

Notice of OPTN Policy Changes

Update Human Leukocyte Antigen (HLA) Equivalency Tables, 2023

Sponsoring Committee:	OPTN Histocompatibility Committee
Policies Affected:	4.11.A: HLA Matching Equivalences 4.11.B: HLA Unacceptable Antigen Equivalences 4.11.C: HLA DPB1 Available Alleles
Public Comment:	July 27—September 19, 2023
Committee Adoption:¹	November 14, 2023
Effective Date:	Pending implementation and notice to OPTN members

Purpose of Policy Changes

OPTN Policy 4.10: *HLA Value Updates* requires the OPTN Histocompatibility Committee (Committee) to review the Human Leukocyte Antigen (HLA) equivalency tables listed in OPTN Policy 4.11: *Reference Tables of HLA Antigen Values and Split Equivalences* on an annual basis. Policy 4.10 also requires the Committee to recommend any necessary changes identified as a result of the review. During their 2023 annual review, the Committee identified changes needed to better ensure safety, equity, and accuracy in matching donors with transplant candidates. Prior to these changes, the OPTN Board of Directors had most recently approved table updates in December 2021.

Proposal History

- The use of the expedited actions pathway for HLA value updates in OPTN Policy 4.11: *Reference Tables of HLA Antigen Values and Split Equivalences* was approved by the OPTN Board of Directors in June 2020, as long as the proposal meets the criteria within OPTN Bylaws 11.8: *Expedited Actions*
- The Committee discussed potential changes in March, April, May, and June of 2023
- The Committee developed a public comment proposal with their recommended changes
- The proposal received overall support for all components during July-September 2023 public comment
- The Committee voted for final adoption of the policy changes in November 2023 pursuant to OPTN Bylaws 11.8: *Expedited Actions*, effective pending implementation and notice to OPTN members

¹ These policy changes were adopted by the OPTN Histocompatibility Committee via the criteria laid out within OPTN Bylaws 11.8: *Expedited Actions*.

Summary of Changes

Following the required annual review of the HLA equivalency tables, the Committee proposed the following changes which were adopted using the expedited actions pathway:

1. Add all Immuno Polymorphism Database-International ImMunoGeneTics (IPD-IMGT) HLA P-groups that contain more than a single two-field allele for HLA typings and unacceptable antigen equivalences for all loci.
2. Update HLA matching equivalences to more equitably incorporate higher resolution HLA typings by making all HLA typings within a serologic antigen group match each other.
3. Update HLA-DPB1 tables to IPD-IMGT/HLA version 3.52.0 to ensure that the unacceptable antigen screening for candidates will appropriately exclude incompatible donors based on current P-group equivalences and epitopes, without changing requirements for candidate, donor, or recipient HLA typing.

The Committee is using the expedited actions pathway for these updates, outlined in OPTN *Policy 4.10: HLA Value Updates*. Pursuant to OPTN *Bylaws 11.8: Expedited Actions*, because there were no objections to the use of the expedited actions pathway or the policy changes themselves raised during public comment, the Committee was able to recommend final adoption of these changes, and adoption and implementation of these changes did not require action from the OPTN Board of Directors.

Implementation

These policy changes will require technical implementation in all applications within the OPTN Computer System. Members will receive a system notice prior to implementation.

Histocompatibility laboratories may need to update their Laboratory Information Systems (LISs) based on the changes within this proposal. Laboratory software vendors will also need to update their Application Programming Interfaces (APIs) based on these changes.

Organ Procurement Organizations (OPOs) and transplant hospitals may need to evaluate their agreements with histocompatibility laboratories to accommodate any needed transactional changes related to the proposal changes.

Affected Policy Language

New language is underlined (example) and language that is deleted is struck through (~~example~~).

4.11.A: HLA Matching Equivalences

Tables 4-2, 4-3, and 4-4 show candidate-donor antigen equivalencies. ~~For each candidate serologic antigen listed below, a~~ All of the candidate and donor antigens that are considered equivalent to each other for the purposes of HLA matching are listed ~~beside the candidate antigen~~ within each row. All other combinations are considered mismatches for the purposes of HLA matching.

Table 4-2: HLA A Matching Antigen Equivalences

Candidate A-Locus Antigen	<u>Equivalent Candidate and Donor A-Locus Antigens Equivalent to Each Other</u>
1	<u>1, 01:01P, 01:01, 01:02P, 01:02, 01:03P</u>
01:01	<u>01:01, 1</u>

Candidate A-Locus Antigen	Equivalent Candidate and Donor A-Locus Antigens Equivalent to Each Other
01:02	01:02, 1
2	2, <u>02:01P</u> , 02:01, <u>02:02P</u> , 02:02, <u>02:03P</u> , 02:03, <u>02:04P</u> , 02:05P, 02:05, <u>02:06P</u> , 02:06, <u>02:07P</u> , 02:07, <u>02:10P</u> , 02:10, <u>02:11P</u> , 02:14P, 02:16P, 02:18, <u>02:20P</u> , <u>02:22P</u> , 02:29P, 02:49P, 02:65P, <u>02:81P</u>
02:01	02:01, 2
02:02	02:02, 2
02:03	02:03, 2
02:05	02:05, 2
02:06	02:06, 2
02:07	02:07, 2
02:10	02:10, 2
02:18	02:18, 2
3	3, <u>03:01P</u> , 03:01, <u>03:02P</u> , 03:02, <u>03:04P</u> , 32:04
03:01	03:01, 3
03:02	03:02, 3
9	9
10	10
11	11, <u>11:01P</u> , 11:01, <u>11:02P</u> , 11:02, <u>11:03P</u> , <u>11:05P</u>
11:01	11:01, 11
11:02	11:02, 11
19	19
23	23, <u>23:01P</u>
24	24, <u>24:02P</u> , 24:02, <u>24:03P</u> , 24:03, <u>24:05P</u> , <u>24:07P</u> , 24:10P, <u>24:26P</u>
24:02	24:02, 24
24:03	24:03, 24
25	25, <u>25:01P</u>
26	26, <u>26:01P</u> , 26:01, 26:02, <u>26:03P</u> , 26:03
26:01	26:01, 26
26:02	26:02, 26
26:03	26:03, 26
28	28
29	29, <u>29:01P</u> , 29:01, <u>29:02P</u> , 29:02
29:01	29:01, 29
29:02	29:02, 29
30	30, <u>30:01P</u> , 30:01, <u>30:02P</u> , 30:02, <u>30:04P</u>
30:01	30:01, 30
30:02	30:02, 30
31	31, <u>31:01P</u>

Candidate A-Locus Antigen	<u>Equivalent Candidate and Donor A-Locus Antigens Equivalent to Each Other</u>
32	32, <u>32:01P</u>
32:04	<u>32:04</u> , 3
33	33, <u>33:01P</u> , 33:01, <u>33:03P</u> , 33:03
33:01	<u>33:01</u> , 33
33:03	<u>33:03</u> , 33
34	34, <u>34:01P</u> , 34:01, 34:02
34:01	<u>34:01</u> , 34
34:02	<u>34:02</u> , 34
36	36, <u>36:01P</u>
43	43
66	66, <u>66:01P</u> , 66:01, <u>66:02P</u> , 66:02
66:01	<u>66:01</u> , 66
66:02	<u>66:02</u> , 66
68	68, <u>68:01P</u> , 68:01, <u>68:02P</u> , 68:02, <u>68:03P</u>
68:01	<u>68:01</u> , 68
68:02	<u>68:02</u> , 68
69	69
74	74, <u>74:01P</u> , <u>74:06P</u>
80	80, <u>80:01P</u>

Table 4-3: HLA B Matching Antigen Equivalences

Candidate B-Locus Antigen	<u>Equivalent-Candidate and Donor B-Locus Antigens Equivalent to Each Other</u>
5	5
7	7, <u>07:02P</u> , 07:02, 07:03, <u>07:05P</u> , 07:14
07:02	07:02, 7
07:03	07:03, 7
07:14	07:14, 7
8	8, <u>08:01P</u> , 08:01, 08:02, 08:03, 08:04
08:01	08:01, 8
08:02	08:02, 8
08:03	08:03, 8
08:04	08:04, 8
12	12
13	13, <u>13:01P</u> , 13:01, <u>13:02P</u> , 13:02
13:01	13:01, 13
13:02	13:02, 13
14	14
14:01	14:01, 64
14:02	14:02, 65
15	15
15:01	15:01, 62
15:02	15:02, 75
15:03	15:03, 72
15:04	15:04, 62
15:06	15:06, 62
15:07	15:07, 62
15:10	15:10, 71
15:11	15:11, 75
15:12	15:12, 76
15:13	15:13, 77
15:16	15:16, 63
15:17	15:17, 63
15:18	15:18, 71
15:20	15:20, 62
15:21	15:21, 75
15:24	15:24
15:27	15:27, 62
16	16
17	17
18	18, <u>18:01P</u>
21	21
22	22

<u>Candidate B-Locus Antigen</u>	<u>Equivalent-Candidate and Donor B-Locus Antigens Equivalent to Each Other</u>
27	27, <u>27:02P</u> , 27:03, <u>27:04P</u> , 27:04, <u>27:05P</u> , 27:05, <u>27:06P</u> , 27:06, <u>27:07P</u>
27:03	27:03, 27
27:04	27:04, 27
27:05	27:05, 27
27:06	27:06, 27
27:08	27:08
35	35, <u>35:01P</u> , 35:01, <u>35:02P</u> , 35:02, <u>35:03P</u> , 35:03, <u>35:05P</u> , <u>35:08P</u> , <u>35:14P</u> , 35:08, <u>35:12P</u> , 35:12, <u>35:43P</u> , <u>35:137P</u>
35:01	35:01, 35
35:02	35:02, 35
35:03	35:03, 35
35:08	35:08, 35
35:12	35:12, 35
37	37, <u>37:01P</u>
38	38, <u>38:01P</u> , 38:01, <u>38:02P</u> , 38:02
38:01	38:01, 38
38:02	38:02, 38
39	39, <u>39:01P</u> , 39:01, <u>39:02P</u> , 39:02, <u>39:03P</u> , 39:04, <u>39:05P</u> , 39:05, <u>39:06P</u> , 39:06, <u>39:09P</u> , <u>39:10P</u> , 39:13, <u>39:15P</u>
39:01	39:01, 39
39:02	39:02, 39
39:04	39:04, 39
39:05	39:05, 39
39:06	39:06, 39
39:13	39:13, 39
40	40, <u>40:40P</u> , <u>40:213P</u>
40:01	40:01, 60
40:02	40:02, 61
40:03	40:03, 61
40:04	40:04, 61
40:05	40:05, 50
40:06	40:06, 61
41	41, <u>41:01P</u> , 41:01, <u>41:02P</u> , 41:02
41:01	41:01, 41
41:02	41:02, 41
42	42, <u>42:01P</u> , 42:01, 42:02
42:01	42:01, 42
42:02	42:02, 42
44	44, <u>44:02P</u> , 44:02, <u>44:03P</u> , 44:03, <u>44:05P</u> , 44:29P, <u>44:53P</u> , <u>51:42P</u>
44:02	44:02, 44
44:03	44:03, 44

<u>Candidate B-Locus Antigen</u>	<u>Equivalent-Candidate and Donor B-Locus Antigens Equivalent to Each Other</u>
45	45, <u>45:01P</u> , <u>50:02P</u> , 50:02
46	46, <u>46:01P</u>
47	47, <u>47:01P</u>
48	48, <u>48:01P</u> , 48:01, 48:02, <u>48:04P</u>
48:01	48:01, 48
48:02	48:02, 48
49	49, <u>49:01P</u>
50	50, <u>50:01P</u> , 50:01, 40:05
50:01	50:01, 50
50:02	50:02, 45
51	51, <u>51:01P</u> , 51:01, 51:02, <u>51:08P</u> , <u>51:09P</u> , <u>51:143P</u>
51:01	51:01, 51
51:02	51:02, 51
52	52, <u>52:01P</u>
53	53, <u>53:01P</u>
54	54, <u>54:01P</u>
55	55, <u>55:01P</u> , 55:01, <u>55:02P</u> , 55:02, 55:04
55:01	55:01, 55
55:02	55:02, 55
55:04	55:04, 55
56	56, <u>56:01P</u> , 56:01, 56:03
56:01	56:01, 56
56:03	56:03, 56
57	57, <u>57:01P</u> , 57:01, <u>57:03P</u> , 57:03
57:01	57:01, 57
57:03	57:03, 57
58	58, <u>58:01P</u> , <u>58:02P</u>
59	59, <u>59:01P</u>
60	60, <u>40:01P</u> , 40:01
61	61, <u>40:02P</u> , 40:02, <u>40:03P</u> , 40:03, 40:04, <u>40:06P</u> , 40:06
62	62, <u>15:01P</u> , 15:01, 15:04, 15:06, <u>15:07P</u> , 15:07, <u>15:20P</u> , 15:20, <u>15:25P</u> , 15:27, <u>15:28P</u> , <u>15:30P</u> , <u>15:32P</u> , <u>15:35P</u> , <u>15:39P</u>
63	63, <u>15:16P</u> , 15:16, <u>15:17P</u> , 15:17
64	64, <u>14:01P</u> , 14:01
65	65, <u>14:02P</u> , 14:02
67	67, <u>67:01P</u>
70	70, <u>15:123P</u>
71	71, <u>15:10P</u> , 15:10, <u>15:18P</u> , 15:18
72	72, <u>15:03P</u> , 15:03
73	73, <u>73:01P</u>
75	75, <u>15:02P</u> , 15:02, <u>15:11P</u> , 15:11, <u>15:21P</u> , 15:21
76	76, <u>15:12P</u> , 15:12, <u>15:14P</u>

