

101.569-06 – including *Taq* polymerase, IFU-01  
 101.569-06u – without *Taq* polymerase, IFU-02

Visit <https://labproducts.caredx.com> for  
 “Instructions for Use” (IFU)

Lot No.: **9N2**

Lot-specific information

**Olerup SSP<sup>®</sup> HLA-B\*54**

<b>Product number:</b>	<b>101.569-06 – including <i>Taq</i> polymerase</b> <b>101.569-06u – without <i>Taq</i> polymerase</b>
<b>Lot number:</b>	<b>9N2</b>
<b>Expiry date:</b>	<b>2025-12-01</b>
<b>Number of tests:</b>	<b>6</b>
<b>Number of wells per test:</b>	<b>21+1</b>
<b>Storage - pre-aliquoted primers:</b>	<b>dark at -20°C</b>
- PCR Master Mix:	<b>-20°C</b>
- Adhesive PCR seals	<b>RT</b>
- Product Insert	<b>RT</b>

**This Product Description is only valid for Lot No. 9N2.**

Complete product documentation consists of generic Instructions for Use (IFU), lot specific Product Insert, Worksheet and Certificate.

**CHANGES COMPARED TO THE PREVIOUS OLERUP SSP<sup>®</sup>  
 HLA-B\*54 LOT (2H9)**

- The product documentation has been updated for new alleles of IMGT 3.46.0.
- The kit resolution focuses on common and well documented (CWD) alleles<sup>1</sup>.

<sup>1</sup>As described in section Uniquely Identified Alleles.

The HLA-B\*54 specificity and interpretation tables have been updated for the HLA-B alleles described since the previous *Olerup SSP<sup>®</sup>* HLA-B\*54 lot was made (**Lot No. 2H9**).

The HLA-B\*54 primer set is unchanged compared to the previous lot (**Lot No. 2H9**).

<sup>1</sup>S. J. Mack, P. Cano, J. A. Hollenbach et al.  
 Common and well-documented HLA alleles: 2012 update to the CWD catalogue. *Tissue Antigens*, 2013, 81, 194–203



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Well **22** contains Negative Control primer pairs, that will amplify the majority of the *Olerup* SSP<sup>®</sup> HLA Class I, DRB, DQB1, DPB1 and DQA1 amplicons as well as all the amplicons generated by the control primer pairs matching the human growth hormone gene.

HLA-specific PCR product sizes range from 75 to 200 base pairs.  
 The PCR product generated by the positive control primer pair is 200 base pairs.

Length of PCR product	105	200	105	80	75	80	85
<b>5'-primer<sup>1</sup></b>	<b>164</b>	<b>340</b>	<b>440</b>	<b>45</b>	<b>45</b>	<b>43</b>	<b>36</b>
	5'-CAC <sup>3'</sup>	5'-Agg <sup>3'</sup>	5'-TTA <sup>3'</sup>	5'-Tgg <sup>3'</sup>	5'-Tgg <sup>3'</sup>	5'-Tgg <sup>3'</sup>	5'-TAC <sup>3'</sup>
							<b>36</b>
							5'-TAT <sup>3'</sup>
<b>3'-primer<sup>2</sup></b>	<b>231</b>	<b>2<sup>nd</sup> I</b>	<b>507</b>	<b>59</b>	<b>58</b>	<b>57</b>	<b>47</b>
	5'-TgC <sup>3'</sup>	5'-AAA <sup>3'</sup>	5'-TTg <sup>3'</sup>	5'-CTC <sup>3'</sup>	5'-ggC <sup>3'</sup>	5'-CTC <sup>3'</sup>	5'-ACA <sup>3'</sup>
							<b>48</b>
							5'-gCA <sup>3'</sup>
							<b>48</b>
							5'-gCC <sup>3'</sup>
							<b>52</b>
							5'-TgT <sup>3'</sup>
<b>A*</b>	<b>+</b>	<b>+</b>	<b>+</b>				
<b>B*</b>	<b>+</b>	<b>+</b>	<b>+</b>				
<b>C*</b>	<b>+</b>	<b>+</b>	<b>+</b>				
<b>DRB1</b>				<b>+</b>	<b>+</b>		
<b>DRB3</b>				<b>+</b>	<b>+</b>		
<b>DRB5</b>				<b>+</b>			
<b>DQB1</b>					<b>+</b>		
<b>DPB1</b>						<b>+</b>	
<b>DQA1</b>							<b>+</b>

