

Notice of OPTN Policy Changes

Update Human Leukocyte Antigen (HLA) Equivalency Tables

Sponsoring Committee:	OPTN Histocompatibility Committee
Policies Affected:	<i>2.11.A: Required Information for Deceased Kidney Donors</i> <i>2.11.B: Required Information for Deceased Liver Donors</i> <i>2.11.C: Required Information for Deceased Heart Donors</i> <i>2.11.D: Required Information for Deceased Lung Donors</i> <i>2.11.E: Required Information for Deceased Pancreas Donors</i> <i>4.3.A: Deceased Donor HLA Typing</i> <i>4.10: Reference Tables of HLA Antigen Values and Split Equivalences</i> <i>13.5.A: HLA Typing Requirements for OPTN KPD Candidates</i> <i>13.5.C: HLA Typing Requirements for OPTN KPD Donors</i>
Public Comment:	August 3, 2021 – September 30, 2021
Board Approved:	December 6, 2021
Effective Date:	Pending implementation and notice to OPTN members

Purpose of Policy Changes

OPTN *Policy 4.9: HLA Antigen Values and Split Equivalences* requires the OPTN Histocompatibility Committee (Committee) to review HLA equivalency tables listed in *OPTN Policy 4.10: Reference Tables of HLA Antigen Values and Split Equivalences* on an annual basis. *Policy 4.9* also requires the Committee to recommend any necessary changes identified as a result of the review. During the Committee's annual review of the HLA equivalency tables performed in 2021, they identified needed changes addressing current nomenclature, clinical practice, and testing abilities. Prior to these changes, the OPTN Board of Directors had most recently approved table updates in June 2020.

Proposal History

- A Histocompatibility Subcommittee was formed and met in February and May 2021
- The Subcommittee recommended changes to the full Committee in May 2021
- The Committee developed a public comment proposal with their recommended changes
- The proposal received overall support for all components during August-September 2021 public comment

Summary of Changes

Following the required annual review of the HLA equivalency tables, the Histocompatibility Committee proposed the following changes which were passed by the OPTN Board of Directors:

1. Add equivalency table for HLA-DPA1, an HLA locus currently not required in donor screening at which location some candidates may be sensitized
2. Require HLA-DPA1 typing for deceased kidney, pancreas, and kidney-pancreas organ donors, and other organ donors if requested.
3. Require HLA-DPA1 typing for OPTN kidney paired donation (KPD) living donors.
4. Require HLA-DPA1 unacceptable antigen reporting for OPTN KPD candidates, if present.
5. Update HLA-DPB1 equivalences and reportable values to increase the HLA alleles used for this locus in donor screening to current standards.
6. Remove broad antigens equivalent to allelic antibodies.
7. Align HLA donor and transplant candidate data collection across UNetSM systems.

Implementation

These policy changes will require changes in all UNetSM systems. Education on these changes will be provided to the transplant community. Members will receive a 30-day system notice prior to implementation.

These changes require submission and approval by the Office of Management and Budget (OMB) since they amend official OPTN data that are not presently collected by the OPTN. This will require a revision of the OMB-approved data collection instruments, which may impact the implementation timeline.

Histocompatibility laboratories may need to type deceased donors for HLA-DPA1 and screen candidates for DPA1 antibodies, if they are not already. Laboratories will need to update their laboratory informatics systems (LIS) to reflect the changes in this proposal.

OPOs may need to evaluate their agreements with histocompatibility laboratories to accommodate any needed transactional changes related to the proposal changes. For OPOs that use third party vendors to input HLA information into UNet, their vendors will have to update their programs to reflect the changes in this proposal.

Transplant hospitals may need to evaluate their agreements with histocompatibility laboratories to accommodate any needed transactional changes related to the proposal changes. For transplant hospitals that use third party vendors to input HLA information into UNet, their vendors will have to update their programs to reflect the changes in this proposal.