<u>Candidate B-Locus Antigen</u>	<u>Equivalent Candidate and Donor B-Locus Antigens Equivalent to Each Other</u>
77	77, 15:13, <u>15:24</u>
78	78
81	81, <u>81:01P</u>
82	82
83:01	83:01

Table 4-4: HLA DR Matching Antigen Equivalences

<u>Candidate DR-Locus Antigen</u>	<u>Equivalent Candidate and Donor DR-Locus Antigens Equivalent to Each Other</u>
1	1, <u>01:01P</u> , 01:01, <u>01:02P</u> , 01:02
01:01	01:01, 1
01:02	01:02, 1
01:03	01:03, 103
2	2
3	3, <u>03:01P</u> , 03:01, <u>03:02P</u> , 03:02, 03:03
03:01	03:01, 17
03:02	03:02, 18
03:03	03:03, 18
4	4, <u>04:01P</u> , 04:01, <u>04:02P</u> , 04:02, <u>04:03P</u> , 04:03, <u>04:04P</u> , 04:04, <u>04:05P</u> , 04:05, <u>04:06P</u> , 04:06, <u>04:07P</u> , 04:07, <u>04:08P</u> , <u>04:10P</u> , 04:10, 04:11
04:01	04:01, 4
04:02	04:02, 4
04:03	04:03, 4
04:04	04:04, 4
04:05	04:05, 4
04:06	04:06, 4
04:07	04:07, 4
04:10	04:10, 4
04:11	04:11, 4
5	5
6	6
7	7, <u>07:01P</u>
8	8, <u>08:01P</u> , 08:01, <u>08:02P</u> , 08:02, <u>08:03P</u> , 08:03, <u>08:04P</u> , 08:07
08:01	08:01, 8
08:02	08:02, 8
08:03	08:03, 8
08:07	08:07, 8
9	9, <u>09:01P</u> , 09:01, 09:02
09:01	09:01, 9
09:02	09:02, 9

<u>Candidate DR-Locus Antigen</u>	<u>Equivalent Candidate and Donor DR-Locus Antigens Equivalent to Each Other</u>
10	10, <u>10:01P</u>
11	11, <u>11:01P</u> , 11:01, <u>11:02P</u> , <u>11:03P</u> , 11:03, <u>11:04P</u> , 11:04, <u>11:06P</u> , <u>11:11P</u>
11:01	<u>11:01</u> , 11
11:03	<u>11:03</u> , 11
11:04	<u>11:04</u> , 11
12	12, <u>12:01P</u> , 12:01, <u>12:02P</u> , 12:02
12:01	<u>12:01</u> , 12
12:02	<u>12:02</u> , 12
13	13, <u>13:01P</u> , 13:01, <u>13:02P</u> , 13:02, <u>13:03P</u> , 13:03, 13:05, <u>13:12P</u>
13:01	<u>13:01</u> , 13
13:02	<u>13:02</u> , 13
13:03	<u>13:03</u> , 13
13:05	<u>13:05</u> , 13
14	14, <u>14:01P</u> , 14:01, <u>14:02P</u> , 14:02, <u>14:03P</u> , 14:03, <u>14:04P</u> , 14:04, 14:05, 14:06, <u>14:08P</u> , <u>14:24P</u> , 14:54
14:01	<u>14:01</u> , 14, <u>14:54</u>
14:02	<u>14:02</u> , 14
14:03	<u>14:03</u> , 14
14:04	<u>14:04</u> , 14
14:05	<u>14:05</u> , 14
14:06	<u>14:06</u> , 14
14:54	<u>14:54</u> , 14, <u>14:01</u>
15	15, <u>15:01P</u> , 15:01, <u>15:02P</u> , 15:02, <u>15:03P</u> , 15:03, <u>15:04P</u> , <u>15:07P</u>
15:01	<u>15:01</u> , 15
15:02	<u>15:02</u> , 15
15:03	<u>15:03</u> , 15
16	16, <u>16:01P</u> , 16:01, <u>16:02P</u> , 16:02
16:01	<u>16:01</u> , 16
16:02	<u>16:02</u> , 16
17	17, <u>03:01P</u> , 03:01
18	18, <u>03:02P</u> , 03:02, 03:03
103	103, <u>01:03P</u> , 01:03

4.11.B: HLA Unacceptable Antigen Equivalences

At the time of the match run, if an antigen or epitope is entered as unacceptable for a candidate, then the candidate will not appear on the match run for donors reported with any of the equivalent antigens described in *Tables 4-5, 4-6, 4-7, 4-8, 4-9, 4-10, 4-11, 4-12, 4-13, 4-14, 4-15, and 4-16* below.

CPRa calculations include all donor alleles equivalent to a candidate's reported unacceptable antigens, alleles, and epitopes.

HLA values listed below as equivalent for the purposes of unacceptable antigen screening are also equivalent for the purposes of reporting HLA typing, with the exception of epitope-based unacceptable antigen assignments in the *Table 4-16*.

Table 4-5: HLA A Unacceptable Antigen Equivalences

If this A-Locus Unacceptable Antigen is reported:	The following HLA values are considered equivalent to the reported unacceptable antigen:
1	1, <u>01:01P</u> , 01:01, <u>01:02P</u> , 01:02, <u>01:03P</u>
01:01	01:01
01:02	01:02
2	2, <u>02:01P</u> , 02:01, <u>02:02P</u> , 02:02, <u>02:03P</u> , 02:03, <u>02:04P</u> , 02:05P, 02:05, <u>02:06P</u> , 02:06, <u>02:07P</u> , 02:07, <u>02:10P</u> , 02:10, <u>02:11P</u> , <u>02:14P</u> , <u>02:16P</u> , 02:18, <u>02:20P</u> , <u>02:22P</u> , 02:29P, 02:49P, 02:65P, <u>02:81P</u>
02:01	02:01
02:02	02:02
02:03	02:03
02:05	02:05
02:06	02:06
02:07	02:07
02:10	02:10
02:18	02:18
3	3, <u>03:01P</u> , 03:01, <u>03:02P</u> , 03:02, <u>03:04P</u> , 32:04
03:01	03:01
03:02	03:02
9	9, 23, <u>23:01P</u> , 24, <u>24:02P</u> , 24:02, <u>24:03P</u> , 24:03, <u>24:05P</u> , 24:07P, <u>24:10P</u> , <u>24:26P</u>
10	10, 25, <u>25:01P</u> , 26, <u>26:01P</u> , 26:01, 26:02, <u>26:03P</u> , 26:03, 34, <u>34:01P</u> , 34:01, 34:02, 66, <u>66:01P</u> , 66:01, <u>66:02P</u> , 66:02, 43
11	11, <u>11:01P</u> , 11:01, <u>11:02P</u> , 11:02, <u>11:03P</u> , <u>11:05P</u>
11:01	11:01
11:02	11:02
19	19, 29, <u>29:01P</u> , 29:01, <u>29:02P</u> , 29:02, 30, <u>30:01P</u> , 30:01, <u>30:02P</u> , 30:02, <u>30:04P</u> , 31, <u>31:01P</u> , 32, <u>32:01P</u> , 33, <u>33:01P</u> , 33:01, <u>33:03P</u> , 33:03, 74, <u>74:01P</u> , <u>74:06P</u>
23	23, <u>23:01P</u>

If this A-Locus Unacceptable Antigen is reported:	The following HLA values are considered equivalent to the reported unacceptable antigen:
24	24, <u>24:02P</u> , 24:02, <u>24:03P</u> , 24:03, <u>24:05P</u> , 24:07P, <u>24:10P</u> , <u>24:26P</u>
24:02	24:02
24:03	24:03
25	25, <u>25:01P</u>
26	26, <u>26:01P</u> , 26:01, 26:02, <u>26:03P</u> , 26:03
26:01	26:01
26:02	26:02
26:03	26:03
28	28, 68, 69, <u>68:01P</u> , 68:01, <u>68:02P</u> , 68:02, <u>68:03P</u>
29	29, <u>29:01P</u> , 29:01, <u>29:02P</u> , 29:02
29:01	29:01
29:02	29:02
30	30, <u>30:01P</u> , 30:01, <u>30:02P</u> , 30:02, <u>30:04P</u>
30:01	30:01
30:02	30:02
31	31, <u>31:01P</u>
32	32, <u>32:01P</u>
32:04	32:04
33	33, <u>33:01P</u> , 33:01, <u>33:03P</u> , 33:03
33:01	33:01
33:03	33:03
34	34, <u>34:01P</u> , 34:01, 34:02
34:01	34:01
34:02	34:02
36	36, <u>36:01P</u>
43	43
66	66, <u>66:01P</u> , 66:01, <u>66:02P</u> , 66:02
66:01	66:01
66:02	66:02
68	68, <u>68:01P</u> , 68:01, <u>68:02P</u> , 68:02, <u>68:03P</u>
68:01	68:01
68:02	68:02
69	69
74	74, <u>74:01P</u> , <u>74:06P</u>
80	80, <u>80:01P</u>

Table 4-6 HLA B Unacceptable Antigen Equivalences

If this B-Locus Unacceptable Antigen is reported:	The following HLA values are considered equivalent to the reported unacceptable antigen:
5	5, 51, <u>51:01P</u> , 51:01, 51:02, <u>51:08P</u> , 51:09P, <u>51:143P</u> , 52, <u>52:01P</u>
7	7, <u>07:02P</u> , 07:02, 07:03, <u>07:05P</u> , 07:14
07:02	07:02
07:03	07:03
07:14	07:14
8	8, <u>08:01P</u> , 08:01, 08:02, 08:03, 08:04
08:01	08:01
08:02	08:02
08:03	08:03
08:04	08:04
12	12, 44, <u>44:02P</u> , 44:02, <u>44:03P</u> , 44:03, <u>44:05P</u> , 44:29P, 44:53P, <u>51:42P</u> , 45, <u>50:02P</u> , 50:02
13	13, <u>13:01P</u> , 13:01, <u>13:02P</u> , 13:02
13:01	13:01
13:02	13:02
14	14, 64, 65, <u>14:01P</u> , 14:01, <u>14:02P</u> , 14:02
14:01	14:01, 64
14:02	14:02, 65
15	15, 62, 63, 70, 71, 72, 75, 76, 77, <u>15:01P</u> , 15:01, <u>15:02P</u> , 15:02, <u>15:03P</u> , 15:03, 15:04, 15:06, <u>15:07P</u> , 15:07, <u>15:10P</u> , 15:10, <u>15:11P</u> , 15:11, <u>15:12P</u> , 15:12, 15:13, <u>15:14P</u> , <u>15:16P</u> , 15:16, <u>15:17P</u> , 15:17, <u>15:18P</u> , 15:18, <u>15:20P</u> , 15:20, <u>15:21P</u> , 15:21, <u>15:24P</u> , 15:24, <u>15:25P</u> , 15:27, <u>15:28P</u> , 15:30P, 15:32P, 15:35P, 15:39P, <u>15:123P</u>
15:01	15:01
15:02	15:02
15:03	15:03
15:04	15:04
15:06	15:06
15:07	15:07
15:10	15:10
15:11	15:11
15:12	15:12
15:13	15:13
15:16	15:16
15:17	15:17
15:18	15:18
15:20	15:20
15:21	15:21
15:24	15:24
15:27	15:27