<sup>1</sup>The nucleotide position for HLA class I genes and the codon for HLA class II genes, in the 2<sup>nd</sup> or 3<sup>rd</sup> exon, matching the specificity-determining 3'-end of the primer is given. Nucleotide and codon 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>2</sup>The nucleotide position for HLA class I genes and the codon for HLA class II genes, in the 2<sup>nd</sup> or 3<sup>rd</sup> exon or the 2<sup>nd</sup> intron, matching the specificity-determining 3'-end of the primer is given in the anti-sense direction. Nucleotide and codon 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.



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## PRODUCT DESCRIPTION

### HLA-B\*54 SSP subtyping

#### CONTENT

The primer set contains 5'- and 3'-primers for identifying the B\*54:01 to B\*54:44 alleles.

#### PLATE LAYOUT

Each test consists of 22 PCR reactions in a 24 well PCR plate. Wells 23 to 24 are empty.

<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>
<b>17</b>	<b>18</b>	<b>19</b>	<b>20</b>	<b>21</b>	<b>NC</b>	empty	empty

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

Well No. 1 is marked with the Lot Number ‘9N2’.

Wells 1 to 21 – HLA-B\*54 high resolution primers.

Well 22 – Negative Control (NC).

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

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

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

#### INTERPRETATION

Due to the sharing of sequence motifs between HLA-B alleles non-HLA-B\*54 alleles will be amplified by some primer mixes. For further details see Specificity Table.

#### UNIQUELY IDENTIFIED ALLELES

All the HLA-B\*54 alleles, i.e. **B\*54:01 to B\*54:44**, recognized by the HLA Nomenclature Committee in October 2021<sup>1,2</sup> will be amplified by the primers in the HLA-B\*54 subtyping kit<sup>3</sup>.

The HLA-B\*54 kit enables separation of the confirmed HLA-B\*54 alleles as listed in the IMGT/HLA database 3.32.0. An HLA allele is listed as confirmed by IMGT/HLA if it has been sequenced by more than a single laboratory or from multiple sources. Current allele confirmation status for HLA-B\*54 alleles is listed below.

The HLA-B\*54 kit also enables identification of many null and alternatively expressed alleles.



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Lot-specific information

The following HLA-B\*54 alleles can be distinguished by the different sizes of the HLA-specific PCR product:

Alleles	Primer mix
B*54:17, B*54:18	16

<sup>1</sup>HLA-B alleles listed on the IMGT/HLA web page 2021-October-11, release 3.46.0, [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla).

<sup>2</sup>Alleles that have been deleted from or renamed in the official WHO HLA Nomenclature up to and including the last IMGT/HLA database release can be retrieved from web page

<http://hla.alleles.org/alleles/deleted.html>.

<sup>3</sup>The following alleles will give rise to identical amplification patterns with the HLA-B\*54 subtyping kit. These alleles can be distinguished by the HLA-B low resolution and/or the respective HLA-B kits.

**Alleles**

B\*54:01:02, B\*13:132  
B\*54:39, B\*55:02:07

**ALLELE CONFIRMATION STATUS**

Allele	Status <sup>1</sup>	Allele	Status <sup>1</sup>	Allele	Status <sup>1</sup>
B*54:01:01	Confirmed	B*54:15	Unconfirmed	B*54:35	Unconfirmed
B*54:01:02	Unconfirmed	B*54:16	Unconfirmed	B*54:36	Unconfirmed
B*54:01:03	Unconfirmed	B*54:17	Unconfirmed	B*54:37	Unconfirmed
B*54:01:04	Unconfirmed	B*54:18	Unconfirmed	B*54:38	Unconfirmed
B*54:01:05	Unconfirmed	B*54:19	Unconfirmed		
B*54:01:06	Unconfirmed	B*54:20	Unconfirmed		
B*54:01:07	Unconfirmed	B*54:21	Unconfirmed		
B*54:02	Unconfirmed	B*54:22	Unconfirmed		
B*54:03	Unconfirmed	B*54:23	Unconfirmed		
B*54:04	Unconfirmed	B*54:24	Unconfirmed		
B*54:05N	Unconfirmed	B*54:25	Unconfirmed		
B*54:06	Unconfirmed	B*54:26	Unconfirmed		
B*54:07	Unconfirmed	B*54:27	Unconfirmed		
B*54:08N	Unconfirmed	B*54:28	Unconfirmed		
B*54:09	Unconfirmed	B*54:29	Unconfirmed		
B*54:10	Confirmed	B*54:30	Unconfirmed		
B*54:11	Unconfirmed	B*54:31	Unconfirmed		
B*54:12	Unconfirmed	B*54:32	Unconfirmed		
B*54:13	Confirmed	B*54:33	Unconfirmed		
B*54:14	Confirmed	B*54:34	Unconfirmed		