Affected Policy Language

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

2.11.A Required Information for Deceased Kidney Donors

The host OPO must provide *all* the following additional information for all deceased donor kidney offers:

1. Anatomical description, including number of blood vessels, ureters, and approximate length of each
2. Biopsy results, if performed
3. Human leukocyte antigen (HLA) information as follows: A, B, Bw4, Bw6, C, DR, DR51, DR52, DR53, DQA1, DQB1, DPA1, and DPB1 antigens prior to organ offers
4. Injuries to or abnormalities of blood vessels, ureters, or kidney
5. Kidney perfusion information, if performed
6. Kidney laterality

2.11.B Required Information for Deceased Liver Donors

The host OPO must provide *all* the following additional information for all deceased donor liver offers:

1. Human leukocyte antigen (HLA) typing if requested by the transplant hospital, including A, B, Bw4, Bw6, C, DR, DR51, DR52, DR53, DQA1, DQB1, DPA1, and DPB1 antigens in the timeframe specified by the transplant program
2. Other laboratory tests within 12 hours of the offer:
 - a. Alanine aminotransferase/aspartate aminotransferase (ALT/AST)
 - b. Alkaline phosphatase
 - c. Total and direct bilirubin
 - d. International normalized ration (INR) or Prothrombin (PT) if INR is not available
 - e. Partial thromboplastin time (PTT)
3. Pre-procurement biopsy results, if performed
4. Pre-procurement CT imaging results, if performed

2.11.C Required Information for Deceased Heart Donors

The host OPO must provide *all* the following additional information for all deceased donor heart offers:

1. 12-lead electrocardiogram interpretation, if available
2. Arterial blood gas results and ventilator settings
3. Cardiology consult, if performed
4. Echocardiogram
5. Human leukocyte antigen (HLA) typing if requested by the transplant hospital, including A, B, Bw4, Bw6, C, DR, DR51, DR52, DR53, DQA1, DQB1, DPA1, and DPB1 antigens prior to the final organ acceptance

2.11.D Required Information for Deceased Lung Donors

The host OPO must provide *all* the following additional information for all deceased lung donor offers:

1. Arterial blood gases and ventilator settings on 5 cm/H₂O/PEEP including PO₂/FiO₂ ratio and preferably 100% FiO₂, within 2 hours prior to the offer
2. Bronchoscopy results, if performed
3. Chest x-ray interpreted by a radiologist or qualified physician within 3 hours prior to the offer
4. HLA typing if requested by the transplant hospital, including A, B, Bw4, Bw6, C, DR, DR51, DR52, DR53, DQA1, DQB1, DPA1, and DPB1 antigens prior to final organ acceptance
5. Sputum gram stain, with description of sputum
6. Lung laterality

If the host OPO cannot perform a bronchoscopy, it must document that it is unable to provide bronchoscopy results and the receiving transplant hospital may perform it. The lung recovery team may perform a confirmatory bronchoscopy provided unreasonable delays are avoided and deceased donor stability and the time limitations in *Policy 5.6.B: Time Limit for Review and Acceptance of Organ Offers* are maintained.

2.11.E Required Information for Deceased Pancreas Donors

The host OPO must provide *all* the following additional information for all deceased donor pancreas offers:

1. Family history of diabetes (including Type 1 and Type 2)
2. Hemoglobin A1C, if performed
3. HLA information as follows: A, B, Bw4, Bw6, C, DR, DR51, DR52, DR53, DQA1, DQB1, DPA1, and DPB1 antigens prior to organ offers
4. Insulin protocol
5. Serum amylase
6. Serum lipase

4.3.A Deceased Donor HLA Typing

If the laboratory performs HLA typing on a deceased donor, the laboratory must perform molecular typing and report results at the level of serological splits to the OPO for all required HLA types on deceased donors according to *Table 4-1: Deceased Donor HLA Typing Requirements*.

Table 4-1 below provides the requirements of HLA typing of HLA A, B, Bw4, Bw6, C, DR, DR51, DR52, DR53, DQA1, DQB1, DPA1, and DPB1 antigens.