If this B-Locus Unacceptable Antigen is reported:	The following HLA values are considered equivalent to the reported unacceptable antigen:
16	16, 38, <u>38:01P</u> , 38:01, <u>38:02P</u> , 38:02, 39, <u>39:01P</u> , 39:01, <u>39:02P</u> , 39:02, 39:03P, 39:04, <u>39:05P</u> , 39:05, <u>39:06P</u> , 39:06, <u>39:09P</u> , <u>39:10P</u> , 39:13, <u>39:15P</u>
17	17, 57, <u>57:01P</u> , 57:01, <u>57:03P</u> , 57:03, 58, <u>58:01P</u> , <u>58:02P</u>
18	<u>18</u> , <u>18:01P</u>
21	21, 49, <u>49:01P</u> , 50, 40:05, <u>50:01P</u> , 50:01
22	22, 54, <u>54:01P</u> , 55, <u>55:01P</u> , 55:01, <u>55:02P</u> , 55:02, 55:04, 56, <u>56:01P</u> , 56:01, 56:03
27	27, <u>27:02P</u> , 27:03, <u>27:04P</u> , 27:04, <u>27:05P</u> , 27:05, <u>27:06P</u> , 27:06, <u>27:07P</u>
27:03	27:03
27:04	27:04
27:05	27:05
27:06	27:06
27:08	27:08
35	35, <u>35:01P</u> , 35:01, <u>35:02P</u> , 35:02, <u>35:03P</u> , 35:03, <u>35:05P</u> , 35:08P, 35:08, 35:12, <u>35:14P</u> , 35:43P, <u>35:137P</u>
35:01	35:01
35:02	35:02
35:03	35:03
35:08	35:08
35:12	35:12
37	<u>37</u> , <u>37:01P</u>
38	38, <u>38:01P</u> , 38:01, <u>38:02P</u> , 38:02
38:01	38:01
38:02	38:02
39	39, <u>39:01P</u> , 39:01, <u>39:02P</u> , 39:02, <u>39:03P</u> , 39:04, <u>39:05P</u> , 39:05, <u>39:06P</u> , 39:06, <u>39:09P</u> , <u>39:10P</u> , 39:13, <u>39:15P</u>
39:01	39:01
39:02	39:02
39:04	39:04
39:05	39:05
39:06	39:06
39:13	39:13
40	40, 60, 61, <u>40:01P</u> , 40:01, <u>40:02P</u> , 40:02, <u>40:03P</u> , 40:03, 40:04, <u>40:06P</u> , 40:06, <u>40:40P</u> , <u>40:213P</u>
40:01	40:01
40:02	40:02
40:03	40:03
40:04	40:04
40:05	40:05
40:06	40:06
41	41, <u>41:01P</u> , 41:01, <u>41:02P</u> , 41:02

If this B-Locus Unacceptable Antigen is reported:	The following HLA values are considered equivalent to the reported unacceptable antigen:
41:01	41:01
41:02	41:02
42	42, <u>42:01P</u> , 42:01, 42:02
42:01	42:01
42:02	42:02
44	44, <u>44:02P</u> , 44:02, <u>44:03P</u> , 44:03, <u>44:05P</u> , 44:29P, 44:53P, <u>51:42P</u>
44:02	44:02
44:03	44:03
45	45, <u>45:01P</u> , <u>50:02P</u> , 50:02
46	46, <u>46:01P</u>
47	47, <u>47:01P</u>
48	48, <u>48:01P</u> , 48:01, 48:02, <u>48:04P</u>
48:01	48:01
48:02	48:02
49	49, <u>49:01P</u>
50	50, 40:05, <u>50:01P</u> , 50:01
50:01	50:01
50:02	50:02
51	51, <u>51:01P</u> , 51:01, 51:02, <u>51:08P</u> , <u>51:09P</u> , <u>51:143P</u>
51:01	51:01
51:02	51:02
52	52, <u>52:01P</u>
53	53, <u>53:01P</u>
54	54, <u>54:01P</u>
55	55, <u>55:01P</u> , 55:01, <u>55:02P</u> , 55:02, 55:04
55:01	55:01
55:02	55:02
55:04	55:04
56	56, <u>56:01P</u> , 56:01, 56:03
56:01	56:01
56:03	56:03
57	57, <u>57:01P</u> , 57:01, <u>57:03P</u> , 57:03
57:01	57:01
57:03	57:03
58	58, <u>58:01P</u> , <u>58:02P</u>
59	59, <u>59:01P</u>
60	60, <u>40:01P</u> , 40:01
61	61, <u>40:02P</u> , 40:02, <u>40:03P</u> , 40:03, 40:04, <u>40:06P</u> , 40:06
62	62, <u>15:01P</u> , 15:01, 15:04, 15:06, <u>15:07P</u> , 15:07, <u>15:20P</u> , 15:20, <u>15:25P</u> , 15:27, <u>15:28P</u> , <u>15:30P</u> , <u>15:32P</u> , <u>15:35P</u> , <u>15:39P</u>
63	63, <u>15:16P</u> , 15:16, <u>15:17P</u> , 15:17
64	64, <u>14:01P</u> , 14:01

If this B-Locus Unacceptable Antigen is reported:	The following HLA values are considered equivalent to the reported unacceptable antigen:
65	65, <u>14:02P</u> , 14:02
67	67, <u>67:01P</u>
70	70, 71, 72, <u>15:03P</u> , 15:03, <u>15:10P</u> , 15:10, <u>15:18P</u> , 15:18, <u>15:123P</u>
71	71, <u>15:10P</u> , 15:10, <u>15:18P</u> , 15:18
72	72, <u>15:03P</u> , 15:03
73	73, <u>73:01P</u>
75	75, <u>15:02P</u> , 15:02, <u>15:11P</u> , 15:11, <u>15:21P</u> , 15:21
76	76, <u>15:12P</u> , 15:12, <u>15:14P</u>
77	77, 15:13
78	78
81	81, <u>81:01P</u>
82	82
83:01	83:01
Bw4	Bw4, 08:02, 08:03, 5, 13, <u>13:01P</u> , 13:01, <u>13:02P</u> , 13:02, 15:13, <u>15:16P</u> , 15:16, <u>15:17P</u> , 15:17, 15:24, 17, 27, <u>27:02P</u> , 27:03, <u>27:04P</u> , 27:04, <u>27:05P</u> , 27:05, <u>27:06P</u> , 27:06, <u>27:07P</u> , 37, <u>37:01P</u> , 38, <u>38:01P</u> , 38:01, <u>38:02P</u> , 38:02, 44, <u>44:02P</u> , 44:02, <u>44:03P</u> , 44:03, 44:05P, 44:29P, 44:53P, 47, <u>47:01P</u> , 49, <u>49:01P</u> , 51, <u>51:01P</u> , 51:01, 51:02, <u>51:08P</u> , 51:09P, <u>51:42P</u> , <u>51:143P</u> , 52, <u>52:01P</u> , 53, <u>53:01P</u> , 57, <u>57:01P</u> , 57:01, <u>57:03P</u> , 57:03, 58, <u>58:01P</u> , <u>58:02P</u> , 59, <u>59:01P</u> , 63, 77
Bw6	Bw6, 7, <u>07:02P</u> , 07:02, 07:03, <u>07:05P</u> , 07:14, 8, <u>08:01P</u> , 08:01, 08:04, 14, <u>14:01P</u> , 14:01, <u>14:02P</u> , 14:02, <u>15:01P</u> , 15:01, <u>15:02P</u> , 15:02, <u>15:03P</u> , 15:03, 15:04, 15:06, <u>15:07P</u> , 15:07, <u>15:10P</u> , 15:10, <u>15:11P</u> , 15:11, <u>15:12P</u> , 15:12, <u>15:14P</u> , <u>15:18P</u> , 15:18, <u>15:20P</u> , 15:20, <u>15:21P</u> , 15:21, <u>15:25P</u> , 15:27, <u>15:28P</u> , 15:30P, <u>15:32P</u> , 15:35P, 15:39P, <u>15:123P</u> , 18, <u>18:01P</u> , 22, 27:08, 35, <u>35:01P</u> , 35:01, <u>35:02P</u> , 35:02, <u>35:03P</u> , 35:03, <u>35:05P</u> , <u>35:08P</u> , 35:08, <u>35:12P</u> , 35:12, <u>35:14P</u> , <u>35:43P</u> , <u>35:137P</u> , 39, <u>39:01P</u> , 39:01, <u>39:02P</u> , 39:02, <u>39:03P</u> , 39:04, <u>39:05P</u> , 39:05, <u>39:06P</u> , 39:06, <u>39:09P</u> , <u>39:10P</u> , 39:13, <u>39:15P</u> , 40, <u>40:01P</u> , 40:01, <u>40:02P</u> , 40:02, <u>40:03P</u> , 40:03, 40:04, 40:05, <u>40:06P</u> , 40:06, <u>40:40P</u> , <u>40:213P</u> , 41, <u>41:01P</u> , 41:01, <u>41:02P</u> , 41:02, 42, <u>42:01P</u> , 42:01, 42:02, 45, <u>45:01P</u> , 48, <u>48:01P</u> , 48:01, 48:02, <u>48:04P</u> , 50, <u>50:01P</u> , 50:01, <u>50:02P</u> , 50:02, 54, <u>54:01P</u> , 55, <u>55:01P</u> , 55:01, <u>55:02P</u> , 55:02, 55:04, 56, <u>56:01P</u> , 56:01, 56:03, 60, 61, 62, 64, 65, 67, <u>67:01P</u> , 70, 71, 72, 75, 76, 78, 81, <u>81:01P</u> , 82

Table 4-7: HLA C Unacceptable Antigen Equivalences

If this C-Locus Unacceptable Antigen is reported:	The following HLA values are considered equivalent to the reported unacceptable antigen:
01	01, <u>01:02P</u> , 01:02, <u>01:03P</u> , 01:03, <u>01:63P</u>
01:02	01:02
01:03	01:03
02	02, <u>02:02P</u> , 02:02, 02:10, <u>02:14P</u> , 02:16P, 02:134P, 02:159P, <u>02:182P</u>
02:02	02:02
02:10	02:10
03	03, <u>03:02P</u> , 03:02, <u>03:03P</u> , 03:03, <u>03:04P</u> , 03:04, <u>03:05P</u> , 03:05, 03:06, <u>03:14P</u> , <u>03:40P</u> , 09, 10
03:02	03:02
03:03	03:03
03:04	03:04
03:05	03:05
03:06	03:06
04	04, <u>04:01P</u> , 04:01, <u>04:03P</u> , 04:03, 04:04, <u>04:06P</u> , 04:07, <u>04:10P</u> , 04:59P, 04:355P, 04:360P
04:01	04:01
04:03	04:03
04:04	04:04
04:07	04:07
05	05, <u>05:01P</u> , 05:01
05:01	05:01
06	06, <u>06:02P</u> , 06:02, <u>06:06P</u> , 06:87P
06:02	06:02
07	07, <u>07:01P</u> , 07:01, <u>07:02P</u> , 07:02, <u>07:04P</u> , 07:04, 07:06, 07:18, <u>07:19P</u> , 07:22P, 07:26P, 07:27P, 07:28P, 07:165P, 07:450P, <u>07:919P</u>
07:01	07:01
07:02	07:02
07:04	07:04
07:06	07:06
07:18	07:18
08	08, <u>08:01P</u> , 08:01, <u>08:02P</u> , 08:02, <u>08:03P</u> , 08:03, 08:04
08:01	08:01
08:02	08:02
08:03	08:03
08:04	08:04
09	09, <u>03:03P</u> , 03:03
10	10, <u>03:02P</u> , 03:02, <u>03:04P</u> , 03:04, 03:06
12	12, <u>12:02P</u> , 12:02, <u>12:03P</u> , 12:03, 12:04, <u>12:14P</u>
12:02	12:02

If this C-Locus Unacceptable Antigen is reported:	The following HLA values are considered equivalent to the reported unacceptable antigen:
12:03	12:03
12:04	12:04
14	14, <u>14:02P</u> , 14:02, <u>14:03P</u> , 14:03
14:02	14:02
14:03	14:03
15	15, <u>15:02P</u> , 15:02, <u>15:04P</u> , 15:04, <u>15:05P</u> , 15:05, 15:06, 15:09, <u>15:103P</u>
15:02	15:02
15:04	15:04
15:05	15:05
15:06	15:06
15:09	15:09
16	16, <u>16:01P</u> , 16:01, <u>16:02P</u> , 16:02, 16:04, <u>16:15P</u>
16:01	16:01
16:02	16:02
16:04	16:04
17	17, <u>17:01P</u> , 17:01, 17:03
17:01	17:01
17:03	17:03
18	18, <u>18:01P</u> , 18:01, 18:02
18:01	18:01
18:02	18:02

Table 4-8: HLA DR Unacceptable Antigen Equivalences

If this DR-Locus Unacceptable Antigen is reported:	The following HLA values are considered equivalent to the reported unacceptable antigen:
1	1, <u>01:01P</u> , 01:01, <u>01:02P</u> , 01:02
01:01	01:01
01:02	01:02
01:03	01:03, 103
2	2, 15, <u>15:01P</u> , 15:01, <u>15:02P</u> , 15:02, <u>15:03P</u> , 15:03, <u>15:04P</u> , <u>15:07P</u> , 16, <u>16:01P</u> , 16:01, <u>16:02P</u> , 16:02
3	3, 17, 18, <u>03:01P</u> , 03:01, <u>03:02P</u> , 03:02, 03:03
03:01	03:01
03:02	03:02
03:03	03:03
4	4, <u>04:01P</u> , 04:01, <u>04:02P</u> , 04:02, <u>04:03P</u> , 04:03, <u>04:04P</u> , 04:04, <u>04:05P</u> , 04:05, <u>04:06P</u> , 04:06, <u>04:07P</u> , 04:07, <u>04:08P</u> , <u>04:10P</u> , 04:10, 04:11
04:01	04:01
04:02	04:02