<sup>1</sup>Allele status “confirmed” or “unconfirmed” as listed on the IMGT/HLA web page 2018-April-16, release 3.32.0, [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla).

**RESOLUTION IN HOMO- AND HETEROZYGOTES**

Results file with resolution in HLA-B\*54 homo- and heterozygotes is available upon request.



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Lot-specific information

## SPECIFICITY TABLE

### HLA-B\*54 SSP subtyping

Specificities and sizes of the PCR products of the 21+1 primer mixes used for HLA-B\*54 SSP subtyping

Primer Mix	Size of spec. PCR product <sup>1</sup>	Size of control band <sup>2</sup>	Amplified HLA-B*54 alleles <sup>3</sup>	Other amplified HLA Class I alleles
1	215 bp	800 bp	*54:01:01:01-54:01:01:06, 54:01:03-54:44	*07:02:19, 15:01:04, 15:01:43, 15:12:03, 18:01:20, 18:72:02, 37:01:04, 40:94, 46:77, 51:01:18, 55:02:07, 56:01:14, 58:01:08
2 <sup>4</sup>	105 bp	1070 bp	*54:01:01:01-54:03, 54:05N, 54:07-54:08N, 54:10, 54:12-54:13, 54:16-54:30, 54:32-54:37, 54:39-54:41, 54:43-54:44	*07:78, 13:02:01:01-13:02:14, 13:02:16-13:03, 13:08-13:09, 13:14-13:16, 13:18-13:19, 13:27, 13:30-13:34, 13:37-13:38, 13:40-13:42, 13:44-13:45, 13:48-13:49N, 13:53-13:56:02N, 13:58, 13:65-13:70, 13:74-13:75, 13:81-13:82, 13:84-13:85, 13:88-13:89, 13:91, 13:93-13:94, 13:96-13:105, 13:111-13:121, 13:123Q-13:126, 13:128, 13:130-13:134, 13:136-13:137N, 13:139N, 13:143, 13:145, 13:147, 13:149-13:159, 13:164-13:167, 14:37, 15:42, 15:303, 15:485, 15:552, 35:60, 44:15:01:01-44:15:01:02, 44:18:01:01-44:18:01:02, 44:339, 45:01:01:01-45:01:11, 45:03-45:08, 45:10-45:25, 45:27-45:28N, 46:11, 46:18, 49:01:01:01-49:03, 49:06-49:14, 49:16-49:17, 49:19N-49:46, 49:48-49:49, 49:51-49:60N, 49:62-49:76, 50:01:01:01-50:02:01:02, 50:04:01-50:08, 50:10-50:11, 50:13, 50:15, 50:18-50:19, 50:31-50:32, 50:34-50:40, 50:43-50:50, 50:52-50:78, 51:15, 51:106:02, 51:157, 51:225, 51:300, 52:25:01, 55:01:01:01-55:01:03, 55:01:05-55:01:06, 55:01:08-55:02:10, 55:02:12-55:03, 55:05, 55:07, 55:09-55:12, 55:15-55:16, 55:18-55:19, 55:21-55:22, 55:24-55:26, 55:29-55:31, 55:33-55:38, 55:40-55:41, 55:43, 55:45-55:48, 55:50, 55:52, 55:54-55:57, 55:59-55:60, 55:62-55:67, 55:69-55:80, 55:82-55:85, 55:87-55:93, 55:95-55:109, 55:111-55:121, 56:01:01:01-56:01:17, 56:07-56:08, 56:13-56:14, 56:16-56:17, 56:19N-56:20:02, 56:23-56:30, 56:33-56:49, 56:52-56:55:01:02, 56:58-56:59, 56:61-56:62, 56:64-56:65, 56:67-56:86, 59:01:01:01-59:01:01:02, 59:04-59:10N, 59:12
3 <sup>5</sup>	160 bp	1070 bp	*54:01:01:01-54:01:09, 54:03-54:04, 54:06-54:38, 54:40-54:44	*08:101, 13:132, 15:434, 35:501, 41:55, 44:24, 44:181, 46:86, 51:39, <b>C*05:30, C*06:125, C*07:441:01-07:441:02, C*16:86, C*16:144, C*16:147</b>
4 <sup>6</sup>	160 bp	1070 bp	*54:02, 54:19	*07:13, 07:110, 37:52, 38:11, 48:36, 67:02:01:01-67:02:01:02, 81:06, <b>A*26:142, C*02:191, C*03:137, C*03:182, C*03:459,</b>