Table 4-1: Deceased Donor HLA Typing Requirements

If a Laboratory Performs HLA Typing on a:	Then the Laboratory Must Report Results to the OPO at the Following Times:
Deceased Kidney, Kidney-Pancreas, Pancreas, or Pancreas Islet Donor	Prior to organ offers
Deceased Heart, Heart-Lung, or Lung Donors	Prior to final acceptance, if required by the transplant program
Deceased Liver Donors	Within the period specified by the transplant program

4.10 Reference Tables of HLA Antigen Values and Split Equivalences

4.10.A: HLA Matching Equivalences

Tables 4-2, 4-3, and 4-4 show candidate-donor antigen equivalences and whether they are mismatches. For each candidate antigen listed below, all of the donor antigens that are not mismatched considered equivalent for the purposes of HLA matching are listed below beside the candidate antigen in each row. All other combinations are considered mismatches for the purposes of HLA matching.

Examples of how “Matching Antigen Equivalences” works:

- If the candidate types as B70: only donors that type as B70 are considered matched. Donors typed as B71 or B72 are considered mismatched.
- If the candidate types as B71: only donors that type as B71, B15:10, or B15:18 are considered matched. Donors typed as B70 are considered mismatched.
- Tables 4-5, 4-6, 4-7, 4-8, 4-9, 4-10, 4-11, 4-12, 4-13, and 4-14 show candidate-donor unacceptable antigen combinations. For each candidate antigen, the donor antigens that are unacceptable are listed below.
- Table 4-15 shows a candidate unacceptable epitopes for DPB1 and their corresponding donor HLA types
- Table 4-16 shows the values that can be reported as valid DPB1 HLA typing.
- Table 4-17 shows additional unacceptable antigen equivalences to be used in the Calculated Panel Reactive Antibody (CPRA) only.

Examples of how “Unacceptable Antigen Equivalences” works:

If a candidate has B70 listed as an “unacceptable antigen”, donors typed as B70, B71, B72, 15:03, 15:10, or 15:18 are considered unacceptable.

4.10.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.

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 *Table 4-15*.

Table 4-5: HLA A Unacceptable Antigen Equivalences

If this Candidate Unacceptable A-Locus Unacceptable Antigen is reported:	Donor Equivalent Antigens The following HLA values are considered equivalent to the reported unacceptable antigen:
1	1, 01:01, 01:02
01:01	01:01
01:02	01:02
2	2, 02:01, 02:02, 02:03, 02:05, 02:06, 02:07, 02:10, 02:18
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, 03:01, 03:02, 32:04
03:01	03:01
03:02	03:02
9	9, 23, 24, 24:02, 24:03
10	10, 25, 26, 26:01, 26:02, 26:03, 34, 34:01, 34:02, 66, 66:01, 66:02, 43
11	11, 11:01, 11:02
11:01	11:01
11:02	11:02
19	19, 29, 29:01, 29:02, 30, 30:01, 30:02, 31, 32, 33, 33:01, 33:03, 74
23	23
24	24, 24:02, 24:03
24:02	24:02
24:03	24:03
25	25
26	26, 26:01, 26:02, 26:03
26:01	26:01
26:02	26:02
26:03	26:03

<u>If this Candidate Unacceptable A-Locus Unacceptable Antigen is reported:</u>	<u>Donor Equivalent Antigens The following HLA values are considered equivalent to the reported unacceptable antigen:</u>
28	28, 68, 69, 68:01, 68:02
29	29, 29:01, 29:02
29:01	29:01
29:02	29:02
30	30, 30:01, 30:02
30:01	30:01
30:02	30:02
31	31
32	32
32:04	32:04
33	33, 33:01, 33:03
33:01	33:01
33:03	33:03
34	34, 34:01, 34:02
34:01	34:01
34:02	34:02
36	36
43	43
66	66, 66:01, 66:02
66:01	66:01
66:02	66:02
68	68, 68:01, 68:02
68:01	68:01
68:02	68:02
69	69
74	74
80	80

