56:14, 56:16-56:17, 56:19N-56:20, 56:23-56:24, 56:26- 56:29, 59:01, 59:04-59:05
9	10	11	12	13	14	15	16	Well No.

Lot No.: **86K**

Lot-specific information

[www.olerup-ssp.com](http://www.olerup-ssp.com)

Length of spec.	145	145	145	170	105	160	105	70
PCR product(s)		255		205				
Well No.	1	2	3	4	5	6	7	8
*13:04, 15:04, 15:16, 15:67, 15:95, 15:137, 15:155, 39:06:01- 39:06:02, 39:33-39:34, 39:57, 39:62, 51:13:01-51:13:02, 51:37, 51:63, 51:92, 52:14, 54:14, 55:13, 55:23, 55:32, 56:22, 59:03							7	8
*13:15				4	5	6		8
*13:16, 55:24					5	6		8
*13:18					5			8
*13:20, 39:17, 50:12						6		
*13:23		2				6		
*15:42, 55:01:01-55:01:06, 55:03, 55:05, 55:11, 55:15, 55:25, 55:29, 55:31, 55:33, 55:36, 55:38, 55:40, 55:45, 56:25, 56:30					5	6		8
*15:46, 15:53, 15:106, 35:47, 40:10:01-40:10:02, 40:40, 40:49, 40:129, 44:02:13, 44:09, 44:11, 44:46, 44:75, 44:90, 47:01:01:01- 47:03, 47:05-47:07								
*18:04, 40:01:11				4				
*18:09, 27:01, 37:10, 58:13		2						
*35:37, 45:02, 45:09, 50:09							7	
*39:50, 40:86, 73:01-73:02							7	8
*40:13, 40:19, 40:117	1							
*40:47, 40:157, 44:55, 44:103		2	3					
*40:58				4				
*40:96		2	3					8
*40:109	1							8
*40:110			3					8
Well No.	1	2	3	4	5	6	7	8

Lot No.: **86K**

Lot-specific information

www.olerup-ssp.com

245	250	505	135	150	190	160	135	Length of spec. PCR product(s)
9	10	11	12	13	14	15	16	Well No.
						290		*13:04, 15:04, 15:16, 15:67, 15:95, 15:137, 15:155, 39:06:01- 39:06:02, 39:33-39:34, 39:57, 39:62, 51:13:01-51:13:02, 51:37, 51:63, 51:92, 52:14, 54:14, 55:13, 55:23, 55:32, 56:22, 59:03
9				13				*13:15
9								*13:16, 55:24
9				w				*13:18
				13				*13:20, 39:17, 50:12 *13:23
								*15:42, 55:01:01-55:01:06, 55:03, 55:05, 55:11, 55:15, 55:25, 55:29, 55:31, 55:33, 55:36, 55:38, 55:40, 55:45, 56:25, 56:30
			12					*15:46, 15:53, 15:106, 35:47, 40:10:01-40:10:02, 40:40, 40:49, 40:129, 44:02:13, 44:09, 44:11, 44:46, 44:75, 44:90, 47:01:01-01- 47:03, 47:05-47:07
								*18:04, 40:01:11 *18:09, 27:01, 37:10, 58:13 *35:37, 45:02, 45:09, 50:09 *39:50, 40:86, 73:01-73:02
9								*40:13, 40:19, 40:117 *40:47, 40:157, 44:55, 44:103 *40:58 *40:96
9								*40:109
9			12					*40:110
9	10	11	12	13	14	15	16	Well No.

Lot No.: **86K**

Lot-specific information

www.olerup-ssp.com

Length of spec.	145	145	145	170	105	160	105	70
PCR product(s)		255		205				
Well No.	1	2	3	4	5	6	7	8
*44:02:01:01-44:02:09, 44:02:11-44:02:12, 44:02:14-44:05:02, 44:12-44:14, 44:16-44:17, 44:19N, 44:21-44:24, 44:26-44:33, 44:35-44:39, 44:41-44:43:02, 44:45, 44:48, 44:51-44:54, 44:56N, 44:58N-44:59, 44:61N-44:74, 44:76-44:80, 44:82, 44:84-44:89, 44:91-44:94, 44:96-44:99, 44:101-44:102, 44:104-44:110, 44:112-44:115, 47:04			3					
*44:02:10, 44:34			3	4				
*44:07, 44:49, 44:81, 44:111			3					
*44:10			3			6		
*44:15		2	3		5			
*44:18	1				5			
*44:20, 44:47, 44:100			3					8
*44:25, 44:95	1							
*44:50	1							
*45:01, 45:03-45:08, 45:11-45:13					5			
*45:10					5			
*50:01:01-50:02, 50:04-50:08, 50:10-50:11					5	6		
*51:07:01, 52:01:02, 52:01:04, 52:02-52:03, 52:09, 52:21				4				8
*51:08, 51:20, 51:36, 51:44N, 52:19								8
*51:62				4		6		
*51:97							7	8
*51:106				4		6		8
*54:10, 55:37					5			8
*54:16, 54:20, 55:21, 55:46, 56:13					5			8
*55:39, 55:42						6		8
*55:44						6		8
HLA-B allele								
Well No.	1	2	3	4	5	6	7	8