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MA123 v01 SSP PI Template

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5	180 bp	1070 bp	*54:03, 54:08N, 54:33, 54:40	<p><b>C*03:504, C*07:102<sup>w</sup>, C*07:351, C*12:82, C*16:116</b>                  *13:03, 13:48, 13:120, 13:146, 13:164,                  15:73:01:01-15:73:01:02, 15:303, 15:486,                  15:552, 35:432, 35:446, 40:71, 44:10,                  44:15:01:01-44:15:01:02, 44:18:01:01-                  44:18:01:02, 44:140, 44:339-44:340,                  45:01:01:01-45:01:11, 45:04-45:07, 45:11-45:23,                  45:24<sup>w</sup>, 45:25, 45:27-45:28N, 46:11,                  49:01:01:01-49:01:07, 49:01:09-49:03, 49:06,                  49:08-49:14, 49:16-49:17, 49:19N-49:49, 49:51-                  49:60N, 49:62-49:75, 50:01:01:01-50:02:01:02,                  50:04:01-50:08, 50:10-50:13, 50:15-50:19,                  50:32, 50:34-50:38, 50:40-50:44, 50:46-50:48,                  50:50-50:78, 51:15, 51:62, 51:106:01-51:106:02,                  51:223, 51:225, 52:25:01-52:25:02, 56:01:01:01-                  56:01:04, 56:01:06-56:01:12, 56:01:14-56:02:03,                  56:04:01:01-56:04:04, 56:07-56:08, 56:13-56:14,                  56:16-56:17, 56:20:01-56:20:02, 56:24-56:30,                  56:33-56:49, 56:51-56:53, 56:55:01:02-56:59,                  56:61-56:65, 56:67-56:86, 58:73, 59:04, 59:12,                  82:01:01:01-82:04, <b>C*03:19, C*03:102</b></p>
6 <sup>4</sup>	105 bp	1070 bp	*54:04, 54:11, 54:15, 54:42	<p>*07:84, 07:429, 08:09, 08:84, 08:254, 13:35,                  13:59, 13:62, 15:83:01:01-15:83:01:02, 27:14,                  27:81, 27:130, 27:153, 35:273, 35:534,                  40:06:01:01-40:06:08, 40:06:10-40:06:17,                  40:06:19-40:06:28, 40:44, 40:53, 40:70:01-                  40:70:02, 40:75, 40:83, 40:93, 40:95-40:96,                  40:103, 40:109-40:110, 40:127, 40:131, 40:148,                  40:161-40:162, 40:165, 40:167, 40:177, 40:190,                  40:230, 40:244, 40:256N, 40:268-40:270,                  40:275, 40:294-40:295, 40:298:01-40:298:02,                  40:306-40:307, 40:311, 40:313, 40:317-40:318,                  40:340-40:342, 40:348-40:350, 40:354,                  40:361N-40:364, 40:366, 40:373-40:374,                  40:376, 40:387-40:389, 40:408, 40:411, 40:423,                  40:425, 40:427, 40:434, 40:445, 40:449, 40:451,                  40:453-40:454, 40:459-40:460, 40:464, 40:468,                  40:471, 40:473, 40:476, 40:478, 40:482, 40:484,                  40:487N-40:488N, 40:492, 40:494, 41:01:01:01-                  41:01:07, 41:05-41:07, 41:09, 41:12, 41:14,                  41:16-41:17, 41:20-41:22, 41:25-41:26, 41:28-                  41:29, 41:32-41:35, 41:37, 41:53-41:54, 41:56Q-                  41:57, 41:59-41:61, 41:64, 41:66-41:67, 41:70,                  41:73, 42:04, 44:20, 44:47, 44:100, 44:197,                  44:459, 49:18:01-49:18:02, 50:14, 50:20,                  51:01:01:01-51:01:47, 51:01:49-51:03, 51:05,                  51:07:01-51:12, 51:14, 51:16-51:24:05, 51:26-                  51:34, 51:36, 51:38-51:41N, 51:43-51:44N,                  51:48-51:55, 51:57-51:58, 51:60-51:61:02,                  51:65-51:80, 51:82-51:91, 51:93-51:96, 51:98N,                  51:100-51:105, 51:107-51:130, 51:132, 51:134,                  51:136-51:138, 51:140-51:147, 51:149N-51:156,                  51:158:01-51:171, 51:173Q-51:193:02,</p>