Table 4-6 HLA B Unacceptable Antigen Equivalences

<u>If this Candidate Unacceptable B-Locus Unacceptable Antigen is reported:</u>	<u>Donor Equivalent Antigens The following HLA values are considered equivalent to the reported unacceptable antigen:</u>
5	5, 51, 51:01, 51:02, 52
7	7, 07:02, 07:03, 07:14
07:02	07:02
07:03	07:03

If this Candidate Unacceptable B-Locus Unacceptable Antigen is reported:	Donor Equivalent Antigen The following HLA values are considered equivalent to the reported unacceptable antigen:
07:14	07:14
8	8, 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, 44:02, 44:03, 45, 50:02
13	13, 13:01, 13:02
13:01	13:01
13:02	13:02
14	14, 64, 65, 14:01, 14:02
14:01	14:01, 64
14:02	14:02, 65
15	15, 62, 63, 70, 71, 72, 75, 76, 77, 15:01, 15:02, 15:03, 15:04, 15:06, 15:07, 15:10, 15:11, 15:12, 15:13, 15:16, 15:17, 15:18, 15:20, 15:21, 15:24, 15:27
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
16	16, 38, 38:01, 38:02, 39, 39:01, 39:02, 39:04, 39:05, 39:06, 39:13
17	17, 57, 57:01, 57:03, 58
18	18
21	21, 49, 50, 40:05, 50:01

If this Candidate Unacceptable B-Locus <u>Unacceptable Antigen is reported:</u>	Donor Equivalent Antigens <u>The following HLA values are considered equivalent to the reported unacceptable antigen:</u>
22	22, 54, 55, 55:01, 55:02, 55:04, 56, 56:01, 56:03
27	27, 27:03, 27:04, 27:05, 27:06
27:03	27:03
27:04	27:04
27:05	27:05
27:06	27:06
27:08	27:08
35	35, 35:01, 35:02, 35:03, 35:08, 35:12
35:01	35:01
35:02	35:02
35:03	35:03
35:08	35:08
35:12	35:12
37	37
38	38, 38:01, 38:02
38:01	38:01
38:02	38:02
39	39, 39:01, 39:02, 39:04, 39:05, 39:06, 39:13
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, 40:01, 40:02, 40:03, 40:04, 40:06
40:01	40:01, 60
40:02	40:02
40:03	40:03
40:04	40:04
40:05	40:05, 50
40:06	40:06
41	41, 41:01, 41:02
41:01	41:01
41:02	41:02
42	42, 42:01, 42:02
42:01	42:01

If this Candidate Unacceptable B-Locus <u>Unacceptable Antigen is reported:</u>	Donor Equivalent Antigens The following HLA values are considered equivalent to the reported unacceptable antigen:
42:02	42:02
44	44, 44:02, 44:03
44:02	44:02
44:03	44:03
45	45, 50:02
46	46
47	47
48	48, 48:01, 48:02
48:01	48:01
48:02	48:02
49	49
50	50, 40:05, 50:01
50:01	50:01
50:02	50:02, 45
51	51, 51:01, 51:02
51:01	51:01
51:02	51:02
52	52
53	53
54	54
55	55, 55:01, 55:02, 55:04
55:01	55:01
55:02	55:02
55:04	55:04
56	56, 56:01, 56:03
56:01	56:01
56:03	56:03
57	57, 57:01, 57:03
57:01	57:01
57:03	57:03
58	58
59	59
60	60, 40:01
61	61, 40:02, 40:03, 40:04, 40:06
62	62, 15:01, 15:04, 15:06, 15:07, 15:20, 15:27
63	63, 15:16, 15:17

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

Table 4-7: HLA C Unacceptable Antigen Equivalences

<u>If this Candidate Unacceptable C-Locus Unacceptable Antigen is reported:</u>	<u>Donor Equivalent Antigens The following HLA values are considered equivalent to the reported unacceptable antigen:</u>
01	01, 01:02, 01:03
01:02	01:02
01:03	01:03
02	02, 02:02, 02:10
02:02	02:02
02:10	02:10
03	03, 03:02, 03:03, 03:04, 03:05, 03:06, 09, 10