Lot No.: **86K**

Lot-specific information

www.olerup-ssp.com

245	250	505	135	150	190	160	135	Length of spec. PCR product(s)
9	10	11	12	13	14	15	16	Well No.
			12			290		*44:02:01:01-44:02:09, 44:02:11-44:02:12, 44:02:14-44:05:02, 44:12-44:14, 44:16-44:17, 44:19N, 44:21-44:24, 44:26-44:33, 44:35-44:39, 44:41-44:43:02, 44:45, 44:48, 44:51-44:54, 44:56N, 44:58N-44:59, 44:61N-44:74, 44:76-44:80, 44:82, 44:84-44:89, 44:91-44:94, 44:96-44:99, 44:101-44:102, 44:104-44:110, 44:112-44:115, 47:04
			12					*44:02:10, 44:34
			12	13				*44:07, 44:49, 44:81, 44:111
			12					*44:10
		11						*44:15
		11	12					*44:18
		11	12					*44:20, 44:47, 44:100
			12					*44:25, 44:95
			12					*44:50
9								*45:01, 45:03-45:08, 45:11-45:13
								*45:10
								*50:01:01-50:02, 50:04-50:08, 50:10-50:11
		11						*51:07:01, 52:01:02, 52:01:04, 52:02-52:03, 52:09, 52:21
		11						*51:08, 51:20, 51:36, 51:44N, 52:19
								*51:62
		11						*51:97
								*51:106
				w				*54:10, 55:37
								*54:16, 54:20, 55:21, 55:46, 56:13
				13				*55:39, 55:42
								*55:44
9	10	11	7	8	9	10	11	HLA-B allele
								Well No.

Lot No.: **86K**

Lot-specific information

[www.olerup-ssp.com](http://www.olerup-ssp.com)

<sup>1</sup>The internal positive control primer pairs amplify segments of the human growth hormone gene. The two different control primer pairs give rise to either an internal positive control band of 1070 base pairs, for most wells, or a band of 800 base pairs, for some wells.

Well number 1 contains the primer pair giving rise to the shorter, 800 bp, internal positive control band in order to help in the correct orientation of the HLA-B\*49 SSP subtyping.

In addition, well number 10 contains the primer pair giving rise to the shorter, 800 bp, internal positive control band in order to allow kit identification.

<sup>2</sup>The nucleotide position, in the 2<sup>nd</sup> or 3<sup>rd</sup> exon, matching the specificity-determining 3'-end of the primer is given. Nucleotide numbering as on the [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla) web site. The sequence of the 3 terminal nucleotides of the primer is given.

<sup>3</sup>The nucleotide position, in the 2<sup>nd</sup> or 3<sup>rd</sup> exon, matching the specificity-determining 3'-end of the primer is given in the anti-sense direction. Nucleotide numbering as on the [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla) web site. The sequence of the 3 terminal nucleotides of the primer is given.

<sup>4</sup>The B\*49:13 and 49:14 alleles can be distinguished by the different sizes of the specific PCR products generated by primer mix 15.

<sup>5</sup>Primer mix 2: Specific PCR fragment of 145 bp in the B\*49:06 and the B\*58:13 alleles. Specific PCR fragment of 255 bp in the B\*49:02 and in the B\*13:23, 18:09, 27:01, 37:10, 40:47, 40:96, 40:157, 44:15, 44:55 and 44:103 alleles.

Primer mix 4: Specific PCR fragment of 170 bp in the B\*49:03 and in the B\*18:04, 40:01:11, 40:58, 44:02:10, 44:34, 51:07:01, 52:01:02, 52:01:04, 52:02-52:03, 52:09 and 52:21 alleles. Specific PCR fragment of 205 bp in the B\*49:09 and in the B\*13:15, 51:62 and 51:106 alleles.

Primer mix 15: Specific PCR fragment of 160 bp in the B\*49:13 allele. Specific PCR fragment of 290 bp in the B\*49:14 allele.

'w', may be weakly amplified.