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	235 bp		*54:08N	
<b>7</b>	140 bp	1070 bp	*54:05N	
<b>8</b>	280 bp	1070 bp	*54:06, 54:09, 54:14	*07:09:01-07:09:02, 07:11, 07:17, 07:162, 07:235, 07:237, 07:255, 07:287, 08:28, 08:35, 08:37, 08:89, 08:107, 08:291, 13:04, 13:10, 13:26:01-13:26:02, 13:72, 13:127, 13:160, 14:56, 15:01:01:01-15:01:04, 15:01:06-15:02:11, 15:03:01:01-15:08:02, 15:11:01-15:16:05, 15:18:01:01-15:21:01:02, 15:23-15:29:01:02, 15:31:01:01-15:36, 15:38:01-15:40:02, 15:43-15:44, 15:46-15:47:02, 15:49-15:57, 15:60-15:62, 15:64:01-15:72, 15:74-15:76, 15:78:01:01-15:82, 15:84-15:85, 15:87-15:89:02, 15:91-15:98, 15:101-15:129, 15:131-15:132, 15:134-15:136, 15:138-15:149N, 15:151-15:161, 15:163-15:167, 15:169-15:176, 15:178-15:187, 15:189:01-15:195, 15:197:01-15:207, 15:209N-15:215, 15:217-15:223, 15:225-15:228, 15:231-15:232, 15:234-15:242:02, 15:244-15:247, 15:249-15:251:03, 15:254-15:268, 15:270-15:272N, 15:274-15:286, 15:288-15:302N, 15:304N-15:311, 15:314-15:322, 15:325-15:328, 15:330-15:333, 15:335-15:337, 15:340-15:341, 15:343-15:355, 15:357-15:360, 15:362-15:395, 15:397-15:399, 15:401-15:402, 15:404-15:410, 15:412-15:415, 15:417-15:419, 15:421-15:422, 15:425-15:426, 15:428-15:434, 15:436-15:438, 15:440-15:444, 15:447-15:454N, 15:456-15:459, 15:461, 15:463N-15:484, 15:487N, 15:489-15:499, 15:501-15:502, 15:504-15:505, 15:507-15:515, 15:517-15:522, 15:524-15:529, 15:531, 15:533-15:540N, 15:542-15:545, 15:547-15:551, 15:554, 15:556-15:562N, 15:564-15:574, 15:576-15:577, 15:579-15:584N, 15:586-15:602, 15:604N-15:610, 15:612-15:618, 15:621, 18:01:01:01-18:15, 18:17N-18:25, 18:27-18:40, 18:42-18:60, 18:62-18:121, 18:123-18:147, 18:149-18:164, 18:167, 18:169-18:188, 18:190, 18:192-18:204, 18:206-18:216, 27:41, 27:107, 35:01:01:01-35:01:67, 35:05:01:01-35:05:06, 35:07-35:08:15, 35:10-35:11:03, 35:14:01-35:17:04, 35:19-35:21, 35:23-35:30:01:02, 35:32:01-35:32:03, 35:35, 35:37, 35:40N-35:43:01, 35:43:03-35:43:04, 35:45-35:54,