If this DR-Locus Unacceptable Antigen is reported:	The following HLA values are considered equivalent to the reported unacceptable antigen:
04:03	04:03
04:04	04:04
04:05	04:05
04:06	04:06
04:07	04:07
04:10	04:10
04:11	04:11
5	5, 11, <u>11:01P</u> , 11:01, <u>11:02P</u> , <u>11:03P</u> , <u>11:04P</u> , 11:04, <u>11:06P</u> , <u>11:11P</u> , 12, <u>12:01P</u> , 12:01, <u>12:02P</u> , 12:02
6	6, 13, <u>13:01P</u> , 13:01, <u>13:02P</u> , 13:02, <u>13:03P</u> , 13:03, 13:05, <u>13:12P</u> , 14, <u>14:01P</u> , 14:01, <u>14:02P</u> , 14:02, <u>14:03P</u> , 14:03, <u>14:04P</u> , 14:04, 14:05, 14:06, <u>14:08P</u> , 14:24P,
7	14:05 <u>14:01P</u>
8	8, <u>08:01P</u> , 08:01, <u>08:02P</u> , 08:02, <u>08:03P</u> , 08:03, <u>08:04P</u> , 08:07
08:01	08:01
08:02	08:02
08:03	08:03
08:07	08:07
9	9, <u>09:01P</u> , 09:01, 09:02
09:01	09:01
09:02	09:02
10	10, <u>10:01P</u>
11	11, <u>11:01P</u> , 11:01, <u>11:02P</u> , <u>11:03P</u> , 11:03, <u>11:04P</u> , 11:04, <u>11:06P</u> , <u>11:11P</u>
11:01	11:01
11:03	11:03
11:04	11:04
12	12, <u>12:01P</u> , 12:01, <u>12:02P</u> , 12:02
12:01	12:01
12:02	12:02
13	13, <u>13:01P</u> , 13:01, <u>13:02P</u> , 13:02, <u>13:03P</u> , 13:03, 13:05, <u>13:12P</u>
13:01	13:01
13:02	13:02
13:03	13:03
13:05	13:05
14	14, <u>14:01P</u> , 14:01, <u>14:02P</u> , 14:02, <u>14:03P</u> , 14:03, <u>14:04P</u> , 14:04, 14:05, 14:06, <u>14:08P</u> , <u>14:24P</u> , 14:54
14:01	14:01, 14:54
14:02	14:02
14:03	14:03
14:04	14:04
14:05	14:05
14:06	14:06

If this DR-Locus Unacceptable Antigen is reported:	The following HLA values are considered equivalent to the reported unacceptable antigen:
14:54	14:54, 14:01
15	15, <u>15:01P</u> , 15:01, <u>15:02P</u> , 15:02, <u>15:03P</u> , 15:03, <u>15:04P</u> , <u>15:07P</u>
15:01	15:01
15:02	15:02
15:03	15:03
16	16, <u>16:01P</u> , 16:01, <u>16:02P</u> , 16:02
16:01	16:01
16:02	16:02
17	17, <u>03:01P</u> , 03:01
18	18, <u>03:02P</u> , 03:02, 03:03
103	103, <u>01:03P</u> , 01:03

Table 4-9: HLA DR51 Unacceptable Antigen Equivalences

If this DR51-Locus Unacceptable Antigen is reported:	The following HLA values are considered equivalent to the reported unacceptable antigen:
5*01	5*01, <u>5*01:01P</u> , 5*01:01, <u>5*01:02P</u> , 5*01:02
5*01:01	5*01:01
5*01:02	5*01:02
5*02	5*02, <u>5*02:02P</u> , 5*02:02
5*02:02	5*02:02
51	51, <u>5*01:01P</u> , 5*01:01, <u>5*01:02P</u> , 5*01:02, <u>5*02:02P</u> , 5*02:02, 5*01, 5*02

Table 4-10: HLA DR52 Unacceptable Antigen Equivalences

If this DR52-Locus Unacceptable Antigen is reported:	The following HLA values are considered equivalent to the reported unacceptable antigens:
3*01	3*01, <u>3*01:01P</u> , 3*01:01
3*01:01	3*01:01
3*02	3*02, <u>3*02:01P</u> , 3*02:01, <u>3*02:02P</u> , 3*02:02, <u>3*02:100P</u>
3*02:01	3*02:01
3*02:02	3*02:02
3*03	3*03, <u>3*03:01P</u> , 3*03:01, <u>3*03:22P</u>
3*03:01	3*03:01
52	52, <u>3*01:01P</u> , 3*01:01, <u>3*02:01P</u> , 3*02:01, <u>3*02:02P</u> , 3*02:02, <u>3*02:100P</u> , <u>3*03:01P</u> , 3*03:01, <u>3*03:22P</u> , 3*01, 3*02, 3*03

Table 4-11: HLA DR53 Unacceptable Antigen Equivalences

If this DR-53 Locus Unacceptable Antigen is reported:	The following HLA values are considered equivalent to the reported unacceptable antigen:
4*01	4*01, <u>4*01:01P</u> , 4*01:01, 4*01:03, <u>4*01:75P</u> , <u>4*01:78P</u>
4*01:01	4*01:01
4*01:03	4*01:03
53	53, <u>4*01:01P</u> , 4*01:01, 4*01:03, <u>4*01:75P</u> , <u>4*01:78P</u> , 4*01

Table 4-12: HLA DQA1 Unacceptable Antigen Equivalences

If this DQA1-Locus Unacceptable Antigen is reported:	The following HLA values are considered equivalent to the reported unacceptable antigen:
01	01, <u>01:01P</u> , 01:01, <u>01:02P</u> , 01:02, <u>01:03P</u> , 01:03, 01:04, 01:05, 01:06, <u>01:07P</u> , 01:07, 01:08, 01:09, 01:10, 01:11, 01:12
01:01	01:01
01:02	01:02
01:03	01:03
01:04	01:04
01:05	01:05
01:06	01:06
01:07	01:07
01:08	01:08
01:09	01:09
01:10	01:10
01:11	01:11
01:12	01:12
02	02, <u>02:01P</u> , 02:01
02:01	02:01
03	03, <u>03:01P</u> , 03:01, 03:02, 03:03
03:01	03:01
03:02	03:02
03:03	03:03
04	04, <u>04:01P</u> , 04:01, 04:02, 04:04
04:01	04:01
04:02	04:02
04:04	04:04

If this DQA1-Locus Unacceptable Antigen is reported:	The following HLA values are considered equivalent to the reported unacceptable antigen:
05	05, <u>05:01P</u> , 05:01, 05:02, 05:03, 05:04, 05:05, 05:06, 05:07, 05:08, 05:09, 05:10, 05:11, <u>05:23P</u>
05:01	05:01
05:02	05:02
05:03	05:03
05:04	05:04
05:05	05:05
05:06	05:06
05:07	05:07
05:08	05:08
05:09	05:09
05:10	05:10
05:11	05:11
06	06, <u>06:01P</u> , 06:01, 06:02
06:01	06:01
06:02	06:02

Table 4-13: HLA DQB1 Unacceptable Antigen Equivalences

If this DQB1-Locus Unacceptable Antigen is reported:	The following HLA values are considered equivalent to the reported unacceptable antigen:
2	2, <u>02:01P</u> , 02:01, 02:02, <u>02:03P</u> , 02:57P, <u>02:135P</u>
02:01	02:01
02:02	02:02
3	3, 7, 8, 9, <u>03:01P</u> , 03:01, <u>03:02P</u> , 03:02, <u>03:03P</u> , 03:03, <u>03:04P</u> , <u>03:05P</u> , <u>03:10P</u> , 03:19, <u>03:71P</u> , <u>03:113P</u>
03:01	03:01
03:02	03:02
03:03	03:03
03:19	03:19
4	4, <u>04:01P</u> , 04:01, <u>04:02P</u> , 04:02
04:01	04:01
04:02	04:02
5	5, <u>05:01P</u> , 05:01, <u>05:02P</u> , 05:02, <u>05:03P</u> , 05:03, <u>05:04P</u>
05:01	05:01
05:02	05:02
05:03	05:03

If this DQB1-Locus Unacceptable Antigen is reported:	The following HLA values are considered equivalent to the reported unacceptable antigen:
6	6, <u>06:01P</u> , 06:01, <u>06:02P</u> , 06:02, <u>06:03P</u> , 06:03, <u>06:04P</u> , 06:04, <u>06:08P</u> , <u>06:09P</u> , 06:09, <u>06:46P</u> , <u>06:92P</u>
06:01	06:01
06:02	06:02
06:03	06:03
06:04	06:04
06:09	06:09
7	7, <u>03:01P</u> , 03:01, <u>03:04P</u> , 03:19
8	8, <u>03:02P</u> , 03:02, <u>03:05P</u> , <u>03:10P</u>
9	9, <u>03:03P</u> , 03:03

Table 4-14: HLA DPA1 Unacceptable Antigen Equivalences

If this DPA1-Locus Unacceptable Antigen is reported:	The following HLA values are considered equivalent to the reported unacceptable antigen:
01	01, <u>01:03P</u> , 01:03, 01:04, <u>01:05P</u> , 01:05, 01:06, 01:07, 01:08, 01:09, 01:10, 01:11, 01:12
01:03	01:03
01:04	01:04
01:05	01:05
01:06	01:06
01:07	01:07
01:08	01:08
01:09	01:09
01:10	01:10
01:11	01:11
01:12	01:12
02	02, <u>02:01P</u> , 02:01, <u>02:02P</u> , 02:02, 02:03, 02:04, 02:07, <u>02:21P</u> , <u>02:54P</u>
02:01	02:01
02:02	02:02
02:03	02:03
02:04	02:04
02:07	02:07
03	03, <u>03:01P</u> , 03:01, 03:02, 03:03, <u>03:07P</u>
03:01	03:01
03:02	03:02
03:03	03:03
04	04, <u>04:01P</u> , 04:01
04:01	04:01

Table 4-15: HLA DPB1 Unacceptable Antigen Equivalences

In addition to the alleles and p-groups displayed in this table, all non-null HLA-DPB1 alleles as of IMGT/HLA version 3.52.0 are available for reporting candidate, donor, or recipient HLA typing.

If this DPB1-Locus Unacceptable Antigen is reported:	All of the following HLA values are considered equivalent to the unacceptable antigen reported and to all the values within the row:
01:01	<u>01:01P</u> , 01:01, 162:01, 417:01, 462:01, 616:01, 733:01, 807:01, 810:01, 853:01, 931:01, 953:01, 979:01, 998:01, 999:01, 1024:01, 1038:01, 1050:01, 1068:01, 1076:01, 1151:01, 1162:01, 1183:01, <u>1287:01</u> , <u>1314:01</u> , <u>1361:01</u> , <u>1392:01</u> , <u>1406:01</u> , <u>1443:01</u>
02:01	<u>02:01P</u> , 02:01, 141:01, 352:01, 414:01, 416:01, 461:01, 617:01, 640:01, 678:01, 723:01, 783:01, 799:01, 819:01, 845:01, 857:01, 861:01, 955:01, 967:01, 975:01, 1036:01, 1051:01, 1055:01, 1077:01, 1082:01, 1094:01, 1102:01, 1115:01, 1160:01, 1175:01, <u>1198:01</u> , <u>1227:01</u> , <u>1243:01</u> , <u>1248:01</u> , <u>1266:01</u> , <u>1290:01</u> , <u>1298:01</u> , <u>1307:01</u> , <u>1312:01</u> , <u>1315:01</u> , <u>1320:01</u> , <u>1323:01</u> , <u>1326:01</u> , <u>1344:01</u> , <u>1352:01</u> , <u>1360:01</u> , <u>1363:01</u> , <u>1369:01</u> , <u>1372:01</u> , <u>1405:01</u> , <u>1417:01</u> , <u>1419:01</u> , <u>1456:01</u>
02:02	<u>02:02P</u> , 02:02, 547:01, 721:01, 766:01, 1188:01, <u>1376:01</u> , <u>1437:01</u>
03:01	<u>03:01P</u> , 03:01, 104:01, 124:01, 351:01, 669:01, 675:01, 676:01, 704:01, 706:01, 728:01, 829:01, 855:01, 938:01, 946:01, 948:01, 952:01, 1000:01, 1014:01, 1021:01, 1049:01, 1114:01, 1134:01, 1157:01, <u>1245:01</u> , <u>1246:01</u> , <u>1254:01</u> , <u>1263:01</u> , <u>1295:01</u> , <u>1382:01</u> , <u>1388:01</u> , <u>1401:01</u> , <u>1407:01</u> , <u>1429:01</u>
04:01	<u>04:01P</u> , 04:01, 126:01, 350:01, 415:01, 459:01, 464:01, 534:01, 615:01, 618:01, 670:01, 677:01, 699:01, 702:01, 755:01, 757:01, 765:01, 767:01, 784:01, 804:01, 806:01, 813:01, 820:01, 824:01, 826:01, 849:01, 850:01, 859:01, 880:01, 882:01, 926:01, 932:01, 939:01, 978:01, 988:01, 989:01, 992:01, 997:01, 1001:01, 1002:01, 1003:01, 1004:01, 1010:01, 1011:01, 1023:01, 1033:01, 1074:01, 1086:01, 1091:01, 1100:01, 1129:01, 1132:01, 1144:01, 1146:01, 1148:01, 1152:01, 1155:01, 1161:01, 1164:01, 1173:01, 1181:01, 1184:01, <u>1196:01</u> , <u>1206:01</u> , <u>1207:01</u> , <u>1217:01</u> , <u>1225:01</u> , <u>1226:01</u> , <u>1231:01</u> , <u>1237:01</u> , <u>1238:01</u> , <u>1241:01</u> , <u>1242:01</u> , <u>1244:01</u> , <u>1249:01</u> , <u>1268:01</u> , <u>1271:01</u> , <u>1284:01</u> , <u>1297:01</u> , <u>1300:01</u> , <u>1304:01</u> , <u>1308:01</u> , <u>1316:01</u> , <u>1317:01</u> , <u>1321:01</u> , <u>1322:01</u> , <u>1327:01</u> , <u>1328:01</u> , <u>1345:01</u> , <u>1362:01</u> , <u>1374:01</u> , <u>1377:01</u> , <u>1379:01</u> , <u>1387:01</u> , <u>1390:01</u> , <u>1391:01</u> , <u>1409:01</u> , <u>1412:01</u> , <u>1413:01</u> , <u>1436:01</u> , <u>1444:01</u> , <u>1446:01</u> , <u>1450:01</u> , <u>1459:01</u> , <u>1465:01</u> , <u>1472:01</u> , <u>1476:01</u>

