

101.561-24/03 – including *Taq* polymerase
101.561-24u/03u – without *Taq* polymerase

Visit www.caredx.com for
“Instructions for Use” (IFU)

Lot No.: **5S3**

Lot-specific information

Olerup SSP[®] HLA-B*51

Product number:	101.561-24/03 – including <i>Taq</i> pol. 101.561-24u/03u – without <i>Taq</i> pol.
Lot number:	5S3
Expiry date:	2027-10-01
Number of tests:	24 tests – Product No. 101.561-24/24u 3 tests – Product No. 101.561-03/03u
Number of wells per test:	84+1
Storage - pre-aliquoted primers:	dark, between -15°C and -25°C
- PCR Master Mix:	between -15°C and -25°C
- Adhesive PCR seals	RT

This Product Description is only valid for Lot No. 5S3.

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

CHANGES COMPARED TO THE PREVIOUS OLERUP SSP[®] HLA-B*51 LOT (3R8)

- The product documentation has been updated for new alleles of IMGT 3.53.0
- The kit resolution focuses on common and well documented (CWD) alleles¹.

¹As described in section Uniquely Identified Alleles.

The HLA-B*51 specificity and interpretation tables have been updated for the HLA-B alleles described since the previous *Olerup SSP[®] HLA-B*51* lot was made (**Lot No. 3R8**).

The HLA-B*51 primer set is unchanged compared to the previous *Olerup SSP[®] HLA-B*51* lot (**Lot No. 3R8**).

¹S. 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 **85** contains Negative Control primer pairs, that will amplify the majority of the *Olerup* SSP[®] 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 products generated by the positive control primer pair is 200 base pairs.

Length of PCR product	105	200	105	80	75	80	85
5'-primer¹	164	340	440	45	45	43	36
	5'-CAC ^{3'}	5'-Agg ^{3'}	5'-TTA ^{3'}	5'-Tgg ^{3'}	5'-Tgg ^{3'}	5'-Tgg ^{3'}	5'-TAC ^{3'}
							36
							5'-TAT ^{3'}
3'-primer²	231	2nd I	507	59	58	57	47
	5'-TgC ^{3'}	5'-AAA ^{3'}	5'-TTg ^{3'}	5'-CTC ^{3'}	5'-ggC ^{3'}	5'-CTC ^{3'}	5'-ACA ^{3'}
							48
							5'-gCA ^{3'}
							48
							5'-gCC ^{3'}
							52
							5'-TgT ^{3'}
A*	+	+	+				
B*	+	+	+				
C*	+	+	+				
DRB1				+	+		
DRB3				+	+		
DRB5				+			
DQB1					+		
DPB1						+	
DQA1							+

¹The nucleotide position for HLA class I genes and the codon for HLA class II genes, in the 2nd or 3rd 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 web site. The sequence of the 3 terminal nucleotides of the primer is given.

²The nucleotide position for HLA class I genes and the codon for HLA class II genes, in the 2nd or 3rd exon or the 2nd 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 web site. The sequence of the 3 terminal nucleotides of the primer is given.



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PRODUCT DESCRIPTION

HLA-B*51 SSP subtyping

CONTENT

The primer set contains 5'- and 3'-primers for identifying the B*51:01 to B*51:386 alleles.

PLATE LAYOUT

Each test consists of 85 PCR reactions in a 96 well PCR plate. Wells 86 to 96 are empty.

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	42	44	45	46	47	48
49	50	51	52	53	54	55	56
57	58	59	60	61	62	63	64
65	66	67	68	69	70	71	72
73	74	75	76	77	78	79	80
81	82	83	84	NC	empty	empty	empty
empty	empty	empty	empty	empty	empty	empty	empty

The 96 well cut PCR plate is marked with ‘HLA-B*51’ in silver/gray ink.
Well No. 1 is marked with the Lot No. ‘5S3’.

Wells 1 to 84 – HLA-B*51 high resolution primers.

Well 85 – 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.

INTERPRETATION

Due to the sharing of sequence motifs between HLA-B alleles non-HLA-B*51 alleles will be amplified by some primer mixes. For further details see Specificity Table.

UNIQUELY IDENTIFIED ALLELES

All the HLA-B*51 alleles, i.e. **B*51:01 to B*51:386**, recognized by the HLA Nomenclature Committee in July 2023^{1,2} will be amplified by the primers in the HLA-B*51 subtyping kit³.



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The HLA-B*51 kit enables separation of the confirmed HLA-B*51 alleles as listed in the IMGT/HLA database 3.25.0. 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*51 alleles is listed below.

The HLA-B*51 kit also enables identification of many null and alternatively expressed alleles.

The following HLA-B*51 alleles can be distinguished by the different sizes of the specific PCR product:

Alleles	Primer mix	Alleles	Primer mix
B*51:26, 51:185	20	B*51:70, 51:71	53
B*51:30, 51:142	25	B*51:74, 51:124	54
B*51:51, 51:76	44	B*51:75, 51:77	55
B*51:55, 51:245N	37	B*51:83, 51:88	59
B*51:57, 51:123	46	B*51:84, 51:94	60
B*51:66, 51:67	64	B*51:86, 51:95	62
B*51:68, 51:72	51	B*51:127, 51:149N	73

¹HLA-B alleles listed on the IMGT/HLA web page 2023-July-12, release 3.53.0, www.ebi.ac.uk/imgt/hla.

²Alleles 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>.

³The following alleles will give rise to identical amplification patterns. These alleles can be distinguished by the HLA-B low resolution kit and/or the respective high-resolution kits.