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<b>10</b>	225 bp	1070 bp	*54:10, 54:20, 54:33, 54:40	*07:78, 07:84, 07:429, 13:18, 13:31, 13:41, 13:128, 13:131, 13:145, 13:164, 15:04:01:01-15:04:04, 15:137, 15:303, 15:499, 15:531, 15:609, 35:265, 39:33, 40:161, 46:32:01-46:32:02, 49:41, 50:47, 51:05, 51:29, 51:54, 51:61:01-51:61:02, 51:82, 51:197, 51:217, 51:279, 52:21:01-52:21:02, 52:24, 52:97, 55:09, 55:21, 55:37, 55:52, 56:43, <b>C*05:152, C*12:183, C*14:92</b>
<b>11</b>	185 bp	1070 bp	*54:11, 54:22	*40:298:01-40:298:02, 40:434, 51:324, 51:338
<b>12</b>	150 bp	1070 bp	*54:12	*27:198, 59:06
<b>13</b>	135 bp	1070 bp	*54:13	<b>C*03:217</b>
<b>14</b>	210 bp	<b>800 bp</b>	*54:07	*55:64
<b>15<sup>d</sup></b>	95 bp	1070 bp	*54:14-54:16	*07:84, 07:429, 13:04, 13:35, 13:72, 13:127, 15:04:01:01-15:04:04, 15:16:01:01-15:16:05,



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<b>16</b>	210 bp 340 bp	1070 bp	*54:18 *54:17	<b>C*08:196, C*12:273</b>
<b>17</b>	210 bp	1070 bp	*54:20, 54:33 <sup>w</sup>	*07:78, 07:84, 07:429, 13:16, 13:31 <sup>w</sup> , 13:48, 13:62, 13:128, 13:131 <sup>w</sup> , 13:145 <sup>w</sup> , 14:37, 15:04:01:01 <sup>w</sup> -15:04:04 <sup>w</sup> , 15:16:01:01-15:16:05, 15:42, 15:67, 15:95, 15:137 <sup>w</sup> , 15:254, 15:293, 15:303 <sup>w</sup> , 15:310, 15:362, 15:408, 15:517, 15:531 <sup>w</sup> , 15:550, 15:602, 15:609 <sup>w</sup> , 15:613, 27:153, 35:265 <sup>w</sup> , 40:95, 40:148, 40:161, 44:459, 46:32:01 <sup>w</sup> -46:32:02 <sup>w</sup> , 49:01:01:01-49:01:01:15, 49:01:03-49:10, 49:12-49:14, 49:16-49:44, 49:46, 49:48-49:60N, 49:62-49:76, 50:01:01:01-50:02:01:02, 50:04:01-50:11, 50:13-50:16, 50:18-50:20, 50:31-50:46, 50:47 <sup>w</sup> , 50:48, 50:50, 50:52-50:65, 50:67-50:69, 50:71-50:78, 51:01:01:01-51:03, 51:07:01-51:07:02, 51:11N-51:14, 51:16-51:18, 51:21-51:24:05, 51:26-51:30, 51:32-51:35, 51:37-51:39, 51:41N, 51:43, 51:48-51:53, 51:55, 51:57-51:58, 51:60, 51:61:01 <sup>w</sup> -51:61:02 <sup>w</sup> , 51:63:01-51:63:02, 51:65-51:71, 51:74-51:80, 51:82-51:86, 51:88-51:90, 51:92:01-51:92:02, 51:94-51:96, 51:98N-51:107, 51:109-51:114, 51:116-51:121, 51:123-51:134, 51:136-51:138, 51:140, 51:142-51:147, 51:149N-51:152, 51:154-51:156, 51:158:01-51:180, 51:182-51:193:02, 51:195-51:210, 51:212, 51:214-51:216, 51:218-51:219, 51:221-51:226, 51:228-51:258, 51:260-51:262, 51:264N-51:273N, 51:277-51:279, 51:282-51:292, 51:294-51:309, 51:311-51:318N, 51:320-51:336, 51:339, 51:343-51:351, 51:355-51:358, 52:01:01:01-52:02:02, 52:04-52:09:02, 52:11:01-52:18, 52:20, 52:21:01 <sup>w</sup> -52:21:02 <sup>w</sup> , 52:22-52:43, 52:44 <sup>w</sup> , 52:45-52:70, 52:72-52:73, 52:75-52:87, 52:89N-52:96N, 52:97 <sup>w</sup> , 52:98-52:106, 55:01:01:01-55:01:06, 55:01:08-55:01:28, 55:03, 55:05, 55:09, 55:11, 55:15, 55:17, 55:21 <sup>w</sup> , 55:24-55:25, 55:28:01-55:29, 55:31, 55:33, 55:36, 55:38, 55:40, 55:44-55:45, 55:52-55:55N, 55:58-55:60, 55:64, 55:66, 55:68, 55:73-55:76, 55:78-55:79, 55:84-55:85, 55:87, 55:90-55:95, 55:97N-55:106, 55:108-55:109, 55:111, 55:113-55:116, 55:118N-55:119,