If this DPB1-Locus Unacceptable Antigen is reported:	All of the following HLA values are considered equivalent to the unacceptable antigen reported and to all the values within the row:
04:02	<u>04:02P</u> , 04:02, 105:01, 463:01, 571:01, 647:01, 665:01, 674:01, 701:01, 725:01, 726:01, 730:01, 731:01, 734:01, 735:01, 763:01, 809:01, 818:01, 823:01, 858:01, 881:01, 927:01, 933:01, 954:01, 958:01, 981:01, 1005:01, 1013:01, 1020:01, 1025:01, 1031:01, 1035:01, 1037:01, 1072:01, 1075:01, 1083:01, 1085:01, 1124:01, 1153:01, 1171:01, 1194:01, <u>1197:01</u> , <u>1235:01</u> , <u>1239:01</u> , <u>1267:01</u> , <u>1270:01</u> , <u>1283:01</u> , <u>1331:01</u> , <u>1346:01</u> , <u>1380:01</u> , <u>1404:01</u> , <u>1424:01</u> , <u>1425:01</u> , <u>1460:01</u>
05:01	<u>05:01P</u> , 05:01, 135:01, 668:01, 729:01, 744:01, 764:01, 790:01, 847:01, 848:01, 851:01, 860:01, 923:01, 951:01, 1015:01, 1018:01, 1117:01, 1118:01, 1119:01, 1120:01, 1143:01, 1172:01, <u>1199:01</u> , <u>1213:01</u> , <u>1273:01</u> , <u>1289:01</u> , <u>1318:01</u> , <u>1438:01</u> , <u>1457:01</u> , <u>1462:01</u> , <u>1473:01</u>
06:01	<u>06:01P</u> , 06:01, 737:01, 906:01, 914:01, 1022:01, 1087:01, 1111:01, <u>1259:01</u> , <u>1471:01</u>
08:01	08:01
09:01	<u>09:01P</u> , 09:01, 797:01, 899:01, 1149:01, <u>1258:01</u> , <u>1303:01</u> , <u>1313:01</u> , <u>1378:01</u>
10:01	<u>10:01P</u> , 10:01, 650:01, 673:01, 902:01, 1126:01, <u>1261:01</u> , <u>1470:01</u>
11:01	<u>11:01P</u> , 11:01, 649:01, 654:01, 672:01, 707:01, 907:01, 937:01, 1063:01
13:01	<u>13:01P</u> , 13:01, 107:01, 133:01, 518:01, 519:01, 888:01, 924:01, 947:01, 996:01, 1065:01, 1069:01, 1105:01, 1123:01, 1131:01, 1185:01, <u>1232:01</u> , <u>1294:01</u> , <u>1451:01</u>
14:01	<u>14:01P</u> , 14:01, 498:01, 572:01, 651:01, 671:01, 705:01, 834:01, 854:01, 949:01, 1187:01, <u>1348:01</u> , <u>1354:01</u> , <u>1384:01</u> , <u>1395:01</u> , <u>1414:01</u>
15:01	<u>15:01P</u> , 15:01, 585:01, 896:01, 910:01, 1054:01, 1192:01, <u>1250:01</u> , <u>1336:01</u> , <u>1434:01</u>
16:01	<u>16:01P</u> , 16:01, 652:01, 653:01, 864:01, 886:01, 940:01, 968:01, <u>1386:01</u>
17:01	<u>17:01P</u> , 17:01, 131:01, 168:01, 460:01, 846:01, 956:01, 1032:01, 1052:01, <u>1233:01</u> , <u>1265:01</u> , <u>1367:01</u> , <u>1394:01</u> , <u>1397:01</u> , <u>1431:01</u> , <u>1435:01</u> , <u>1475:01</u>
18:01	<u>18:01P</u> , 18:01, 897:01, 942:01, 1165:01
19:01	<u>19:01P</u> , 19:01, 106:01, 533:01, 535:01, 785:01, 965:01, 1101:01, <u>1255:01</u> , <u>1282:01</u>
20:01	<u>20:01P</u> , 20:01, 905:01, <u>1389:01</u> , <u>1426:01</u>

If this DPB1-Locus Unacceptable Antigen is reported:	All of the following HLA values are considered equivalent to the unacceptable antigen reported and to all the values within the row:
21:01	<u>21:01P</u> , 21:01, 1019:01, 1186:01, 1190:01
22:01	<u>22:01P</u> , 22:01, 1026:01
23:01	<u>23:01P</u> , 23:01, 138:01
24:01	24:01
25:01	<u>25:01P</u> , 25:01, <u>1469:01</u>
26:01	<u>26:01P</u> , 26:01, 1088:01
27:01	27:01
28:01	<u>28:01P</u> , 28:01, 296:01, <u>1286:01</u> , <u>1324:01</u>
29:01	<u>29:01P</u> , 29:01, 909:01
30:01	30:01
31:01	<u>31:01P</u> , 31:01, 945:01
34:01	<u>34:01P</u> , 34:01, 835:01, 913:01
35:01	35:01
38:01	<u>38:01P</u> , 38:01, 1099:01
39:01	<u>39:01P</u> , 39:01, 584:01
40:01	<u>40:01P</u> , 40:01, 745:01
45:01	<u>45:01P</u> , 45:01, 832:01
51:01	<u>51:01P</u> , 51:01, 736:01
<u>55:01</u>	<u>55:01P</u> , 55:01, <u>1353:01</u>
57:01	<u>57:01P</u> , 57:01, 648:01
59:01	<u>59:01P</u> , 59:01, 782:01
80:01	<u>80:01P</u> , 80:01, 762:01
<u>81:01</u>	<u>81:01P</u> , 81:01, <u>1383:01</u>
85:01	<u>85:01P</u> , 85:01, 713:01, 901:01, 1034:01, <u>1441:01</u>
90:01	<u>90:01P</u> , 90:01, 1012:01
<u>100:01</u>	<u>100:01P</u> , 100:01, <u>1483:01</u>
104:01	104:01
105:01	105:01
106:01	106:01
107:01	107:01
124:01	124:01
126:01	126:01

If this DPB1-Locus Unacceptable Antigen is reported:	All of the following HLA values are considered equivalent to the unacceptable antigen reported and to all the values within the row:
<u>130:01</u>	<u>130:01P</u> , <u>130:01</u> , <u>1211:01</u>
131:01	131:01
132:01	<u>132:01P</u> , <u>132:01</u> , <u>1027:01</u>
135:01	135:01
137:01	<u>137:01P</u> , <u>137:01</u> , <u>791:01</u>
152:01	<u>152:01P</u> , <u>152:01</u> , <u>944:01</u>
<u>184:01</u>	<u>184:01P</u> , <u>184:01</u> , <u>1224:01</u>
<u>233:01</u>	<u>233:01P</u> , <u>233:01</u> , <u>1428:01</u>
398:01	<u>398:01P</u> , <u>398:01</u> , <u>922:01</u>
1096:01	<u>1096:01P</u> , <u>1096:01</u> , <u>1133:01</u>
<u>1371:01</u>	<u>1371:01P</u> , <u>1371:01</u> , <u>1445:01</u>

Table 4-16: Epitope based Unacceptable Antigen Assignment for DPB1

If this Candidate Unacceptable Epitope is reported:	The following HLA values are considered equivalent to the reported unacceptable epitope:									
55AAE	01:01	04:01	11:01	13:01	15:01	23:01	26:01	27:01	31:01	
	33:01	34:01	39:01	40:01	52:01	55:01	56:01	58:01	62:01	
	63:01	65:01	66:01	67:01	71:01	72:01	74:01	85:01	87:01	
	89:01	90:01	95:01	96:01	99:01	102:01	103:01	107:01	110:01	
	112:01	117:01	118:01	121:01	125:01	126:01	127:01	128:01	133:01	
	134:01	138:01	142:01	147:01	149:01	150:01	158:01	160:01	162:01	
	169:01	173:01	174:01	175:01	176:01	177:01	178:01	179:01	180:01	
	181:01	192:01	193:01	194:01	195:01	199:01	201:01	202:01	206:01	
	207:01	209:01	212:01	213:01	220:01	224:01	225:01	227:01	228:01	
	230:01	231:01	232:01	240:01	244:01	246:01	247:01	250:01	253:01	
	255:01	262:01	264:01	267:01	268:01	272:01	275:01	276:01	278:01	

If this Candidate Unacceptable Epitope is reported:	The following HLA values are considered equivalent to the reported unacceptable epitope:								
55AAE	279:01	280:01	281:01	282:01	283:01	290:01	294:01	295:01	298:01
	299:01	303:01	304:01	305:01	306:01	314:01	318:01	319:01	320:01
	322:01	323:01	325:01	326:01	327:01	333:01	334:01	335:01	336:01
	340:01	341:01	345:01	346:01	348:01	350:01	353:01	354:01	356:01
	360:01	362:01	370:01	371:01	372:01	375:01	376:01	377:01	378:01
	387:01	388:01	389:01	392:01	393:01	396:01	397:01	398:01	399:01
	411:01	412:01	415:01	417:01	418:01	425:01	426:01	428:01	434:01
	435:01	436:01	437:01	438:01	440:01	449:01	451:01	453:01	454:01
	456:01	458:01	459:01	462:01	464:01	465:01	468:01	471:01	474:01
	475:01	476:01	479:01	480:01	481:01	482:01	483:01	485:01	486:01
	487:01	490:01	493:01	497:01	500:01	503:01	512:01	516:01	517:01
	518:01	519:01	520:01	521:01	522:01	523:01	524:01	529:01	531:01
	534:01	538:01	542:01	543:01	544:01	553:01	554:01	556:01	559:01
	561:01	562:01	563:01	564:01	565:01	569:01	575:01	576:01	578:01
	580:01	583:01	584:01	585:01	591:01	592:01	593:01	597:01	599:01
	600:01	607:01	609:01	612:01	614:01	615:01	616:01	618:01	623:01
	625:01	626:01	631:01	632:01	634:01	635:01	636:01	643:01	644:01
	649:01	654:01	658:01	666:01	667:01	670:01	672:01	677:01	679:01
	682:01	683:01	686:01	687:01	694:01	695:01	699:01	702:01	703:01
	707:01	708:01	709:01	713:01	716:01	722:01	733:01	739:01	742:01
	745:01	747:01	749:01	750:01	753:01	755:01	757:01	758:01	761:01
	765:01	767:01	768:01	769:01	772:01	773:01	784:01	787:01	788:01
	789:01	795:01	803:01	804:01	806:01	807:01	808:01	810:01	811:01
	812:01	813:01	814:01	820:01	822:01	824:01	826:01	828:01	830:01
	835:01	837:01	840:01	842:01	849:01	850:01	852:01	853:01	856:01