Alleles

B*51:119, 51:176, 51:179, 51:218, 51:226, B*52:06:03
B*51:220, B*53:01:13



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ALLELE CONFIRMATION STATUS

Allele	Status ¹	Allele	Status ¹	Allele	Status ¹	Allele	Status ¹
B*51:01:01:01	Confirmed	B*51:01:50	Unconfirmed	B*51:34	Confirmed	B*51:81	Unconfirmed
B*51:01:01:02	Unconfirmed	B*51:01:51	Unconfirmed	B*51:35	Unconfirmed	B*51:82	Confirmed
B*51:01:02	Confirmed	B*51:01:52	Unconfirmed	B*51:36	Confirmed	B*51:83	Confirmed
B*51:01:03	Unconfirmed	B*51:01:53	Unconfirmed	B*51:37	Confirmed	B*51:84	Unconfirmed
B*51:01:04	Confirmed	B*51:02:01	Confirmed	B*51:38	Confirmed	B*51:85	Confirmed
B*51:01:05	Unconfirmed	B*51:02:02	Confirmed	B*51:39	Unconfirmed	B*51:86	Unconfirmed
B*51:01:06	Unconfirmed	B*51:02:03	Unconfirmed	B*51:40	Confirmed	B*51:87	Unconfirmed
B*51:01:07	Unconfirmed	B*51:02:04	Unconfirmed	B*51:41N	Unconfirmed	B*51:88	Unconfirmed
B*51:01:08	Unconfirmed	B*51:02:05	Confirmed	B*51:42	Unconfirmed	B*51:89	Unconfirmed
B*51:01:09	Confirmed	B*51:03	Unconfirmed	B*51:43	Confirmed	B*51:90	Confirmed
B*51:01:10	Confirmed	B*51:04	Unconfirmed	B*51:44N	Unconfirmed	B*51:91	Unconfirmed
B*51:01:11	Unconfirmed	B*51:05	Confirmed	B*51:45	Unconfirmed	B*51:92:01	Unconfirmed
B*51:01:12	Unconfirmed	B*51:06:01	Confirmed	B*51:46	Unconfirmed	B*51:92:02	Unconfirmed
B*51:01:13	Unconfirmed	B*51:06:02	Confirmed	B*51:48	Unconfirmed	B*51:93	Unconfirmed
B*51:01:14	Unconfirmed	B*51:06:03	Unconfirmed	B*51:49	Unconfirmed	B*51:94	Confirmed
B*51:01:15	Unconfirmed	B*51:07:01	Confirmed	B*51:50	Confirmed	B*51:95	Unconfirmed
B*51:01:16	Unconfirmed	B*51:07:02	Unconfirmed	B*51:51	Unconfirmed	B*51:96	Unconfirmed
B*51:01:17	Unconfirmed	B*51:08:01	Confirmed	B*51:52	Confirmed	B*51:97	Unconfirmed
B*51:01:18	Confirmed	B*51:08:02	Unconfirmed	B*51:53	Unconfirmed	B*51:98N	Unconfirmed
B*51:01:19	Confirmed	B*51:09:01	Confirmed	B*51:54	Unconfirmed	B*51:99	Unconfirmed
B*51:01:20	Confirmed	B*51:09:02	Confirmed	B*51:55	Confirmed	B*51:100	Confirmed
B*51:01:21	Confirmed	B*51:09:03	Unconfirmed	B*51:56:01	Confirmed	B*51:101	Unconfirmed
B*51:01:22	Unconfirmed	B*51:10	Confirmed	B*51:56:02	Unconfirmed	B*51:102	Unconfirmed
B*51:01:23	Unconfirmed	B*51:11N	Confirmed	B*51:56:03	Unconfirmed	B*51:103	Confirmed
B*51:01:24	Unconfirmed	B*51:12	Unconfirmed	B*51:57	Unconfirmed	B*51:104	Unconfirmed
B*51:01:25	Unconfirmed	B*51:13:01	Confirmed	B*51:58	Unconfirmed	B*51:105	Confirmed
B*51:01:26	Unconfirmed	B*51:13:02	Confirmed	B*51:59	Unconfirmed	B*51:106	Unconfirmed
B*51:01:27	Unconfirmed	B*51:14	Confirmed	B*51:60	Unconfirmed	B*51:107	Confirmed
B*51:01:28	Unconfirmed	B*51:15	Unconfirmed	B*51:61:01	Confirmed	B*51:108	Confirmed
B*51:01:29	Confirmed	B*51:16	Confirmed	B*51:61:02	Unconfirmed	B*51:109	Confirmed
B*51:01:30	Unconfirmed	B*51:17	Unconfirmed	B*51:62	Unconfirmed	B*51:110N	Unconfirmed
B*51:01:31	Unconfirmed	B*51:18	Unconfirmed	B*51:63	Unconfirmed	B*51:111	Confirmed
B*51:01:32	Confirmed	B*51:19	Confirmed	B*51:64	Confirmed	B*51:112	Unconfirmed
B*51:01:33	Confirmed	B*51:20	Confirmed	B*51:65	Confirmed	B*51:113	Unconfirmed
B*51:01:34	Confirmed	B*51:21	Unconfirmed	B*51:66	Unconfirmed	B*51:114	Unconfirmed
B*51:01:35	Confirmed	B*51:22	Confirmed	B*51:67	Confirmed	B*51:115	Confirmed
B*51:01:36	Unconfirmed	B*51:23	Confirmed	B*51:68	Confirmed	B*51:116	Confirmed
B*51:01:37	Unconfirmed	B*51:24:01	Confirmed	B*51:69	Confirmed	B*51:117	Confirmed
B*51:01:38	Confirmed	B*51:24:02	Unconfirmed	B*51:70	Confirmed	B*51:118N	Unconfirmed
B*51:01:39	Confirmed	B*51:24:03	Confirmed	B*51:71	Unconfirmed	B*51:119	Confirmed
B*51:01:40	Unconfirmed	B*51:24:04	Confirmed	B*51:72	Unconfirmed	B*51:120	Confirmed
B*51:01:41	Unconfirmed	B*51:24:05	Confirmed	B*51:73	Confirmed	B*51:121	Unconfirmed
B*51:01:42	Unconfirmed	B*51:26	Confirmed	B*51:74	Confirmed	B*51:122	Confirmed
B*51:01:43	Unconfirmed	B*51:27N	Unconfirmed	B*51:75	Confirmed	B*51:123	Confirmed
B*51:01:44	Confirmed	B*51:28	Unconfirmed	B*51:76	Unconfirmed	B*51:124	Confirmed
B*51:01:45	Unconfirmed	B*51:29	Confirmed	B*51:77	Unconfirmed	B*51:125	Unconfirmed
B*51:01:46	Unconfirmed	B*51:30	Unconfirmed	B*51:78:01	Confirmed	B*51:126	Confirmed
B*51:01:47	Unconfirmed	B*51:31	Unconfirmed	B*51:78:02	Unconfirmed	B*51:127	Confirmed
B*51:01:48	Unconfirmed	B*51:32	Unconfirmed	B*51:79	Confirmed	B*51:128	Unconfirmed
B*51:01:49	Unconfirmed	B*51:33	Unconfirmed	B*51:80	Unconfirmed	B*51:129	Unconfirmed



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Allele	Status ¹	Allele	Status ¹	Allele	Status ¹	Allele	Status ¹
B*51:130	Confirmed	B*51:150	Unconfirmed	B*51:169	Unconfirmed	B*51:189	Unconfirmed
B*51:131	Unconfirmed	B*51:151	Confirmed	B*51:170	Unconfirmed	B*51:190	Unconfirmed
B*51:132	Unconfirmed	B*51:152	Confirmed	B*51:171	Unconfirmed	B*51:191	Unconfirmed
B*51:133	Unconfirmed	B*51:153	Unconfirmed	B*51:172	Unconfirmed	B*51:192	Unconfirmed
B*51:134	Confirmed	B*51:154	Unconfirmed	B*51:173Q	Unconfirmed	B*51:193	Confirmed
B*51:135	Unconfirmed	B*51:155	Unconfirmed	B*51:174	Confirmed	B*51:194	Unconfirmed
B*51:136	Confirmed	B*51:156	Confirmed	B*51:175	Unconfirmed	B*51:195	Unconfirmed
B*51:137	Unconfirmed	B*51:157	Unconfirmed	B*51:176	Unconfirmed	B*51:196	Unconfirmed
B*51:138	Unconfirmed	B*51:158:01	Confirmed	B*51:177	Unconfirmed	B*51:197	Unconfirmed
B*51:139	Unconfirmed	B*51:158:02	Confirmed	B*51:178N	Unconfirmed	B*51:198	Unconfirmed
B*51:140	Unconfirmed	B*51:159	Unconfirmed	B*51:179	Unconfirmed	B*51:199	Unconfirmed
B*51:141	Unconfirmed	B*51:160	Confirmed	B*51:180	Unconfirmed	B*51:200	Unconfirmed
B*51:142	Unconfirmed	B*51:161	Unconfirmed	B*51:181	Unconfirmed	B*51:201	Unconfirmed
B*51:143	Unconfirmed	B*51:162	Unconfirmed	B*51:182	Unconfirmed	B*51:202	Unconfirmed
B*51:144	Unconfirmed	B*51:163	Unconfirmed	B*51:183	Unconfirmed	B*51:203	Unconfirmed
B*51:145	Unconfirmed	B*51:164	Unconfirmed	B*51:184N	Unconfirmed	B*51:204	Unconfirmed
B*51:146	Confirmed	B*51:165	Unconfirmed	B*51:185	Confirmed	B*51:205	Unconfirmed
B*51:147	Confirmed	B*51:166	Unconfirmed	B*51:186	Unconfirmed	B*51:206	Unconfirmed
B*51:148	Confirmed	B*51:167	Confirmed	B*51:187	Confirmed	B*51:207	Unconfirmed
B*51:149N	Unconfirmed	B*51:168	Confirmed	B*51:188	Unconfirmed	B*51:208	Unconfirmed

¹Allele status “confirmed” or “unconfirmed” as listed on the IMGT/HLA web page 2016-July-14, release 3.25.0, www.ebi.ac.uk/imgt/hla.

RESOLUTION IN HOMO- AND HETEROZYGOTES

Results file with resolution in HLA-B*51 homo- and heterozygotes is available upon request.



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SPECIFICITY TABLE

HLA-B*51 SSP subtyping

Specificities and sizes of the PCR products of the 84+1 primer mixes used for HLA-B*51 SSP subtyping

Primer Mix	Size of spec. PCR product ¹	Size of control band ²	Amplified HLA-B*51 alleles ³	Other amplified HLA-B alleles
1 ⁴	105 bp	800 bp	*51:01:01:01-51:06:04, 51:08:01:01-51:21, 51:23-51:24:05, 51:26-51:46, 51:48-51:103, 51:105-51:111, 51:113-51:127, 51:129-51:146, 51:148-51:188, 51:190-51:213, 51:215-51:221, 51:223-51:235N, 51:237:01-51:250, 51:252-51:266, 51:268-51:271, 51:273N-51:283, 51:285-51:309, 51:311-51:339, 51:341-51:386	*08:32, 08:133, 08:180, 08:239, 18:07:01-18:07:03:02, 18:29, 18:79, 18:136, 35:01:01:01-35:08:01:13, 35:08:03-35:08:04, 35:08:06-35:18, 35:21-35:24:02, 35:27, 35:29:01-35:43:01, 35:43:03-35:45, 35:48, 35:50-35:62, 35:64:01-35:71, 35:74-35:75, 35:77, 35:79-35:81, 35:83-35:84, 35:86-35:94, 35:96-35:134N, 35:136-35:153, 35:155-35:185, 35:187-35:197, 35:199-35:206, 35:208:01-35:209, 35:211-35:216N, 35:218-35:225, 35:227-35:228, 35:230-35:253, 35:256-35:270, 35:272-35:273, 35:275-35:293, 35:295, 35:297-35:310, 35:312-35:316, 35:318-35:360, 35:362-35:367, 35:369-35:438, 35:440-35:449, 35:451-35:462, 35:464-35:533, 35:535-35:540, 35:542N-35:547, 35:549-35:560, 35:562-35:569, 35:571-35:581, 35:584-35:586, 37:21, 37:67, 38:06-38:07, 39:186, 44:06, 52:06:01-52:06:03, 53:01:01:01-53:08:02, 53:10-53:16, 53:18-53:27, 53:29, 53:31-53:37, 53:41-53:73, 78:01:01:02-78:02:02, 78:04, 78:07-78:10
2 ⁴	95 bp	1070 bp	*51:01:01:01-51:01:103, 51:03-51:04:02, 51:06:01:01-51:07:02, 51:11N-51:14, 51:16-51:18, 51:21-51:22, 51:24:01-51:24:05, 51:26-51:30, 51:32-51:33, 51:35, 51:37-51:39, 51:41N, 51:43, 51:45-51:46, 51:48-51:52, 51:55-51:58, 51:60-51:72, 51:74-51:80, 51:82-51:92:02, 51:94-51:96, 51:98N-51:107, 51:109-51:114, 51:116-51:119, 51:121, 51:123-51:138, 51:140, 51:142, 51:145, 51:147, 51:149N-51:152, 51:154-51:156,	*07:218, 13:62, 14:01:01:01-14:40, 14:42:01-14:42:02, 14:44-14:45, 14:47-14:55, 14:57-14:58, 14:60-14:61, 14:63-14:89, 14:91-14:94, 14:96-14:120, 15:37-15:38:02, 15:323, 15:335, 15:364, 15:368, 15:435, 15:610, 15:645, 15:658, 18:15, 18:19, 18:30, 18:57:01-18:57:02, 18:152, 27:153, 35:21, 35:96, 35:188, 35:519, 38:106, 40:28, 40:51, 40:174, 44:459, 49:09, 50:58, 52:01:01:01-52:01:32, 52:01:34-52:02:02, 52:04-52:09:02, 52:12-52:18, 52:20-52:27, 52:30-52:66, 52:68-52:70, 52:72-52:73, 52:75-52:113, 52:115N, 53:06, 53:28, 56:05:01-56:06, 56:21, 56:94, 58:08:01-58:08:02, 78:01:01:02-78:03, 78:05-78:07, 78:09, A*33:231, C*01:30, C*02:142, C*03:384, C*05:216:01:01-05:216:01:02, C*06:207, C*08:51, C*08:114, C*08:243, C*08:246, C*12:87,