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<b>18</b>	295 bp	1070 bp	*54:21	*38:02:08, 38:167, 40:149 <sup>?</sup> , 41:22, 49:25, 50:77, 55:10, 56:16, 57:58, 57:80, 67:06 <sup>?</sup> -67:07 <sup>?</sup> , 82:01:01:01-82:04
<b>19</b>	230 bp	1070 bp	*54:23	*08:158
<b>20</b>	205 bp	1070 bp	*54:24	*35:368
<b>21</b>	250 bp	1070 bp	*54:32	
<b>22<sup>7</sup></b>	-	-	<b>Negative Control</b>	

<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\*54 SSP typings.

When the primers in a primer mix can give rise to HLA-specific PCR products of more than one length this is indicated if the size difference is more than 20 base pairs. Size differences of 20 base pairs or less are not given. For high resolution SSP kits, the alleles listed are specified according to amplicon length. 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 internal positive control bands are 1070 or 800 base pairs respectively, well distribution as outlined in the table. Well number 1 contains the shorter, 800 bp, internal positive control band. The well distribution of the internal controls can help in orientation of the kit on gel photo, as well as allow for kit identification. In the presence of a specific amplification the intensity of the control band often decreases.

<sup>3</sup>For several HLA Class I alleles 1<sup>st</sup> and/or 4<sup>th</sup> exon(s) and beyond, as well as intron nucleotide sequences, are not available. In these instances it is not known whether some of the primers of the SSP sets are completely matched with the target sequences or not. Assumption is made that unknown sequences in these regions are conserved within allelic groups.

<sup>4</sup>HLA-specific PCR products shorter than 125 base pairs have a lower intensity and are less sharp than longer PCR products.

<sup>5</sup>Primer mix 3 may give rise to a lower yield of HLA-specific PCR product than the other HLA-B\*54 primer mixes.

<sup>6</sup>Primer mix 4 may have tendency of unspecific amplification.

<sup>7</sup>Primer mix 22 contains a negative control, which will amplify the majority of HLA amplicons as well as the amplicons generated by the control primer pairs matching the human growth hormone gene. HLA-specific PCR product sizes range from 75 to 200 base pairs and the PCR product generated by the HGH positive control primer pair is 200 base pairs.

Abbreviations

w: might be weakly amplified

?: nucleotide sequence of the primer matching region not known.



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For *In Vitro* Diagnostic Use

MA123 v01 SSP PI Template

Date: January 2022, Rev. No: 00

101.569-06 – including *Taq* polymerase, IFU-01  
101.569-06u – without *Taq* polymerase, IFU-02

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Lot No.: **9N2**

Lot-specific information

**PRIMER SPECIFICATION**

Well No.	1	2	3	4	5	6	7	8	9	10	11	12
Length of spec. PCR product	215	105	160	160	180	105	140	280	200	225	185	150
Length of int. pos. control <sup>1</sup>	<b>800</b>	1070	1070	1070	1070	1070	1070	1070	1070	1070	1070	1070
5'-primer(s) <sup>2</sup>	1 <sup>st</sup> I	357	106	103	420	357	106	419	369	357	357	206
	5'-CAg 3'	5'-Tgg 3'	5'-CCA 3'	5'-CCT 3'	5'-TTA 3'	5'-Tgg 3'	5'-CCA 3'	5'-gTC 3'	5'-TAC 3'	5'-Tgg 3'	5'-Tgg 3'	5'-Agg 3'
				103								
				5'-CCT 3'								
				110								
				5'-gTT 3'								
3'-primer(s) <sup>3</sup>	175	420	226	226	553	419	207	3 <sup>rd</sup> I	527	539	499	317
	5'-CCg 3'	5'-gCT 3'	5'-CAC 3'	5'-CAC 3'	5'-CTA 3'	5'-CgT 3'	5'-TCC 3'	5'-TAT 3'	5'-CCA 3'	5'-TCC 3'	5'-ggA 3'	5'-ggA 3'
					559	553			527			
					5'-CAg 3'	5'-CTA 3'			5'-CCA 3'			
Well No.	1	2	3	4	5	6	7	8	9	10	11	12