If this Candidate Unacceptable Epitope is reported:	The following HLA values are considered equivalent to the reported unacceptable epitope:								
55AAE	859:01	879:01	880:01	882:01	888:01	893:01	895:01	896:01	901:01
	904:01	907:01	908:01	910:01	912:01	913:01	915:01	916:01	921:01
	922:01	924:01	926:01	930:01	931:01	932:01	934:01	937:01	945:01
	947:01	953:01	957:01	966:01	969:01	972:01	976:01	978:01	979:01
	988:01	989:01	991:01	992:01	993:01	996:01	997:01	998:01	999:01
	1001:01	1002:01	1003:01	1004:01	1010:01	1011:01	1012:01	1016:01	1023:01
	1024:01	1033:01	1034:01	1038:01	1040:01	1042:01	1046:01	1048:01	1050:01
	1054:01	1057:01	1060:01	1062:01	1063:01	1064:01	1065:01	1066:01	1068:01
	1069:01	1073:01	1074:01	1076:01	1078:01	1080:01	1081:01	1086:01	1088:01
	1091:01	1097:01	1100:01	1105:01	1108:01	1109:01	1113:01	1122:01	1123:01
	1129:01	1131:01	1132:01	1137:01	1138:01	1139:01	1141:01	1144:01	1145:01
	1146:01	1147:01	1148:01	1151:01	1152:01	1155:01	1161:01	1162:01	1164:01
	1166:01	1167:01	1170:01	1173:01	1177:01	1181:01	1183:01	1184:01	1185:01
	1192:01	1195:01	<u>1196:01</u>	<u>1204:01</u>	<u>1205:01</u>	<u>1206:01</u>	<u>1207:01</u>	<u>1208:01</u>	<u>1212:01</u>
	<u>1214:01</u>	<u>1215:01</u>	<u>1216:01</u>	<u>1217:01</u>	<u>1218:01</u>	<u>1220:01</u>	<u>1221:01</u>	<u>1222:01</u>	<u>1225:01</u>
	<u>1226:01</u>	<u>1231:01</u>	<u>1232:01</u>	<u>1234:01</u>	<u>1237:01</u>	<u>1238:01</u>	<u>1241:01</u>	<u>1242:01</u>	<u>1244:01</u>
	<u>1249:01</u>	<u>1250:01</u>	<u>1252:01</u>	<u>1262:01</u>	<u>1264:01</u>	<u>1268:01</u>	<u>1271:01</u>	<u>1274:01</u>	<u>1277:01</u>
	<u>1284:01</u>	<u>1287:01</u>	<u>1292:01</u>	<u>1294:01</u>	<u>1297:01</u>	<u>1300:01</u>	<u>1301:01</u>	<u>1304:01</u>	<u>1306:01</u>
	<u>1308:01</u>	<u>1309:01</u>	<u>1310:01</u>	<u>1314:01</u>	<u>1316:01</u>	<u>1317:01</u>	<u>1321:01</u>	<u>1322:01</u>	<u>1327:01</u>
	<u>1328:01</u>	<u>1329:01</u>	<u>1333:01</u>	<u>1336:01</u>	<u>1337:01</u>	<u>1341:01</u>	<u>1342:01</u>	<u>1343:01</u>	<u>1345:01</u>
	<u>1353:01</u>	<u>1356:01</u>	<u>1358:01</u>	<u>1361:01</u>	<u>1362:01</u>	<u>1370:01</u>	<u>1374:01</u>	<u>1377:01</u>	<u>1379:01</u>
55AAE	<u>1385:01</u>	<u>1387:01</u>	<u>1390:01</u>	<u>1391:01</u>	<u>1392:01</u>	<u>1399:01</u>	<u>1406:01</u>	<u>1409:01</u>	<u>1412:01</u>
	<u>1413:01</u>	<u>1420:01</u>	<u>1421:01</u>	<u>1427:01</u>	<u>1433:01</u>	<u>1434:01</u>	<u>1436:01</u>	<u>1441:01</u>	<u>1443:01</u>
	<u>1444:01</u>	<u>1446:01</u>	<u>1447:01</u>	<u>1450:01</u>	<u>1451:01</u>	<u>1453:01</u>	<u>1454:01</u>	<u>1459:01</u>	<u>1464:01</u>
	<u>1465:01</u>	<u>1472:01</u>	<u>1476:01</u>						

If this Candidate Unacceptable Epitope is reported:	The following HLA values are considered equivalent to the reported unacceptable epitope:								
55DED	03:01	06:01	09:01	14:01	17:01	20:01	29:01	35:01	44:01
	46:01	50:01	57:01	69:01	70:01	76:01	78:01	80:01	86:01
	88:01	91:01	92:01	98:01	104:01	108:01	111:01	119:01	124:01
	130:01	131:01	132:01	152:01	156:01	157:01	164:01	166:01	168:01
	182:01	197:01	203:01	205:01	208:01	214:01	221:01	222:01	234:01
	235:01	241:01	242:01	243:01	245:01	248:01	249:01	251:01	259:01
	266:01	270:01	287:01	288:01	289:01	292:01	293:01	329:01	332:01
	343:01	351:01	355:01	361:01	363:01	379:01	383:01	384:01	385:01
	386:01	391:01	394:01	404:01	405:01	407:01	409:01	413:01	439:01
	442:01	445:01	446:01	447:01	460:01	472:01	484:01	491:01	492:01
	498:01	504:01	505:01	506:01	508:01	509:01	530:01	536:01	540:01
	541:01	545:01	546:01	548:01	555:01	566:01	567:01	568:01	572:01
	581:01	601:01	610:01	613:01	620:01	621:01	629:01	630:01	645:01
	648:01	651:01	662:01	664:01	669:01	671:01	675:01	676:01	684:01
	688:01	689:01	698:01	704:01	705:01	706:01	714:01	719:01	727:01
	728:01	737:01	760:01	762:01	797:01	801:01	815:01	829:01	833:01
	834:01	839:01	846:01	854:01	855:01	883:01	899:01	905:01	906:01
	909:01	914:01	920:01	935:01	938:01	944:01	946:01	948:01	949:01
	952:01	956:01	970:01	977:01	983:01	987:01	990:01	994:01	1000:01
	1009:01	1014:01	1017:01	1021:01	1022:01	1027:01	1030:01	1032:01	1043:01
	1047:01	1049:01	1052:01	1067:01	1071:01	1087:01	1090:01	1093:01	1103:01
	1104:01	1111:01	1114:01	1116:01	1125:01	1127:01	1128:01	1130:01	1134:01
	1149:01	1157:01	1158:01	1174:01	1178:01	1182:01	1187:01	<u>1203:01</u>	<u>1211:01</u>
	<u>1233:01</u>	<u>1245:01</u>	<u>1246:01</u>	<u>1251:01</u>	<u>1254:01</u>	<u>1258:01</u>	<u>1259:01</u>	<u>1263:01</u>	<u>1265:01</u>
	<u>1278:01</u>	<u>1295:01</u>	<u>1303:01</u>	<u>1311:01</u>	<u>1313:01</u>	<u>1330:01</u>	<u>1339:01</u>	<u>1340:01</u>	<u>1348:01</u>

If this Candidate Unacceptable Epitope is reported:	The following HLA values are considered equivalent to the reported unacceptable epitope:								
55DED	<u>1354:01</u>	<u>1355:01</u>	<u>1359:01</u>	<u>1365:01</u>	<u>1366:01</u>	<u>1367:01</u>	<u>1373:01</u>	<u>1378:01</u>	<u>1382:01</u>
	<u>1384:01</u>	<u>1388:01</u>	<u>1389:01</u>	<u>1394:01</u>	<u>1395:01</u>	<u>1396:01</u>	<u>1397:01</u>	<u>1401:01</u>	<u>1407:01</u>
	<u>1411:01</u>	<u>1414:01</u>	<u>1418:01</u>	<u>1422:01</u>	<u>1426:01</u>	<u>1429:01</u>	<u>1431:01</u>	<u>1432:01</u>	<u>1435:01</u>
	<u>1448:01</u>	<u>1452:01</u>	<u>1458:01</u>	<u>1466:01</u>	<u>1467:01</u>	<u>1471:01</u>	<u>1474:01</u>	<u>1475:01</u>	<u>1480:01</u>
55DEE	02:01	04:02	08:01	10:01	16:01	18:01	25:01	28:01	37:01
	41:01	45:01	48:01	49:01	51:01	53:01	59:01	60:01	68:01
	73:01	75:01	77:01	79:01	81:01	82:01	83:01	93:01	94:01
	105:01	109:01	113:01	115:01	116:01	122:01	123:01	129:01	136:01
	137:01	141:01	143:01	144:01	145:01	146:01	151:01	153:01	155:01
	163:01	165:01	167:01	172:01	183:01	184:01	185:01	186:01	187:01
	188:01	189:01	191:01	196:01	198:01	200:01	204:01	210:01	211:01
	217:01	219:01	229:01	236:01	237:01	238:01	239:01	252:01	256:01
	257:01	258:01	260:01	261:01	263:01	265:01	269:01	271:01	273:01
	274:01	277:01	285:01	286:01	296:01	297:01	307:01	308:01	309:01
	310:01	311:01	312:01	313:01	316:01	321:01	324:01	338:01	339:01
	342:01	344:01	347:01	349:01	352:01	359:01	364:01	365:01	366:01
	367:01	368:01	369:01	373:01	374:01	380:01	381:01	402:01	410:01
	414:01	416:01	419:01	420:01	421:01	422:01	423:01	424:01	429:01
	430:01	431:01	432:01	433:01	441:01	443:01	444:01	448:01	452:01
	457:01	461:01	463:01	466:01	467:01	469:01	470:01	477:01	488:01
	489:01	494:01	499:01	501:01	502:01	510:01	511:01	513:01	514:01
	515:01	525:01	526:01	528:01	532:01	537:01	539:01	549:01	552:01
	557:01	571:01	574:01	577:01	579:01	582:01	586:01	594:01	595:01
	596:01	602:01	603:01	604:01	606:01	608:01	617:01	622:01	624:01
	627:01	628:01	633:01	637:01	639:01	640:01	641:01	646:01	647:01

If this Candidate Unacceptable Epitope is reported:	The following HLA values are considered equivalent to the reported unacceptable epitope:								
55DEE	650:01	652:01	653:01	655:01	656:01	659:01	660:01	663:01	665:01
	673:01	674:01	678:01	680:01	681:01	685:01	690:01	692:01	701:01
	711:01	723:01	725:01	726:01	730:01	731:01	734:01	735:01	736:01
	740:01	741:01	751:01	752:01	759:01	763:01	770:01	771:01	774:01
	775:01	776:01	780:01	781:01	782:01	783:01	791:01	799:01	805:01
	809:01	816:01	817:01	818:01	819:01	823:01	827:01	832:01	836:01
	841:01	843:01	845:01	857:01	858:01	861:01	863:01	864:01	881:01
	884:01	885:01	886:01	887:01	889:01	890:01	891:01	892:01	897:01
	898:01	900:01	902:01	903:01	918:01	927:01	933:01	936:01	940:01
	942:01	943:01	954:01	955:01	958:01	963:01	964:01	967:01	968:01
	973:01	975:01	981:01	1005:01	1006:01	1007:01	1013:01	1020:01	1025:01
	1028:01	1031:01	1035:01	1036:01	1037:01	1039:01	1051:01	1053:01	1055:01
	1056:01	1059:01	1072:01	1075:01	1077:01	1082:01	1083:01	1085:01	1089:01
	1092:01	1094:01	1102:01	1106:01	1107:01	1110:01	1115:01	1124:01	1126:01
	1136:01	1140:01	1142:01	1150:01	1153:01	1159:01	1160:01	1163:01	1165:01
	1168:01	1171:01	1175:01	1176:01	1179:01	1194:01	<u>1197:01</u>	<u>1198:01</u>	<u>1200:01</u>
	<u>1201:01</u>	<u>1210:01</u>	<u>1219:01</u>	<u>1224:01</u>	<u>1227:01</u>	<u>1230:01</u>	<u>1235:01</u>	<u>1236:01</u>	<u>1239:01</u>
	<u>1243:01</u>	<u>1247:01</u>	<u>1248:01</u>	<u>1253:01</u>	<u>1261:01</u>	<u>1266:01</u>	<u>1267:01</u>	<u>1270:01</u>	<u>1276:01</u>
	<u>1280:01</u>	<u>1281:01</u>	<u>1283:01</u>	<u>1286:01</u>	<u>1290:01</u>	<u>1296:01</u>	<u>1298:01</u>	<u>1307:01</u>	<u>1312:01</u>
	<u>1315:01</u>	<u>1319:01</u>	<u>1320:01</u>	<u>1323:01</u>	<u>1324:01</u>	<u>1326:01</u>	<u>1331:01</u>	<u>1335:01</u>	<u>1344:01</u>
	<u>1346:01</u>	<u>1347:01</u>	<u>1352:01</u>	<u>1360:01</u>	<u>1363:01</u>	<u>1368:01</u>	<u>1369:01</u>	<u>1371:01</u>	<u>1372:01</u>
	<u>1380:01</u>	<u>1381:01</u>	<u>1383:01</u>	<u>1386:01</u>	<u>1393:01</u>	<u>1402:01</u>	<u>1404:01</u>	<u>1405:01</u>	<u>1408:01</u>
55DEE	<u>1410:01</u>	<u>1417:01</u>	<u>1419:01</u>	<u>1424:01</u>	<u>1425:01</u>	<u>1445:01</u>	<u>1456:01</u>	<u>1460:01</u>	<u>1461:01</u>
	<u>1468:01</u>	<u>1469:01</u>	<u>1470:01</u>	<u>1479:01</u>					
55EAE	02:02	05:01	19:01	21:01	22:01	24:01	30:01	36:01	38:01