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	195 bp		*51:18	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, 49:77-49:81, 50:01:01:01-50:02:01:02, 50:04:01-50:08, 50:10-50:13, 50:15-50:19, 50:21-50:22, 50:32, 50:34-50:38, 50:40-50:44, 50:46-50:48, 50:50-50:79, 52:25:01-52:25:02, 54:03, 54:33, 54:40, 56:01:01:01-56:01:04, 56:01:06-56:01:12, 56:01:14-56:02:03, 56:04:01:01-56:04:05, 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, 56:67-56:87, 56:89-56:93, 56:95, 58:73, 59:04, 59:12, 82:01:01:01-82:04, C*03:19, C*03:102, C*03:571N, C*15:15 *15:597
17⁴	105 bp	800 bp	*51:22	*15:376, 18:33, 35:82, 35:85, 35:135, 35:294, 37:57, 39:19:01-39:19:02, 78:03
18	140 bp 220 bp	800 bp	*51:28 *51:08:01:01-51:08:06, 51:20, 51:36, 51:44N, 51:97, 51:141, 51:153:01-51:153:02, 51:263, 51:274-51:275, 51:342, 51:354, 51:362, 51:371	*08:09, 08:84, 08:254, 13:46, 13:154, 15:83:01:01-15:83:01:02, 41:01:01:01-41:01:08, 41:05-41:07, 41:09, 41:12, 41:14, 41:16-41:17, 41:20-41:22, 41:25-41:26, 41:28-41:30, 41:32-41:35, 41:37, 41:44, 41:50, 41:53-41:54, 41:56Q-41:57, 41:59-41:61, 41:64, 41:66-41:67, 41:70, 41:73, 41:75-41:79, 42:04, 44:15:01:01-44:15:01:02, 44:18:01:01-44:18:01:02, 44:20, 44:100, 44:355, 45:01:01:01-45:25, 45:27-45:30, 45:32, 52:19, 55:20, 55:56, 56:13
19	145 bp	800 bp	*51:10, 51:24:01-51:24:05, 51:197, 51:199, 51:279	*07:78, 07:84, 07:429, 08:09, 08:84, 08:254, 13:166, 27:130, 35:534, 40:06:01:01-40:06:31, 40:44, 40:53, 40:70:01-40:70:02, 40:75, 40:83, 40:86, 40:93, 40:96, 40:103, 40:109-40:110, 40:127, 40:131, 40:148, 40:159, 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, 40:330, 40:340-40:342, 40:348-40:350, 40:354, 40:361N-40:362, 40:364, 40:366, 40:373-40:374, 40:376, 40:387-40:389, 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, 40:519, 40:526, 40:532-40:533, 40:537, 40:546-40:547,



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20⁴	110 bp 200 bp	1070 bp	*51:26 *51:185	*52:09:01
21	130 bp 185 bp	1070 bp	*51:38 *51:27N	*13:42
22	160 bp	1070 bp	*51:01:01:01- 51:01:01:111, 51:01:03- 51:01:08, 51:01:10- 51:02:01:04, 51:02:03- 51:04:02, 51:06:01:01- 51:06:03, 51:07:01, 51:08:01:01-51:08:05, 51:09:01, 51:09:03-51:14, 51:16-51:24:05, 51:26- 51:46, 51:48-51:53, 51:55-51:78:01, 51:79- 51:88, 51:90-51:92:02, 51:94-51:102, 51:104:01- 51:115, 51:117, 51:120- 51:131, 51:133-51:143, 51:145-51:147, 51:149N- 51:175, 51:177-51:178N, 51:181-51:217, 51:219- 51:225, 51:227- 51:230:01:03, 51:232:01- 51:237:01, 51:238- 51:309, 51:311-51:336, 51:338-51:353, 51:355- 51:386	*07:65 ^w , 07:206 ^w , 08:26:03, 08:56:03, 15:504:03, 18:04:01, 18:98:02, 18:125, 35:03:27, 35:08:05, 35:42:02, 35:185, 39:63, 44:06, 53:01:13, 53:06, 56:05:01 ^w - 56:06 ^w , 78:01:01:02-78:01:02, 78:02:02- 78:03, 78:07-78:10
23	210 bp	1070 bp		*07:65, 07:206, 08:26:03, 08:56:03, 15:01:76, 15:32:02, 15:504:03, 18:04:01, 18:98:02, 18:125, 35:03:27, 35:08:05, 35:42:02, 35:185, 39:63, 40:01:11, 40:58, 46:40:01, 56:05:01-56:06, 78:01:01:02- 78:01:02, 78:02:02-78:03, 78:07-78:10
24	210 bp	1070 bp	*51:01:01:01- 51:01:01:111, 51:01:03- 51:01:08, 51:01:10- 51:01:39, 51:01:41- 51:02:01:04, 51:02:03- 51:04:02, 51:06:01:01- 51:06:03, 51:07:01, 51:08:01:01-51:08:05, 51:09:01, 51:09:03-51:14,	*44:06, 49:03, 52:01:02:01-52:01:02:09, 52:01:04, 52:01:09, 52:01:40, 52:01:43, 52:01:47, 52:01:49, 52:02:01, 52:03, 52:06:01-52:06:02, 52:09:01, 52:10:03, 52:11:02, 52:21:01, 52:31:02, 52:85, 52:97, 52:102, 52:104, 52:112, 53:01:13, 53:06, 57:01:20, 58:08:01, A*23:01:14



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25^{4,5,6}	120 bp	800 bp	*51:38, 51:142	*13:42, 35:364, 35:379, 35:462, 52:80, C*04:01:117
	175 bp		*51:30	*35:474, C*04:01:117, C*05:01:38, C*12:02:47, C*15:02:43
	205 bp		*51:53	*49:55, 52:29, 55:54
26⁴	105 bp	1070 bp	*51:13:01-51:13:02, 51:37, 51:63:01-51:63:02, 51:92:01-51:92:02, 51:97, 51:172, 51:216, 51:251	*13:04, 13:46, 13:72, 13:127, 13:140, 13:160, 15:04:01:01-15:04:04, 15:16:01:01-15:16:05, 15:67, 15:95, 15:137, 15:155, 15:222, 15:254, 15:293, 15:310, 15:362, 15:408, 15:499, 15:517, 15:531, 15:550, 15:602, 15:609, 15:613, 35:37, 35:235, 35:265, 35:276, 39:06:01:01-39:06:08, 39:33-39:34, 39:50, 39:57, 39:62, 39:64, 39:83:01-39:83:03, 39:90, 39:102, 39:109, 39:127, 39:129, 39:132, 39:140-39:141, 39:154, 39:178, 39:186-39:187, 40:86, 40:159, 40:330, 40:537, 41:30, 41:50, 45:02, 45:09, 46:32:01-46:32:02, 49:04:01-49:05:02, 49:50, 50:09, 50:33, 52:14:01-52:14:02, 52:39, 52:75, 52:97, 54:14, 55:13, 55:23, 55:32, 55:58, 55:68, 56:22, 56:50, 58:122, 59:03, 73:01:01:01-73:03, C*05:152, C*07:463, C*07:758, C*12:183
	155 bp		*51:32	*07:329, 13:151, 27:69, 27:192, 27:266, 40:213, 40:485, 42:28, 58:52
27	205 bp 345 bp	800 bp	*51:33 *51:39	*35:482, 44:165, 58:53 *13:132, 35:501, 35:570, 37:52, 44:24, 44:181, 81:06 [?]
28	205 bp 255 bp	1070 bp	*51:33 *51:23, 51:108	*35:482, 44:165, 58:53 *44:15:01:01-44:15:01:02, 44:18:01:01-44:18:01:02, 44:20, 44:47, 44:100, 44:197, 44:339, 44:355, 45:01:01:01-45:03, 45:05-45:07, 45:09, 45:11-45:23, 45:25, 45:27-45:30, 45:32, 49:20, 50:02:01:01-50:02:01:02, 50:21, 50:56, 52:15, 55:122, 56:74