If this Candidate Unacceptable C-Locus Unacceptable Antigen is reported:	Donor Equivalent Antigens The following HLA values are considered equivalent to the reported unacceptable antigen:
03:02	03:02
03:03	03:03
03:04	03:04
03:05	03:05
03:06	03:06
04	04, 04:01, 04:03, 04:04, 04:07
04:01	04:01
04:03	04:03
04:04	04:04
04:07	04:07
05	05, 05:01
05:01	05:01
06	06, 06:02
06:02	06:02
07	07, 07:01, 07:02, 07:04; 07:06, 07:18
07:01	07:01
07:02	07:02
07:04	07:04
07:06	07:06
07:18	07:18
08	08, 08:01, 08:02, 08:03, 08:04
08:01	08:01
08:02	08:02
08:03	08:03
08:04	08:04
09	09, 03:03
10	10, 03:02, 03:04, 03:06
12	12, 12:02, 12:03, 12:04
12:02	12:02
12:03	12:03
12:04	12:04
14	14, 14:02, 14:03
14:02	14:02
14:03	14:03
15	15, 15:02, 15:04, 15:05, 15:06, 15:09

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

Table 4-8: HLA DR Unacceptable Antigen Equivalences

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

If this Candidate Unacceptable DR_ Locus Unacceptable Antigen is reported:	Donor Equivalent Antigen The following HLA values are considered equivalent to the reported unacceptable antigen:
04:06	04:06
04:07	04:07
04:10	04:10
04:11	04:11
5	5, 11, 11:01, 11:04, 12, 12:01, 12:02
6	6, 13, 13:01, 13:02, 13:03, 13:05, 14, 14:01, 14:02, 14:03, 14:04, 14:05, 14:06, 14:54
7	7
8	8, 08:01, 08:02, 08:03, 08:07
08:01	08:01
08:02	08:02
08:03	08:03
08:07	08:07
9	9, 09:01, 09:02
09:01	09:01
09:02	09:02
10	10
11	11, 11:01, 11:03, 11:04
11:01	11:01
11:03	11:03
11:04	11:04
12	12, 12:01, 12:02
12:01	12:01
12:02	12:02
13	13, 13:01, 13:02, 13:03, 13:05
13:01	13:01
13:02	13:02
13:03	13:03
13:05	13:05
14	14, 14:01, 14:02, 14:03, 14:04, 14:05, 14:06, 14:54
14:01	14:01, 14:54
14:02	14:02
14:03	14:03
14:04	14:04
14:05	14:05

<u>If this Candidate Unacceptable DR-Locus Unacceptable Antigen is reported:</u>	<u>Donor Equivalent Antigens The following HLA values are considered equivalent to the reported unacceptable antigen:</u>
14:06	14:06
14:54	14:54, 14:01
15	15, 15:01, 15:02, 15:03
15:01	15:01
15:02	15:02
15:03	15:03
16	16, 16:01, 16:02
16:01	16:01
16:02	16:02
17	17, 03:01
18	18, 03:02, 03:03
103	103, 01:03

Table 4-9: HLA DR51 Unacceptable Antigen Equivalences

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

Table 4-10: HLA DR52 Unacceptable Antigen Equivalences

<u>If this Candidate Unacceptable DR52-Locus Unacceptable Antigen is reported:</u>	<u>Donor Equivalent Antigens The following HLA values are considered equivalent to the reported unacceptable antigen:</u>
3*01	3*01, 3*01:01
3*01:01	3*01:01
3*02	3*02, 3*02:01, 3*02:02
3*02:01	3*02:01
3*02:02	3*02:02
3*03	3*03, 3*03:01
3*03:01	3*03:01
52	52, 3*01:01, 3*02:01, 3*02:02, 3*03:01, 3*01, 3*02, 3*03

Table 4-11: HLA DR53 Unacceptable Antigen Equivalences

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

Table 4-12: HLA DQA1 Unacceptable Antigen Equivalences

<u>If this Candidate Unacceptable DQA1-Locus Unacceptable Antigen is reported:</u>	<u>Donor Equivalent Antigens The following HLA values are considered equivalent to the reported unacceptable antigen:</u>
01	01, 01:01, 01:02, 01:03, 01:04, 01:05, 01:06, 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