If this Candidate Unacceptable Epitope is reported:	The following HLA values are considered equivalent to the reported unacceptable epitope:								
55EAE	47:01	54:01	97:01	100:01	101:01	106:01	114:01	135:01	139:01
	140:01	170:01	171:01	223:01	226:01	233:01	284:01	291:01	300:01
	301:01	302:01	317:01	330:01	331:01	337:01	358:01	390:01	395:01
	400:01	406:01	408:01	473:01	478:01	495:01	496:01	527:01	533:01
	535:01	547:01	550:01	558:01	560:01	573:01	587:01	588:01	589:01
	590:01	611:01	619:01	638:01	668:01	697:01	715:01	717:01	718:01
	720:01	721:01	729:01	744:01	746:01	764:01	766:01	778:01	779:01
	785:01	790:01	798:01	802:01	847:01	848:01	851:01	860:01	923:01
	928:01	929:01	951:01	961:01	962:01	965:01	971:01	980:01	982:01
	1008:01	1015:01	1018:01	1019:01	1026:01	1061:01	1095:01	1099:01	1101:01
	1117:01	1118:01	1119:01	1120:01	1143:01	1156:01	1172:01	1180:01	1186:01
	1188:01	1189:01	1190:01	<u>1199:01</u>	<u>1209:01</u>	<u>1213:01</u>	<u>1229:01</u>	<u>1240:01</u>	<u>1255:01</u>
	<u>1257:01</u>	<u>1272:01</u>	<u>1273:01</u>	<u>1282:01</u>	<u>1289:01</u>	<u>1293:01</u>	<u>1302:01</u>	<u>1318:01</u>	<u>1349:01</u>
	<u>1376:01</u>	<u>1400:01</u>	<u>1403:01</u>	<u>1428:01</u>	<u>1437:01</u>	<u>1438:01</u>	<u>1457:01</u>	<u>1462:01</u>	<u>1473:01</u>
	<u>1477:01</u>	<u>1481:01</u>	<u>1483:01</u>						
84DEAV	01:01	03:01	05:01	06:01	08:01	09:01	10:01	11:01	13:01
	14:01	16:01	17:01	19:01	20:01	21:01	22:01	25:01	26:01
	27:01	29:01	30:01	31:01	35:01	36:01	37:01	38:01	44:01
	45:01	50:01	52:01	54:01	55:01	56:01	57:01	58:01	63:01
	65:01	67:01	68:01	69:01	70:01	76:01	78:01	79:01	84:01
	85:01	87:01	88:01	89:01	90:01	91:01	92:01	93:01	97:01
	98:01	102:01	103:01	104:01	106:01	107:01	110:01	111:01	114:01
	118:01	122:01	124:01	125:01	127:01	130:01	131:01	132:01	133:01
	135:01	136:01	137:01	140:01	142:01	147:01	150:01	152:01	156:01
	157:01	162:01	165:01	166:01	167:01	168:01	170:01	171:01	173:01

If this Candidate Unacceptable Epitope is reported:	The following HLA values are considered equivalent to the reported unacceptable epitope:								
84DEAV	182:01	184:01	197:01	201:01	202:01	203:01	204:01	205:01	206:01
	207:01	208:01	209:01	220:01	221:01	222:01	223:01	226:01	234:01
	241:01	243:01	244:01	245:01	246:01	247:01	248:01	249:01	250:01
	251:01	259:01	264:01	265:01	266:01	267:01	268:01	269:01	270:01
	277:01	284:01	285:01	287:01	288:01	289:01	291:01	293:01	295:01
	300:01	301:01	304:01	305:01	312:01	313:01	314:01	315:01	316:01
	317:01	324:01	325:01	326:01	327:01	329:01	331:01	337:01	340:01
	343:01	346:01	348:01	349:01	351:01	353:01	358:01	361:01	362:01
	363:01	370:01	371:01	379:01	383:01	384:01	385:01	386:01	388:01
	389:01	390:01	391:01	393:01	394:01	395:01	398:01	400:01	404:01
	405:01	407:01	408:01	409:01	410:01	411:01	412:01	413:01	417:01
	422:01	437:01	438:01	439:01	442:01	445:01	446:01	447:01	448:01
	449:01	458:01	460:01	462:01	466:01	470:01	472:01	473:01	481:01
	483:01	490:01	491:01	492:01	495:01	498:01	503:01	504:01	505:01
	506:01	509:01	514:01	515:01	516:01	517:01	518:01	519:01	527:01
	530:01	532:01	533:01	535:01	536:01	538:01	541:01	542:01	543:01
	545:01	548:01	550:01	552:01	558:01	560:01	562:01	563:01	564:01
	565:01	566:01	567:01	568:01	572:01	573:01	587:01	588:01	597:01
	599:01	600:01	608:01	609:01	610:01	611:01	612:01	613:01	616:01
	619:01	621:01	623:01	629:01	630:01	631:01	632:01	633:01	634:01
	635:01	636:01	638:01	645:01	648:01	649:01	650:01	651:01	652:01
	653:01	654:01	662:01	664:01	667:01	668:01	669:01	671:01	672:01
	673:01	675:01	676:01	684:01	688:01	689:01	698:01	703:01	704:01
	705:01	706:01	707:01	708:01	709:01	710:01	711:01	713:01	714:01
	715:01	716:01	717:01	718:01	720:01	727:01	728:01	729:01	733:01

If this Candidate Unacceptable Epitope is reported:	The following HLA values are considered equivalent to the reported unacceptable epitope:								
84DEAV	737:01	744:01	746:01	749:01	760:01	764:01	778:01	785:01	789:01
	790:01	791:01	797:01	798:01	801:01	802:01	807:01	810:01	815:01
	822:01	825:01	829:01	832:01	833:01	834:01	839:01	846:01	847:01
	848:01	851:01	853:01	854:01	855:01	856:01	860:01	864:01	879:01
	883:01	886:01	888:01	891:01	892:01	893:01	898:01	899:01	901:01
	902:01	904:01	905:01	906:01	907:01	908:01	909:01	912:01	914:01
	920:01	922:01	923:01	924:01	929:01	930:01	931:01	935:01	937:01
	938:01	940:01	944:01	945:01	946:01	947:01	948:01	949:01	951:01
	952:01	953:01	956:01	965:01	968:01	969:01	970:01	971:01	976:01
	977:01	979:01	980:01	982:01	983:01	990:01	991:01	994:01	996:01
	998:01	999:01	1000:01	1006:01	1007:01	1008:01	1009:01	1012:01	1014:01
	1015:01	1017:01	1018:01	1019:01	1021:01	1022:01	1024:01	1026:01	1027:01
	1030:01	1032:01	1034:01	1038:01	1043:01	1047:01	1049:01	1050:01	1052:01
	1057:01	1058:01	1061:01	1063:01	1065:01	1067:01	1068:01	1069:01	1071:01
	1073:01	1076:01	1087:01	1088:01	1090:01	1093:01	1095:01	1096:01	1099:01
	1101:01	1103:01	1105:01	1111:01	1114:01	1116:01	1117:01	1118:01	1119:01
	1120:01	1123:01	1125:01	1126:01	1127:01	1128:01	1130:01	1131:01	1133:01
	1134:01	1137:01	1140:01	1141:01	1143:01	1145:01	1147:01	1149:01	1150:01
	1151:01	1156:01	1157:01	1158:01	1162:01	1166:01	1168:01	1170:01	1172:01
	1178:01	1180:01	1182:01	1183:01	1185:01	1186:01	1187:01	1189:01	1190:01
84DEAV	<u>1199:01</u>	<u>1203:01</u>	<u>1204:01</u>	<u>1205:01</u>	<u>1211:01</u>	<u>1213:01</u>	<u>1224:01</u>	<u>1229:01</u>	<u>1232:01</u>
	<u>1233:01</u>	<u>1234:01</u>	<u>1240:01</u>	<u>1245:01</u>	<u>1246:01</u>	<u>1251:01</u>	<u>1254:01</u>	<u>1255:01</u>	<u>1257:01</u>
	<u>1258:01</u>	<u>1259:01</u>	<u>1261:01</u>	<u>1263:01</u>	<u>1264:01</u>	<u>1265:01</u>	<u>1272:01</u>	<u>1273:01</u>	<u>1278:01</u>
	<u>1281:01</u>	<u>1282:01</u>	<u>1287:01</u>	<u>1289:01</u>	<u>1293:01</u>	<u>1294:01</u>	<u>1295:01</u>	<u>1302:01</u>	<u>1303:01</u>
	<u>1305:01</u>	<u>1306:01</u>	<u>1310:01</u>	<u>1311:01</u>	<u>1313:01</u>	<u>1314:01</u>	<u>1318:01</u>	<u>1329:01</u>	<u>1330:01</u>

If this Candidate Unacceptable Epitope is reported:	The following HLA values are considered equivalent to the reported unacceptable epitope:								
84DEAV	<u>1333:01</u>	<u>1339:01</u>	<u>1340:01</u>	<u>1341:01</u>	<u>1342:01</u>	<u>1348:01</u>	<u>1349:01</u>	<u>1353:01</u>	<u>1354:01</u>
	<u>1355:01</u>	<u>1359:01</u>	<u>1361:01</u>	<u>1365:01</u>	<u>1366:01</u>	<u>1367:01</u>	<u>1370:01</u>	<u>1378:01</u>	<u>1382:01</u>
	<u>1384:01</u>	<u>1386:01</u>	<u>1388:01</u>	<u>1389:01</u>	<u>1392:01</u>	<u>1394:01</u>	<u>1395:01</u>	<u>1396:01</u>	<u>1397:01</u>
	<u>1400:01</u>	<u>1401:01</u>	<u>1406:01</u>	<u>1407:01</u>	<u>1411:01</u>	<u>1414:01</u>	<u>1418:01</u>	<u>1421:01</u>	<u>1426:01</u>
	<u>1429:01</u>	<u>1431:01</u>	<u>1432:01</u>	<u>1435:01</u>	<u>1438:01</u>	<u>1441:01</u>	<u>1443:01</u>	<u>1448:01</u>	<u>1451:01</u>
	<u>1452:01</u>	<u>1457:01</u>	<u>1458:01</u>	<u>1462:01</u>	<u>1464:01</u>	<u>1466:01</u>	<u>1467:01</u>	<u>1469:01</u>	<u>1470:01</u>
	<u>1471:01</u>	<u>1473:01</u>	<u>1475:01</u>	<u>1477:01</u>	<u>1480:01</u>	<u>1481:01</u>			
84GGPM	02:01	02:02	04:01	04:02	23:01	24:01	32:01	33:01	39:01
	41:01	46:01	47:01	48:01	49:01	51:01	59:01	60:01	66:01
	71:01	72:01	73:01	75:01	77:01	80:01	81:01	82:01	83:01
	86:01	94:01	95:01	96:01	99:01	100:01	101:01	105:01	108:01
	109:01	112:01	113:01	115:01	116:01	117:01	121:01	123:01	126:01
	128:01	129:01	134:01	138:01	141:01	143:01	144:01	145:01	146:01
	148:01	149:01	151:01	153:01	155:01	158:01	163:01	164:01	169:01
	172:01	174:01	175:01	176:01	179:01	180:01	181:01	183:01	185:01
	186:01	187:01	188:01	189:01	190:01	191:01	192:01	193:01	194:01
	195:01	196:01	199:01	200:01	210:01	211:01	212:01	213:01	214:01
	215:01	217:01	219:01	224:01	225:01	227:01	228:01	229:01	231:01
	232:01	233:01	235:01	236:01	237:01	238:01	239:01	240:01	252:01
	253:01	254:01	255:01	256:01	257:01	258:01	260:01	261:01	262:01
	263:01	271:01	272:01	273:01	274:01	275:01	276:01	278:01	281:01
	282:01	283:01	286:01	294:01	297:01	298:01	302:01	303:01	306:01
	307:01	308:01	309:01	310:01	311:01	318:01	319:01	320:01	321:01
	322:01	323:01	332:01	334:01	335:01	336:01	338:01	339:01	341:01
	342:01	344:01	350:01	352:01	354:01	355:01	356:01	359:01	360:01