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29	245 bp	1070 bp	<p>*51:01:01:01-51:01:38, 51:01:40-51:01:58, 51:01:60-51:03, 51:05:01:01-51:05:01:02, 51:07:01-51:09:03, 51:11N-51:15, 51:17- 51:20, 51:22-51:24:05, 51:26-51:30, 51:32-51:33, 51:35, 51:37-51:41N, 51:43-51:44N, 51:48- 51:55, 51:57-51:58, 51:60-51:61:02, 51:63:01- 51:63:02, 51:65-51:80, 51:83-51:92:02, 51:94- 51:100, 51:102-51:134, 51:136-51:138, 51:140- 51:142, 51:145-51:147, 51:149N-51:152, 51:154- 51:156, 51:158:01- 51:193:02, 51:195- 51:196, 51:198-51:212, 51:214-51:219, 51:221- 51:226, 51:228-51:279, 51:282-51:292, 51:294, 51:296-51:299, 51:301- 51:309, 51:311-51:318N, 51:320-51:339, 51:342- 51:351, 51:354-51:358, 51:360-51:375, 51:377N, 51:379-51:386</p>	<p>*13:03-13:04, 13:48, 13:62, 13:120, 13:164, 15:04:01:01-15:04:04, 15:16:01:01- 15:16:05, 15:67, 15:95, 15:137, 15:155, 15:222, 15:254, 15:293, 15:303, 15:310, 15:362, 15:408, 15:499, 15:517, 15:531, 15:550, 15:552, 15:602, 15:609, 15:613, 27:153, 35:37, 35:235, 35:265, 35:273, 39:33, 41:17, 44:15:01:01-44:15:01:02, 44:18:01:01-44:18:01:02, 44:20, 44:47, 44:100, 44:197, 44:339, 44:355, 44:459, 45:01:01:01-45:07, 45:09, 45:11-45:23, 45:24^w, 45:25, 45:27-45:30, 45:32, 46:11, 46:32:01-46:32:02, 49:01:01:01-49:06, 49:08-49:14, 49:16-49:46, 49:48-49:60N, 49:62-49:75, 49:77-49:81, 50:01:01:01- 50:02:01:02, 50:04:01-50:11, 50:13-50:16, 50:18-50:22, 50:32-50:44, 50:46-50:48, 50:50, 50:52-50:79, 52:01:01:01-52:01:20, 52:01:22-52:07:02, 52:09:01-52:36, 52:38- 52:66, 52:68-52:70, 52:72-52:83, 52:85- 52:87, 52:89N-52:115N, 54:03, 54:33, 54:40, 56:01:01:01-56:01:12, 56:01:14- 56:01:18, 56:05:01-56:08, 56:13-56:17, 56:19N-56:22, 56:24-56:30, 56:33-56:50, 56:52-56:53, 56:55:01:02, 56:58-56:59, 56:61-56:62, 56:64-56:65, 56:67-56:87, 56:89-56:95, 58:08:01-58:08:02, 58:122, 59:04, 59:12, 78:01:01:02-78:06, 78:09- 78:10, C*03:464</p>
30 ^{4,5,6}	105 bp	800 bp	<p>*51:04:02, 51:06:01:01- 51:06:01:03, 51:06:03- 51:06:04, 51:56:01, 51:59, 51:64, 51:135, 51:194, 51:227, 51:281, 51:293, 51:319, 51:341, 51:352, 51:378</p>	<p>*07:02:11, 07:05:03, 08:274, 15:01:02, 15:09:01-15:09:02, 15:243, 15:252, 15:277- 15:278, 15:361, 15:435, 18:205, 35:251:01, 40:01:06, 40:26, 41:02:09, 44:62, 48:01:08, 52:88, C*02:02:23</p>
31 ⁴	105 bp	1070 bp	<p>*51:13:01-51:13:02, 51:37, 51:63:01-51:63:02, 51:92:01-51:92:02, 51:97, 51:172, 51:216, 51:251</p>	<p>*13:04, 13:46, 13:72, 13:127, 13:140, 13:160, 15:04:01:01-15:04:04, 15:16:01:01- 15:16:05, 15:67, 15:95, 15:137, 15:155, 15:222, 15:254, 15:293, 15:310, 15:362, 15:408, 15:499, 15:517, 15:531, 15:550, 15:602, 15:609, 15:613, 35:37, 35:235, 35:265, 35:276, 39:06:01:01-39:06:08, 39:33-39:34, 39:50, 39:57, 39:62, 39:64, 39:83:01-39:83:03, 39:90, 39:102, 39:109, 39:127, 39:129, 39:132, 39:140-39:141, 39:154, 39:178, 39:186-39:187, 40:86, 40:159, 40:330, 40:537, 41:30, 41:50, 45:02, 45:09, 46:32:01-46:32:02, 49:04:01- 49:05:02, 49:50, 50:09, 50:33, 52:14:01- 52:14:02, 52:39, 52:75, 52:97, 54:14, 55:13, 55:23, 55:32, 55:58, 55:68, 56:22,</p>



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32	165 bp	1070 bp	*51:16, 51:31, 51:34, 51:82, 51:93, 51:352	*07:02:11, 07:05:03, 13:02:38, 27:04:03, 40:01:06, 40:06:30, 40:95, 48:01:08, 52:08, 52:67, 78:08, C*02:02:23
33	195 bp	1070 bp	*51:41N	
34	260 bp	1070 bp	*51:42, 51:359	*07:359, 08:255, 15:592, 27:127, 35:45, 35:71, 35:169, 35:309, 35:452, 35:545, 40:458, 44:02:01:01-44:02:07, 44:02:09- 44:02:33, 44:02:35-44:02:38, 44:02:40- 44:02:57, 44:02:59-44:02:78, 44:02:80- 44:03:16, 44:03:18-44:03:63, 44:03:65- 44:14, 44:17, 44:19N, 44:21-44:30, 44:32- 44:36, 44:38-44:40, 44:43:01-44:46:02, 44:48:01-44:53:02, 44:55-44:63, 44:66- 44:90, 44:92-44:98, 44:102-44:105, 44:107- 44:131, 44:133-44:134, 44:136-44:137, 44:139-44:149N, 44:151-44:157, 44:159- 44:165, 44:167-44:183, 44:185-44:189, 44:191-44:192:04, 44:194:01-44:194:02, 44:196, 44:198N-44:212, 44:214-44:229, 44:231-44:233, 44:235, 44:237N- 44:245:02, 44:247-44:267N, 44:269- 44:274, 44:277-44:289, 44:291-44:304, 44:306N-44:338, 44:340-44:346, 44:348- 44:354N, 44:356-44:374, 44:437-44:439, 44:441-44:458, 44:460-44:517, 44:519- 44:524, 44:526-44:546, 45:31, 53:22, 53:62, 57:07, 57:93, 57:119, 83:01, C*15:25
35	225 bp	1070 bp		*08:49, 08:60, 08:76, 08:129, 08:181, 08:255, 27:127, 35:38, 35:115, 35:169, 35:260, 35:545, 37:01:01:01-37:01:07, 37:01:09, 37:01:11-37:01:31, 37:03N- 37:06:02, 37:08, 37:10-37:38, 37:41-37:43, 37:45-37:50, 37:52-37:65, 37:67-37:82N, 37:84-37:93, 37:95-37:96, 37:98-37:108, 41:48, 42:13, 44:02:01:01-44:02:33, 44:02:35-44:02:57, 44:02:59-44:02:80, 44:05:01:01-44:06, 44:08-44:09, 44:11- 44:12, 44:14, 44:16-44:17, 44:19N, 44:21- 44:25, 44:27:01:01-44:27:04,



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37	165 bp 225 bp	1070 bp	*51:44N, 51:245N *51:55	*50:76
38	205 bp	1070 bp	*51:37, 51:45, 51:63:01-51:63:02, 51:97, 51:216, 51:251	*14:56, 15:38:01-15:38:02, 15:185, 15:335, 15:364, 15:368, 15:610, 15:645, 15:658, 18:01:01:01-18:01:49, 18:01:51-18:09, 18:12:01-18:15, 18:17N-18:20, 18:22-18:25, 18:27-18:34, 18:36-18:40, 18:42-18:55, 18:57:01-18:57:02, 18:59-18:60, 18:62-18:100, 18:102-18:109, 18:111-18:121, 18:123-18:147, 18:149-18:163, 18:167, 18:169-18:188, 18:190, 18:192-18:204, 18:206-18:216, 18:218-18:226, 18:228-18:232, 35:21, 35:24:01-35:24:02, 35:188, 35:190, 35:287, 35:519, 39:43,