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

<u>If this Candidate Unacceptable DQA1-Locus Unacceptable Antigen is reported:</u>	<u>Donor Equivalent Antigens The following HLA values are considered equivalent to the reported unacceptable antigen:</u>
06:02	06:02

Table 4-13: HLA DQB1 Unacceptable Antigen Equivalences

<u>If this Candidate Unacceptable DQB1-Locus Unacceptable Antigen is reported:</u>	<u>Donor Equivalent Antigens The following HLA values are considered equivalent to the reported unacceptable antigen:</u>
2	2, 02:01, 02:02
02:01	02:01
02:02	02:02
3	3, 7, 8, 9, 03:01, 03:02, 03:03, 03:19
03:01	03:01, 7
03:02	03:02, 8
03:03	03:03, 9
03:19	03:19, 7
4	4, 04:01, 04:02
04:01	04:01
04:02	04:02
5	5, 05:01, 05:02, 05:03
05:01	05:01
05:02	05:02
05:03	05:03
6	6, 06:01, 06:02, 06:03, 06:04, 06:09
06:01	06:01
06:02	06:02
06:03	06:03
06:04	06:04
06:09	06:09
7	7, 3 , 03:01, 03:19
8	8, 3 , 03:02
9	9, 3 , 03:03

Table 4-14: HLA DPA1 Unacceptable Antigen Equivalences

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

Table 4-145: HLA DPB1 Unacceptable Antigen Equivalences

<u>If this Candidate Unacceptable DPB1-Locus Unacceptable Antigen is reported:</u>	<u>Donor Equivalent Antigen All of the following HLA values are considered equivalent to the unacceptable antigen reported and to all values within the row:</u>
01:01	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
02:01	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,

If this Candidate Unacceptable DPB1- Locus Unacceptable Antigen is reported:	Donor Equivalent Antigen All of the following HLA values are considered equivalent to the unacceptable antigen reported and to all values within the row:
	955:01, 967:01, 975:01, 1036:01, <u>1051:01, 1055:01, 1077:01, 1082:01, 1094:01, 1102:01, 1115:01, 1160:01, 1175:01</u>
02:02	02:02, 547:01, 721:01, 766:01, <u>1188:01</u>
03:01	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, <u>1049:01, 1114:01, 1134:01, 1157:01</u>
04:01	04:01, 126:01, 350:01, 415:01, 459:01, 464:01, 534:01, 615:01, 618:01, 670:01, <u>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>
04:02	04:02, 105:01, 463:01, 571:01, 647:01, 665:01, <u>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>
05:01	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, <u>1117:01, 1118:01, 1119:01, 1120:01, 1143:01, 1172:01</u>
06:01	06:01, 737:01, 906:01, 914:01, 1022:01, <u>1087:01, 1111:01</u>
08:01	08:01
09:01	09:01, 797:01, 899:01, <u>1149:01</u>
10:01	10:01, 650:01, 673:01, 902:01, <u>1126:01</u>
11:01	11:01, 649:01, 654:01, 672:01, 707:01, 907:01, 937:01, <u>1063:01</u>