Well No.	13	14	15	16	17	18	19	20	21
Length of spec. PCR product	135	210	95	210	210	295	230	205	250
Length of int. pos. control <sup>1</sup>	1070	<b>800</b>	1070	1070	1070	1070	1070	1070	1070
5'-primer(s) <sup>2</sup>	133	106	357	89	357	15	106	106	802
	5'-CCg 3'	5'-CCA 3'	5'-Tgg 3'	5'-gAA 3'	5'-Tgg 3'	5'-gCA 3'	5'-CCA 3'	5'-CCA 3'	5'-Agg 3'
				709					
				5'-Agg 3'					
3'-primer(s) <sup>3</sup>	226	275	412	259	527	142	294	272	916
	5'-CAC 3'	5'-CCA 3'	5'-gTC 3'	5'-gTT 3'	5'-CCT 3'	5'-TgA 3'	5'-CgC 3'	5'-TgA 3'	5'-gAT 3'
			412	916					
			5'-gTC 3'	5'-gAT 3'					
Well No.	13	14	15	16	17	18	19	20	21

<sup>1</sup>The internal positive control primer pairs amplify segments of the human growth hormone gene. The internal positive control bands are 1070 or 800 base pairs respectively, well distribution as outlined in the table. Well number 1 contains the shorter, 800 bp, internal positive control band. The well distribution of the internal controls can help in orientation of the kit on gel photo, as well as allow for kit identification. In the presence of a specific amplification the intensity of the control band often decreases.

<sup>2</sup>The nucleotide position 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 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.



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Lot No.: **9N2**

Lot-specific information

CELL LINE VALIDATION SHEET																				
HLA-B*54 SSP subtyping kit <sup>2</sup>																				
				Well																
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
				Prod. No.:	201892501	201892502	201892503	201892504	201892505	201892506	201892507	201892508	201892509	201892510	201892511	201892512	201892513	201892514	201892515	201892516
	IHWC cell line <sup>1</sup>		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	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-



101.569-06 – including *Taq* polymerase, IFU-01  
101.569-06u – without *Taq* polymerase, IFU-02

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Lot No.: **9N2**

Lot-specific information

CELL LINE VALIDATION SHEET										
HLA-B*54 SSP subtyping kit <sup>2</sup>										
					Well					
					17	18	19	20	21	
					Prod. No.:	201892517	201892518	201892519	201892520	201892521
	IHWC cell line <sup>1</sup>		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	-	-	-	-	-	



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MA123 v01 SSP PI Template

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101.569-06 – including *Taq* polymerase, IFU-01  
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Lot No.: **9N2**

**Lot-specific information**

<sup>1</sup>The provided cell line HLA specificities are retrieved from the <http://www.ihwg.org/hla> web site. The specificity of an individual cell line may thus be subject to change.

<sup>2</sup>The specificity of each primer solution in the kit has been tested against 48 well characterized cell line DNAs and where applicable, additional cell line DNAs.

No DNAs carrying the alleles to be amplified by primer solutions 4, 7, 11 to 14, 16 and 19 to 21 were available. The specificities of the primers in primer solutions 4, 11, 12 and 16 were tested by separately adding one or two additional 5'-primers, and one or two additional 3'-primers accordingly. In primer solutions 7, 14, 19 and 20 it was only possible to test the 5'-primer, the 3'-primer was not possible to be tested. In primer solutions 13 and 21 it was only possible to test the 3'-primer, the 5'-primer was not possible to be tested. One 5'-primer in primer solutions 4 and 16 and one 3'-primer in primer solutions 5 and 6 was not possible to be tested. In addition, one 3'-primer in primer solution 15 was tested by separately adding an additional 5'-primer.



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“Instructions for Use” (IFU)

Lot No.: **9N2**

Lot-specific information

**ADDRESSES:**

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For information on CareDx distributors worldwide, contact **CareDx AB**.



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