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				52:39, 52:97, 53:02, 53:06, 53:28, 56:31, 57:14:01-57:14:02, 58:09, 58:76, C*02:142, C*06:207, C*07:516, C*07:521:01- 07:521:02, C*12:87, C*14:76
	250 bp		*51:173Q	
39^{6,7}	250 bp	1070 bp	*51:46, 51:64-51:65	*07:218, 07:220, 08:118, 14:05, 14:13, 14:53, 18:14, 18:151, 35:519, 40:174, 52:43
40	185 bp	1070 bp	*51:01:01:01-51:01:39, 51:01:41, 51:01:43- 51:01:52, 51:01:54- 51:24:05, 51:26-51:46, 51:48-51:53, 51:55-51:59, 51:61:01-51:72, 51:74- 51:77, 51:79-51:102, 51:104:01, 51:105- 51:124, 51:126-51:140, 51:142-51:197, 51:199- 51:202, 51:204:01- 51:275, 51:278-51:281, 51:283-51:340, 51:342- 51:370, 51:372-51:377N, 51:379-51:386	*07:36, 07:38, 07:81, 07:180, 07:219, 15:13:01-15:13:03, 15:17:01:01-15:17:07, 15:24:01-15:24:02, 15:87, 15:157, 15:162, 15:168, 15:177, 15:196, 15:208, 15:216, 15:230, 15:268, 15:273, 15:356, 15:361, 15:396, 15:403, 15:411, 15:418, 15:423- 15:424, 15:442, 15:446, 15:462, 15:500, 15:516, 15:523, 15:532, 15:546Q, 15:555, 15:575N, 15:586, 15:603, 15:642, 15:644, 15:655, 27:75, 35:471, 37:34, 38:01:12, 44:06, 48:18, 49:03, 49:69, 52:01:01:01- 52:01:28, 52:01:30-52:19, 52:21:01-52:105, 52:107-52:115N, 53:01:01:01-53:01:10, 53:01:12-53:01:17, 53:01:19-53:02, 53:04- 53:08:02, 53:10, 53:14-53:29, 53:32-53:35, 53:37, 53:39-53:43:01, 53:44-53:54, 53:56- 53:66, 53:68-53:73, 57:01:01:01-57:01:08, 57:01:10-57:04:02, 57:05-57:11, 57:13- 57:50, 57:52-57:68, 57:70-57:89, 57:91- 57:120, 57:122N-57:167, 58:01:01:01- 58:02:02, 58:04-58:16:02, 58:18-58:29, 58:31N-58:43, 58:45:01-58:47, 58:49- 58:63, 58:65-58:136, 58:138-58:143
41⁶	225 bp	1070 bp	*51:05:01:01- 51:05:01:02, 51:29, 51:54, 51:61:01-51:61:02, 51:82, 51:197, 51:217, 51:279, 51:376	*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, 52:21:01-52:21:02, 52:24, 52:97, 52:114, 54:10, 54:20, 54:33, 54:40, 55:09, 55:21, 55:37, 55:52, 56:43, C*05:152, C*12:183, C*14:92
	305 bp		*51:48, 51:166	*15:140, 15:367, 15:441, 35:543, 35:552, C*02:83, C*05:224, C*06:327, C*08:24, C*12:323, C*16:90, C*16:180
	380 bp		*51:169	
42⁴	100 bp	800 bp	*51:60	
	135 bp		*51:49	
43⁴	115 bp	800 bp	*51:58	
	215 bp		*51:50	
44	285 bp	800 bp	*51:76, 51:166	*08:39, 13:112, 15:140, 35:101:02, 35:195, 35:211, 35:543, 44:185, 54:34, 56:85 C*01:83^w, C*08:258^w
	385 bp		*51:51	



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45	145 bp 190 bp	1070 bp	*51:178N *51:52	
46⁴	80 bp 170 bp	800 bp	*51:57 *51:123	*07:206 *55:59
47⁴	125 bp	800 bp	*51:20, 51:208	*07:65, 07:134, 07:400, 08:32, 08:180, 08:239, 18:03:01:01-18:03:02, 18:132, 18:142, 18:152, 18:171, 18:198, 18:203, 18:227, 18:229, 27:236, 35:29:01-35:29:03, 35:69, 35:76, 35:136, 35:186 ^w , 35:229, 35:294, 35:316, 35:472, 35:497, 37:37, 39:19:01-39:19:02, 46:40:01 ^w -46:40:02 ^w , 53:23, 55:130, 56:06, 56:45, 78:01:01:02- 78:01:02, 78:03, 78:07-78:08, C*07:1011^w
48⁴	95 bp 220 bp	1070 bp	*51:37, 51:90, 51:92:01- 51:92:02, 51:197, 51:216, 51:261, 51:274, 51:298 *51:61:01-51:61:02	*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, 15:67, 15:95, 15:155, 15:222, 15:254, 15:293, 15:310, 15:362, 15:408, 15:499, 15:517, 15:531, 15:550, 15:602, 15:609, 15:613, 35:37, 35:235, 35:265, 40:44, 40:159, 41:21, 44:20, 44:47, 44:100, 44:197, 45:09, 46:32:01-46:32:02, 49:04:01-49:05:02, 50:33, 50:39, 52:12, 52:26, 52:63, 52:75, 54:14-54:16, 55:23, 55:27, 55:46, 55:68, 56:50, 58:122, C*03:464, C*07:463, C*07:758, C*12:183 *13:31, 13:41, 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, 46:32:01- 46:32:02, 50:47, 52:21:01-52:21:02, 52:97, 54:33, 54:40, 55:21, 56:43, C*12:183
49	160 bp	1070 bp	*51:01:02:01- 51:01:02:02, 51:01:09, 51:02:02, 51:05:01:01- 51:05:01:02, 51:06:04, 51:07:02, 51:08:06, 51:09:02, 51:15, 51:54, 51:78:02, 51:93, 51:132, 51:144, 51:148, 51:180, 51:237:02, 51:337	*07:56:01-07:56:02, 07:72, 08:26:01- 08:26:02, 08:56:01-08:56:02, 08:180, 08:239, 14:54, 15:02:01:01-15:02:13, 15:08:01:01-15:08:02, 15:11:01-15:11:07, 15:13:01-15:13:03, 15:15:01:01- 15:15:01:02, 15:21:01:01-15:21:01:02, 15:31:01:01-15:31:01:03, 15:44, 15:55, 15:76, 15:88-15:89:02, 15:112, 15:121, 15:139, 15:143-15:144, 15:148, 15:170, 15:189:01-15:189:02, 15:191, 15:194, 15:209N, 15:213-15:215, 15:223, 15:265, 15:283-15:284, 15:291, 15:297, 15:301- 15:303, 15:305, 15:308, 15:319, 15:325, 15:328, 15:330, 15:341, 15:350, 15:357- 15:358, 15:367, 15:374, 15:378, 15:384:01- 15:384:02, 15:394, 15:399, 15:404, 15:418, 15:420, 15:425, 15:437-15:438, 15:454N, 15:460, 15:479, 15:486, 15:491, 15:495, 15:504:01-15:504:02, 15:505, 15:508, 15:513, 15:537, 15:553, 15:557, 15:567, 15:569, 15:574, 15:592, 15:596N, 15:615,



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50	155 bp	1070 bp	*51:81	*07:02:01:01-07:02:05, 07:02:07-07:02:13, 07:02:15-07:02:19, 07:02:21-07:02:34, 07:02:36-07:02:38, 07:02:40-07:02:72, 07:02:74-07:06:01:04, 07:06:03-07:06:05, 07:08:01-07:11, 07:13, 07:15-07:17, 07:19-07:21, 07:23-07:48:01, 07:49N-07:67N, 07:68:03-07:76, 07:79-07:83, 07:85:01-07:99, 07:101-07:136:02, 07:138-07:161N, 07:164-07:192, 07:194-07:195, 07:199-07:213, 07:215-07:224, 07:226, 07:228:01-07:234, 07:236, 07:238, 07:240-07:247, 07:249-07:254, 07:256-07:261, 07:263-07:344, 07:346-07:349, 07:351N-07:358, 07:360Q-07:385, 07:387-07:423, 07:425N-07:428, 07:430-07:463, 07:465-07:483, 08:01:02, 08:01:13, 08:20:01, 08:53:02, 08:79:01, 08:156, 08:213:01, 13:71, 13:174, 15:421, 27:07:01-27:07:06, 27:11, 27:24, 27:32-27:34, 27:43, 27:138, 27:164,



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51⁴	85 bp 135 bp 215 bp	800 bp	*51:68 *51:136 *51:72	*08:56:03 *50:66
52	160 bp	1070 bp	*51:69, 51:107	*18:65, 52:30, A*33:122
53	135 bp 165 bp 260 bp	1070 bp	*51:136 *51:71, 51:174:01-51:174:02 *51:70	*13:105, 55:29 *52:55