If this Candidate Unacceptable DPB1_ Locus Unacceptable Antigen is reported:	Donor Equivalent Antigen All of the following HLA values are considered equivalent to the unacceptable antigen reported and to all values within the row:
13:01	13:01, 107:01, 133:01, 518:01, 519:01, 888:01, 924:01, 947:01, 996:01, <u>1065:01, 1069:01, 1105:01, 1123:01, 1131:01, 1185:01</u>
14:01	14:01, 498:01, 572:01, 651:01, 671:01, 705:01, 834:01, 854:01, 949:01, <u>1187:01</u>
15:01	15:01, 585:01, 896:01, 910:01, <u>1054:01, 1192:01</u>
16:01	16:01, 652:01, 653:01, 864:01, 886:01, 940:01, 968:01
17:01	17:01, 131:01, 168:01, 460:01, 846:01, 956:01, 1032:01, <u>1052:01</u>
18:01	18:01, 897:01, 942:01, <u>1165:01</u>
19:01	19:01, 106:01, 533:01, 535:01, 785:01, 965:01, <u>1101:01</u>
20:01	20:01, 905:01
21:01	21:01, 1019:01, <u>1186:01, 1190:01</u>
22:01	22:01, 1026:01
23:01	23:01, 138:01
24:01	24:01
25:01	25:01
26:01	26:01, <u>1088:01</u>
27:01	27:01
28:01	28:01, 296:01
29:01	29:01, 909:01
30:01	30:01
31:01	31:01, 945:01
34:01	34:01, 835:01, 913:01
35:01	35:01
<u>38:01</u>	<u>38:01, 1099:01</u>
39:01	39:01, 584:01
40:01	40:01, 745:01
45:01	45:01, 832:01
51:01	51:01, 736:01
57:01	57:01, 648:01
59:01	59:01, 782:01
80:01	80:01, 762:01
85:01	85:01, 713:01, 901:01, 1034:01

If this Candidate Unacceptable DPB1- Locus Unacceptable Antigen is reported:	Donor Equivalent Antigen All of the following HLA values are considered equivalent to the unacceptable antigen reported and to all values within the row:
90:01	90:01, 1012:01
104:01	104:01
105:01	105:01
106:01	106:01
107:01	107:01
124:01	124:01
126:01	126:01
131:01	131:01
132:01	132:01, 1027:01
135:01	135:01
137:01	137:01, 791:01
152:01	152:01, 944:01
398:01	398:01, 922:01
<u>1096:01</u>	<u>1096:01, 1133:01</u>

Table 4-156: Epitope based Unacceptable Antigen Assignment for DPB1

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
	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
	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							
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			
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
55DEE	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
	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			
	02:02	05:01	19:01	21:01	22:01	24:01	30:01	36:01	38:01
	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
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	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
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	1188:01	1189:01	1190:01						
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84DEAV

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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
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1151:01	1156:01	1157:01	1158:01	1162:01	1166:01	1168:01	1170:01	1172:01

84DEAV

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	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
84GGPM	725:01	726:01	730:01	731:01	734:01	735:01	736:01	739:01	741:01
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	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

	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	<u>1037:01</u>	<u>1039:01</u>	<u>1040:01</u>	<u>1042:01</u>	<u>1046:01</u>	<u>1048:01</u>	<u>1051:01</u>
	<u>1053:01</u>	<u>1055:01</u>	<u>1056:01</u>	<u>1059:01</u>	<u>1060:01</u>	<u>1062:01</u>	<u>1064:01</u>	<u>1066:01</u>	<u>1072:01</u>
	<u>1074:01</u>	<u>1075:01</u>	<u>1077:01</u>	<u>1080:01</u>	<u>1081:01</u>	<u>1082:01</u>	<u>1083:01</u>	<u>1085:01</u>	<u>1086:01</u>
	<u>1089:01</u>	<u>1091:01</u>	<u>1094:01</u>	<u>1097:01</u>	<u>1100:01</u>	<u>1102:01</u>	<u>1104:01</u>	<u>1106:01</u>	<u>1108:01</u>
	<u>1110:01</u>	<u>1113:01</u>	<u>1115:01</u>	<u>1122:01</u>	<u>1124:01</u>	<u>1129:01</u>	<u>1132:01</u>	<u>1138:01</u>	<u>1139:01</u>
	<u>1144:01</u>	<u>1146:01</u>	<u>1148:01</u>	<u>1152:01</u>	<u>1153:01</u>	<u>1155:01</u>	<u>1159:01</u>	<u>1160:01</u>	<u>1161:01</u>
	<u>1163:01</u>	<u>1164:01</u>	<u>1167:01</u>	<u>1171:01</u>	<u>1173:01</u>	<u>1174:01</u>	<u>1175:01</u>	<u>1176:01</u>	<u>1177:01</u>
	<u>1179:01</u>	<u>1181:01</u>	<u>1184:01</u>	<u>1188:01</u>	<u>1194:01</u>	<u>1195:01</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	<u>1054:01</u>	<u>1109:01</u>	<u>1136:01</u>	<u>1142:01</u>
	<u>1165:01</u>	<u>1192:01</u>							

4.10.C: HLA DPB1 Available Alleles

Table 4-167: Reportable Available OPTN DPB1 HLA Allele Values

Table 4-17 contains all HLA-DPB1 alleles available for reporting to the OPTN for candidate, donor, or recipient HLA typing.