CELL LINE VALIDATION SHEET																				
HLA-B*49 SSP primer set																				
				Well																
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
				Prod. No.:	200731801	201080802	200731803	201070904	200731805	201080806	200731807	200956908	201070909	201070910	201070911	201080812	201080813	201080814	201080815	201080816
IHC cell line		B*																		
1	9001 SA	*07:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	9280 LK707	*52:01	*73:01	-	-	-	-	-	-	-	+	+	+	-	-	-	-	-	-	-
3	9011 E4181324	*52:01		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
4	9275 GU373	*15:10	*53:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	9009 KAS011	*37:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	9353 SM	*39:01	*51:01	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
7	9020 QBL	*18:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	9025 DEU	*35:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	9026 YAR	*38:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	9107 LKT3	*54:01		-	-	-	-	+	+	-	+	-	-	-	-	+	-	-	-	-
11	9051 PITOUT	*44:03		-	-	+	-	-	-	-	-	-	-	-	-	+	-	-	-	-
12	9052 DBB	*57:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	9025 JESTHOM	*27:05		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	9071 OLGA	*15:01	*15:20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	9075 DKB	*40:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	9037 SWEIG007	*40:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	9282 CTM3953540	*08:01	*55:01	-	-	-	-	+	+	-	+	-	-	-	-	-	-	-	-	-
18	9257 32367	*14:01	*56:01	-	-	-	-	+	+	-	+	-	-	-	-	+	-	-	-	-
19	9038 BM16	*18:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	9059 SLE005	*40:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	9064 AMALA	*15:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	9056 KOSE	*35:03		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	9124 IHL	*40:02	*56:02	-	-	-	-	-	+	-	-	-	-	-	-	+	-	-	-	-
24	9035 JBUSH	*38:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	9049 IBW9	*14:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	9285 WT49	*58:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	9191 CH1007	*07:05	*51:01	-	-	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-
28	9320 BEL5GB	*44:02	*44:03	-	-	+	-	-	-	-	-	-	-	-	-	+	-	-	-	-
29	9050 MOU	*44:03		-	-	+	-	-	-	-	-	-	-	-	-	+	-	-	-	-
30	9021 RSH	*42:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31	9019 DUCAF	*18:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	9297 HAG	*41:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	9098 MT14B	*40:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34	9104 DHIF	*38:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35	9302 SSTO	*44:02		-	-	+	-	-	-	-	-	-	-	-	-	+	-	-	-	-
36	9024 KT17	*15:01	*35:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
37	9065 HHKB	*07:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38	9099 LZL	*15:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39	9315 CML	*08:01	*27:05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40	9134 WHONP199	*13:02	*46:01	-	-	-	-	+	+	-	+	+	-	-	-	+	-	-	-	-
41	9055 H0301	*14:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
42	9066 TAB089	*46:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43	9076 T7526	*46:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44	9057 TEM	*38:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45	9239 SHJO	*42:01	*50:01	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-
46	9013 SCHU	*07:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
47	9045 TUBO	*51:01		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
48	9303 TER-ND	*35:01	*44:03	-	-	+	-	-	-	-	-	-	-	-	-	+	-	-	-	-

## CERTIFICATE OF ANALYSIS

### Olerup SSP® HLA-B\*49 SSP

Product number: 101.547-06u – without *Taq* polymerase  
Lot number: 86K  
Expiry date: 2013-July-01  
Number of tests: 6  
Number of wells per test: 16

#### Well specifications:

Well No.	Production No.	Well No.	Production No.
1	2007-318-01	9	2010-709-09
2	2010-808-02	10	2010-709-10
3	2007-318-03	11	2010-709-11
4	2010-709-04	12	2010-808-12
5	2007-318-05	13	2010-808-13
6	2010-808-06	14	2010-808-14
7	2007-318-07	15	2010-808-15
8	2009-569-08	16	2010-808-16

The specificity of each primer solution of the HLA-B\*49 primer set has been tested against 48 well characterized IHWC cell line DNAs.

No DNAs carrying the alleles to be amplified by primer solutions 2, 4, 10, 11 and 14 to 16 were available. The specificities of the primers in primer solutions 2, 4 and 11 were tested by separately adding one additional 3'-primer, respectively one additional 5'-primer. In primer solution 10, 14 and 15, it was only possible to test the 5'-primer, the 3'-primer was not possible to test. In primer solution 16, it was only possible to test the 3'-primer, the 5'-primer was not possible to test. In addition, one 5'-primer in primer solution 2 was not possible to test.

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

**Date of approval:** 2011-January-21

**Approved by:**

Quality Control, Supervisor

## Declaration of Conformity

**Product name:** *Olerup* SSP® HLA-B\*49  
**Product number:** 101.547-06u  
**Lot number:** 86K

**Intended use:** HLA-B\*49 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  
2011-January-21

Olle Olerup  
Managing Director

Lot No.: **86K**

Lot-specific information

[www.olerup-ssp.com](http://www.olerup-ssp.com)

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