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54^{4,5}	120 bp	1070 bp	*51:74	*08:155, 35:46-35:47, 35:154, 35:207, 35:217, 35:257, 35:278, 35:450, 35:566, 40:07-40:08:01:02, 40:13, 40:68, 40:106, 40:162, 40:220, 40:232, 41:46, 41:82, 44:232, 44:538, 49:67, 53:30
	250 bp		*51:124, 51:156	
55⁴	75 bp 200 bp	1070 bp	*51:77 *51:75	
56	380 bp	1070 bp	*51:01:01:01-51:01:07, 51:01:09-51:01:14, 51:01:16-51:01:39, 51:01:41-51:01:42, 51:01:44-51:12, 51:16-51:24:05, 51:26-51:36, 51:38-51:41N, 51:43-51:44N, 51:46, 51:48-51:49, 51:51-51:53, 51:55-51:61:02, 51:64-51:77, 51:79-51:84, 51:86-51:89, 51:91, 51:93-51:96, 51:98N-51:105, 51:107-51:134, 51:136-51:156, 51:158:01-51:171, 51:173Q-51:181, 51:183-51:191, 51:193:01-51:196, 51:198-51:213, 51:215, 51:217-51:219, 51:221-51:222, 51:224, 51:226, 51:228-51:246, 51:248-51:250, 51:252-51:260, 51:262-51:273N, 51:275-51:280, 51:282-51:297, 51:299, 51:301-51:318N, 51:320-51:340, 51:342-51:358, 51:360-51:370, 51:372-51:386	*08:03, 08:52, 08:78, 15:361, 27:102, 27:251, 38:73, 40:13, 40:19, 40:109, 40:117, 40:292, 40:340, 40:394, 41:46, 41:60, 48:18, 49:18:01-49:18:02, 52:01:01:01-52:01:28, 52:01:30-52:01:51, 52:01:53-52:11:02, 52:13, 52:15-52:19, 52:21:01-52:24, 52:27-52:38, 52:40-52:61, 52:64-52:67, 52:69-52:74, 52:76-52:87, 52:89N-52:96N, 52:98-52:115N, 53:19, 56:21, 57:02:01:01-57:03:06, 57:05, 57:07, 57:09, 57:17, 57:39, 57:42, 57:46, 57:57, 57:63, 57:66, 57:70, 57:80, 57:82, 57:84, 57:94, 57:96, 57:101, 57:124, 57:137, 57:155, 58:08:01-58:08:02, 58:27-58:28:02, 58:65, 59:02, 59:11, A*23:129, A*24:146
57	145 bp 210 bp	1070 bp	*51:79, 51:178N *51:54, 51:78:01-51:78:02, 51:341, 51:371	A*24:426N *13:17, 13:33, 15:36, 15:89:01-15:89:02, 15:256, 15:339, 15:505, 44:02:10, 44:34:01-44:34:02, 44:83, 44:225, 44:245:01-44:245:02, 44:269, 52:20, 53:09, 53:11-53:13, 53:31, 53:36, 53:38, 53:67, 56:07, 58:137, 59:08
58⁷	170 bp	1070 bp	*51:80, 51:107, 51:168	A*33:122
59⁴	120 bp 240 bp	1070 bp	*51:83 *51:88	
60^{4,7}	85 bp 190 bp	800 bp	*51:94 *51:84, 51:130	*13:121 *39:141, 49:12, 55:87



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61 ⁴	100 bp	1070 bp	*51:85, 51:192, 51:214, 51:261, 51:274	*27:14, 27:81, 44:20, 44:47, 44:100, 44:197, 50:20, 52:26
	210 bp		*51:87, 51:115, 51:181	*40:376, 49:45, 56:59, C*07:463, C*07:758
62	180 bp	1070 bp	*51:86, 51:132	
	250 bp		*51:95	*39:57, 49:80, 50:55
63 ⁴	70 bp	800 bp	*51:91	
	200 bp		*51:146	*13:86, 15:585, 35:02:01:01-35:02:07, 35:02:08 ^w , 35:02:09-35:02:21, 35:81, 35:83, 35:95, 35:129N, 35:146, 35:154, 35:162, 35:172, 35:182-35:184, 35:211, 35:220, 35:258, 35:270, 35:273, 35:285, 35:309, 35:311, 35:323:01-35:323:02, 35:335, 35:339, 35:357, 35:361, 35:366-35:367, 35:372, 35:374, 35:377-35:379, 35:387, 35:391, 35:394, 35:396, 35:403, 35:407, 35:410, 35:419, 35:443, 35:483, 35:487, 35:492, 35:501, 35:505, 35:508N, 35:522, 35:546, 35:550, 35:553, 35:557, 35:562, 35:565, 35:567, 35:582, 35:586, 45:12, 50:36, 53:19, 53:36, 58:65
64 ⁴	115 bp	1070 bp	*51:67	*35:314
	170 bp		*51:66, 51:89	
65 ⁶	185 bp	1070 bp	*51:98N	
	215 bp		*51:103, 51:116, 51:151, 51:354	*08:62, 08:242, 18:07:01-18:07:03:02, 18:29, 18:79, 18:136, 27:23, 35:50, 35:84, 35:162, 35:217, 35:231, 35:280, 35:323:01- 35:323:02, 35:441, 37:21, 37:67, 40:07- 40:08:01:02, 40:13, 40:68, 40:106, 40:162, 40:220, 40:232, 41:46, 41:82, 42:26, 49:67
66 ⁶	175 bp	1070 bp	*51:109, 51:132	
	210 bp		*51:120	
67 ⁴	110 bp	1070 bp	*51:93, 51:122	*13:02:38
	160 bp		*51:231	
68	230 bp	1070 bp	*51:100	
	160 bp		*51:134	
69 ⁴	190 bp	1070 bp	*51:105	*35:358
	105 bp		*51:147	A*02:01:33^w, A*23:01:14^w, A*26:01:77^w
70	225 bp	1070 bp	*51:110N	
	160 bp		*51:111, 51:134	
71	185 bp	1070 bp	*51:117, 51:130	*39:141, 49:12, 55:87
72 ⁴	90 bp	1070 bp	*51:118N	
	145 bp		*51:169	
73	170 bp	1070 bp	*51:164	*35:467, 39:46 ^w , 44:118 ^w , 44:546, 49:64
	295 bp		*51:127, 51:174:01- 51:174:02	*13:105, 13:155, 55:29, 55:43
74	180 bp	1070 bp	*51:149N	
	180 bp		*51:157, 51:300	*13:06, 13:53, 13:131, 15:42, 15:86, 15:224, 15:485, 18:191, 35:60, 46:18, 54:01:01:01-54:02, 54:05N, 54:07-54:08N, 54:10, 54:12-54:13, 54:17-54:25,



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Lot-specific information

				54:27-54:32, 54:34-54:39, 54:41, 54:43-54:46, 55:01:01:01-55:03, 55:05, 55:07, 55:10-55:12, 55:15-55:16, 55:18-55:19, 55:21, 55:25-55:26, 55:29-55:31, 55:33-55:40, 55:42-55:45, 55:47-55:48, 55:50, 55:52-55:57, 55:59-55:67, 55:69-55:80, 55:82-55:85, 55:87-55:109, 55:111-55:133, 56:10, 56:23, 56:54, 56:66, 59:01:01:01-59:01:01:02, 59:05-59:08, 59:10N, C*01:90, C*15:128
75^{4,6}	95 bp	1070 bp	*51:56:01-51:56:03, 51:158:01-51:158:02, 51:372	*13:02:38, 35:01:10, 35:03:32, 35:04:02, 40:28, 49:18:01, 50:01:21, 50:14, 53:28, 55:01:04, 55:02:11, 55:28:02, C*02:02:23, C*12:03:31, C*15:02:53
76	175 bp 255 bp	1070 bp	*51:168 *51:152, 51:173Q	
77⁷	265 bp	1070 bp	*51:160	*55:129
78	190 bp	800 bp	*51:184N	
79	235 bp	1070 bp	*51:187	*53:20
80	235 bp	1070 bp	*51:64, 51:148	*07:20, 07:24, 07:60, 07:100, 07:131, 07:220, 07:223, 07:358, 07:464, 08:21, 08:25, 08:175, 15:07:01:01-15:07:03, 15:45, 15:55, 15:68, 15:126, 15:197:02, 15:207, 15:324, 15:329, 15:331, 15:360, 15:383, 15:405, 15:431, 15:450, 15:524, 15:661, 15:668, 35:05:01:01-35:05:06, 35:22:01:01-35:22:01:02, 35:51:01-35:51:02, 35:58, 35:72, 35:89, 35:97, 35:114, 35:199, 35:232, 35:368, 35:389, 35:416, 35:427N, 35:440, 35:459N, 35:472, 35:481, 35:498-35:499, 35:509, 35:519, 35:541, 35:572, 40:05:01:01-40:05:02, 40:71, 40:174, 40:496, 41:62, 44:54, 44:106, 44:135, 44:158, 44:184, 44:213, 46:12, 53:14, 53:67, 55:51, 58:18, C*03:05:01:01-03:05:01:03, C*03:25, C*03:27, C*03:167, C*03:296:01-03:296:02, C*03:335, C*03:407, C*03:482, C*03:494, C*03:555
81⁶	185 bp 215 bp	1070 bp	*51:98N *51:167	
82	400 bp	1070 bp	*51:10, 51:193:01-51:193:02, 51:238, 51:285, 51:385	*35:429, 35:506, 48:02:02-48:02:03, 52:85, 58:95, 81:03
83	195 bp 215 bp	1070 bp	*51:35 *51:17	
84	140 bp 270 bp	800 bp	*51:126 *51:04:01-51:04:02, 51:46, 51:56:01-51:56:03, 51:139, 51:227, 51:281,	C*05:216:01:01-05:216:01:02, C*08:114, C*08:243, C*08:246 *14:10, 14:102, 15:645, 15:658, 18:22, 18:69 ^w , 18:105, 18:149-18:150, 18:204 ^w , 35:21, 35:24:01-35:24:02, 35:81, 35:96,