If this Candidate Unacceptable Epitope is reported:	The following HLA values are considered equivalent to the reported unacceptable epitope:								
84GGPM	364:01	365:01	366:01	367:01	368:01	369:01	372:01	373:01	374:01
	375:01	376:01	377:01	378:01	380:01	381:01	392:01	396:01	397:01
	399:01	402:01	406:01	414:01	415:01	416:01	418:01	419:01	420:01
	421:01	423:01	424:01	425:01	426:01	427:01	428:01	429:01	430:01
	432:01	433:01	434:01	435:01	440:01	441:01	443:01	444:01	451:01
	452:01	453:01	456:01	457:01	459:01	461:01	463:01	464:01	465:01
	468:01	469:01	474:01	475:01	476:01	477:01	478:01	479:01	480:01
	485:01	486:01	487:01	488:01	494:01	496:01	497:01	500:01	501:01
	502:01	508:01	510:01	511:01	520:01	521:01	522:01	523:01	524:01
	525:01	528:01	529:01	531:01	534:01	537:01	539:01	540:01	547:01
	549:01	553:01	554:01	555:01	556:01	557:01	559:01	561:01	569:01
	571:01	574:01	575:01	576:01	577:01	578:01	579:01	581:01	582:01
	583:01	584:01	586:01	591:01	593:01	594:01	595:01	596:01	601:01
	602:01	603:01	604:01	605:01	606:01	607:01	614:01	615:01	617:01
	618:01	620:01	622:01	624:01	625:01	626:01	627:01	628:01	637:01
	639:01	640:01	641:01	642:01	643:01	646:01	647:01	655:01	656:01
	658:01	659:01	660:01	663:01	665:01	666:01	670:01	674:01	677:01
	678:01	679:01	680:01	681:01	682:01	683:01	685:01	686:01	687:01
	690:01	692:01	694:01	699:01	701:01	702:01	721:01	722:01	723:01
	725:01	726:01	730:01	731:01	734:01	735:01	736:01	739:01	741:01
	742:01	747:01	750:01	751:01	753:01	755:01	757:01	758:01	759:01
	761:01	762:01	763:01	765:01	766:01	767:01	769:01	770:01	771:01
	772:01	773:01	774:01	775:01	776:01	779:01	780:01	781:01	782:01
	783:01	784:01	787:01	788:01	795:01	796:01	799:01	803:01	804:01
	805:01	806:01	808:01	809:01	811:01	812:01	813:01	814:01	816:01

If this Candidate Unacceptable Epitope is reported:	The following HLA values are considered equivalent to the reported unacceptable epitope:								
84GGPM	817:01	818:01	819:01	820:01	823:01	824:01	826:01	827:01	828:01
	830:01	836:01	837:01	840:01	841:01	842:01	843:01	845:01	849:01
	850:01	852:01	857:01	858:01	859:01	861:01	863:01	880:01	881:01
	882:01	884:01	885:01	887:01	889:01	890:01	895:01	915:01	916:01
	921:01	926:01	927:01	928:01	932:01	933:01	934:01	936:01	943:01
	954:01	955:01	957:01	958:01	961:01	962:01	963:01	964:01	966:01
	967:01	972:01	973:01	975:01	978:01	981:01	987:01	988:01	989:01
	992:01	993:01	997:01	1001:01	1002:01	1003:01	1004:01	1005:01	1010:01
	1011:01	1013:01	1016:01	1020:01	1023:01	1025:01	1028:01	1031:01	1033:01
	1035:01	1036:01	1037:01	1039:01	1040:01	1042:01	1046:01	1048:01	1051:01
	1053:01	1055:01	1056:01	1059:01	1060:01	1062:01	1064:01	1066:01	1072:01
	1074:01	1075:01	1077:01	1080:01	1081:01	1082:01	1083:01	1085:01	1086:01
	1089:01	1091:01	1094:01	1097:01	1100:01	1102:01	1104:01	1106:01	1108:01
	1110:01	1113:01	1115:01	1122:01	1124:01	1129:01	1132:01	1138:01	1139:01
	1144:01	1146:01	1148:01	1152:01	1153:01	1155:01	1159:01	1160:01	1161:01
	1163:01	1164:01	1167:01	1171:01	1173:01	1174:01	1175:01	1176:01	1177:01
	1179:01	1181:01	1184:01	1188:01	1194:01	1195:01	<u>1196:01</u>	<u>1197:01</u>	<u>1198:01</u>
	<u>1200:01</u>	<u>1206:01</u>	<u>1207:01</u>	<u>1208:01</u>	<u>1209:01</u>	<u>1210:01</u>	<u>1212:01</u>	<u>1214:01</u>	<u>1215:01</u>
	<u>1216:01</u>	<u>1217:01</u>	<u>1218:01</u>	<u>1220:01</u>	<u>1221:01</u>	<u>1222:01</u>	<u>1223:01</u>	<u>1225:01</u>	<u>1226:01</u>
	<u>1227:01</u>	<u>1230:01</u>	<u>1231:01</u>	<u>1235:01</u>	<u>1237:01</u>	<u>1238:01</u>	<u>1239:01</u>	<u>1241:01</u>	<u>1242:01</u>
	<u>1243:01</u>	<u>1244:01</u>	<u>1247:01</u>	<u>1248:01</u>	<u>1249:01</u>	<u>1253:01</u>	<u>1262:01</u>	<u>1266:01</u>	<u>1267:01</u>
	<u>1268:01</u>	<u>1270:01</u>	<u>1271:01</u>	<u>1274:01</u>	<u>1276:01</u>	<u>1280:01</u>	<u>1283:01</u>	<u>1284:01</u>	<u>1290:01</u>
	<u>1292:01</u>	<u>1297:01</u>	<u>1298:01</u>	<u>1300:01</u>	<u>1301:01</u>	<u>1304:01</u>	<u>1307:01</u>	<u>1308:01</u>	<u>1309:01</u>
	<u>1312:01</u>	<u>1315:01</u>	<u>1316:01</u>	<u>1317:01</u>	<u>1320:01</u>	<u>1321:01</u>	<u>1322:01</u>	<u>1323:01</u>	<u>1326:01</u>
	<u>1327:01</u>	<u>1328:01</u>	<u>1331:01</u>	<u>1335:01</u>	<u>1337:01</u>	<u>1343:01</u>	<u>1344:01</u>	<u>1345:01</u>	<u>1346:01</u>

If this Candidate Unacceptable Epitope is reported:	The following HLA values are considered equivalent to the reported unacceptable epitope:								
84GGPM	<u>1347:01</u>	<u>1352:01</u>	<u>1356:01</u>	<u>1358:01</u>	<u>1360:01</u>	<u>1362:01</u>	<u>1363:01</u>	<u>1368:01</u>	<u>1369:01</u>
	<u>1371:01</u>	<u>1372:01</u>	<u>1374:01</u>	<u>1376:01</u>	<u>1377:01</u>	<u>1379:01</u>	<u>1380:01</u>	<u>1381:01</u>	<u>1383:01</u>
	<u>1385:01</u>	<u>1387:01</u>	<u>1390:01</u>	<u>1391:01</u>	<u>1393:01</u>	<u>1399:01</u>	<u>1402:01</u>	<u>1403:01</u>	<u>1404:01</u>
	<u>1405:01</u>	<u>1408:01</u>	<u>1409:01</u>	<u>1410:01</u>	<u>1412:01</u>	<u>1413:01</u>	<u>1417:01</u>	<u>1419:01</u>	<u>1420:01</u>
	<u>1424:01</u>	<u>1425:01</u>	<u>1428:01</u>	<u>1433:01</u>	<u>1436:01</u>	<u>1437:01</u>	<u>1444:01</u>	<u>1445:01</u>	<u>1446:01</u>
	<u>1447:01</u>	<u>1450:01</u>	<u>1453:01</u>	<u>1454:01</u>	<u>1456:01</u>	<u>1459:01</u>	<u>1460:01</u>	<u>1461:01</u>	<u>1465:01</u>
	<u>1468:01</u>	<u>1472:01</u>	<u>1474:01</u>	<u>1476:01</u>	<u>1479:01</u>	<u>1483:01</u>			
84VGPM	15:01	18:01	28:01	34:01	40:01	53:01	62:01	74:01	139:01
	198:01	290:01	292:01	296:01	299:01	333:01	345:01	347:01	387:01
	471:01	482:01	484:01	493:01	499:01	512:01	526:01	580:01	585:01
	644:01	695:01	745:01	752:01	768:01	835:01	896:01	897:01	900:01
	903:01	910:01	913:01	918:01	942:01	1054:01	1109:01	1136:01	1142:01
	1165:01	1192:01	<u>1201:01</u>	<u>1219:01</u>	<u>1250:01</u>	<u>1252:01</u>	<u>1286:01</u>	<u>1324:01</u>	<u>1336:01</u>
	<u>1422:01</u>	<u>1427:01</u>	<u>1434:01</u>						

4.10.C: HLA DPB1 Available Alleles

Table 4 17: Available OPTN DPB1 HLA Allele Values

Table 4 16 contains all HLA DPB1 alleles available for reporting to the OPTN for candidate, donor, or recipient HLA typing.

<u>01:01</u>	<u>02:01</u>	<u>02:02</u>	<u>03:01</u>	<u>04:01</u>	<u>04:02</u>	<u>05:01</u>	<u>06:01</u>	<u>08:01</u>	<u>09:01</u>
<u>10:01</u>	<u>11:01</u>	<u>13:01</u>	<u>14:01</u>	<u>15:01</u>	<u>16:01</u>	<u>17:01</u>	<u>18:01</u>	<u>19:01</u>	<u>20:01</u>
<u>21:01</u>	<u>22:01</u>	<u>23:01</u>	<u>24:01</u>	<u>25:01</u>	<u>26:01</u>	<u>27:01</u>	<u>28:01</u>	<u>29:01</u>	<u>30:01</u>

31:01	32:01	33:01	34:01	35:01	36:01	37:01	38:01	39:01	40:01
41:01	44:01	45:01	46:01	47:01	48:01	49:01	50:01	51:01	52:01
53:01	54:01	55:01	56:01	57:01	58:01	59:01	60:01	62:01	63:01
65:01	66:01	67:01	68:01	69:01	70:01	71:01	72:01	73:01	74:01
75:01	76:01	77:01	78:01	79:01	80:01	81:01	82:01	83:01	84:01
85:01	86:01	87:01	88:01	89:01	90:01	91:01	92:01	93:01	94:01
95:01	96:01	97:01	98:01	99:01	100:01	101:01	102:01	103:01	104:01
105:01	106:01	107:01	108:01	109:01	110:01	111:01	112:01	113:01	114:01
115:01	116:01	117:01	118:01	119:01	121:01	122:01	123:01	124:01	125:01
126:01	127:01	128:01	129:01	130:01	131:01	132:01	133:01	134:01	135:01
136:01	137:01	138:01	139:01	140:01	141:01	142:01	143:01	144:01	145:01
146:01	147:01	148:01	149:01	150:01	151:01	152:01	153:01	155:01	156:01
157:01	158:01	160:01	162:01	163:01	164:01	165:01	166:01	167:01	168:01
169:01	170:01	171:01	172:01	173:01	174:01	175:01	176:01	177:01	178:01
179:01	180:01	181:01	182:01	183:01	184:01	185:01	186:01	187:01	188:01
189:01	190:01	191:01	192:01	193:01	194:01	195:01	196:01	197:01	198:01
199:01	200:01	201:01	202:01	203:01	204:01	205:01	206:01	207:01	208:01
209:01	210:01	211:01	212:01	213:01	214:01	215:01	217:01	219:01	220:01
221:01	222:01	223:01	224:01	225:01	226:01	227:01	228:01	229:01	230:01
231:01	232:01	233:01	234:01	235:01	236:01	237:01	238:01	239:01	240:01
241:01	242:01	243:01	244:01	245:01	246:01	247:01	248:01	249:01	250:01
251:01	252:01	253:01	254:01	255:01	256:01	257:01	258:01	259:01	260:01
261:01	262:01	263:01	264:01	265:01	266:01	267:01	268:01	269:01	270:01

271:01	272:01	273:01	274:01	275:01	276:01	277:01	278:01	279:01	280:01
281:01	282:01	283:01	284:01	285:01	286:01	287:01	288:01	289:01	290:01
291:01	292:01	293:01	294:01	295:01	296:01	297:01	298:01	299:01	300:01
301:01	302:01	303:01	304:01	305:01	306:01	307:01	308:01	309:01	310:01
311:01	312:01	313:01	314:01	315:01	316:01	317:01	318:01	319:01	320:01
321:01	322:01	323:01	324:01	325:01	326:01	327:01	329:01	330:01	331:01
332:01	333:01	334:01	335:01	336:01	337:01	338:01	339:01	340:01	341:01
342:01	343:01	344:01	345:01	346:01	347:01	348:01	349:01	350:01	351:01
352:01	353:01	354:01	355:01	356:01	358:01	359:01	360:01	361:01	362:01
363:01	364:01	365:01	366:01	367:01	368:01	369:01	370:01	371:01	372:01
373:01	374:01	375:01	376:01	377:01	378:01	379:01	380:01	381:01	383:01
384:01	385:01	386:01	387:01	388:01	389:01	390:01	391:01	392:01	393:01
394:01	395:01	396:01	397:01	398:01	399:01	400:01	402:01	404:01	405:01
406:01	407:01	408:01	409:01	410:01	411:01	412:01	413:01	414:01	415:01
416:01	417:01	418:01	419:01	420:01	421:01	422:01	423:01	424:01	425:01
426:01	427:01	428:01	429:01	430:01	431:01	432:01	433:01	434:01	435:01
436:01	437:01	438:01	439:01	440:01	441:01	442:01	443:01	444:01	445:01
446:01	447:01	448:01	449:01	451:01	452:01	453:01	454:01	456:01	457:01
458:01	459:01	460:01	461:01	462:01	463:01	464:01	465:01	466:01	467:01
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