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101.561-24/03 – including *Taq* polymerase
101.561-24u/03u – without *Taq* polymerase

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Lot No.: **5S3**

Lot-specific information

	51:310	35:109, 35:157, 35:188, 35:190, 35:233, 35:287, 37:04:01 ^w -37:04:02 ^w , 40:28, 44:190, 44:203:01-44:203:02, 44:275, 44:290, 52:88, 53:02, 53:06, 53:28, 57:14:01-57:14:02, 58:09, 58:76, C*03:384 , C*15:39, C*15:130, C*15:195
85⁸	-	Negative Control

¹Alleles are assigned by the presence of specific PCR product(s). However, the sizes of the specific PCR products may be helpful in the interpretation of HLA-B*51 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.

²The 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.

³For several HLA Class I alleles 1st and/or 4th 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.

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

⁵Primer mixes 6, 25, 30 and 54 may give rise to a lower yield of HLA-specific PCR product than the other HLA-B*51 primer mixes.

⁶Primer mixes 25, 30, 39, 41, 65, 66, 75 and 81 may have tendencies of unspecific amplifications.

⁷Primer mixes 39, 58, 60 and 77 have a tendency of giving rise to primer oligomer formation.

⁸Primer mix 85 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 products generated by the HGH positive control primer pair is 200 base pairs.

Abbreviations

w: might be weakly amplified.

?: nucleotide sequence information not available for the primer matching sequence.



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For *In Vitro* Diagnostic Use
MA123 v02 SSP PI Template
Date: October 2023, Rev. No: 00

101.561-24/03 – including *Taq* polymerase
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Lot No.: **5S3**

Lot-specific information

PRIMER SPECIFICATION

Well No.	1	2	3	4	5	6	7	8	9	10	11	12
Length of spec. PCR product	105	95	265	255	270	210	240	105	85	160	245	495
Length of int. pos. control ¹	800	1070	1070	1070	1070	800	1070	800	1070	1070	1070	1070
5'-primer(s) ²	206 5'-gAC 3'	527 5'-TgA 3'	357 5'-Tgg 3'	357 5'-Tgg 3'	355 5'-TCA 3'	357 5'-Tgg 3'	355 5'-CCC 3'	206 5'-gAC 3'	540 5'-gAC 3'	357 5'-Tgg 3'	357 5'-Tgg 3'	3 rd I 5'-CTT 3'
3'-primer(s) ³	272 5'-TgA 3'	583 5'-gTg 3'	583 5'-gTA 3'	571 5'-CCC 3'	583 5'-gTg 3'	527 5'-CCA 3'	583 5'-gTg 3'	272 5'-Tgg 3'	583 5'-gTg 3'	477 5'-gCg 3'	559 5'-CTC 3'	621 5'-ggg 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	22	23	24
Length of spec. PCR product	200	105	100	170	105	140	145	110	130	160	210	210
Length of int. pos. control ¹	1070	1070	800	1070	800	800	800	1070	1070	1070	1070	1070
5'-primer(s) ²	165 5'-ACC 3'	357 5'-Tgg 3'	357 5'-Tgg 3'	404 5'-CCC 3'	206 5'-gAC 3'	141 5'-ATT 3'	357 5'-Tgg 3'	141 5'-ATT 3'	357 5'-Tgg 3'	141 5'-ATT 3'	141 5'-ATT 3'	141 5'-ATT 3'
3'-primer(s) ³	322 5'-gTC 3'	419 5'-CgA 3'	414 5'-TgT 3'	559 5'-CAg 3'	272 5'-TgC 3'	242 5'-CCC 3'	463 5'-gCg 3'	211 5'-ggT 3'	445 5'-ggA 3'	259 5'-gTT 3'	311 5'-ggT 3'	309 5'-ATC 3'
Well No.	13	14	15	16	17	18	19	20	21	22	23	24

Well No.	25	26	27	28	29	30	31	32	33	34	35	36
Length of spec. PCR product	120	105	205	205	245	105	105	165	195	260	225	110
Length of int. pos. control ¹	800	1070	800	1070	1070	800	1070	1070	1070	1070	1070	1070
5'-primer(s) ²	357 5'-Tgg 3'	357 5'-Tgg 3'	49 5'-CAg 3'	49 5'-CAg 3'	357 5'-Tgg 3'	369 5'-TAC 3'	357 5'-Tgg 3'	435 5'-AAA 3'	141 5'-ATT 3'	355 5'-TCA 3'	355 5'-TCA 3'	133 5'-CCg 3'
3'-primer(s) ³	445 5'-ggA 3'	419 5'-Cgg 3'	83 5'-TgA 3'	83 5'-TgA 3'	559 5'-CAg 3'	435 5'-TCT 3'	419 5'-Cgg 3'	559 5'-CTC 3'	295 5'-TCA 3'	572 5'-gCg 3'	538 5'-gTC 3'	309 5'-ATC 3'
Well No.	25	26	27	28	29	30	31	32	33	34	35	36



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For *In Vitro* Diagnostic Use

MA123 v02 SSP PI Template

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Lot No.: **5S3**

Lot-specific information

Well No.	37	38	39	40	41	42	43	44	45	46	47	48
Length of spec.	165	205	250	185	225	100	115	285	145	80	125	95
PCR product	225	250			305	135	215	385	190	170		220
					380							
Length of int.	1070	1070	1070	1070	1070	800	800	800	1070	800	800	1070
pos. control ¹												
5'-primer(s) ²	141	374	362	165	357	106	141	106	141	103	209	357
	5'-ATT 3'	5'-CTA 3'	5'-gAC 3'	5'-ACC 3'	5'-Tgg 3'	5'-CCA 3'	5'-ATT 3'	5'-CCA 3'	5'-ATT 3'	5'-CCT 3'	5'-ggA 3'	5'-Tgg 3'
	357	419	363		670	488		667		357		
	5'-Tgg 3'	5'-gTC 3'	5'-AgC 3'		5'-CCT 3'	5'-Cgg 3'		5'-AgA 3'		5'-Tgg 3'		
			383		736			754				
			5'-ggA 3'		5'-gCA 3'			5'-ACg 3'				
					754							
					5'-ACg 3'							
3'-primer(s) ³	265	583	583	309	539	163	214	343	244	141	292	412
	5'-CTA 3'	5'-gTg 3'	5'-gTg 3'	5'-ATC 3'	5'-TCC 3'	5'-ggC 3'	5'-CCA 3'	5'-T 3'	5'-CTA 3'	5'-gCA 3'	5'-gTC 3'	5'-gTC 3'
	539				916	583	314	916	292	487	292	412
	5'-TCT 3'				5'-gAT 3'	5'-gTg 3'	5'-gCC 3'	5'-gAT 3'	5'-gTg 3'	5'-Cgg 3'	5'-gTC 3'	5'-gTC 3'
												538
												5'-CCA 3'
Well No.	37	38	39	40	41	42	43	44	45	46	47	48

Well No.	49	50	51	52	53	54	55	56	57	58	59	60
Length of spec.	160	155	85	160	135	120	75	380	145	170	120	85
PCR product			135		165	250	200		210		240	190
			215		260							
Length of int.	1070	1070	800	1070	1070	1070	1070	1070	1070	1070	1070	800
pos. control ¹												
5'-primer(s) ²	142	363	97	454	357	193	141	317	141	448	141	357
	5'-TCg 3'	5'-AgC 3'	5'-TCg 3'	5'-ACC 3'	5'-Tgg 3'	5'-CCA 3'	5'-ATT 3'	5'-gCT 3'	5'-ATT 3'	5'-CCA 3'	5'-ATT 3'	5'-Tgg 3'
			357	475		368	357		142	454	357	
			5'-Tgg 3'	5'-CCA 3'		5'-gTg 3'	5'-Tgg 3'		5'-TCg 3'	5'-ACC 3'	5'-Tgg 3'	
						385				457		
						5'-ggA 3'				5'-AgC 3'		
3'-primer(s) ³	259	477	141	583	453	272	177	412	244	583	218	403
	5'-gTT 3'	5'-gCg 3'	5'-gCA 3'	5'-gTg 3'	5'-TCT 3'	5'-TgA 3'	5'-AAA 3'	5'-gTT 3'	5'-CTA 3'	5'-gTg 3'	5'-gCC 3'	5'-gCA 3'
	259		453		479	583	514		246		555	505
	5'-gTT 3'		5'-TCT 3'		5'-CgA 3'	5'-gTg 3'	5'-CTg 3'		5'-TAA 3'		5'-CCg 3'	5'-gCC 3'
			530		479				309			505
			5'-CCT 3'		5'-CCA 3'				5'-gTg 3'			5'-gCT 3'
					481							
					5'-gTg 3'							
					578							
					5'-TgA 3'							
Well No.	49	50	51	52	53	54	55	56	57	58	59	60



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For *In Vitro* Diagnostic Use

MA123 v02 SSP PI Template

Date: October 2023, Rev. No: 00

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Lot No.: **5S3**

Lot-specific information

Well No.	61	62	63	64	65	66	67	68	69	70	71	72
Length of spec. PCR product	100 210	180 250	70 200	115 170	185 215	175 210	110 160 230	160 190	105 225	160	185	90 145 170
Length of int. pos. control ¹	1070	1070	800	1070	1070	1070	1070	1070	1070	1070	1070	1070
5'-primer(s) ²	357 5'-Tgg ³	357 5'-Tgg ³	397 5'-gCT ³ 411 5'-CAA ³ 529 5'-AgA ³	138 5'-TTg ³ 145 5'-CAA ³ 200 5'-TCg ³	97 5'-TCC ³ 127 5'-ggT ³	357 5'-Tgg ³	141 5'-ATT ³ 435 5'-AAA ³	121 5'-gCT ³ 154 5'-ACA ³	141 5'-ATT ³ 155 5'-CgC ³	154 5'-ACA ³	357 5'-Tgg ³	267 5'-Ag ³ 646 5'-ACg ³ 670 5'-CCT ³
3'-primer(s) ³	418 5'-gTC ³ 527 5'-CCg ³ 528 5'-gCA ³	493 5'-CCT ³ 496 5'-gAC ³ 565 5'-CAT ³	559 5'-CAg ³	272 5'-TgA ³	272 5'-TgA ³	488 5'-CCA ³	259 5'-gTC ³ 496 5'-gAC ³ 526 5'-CTT ³	272 5'-TgA ³	206 5'-CCA ³ 327 5'-TTC ³	272 5'-TgA ³	494 5'-TCg ³	317 5'-ggA ³ 774 5'-gCT ³ 505 5'-ggT ³
Well No.	61	62	63	64	65	66	67	68	69	70	71	72

Well No.	73	74	75	76	77	78	79	80	81	82	83	84
Length of spec. PCR product	170 295	180	95	175 255	265	190	235	235	185 215	400	195 215	140 270
Length of int. pos. control ¹	1070	1070	1070	1070	1070	800	1070	1070	1070	1070	1070	800
5'-primer(s) ²	357 5'-Tgg ³	420 5'-TTA ³	379 5'-ACC ³ 379 5'-ACT ³	362 5'-gAA ³ 374 5'-CTA ³ 448 5'-CCA ³	266 5'-ACg ³	166 5'-CCT ³	77 5'-CTT ³	363 5'-AgC ³	96 5'-TTA ³ 127 5'-ggT ³	652 5'-CCg ³	408 5'-ggT ³ 431 5'-CgA ³	355 5'-TCA ³ 485 5'-CAA ³
3'-primer(s) ³	479 5'-CgA ³ 479 5'-CCA ³ 487 5'-CgT ³ 610 5'-C.g ³	559 5'-CgT ³	435 5'-TCT ³	583 5'-gTg ³	2 nd 5'-TCg ³	317 5'-ggA ³	272 5'-TgA ³	559 5'-CAg ³	272 5'-TgA ³	916 5'-gAC ³	583 5'-gTg ³	583 5'-gTg ³
Well No.	73	74	75	76	77	78	79	80	81	82	83	84

¹The 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.

²The nucleotide position matching the specificity-determining 3'-end of the primer is given. Nucleotide numbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

³The nucleotide position matching the specificity-determining 3'-end of the primer is given in the anti-sense direction. Nucleotide numbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.



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For *In Vitro* Diagnostic Use
MA123 v02 SSP PI Template
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Lot No.: **5S3**

Lot-specific information

CELL LINE VALIDATION SHEET																			
HLA-B*51 SSP subtyping kit²																			
				Well															
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
			Prod. No.:	202021001	202021002	202021003	202021004	202021005	202021006	202021007	202021008	202021009	202021010	202021011	202021012	202021013	202021014	202021015	202021016
	IHWC cell line ¹		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	9004 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	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-



0197

101.561-24/03 – including *Taq* polymerase
 101.561-24u/03u – without *Taq* polymerase

Visit www.caredx.com for
 “Instructions for Use” (IFU)

Lot No.: **5S3**

Lot-specific information

CELL LINE VALIDATION SHEET																									
HLA-B*51 SSP subtyping kit ²																									
					Prod. No.:	Well																			
						33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48				
						202021033	202021034	202021035	202021036	202021037	202021038	202021039	202021040	202021041	202021042	202021043	202021044	202021045	202021046	202021047	202021048				
	IHWC cell line ¹		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	9004 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		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



0197

101.561-24/03 – including Taq polymerase
101.561-24u/03u – without Taq polymerase

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Lot No.: **5S3**

Lot-specific information

CELL LINE VALIDATION SHEET																				
HLA-B*51 SSP subtyping kit ²																				
				Well																
				49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	
				Prod. No.:	202021049	202021050	202021051	202021052	202021053	202021054	202021055	202021056	202021057	202021058	202021059	202021060	202021061	202021062	202245063	202021064
IHC cell line ¹		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	9004 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 DHF	*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	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



0197

101.561-24/03 – including *Taq* polymerase
 101.561-24u/03u – without *Taq* polymerase

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Lot No.: **5S3**

Lot-specific information

CELL LINE VALIDATION SHEET																					
HLA-B*51 SSP subtyping kit²																					
					Well																
					65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	
					Prod. No.:	202021065	202021066	202021067	202021068	202021069	202021070	202021071	202021072	202021073	202021074	202021075	202021076	202021077	202021078	202021079	202021080
IHWC cell line¹			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	9004	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	DJCAF	*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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101.561-24/03 – including *Taq* polymerase
 101.561-24u/03u – without *Taq* polymerase

Visit www.caredx.com for
 “Instructions for Use” (IFU)

Lot No.: **5S3**

Lot-specific information

CELL LINE VALIDATION SHEET									
HLA-B*51 SSP subtyping kit ²									
				Well					
				81	82	83	84		
				Prod. No.:	202021081	202021082	202021083	202021084	
IHCW cell line ¹		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	9004	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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101.561-24/03 – including *Taq* polymerase
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Lot No.: **5S3**

Lot-specific information

¹The 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.

²The 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 5, 13, 17, 20, 21, 25, 27, 32, 33, 36, 39, 42 to 46, 51 to 53, 55, 57 to 62, 64, 66 to 73, 75 to 79 and 81 to 84 were available. The specificities of the primers in primer solutions 5, 17, 20, 27, 32, 39, 42, 44, 46, 51, 57, 61, 67, 75, 77, 82 and 84 were tested by separately adding one or two additional 5'-primers, and one, two or three additional 3'-primers accordingly.

In primer solutions 13, 21, 25, 33, 43, 45, 53, 55, 59, 60, 62, 66, 69, 71 and 73 it was only possible to test the 5'-primers, the 3'-primers were not possible to be tested. In primer solutions 36, 52, 58, 64, 68, 70, 72, 76, 78, 79, 81 and 83 it was only possible to test the 3'-primers, the 5'-primers were not possible to be tested. In primer solutions 7, 16, 38, 39, 41, 42, 44, 54, 63, 65 and 75 one, two or three of the 5'-primers were not possible to be tested. In primer solutions 15, 18, 20, 26 to 28, 42, 46, 51, 57, 61 and 67 one or two of the 3'-primers were not possible to be tested. In addition, one or more primers in primer solutions 18, 26, 28, 29, 31, 37, 41, 47, 48 and 54 were tested by separately adding one 5'-primer and/or one 3'-primer.



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For *In Vitro* Diagnostic Use

MA123 v02 SSP PI Template

Date: October 2023, Rev. No: 00

101.561-24/03 – including *Taq* polymerase
101.561-24u/03u – without *Taq* polymerase

Visit www.caredx.com for
“Instructions for Use” (IFU)

Lot No.: **5S3**

Lot-specific information

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Fax: +46-8-717 88 18

E-mail: orders-se@caredx.com

Web page: www.caredx.com

Distributed by:

CareDx Lab Solutions Inc., 901 S. Bolmar St., Suite R, West Chester, PA 19382

Tel: 1-877-653-78171

Fax: 610-344-7989

E-mail: orders-us@caredx.com

Web page: www.caredx.com

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



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For *In Vitro* Diagnostic Use

MA123 v02 SSP PI Template

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