01:01	02:01	02:02	03:01	04:01	04:02	05:01	06:01	08:01	09:01
10:01	11:01	13:01	14:01	15:01	16:01	17:01	18:01	19:01	20:01
21:01	22:01	23:01	24:01	25:01	26:01	27:01	28:01	29:01	30:01
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
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602:01	603:01	604:01	605:01	606:01	607:01	608:01	609:01	610:01	611:01
612:01	613:01	614:01	615:01	616:01	617:01	618:01	619:01	620:01	621:01
622:01	623:01	624:01	625:01	626:01	627:01	628:01	629:01	630:01	631:01
632:01	633:01	634:01	635:01	636:01	637:01	638:01	639:01	640:01	641:01
642:01	643:01	644:01	645:01	646:01	647:01	648:01	649:01	650:01	651:01
652:01	653:01	654:01	655:01	656:01	658:01	659:01	660:01	662:01	663:01
664:01	665:01	666:01	667:01	668:01	669:01	670:01	671:01	672:01	673:01
674:01	675:01	676:01	677:01	678:01	679:01	680:01	681:01	682:01	683:01
684:01	685:01	686:01	687:01	688:01	689:01	690:01	692:01	694:01	695:01
697:01	698:01	699:01	701:01	702:01	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
718:01	719:01	720:01	721:01	722:01	723:01	725:01	726:01	727:01	729:01
730:01	731:01	733:01	734:01	735:01	736:01	737:01	739:01	740:01	741:01
742:01	744:01	745:01	746:01	747:01	749:01	750:01	751:01	752:01	753:01
755:01	757:01	758:01	759:01	760:01	761:01	762:01	763:01	764:01	765:01
766:01	767:01	768:01	769:01	770:01	771:01	772:01	773:01	774:01	775:01
776:01	778:01	779:01	780:01	781:01	782:01	783:01	784:01	785:01	787:01
788:01	789:01	790:01	791:01	795:01	796:01	797:01	798:01	799:01	801:01
802:01	803:01	804:01	805:01	806:01	807:01	808:01	809:01	810:01	811:01
812:01	813:01	814:01	815:01	816:01	817:01	818:01	819:01	820:01	822:01
823:01	824:01	825:01	826:01	827:01	828:01	829:01	830:01	832:01	833:01

834:01	835:01	836:01	837:01	839:01	840:01	841:01	842:01	843:01	845:01
846:01	847:01	848:01	849:01	850:01	851:01	852:01	853:01	854:01	855:01
856:01	857:01	858:01	859:01	860:01	861:01	863:01	864:01	879:01	880:01
881:01	882:01	883:01	884:01	885:01	886:01	887:01	888:01	889:01	890:01
891:01	892:01	893:01	895:01	896:01	897:01	898:01	899:01	900:01	901:01
902:01	903:01	904:01	905:01	906:01	907:01	908:01	909:01	910:01	912:01
913:01	914:01	915:01	916:01	918:01	920:01	921:01	922:01	923:01	924:01
926:01	927:01	928:01	929:01	930:01	931:01	932:01	933:01	934:01	935:01
936:01	937:01	938:01	939:01	940:01	942:01	943:01	944:01	945:01	946:01
947:01	948:01	949:01	951:01	952:01	953:01	954:01	955:01	956:01	957:01
958:01	961:01	962:01	963:01	964:01	965:01	966:01	967:01	968:01	969:01
970:01	971:01	972:01	973:01	975:01	976:01	977:01	978:01	979:01	980:01
981:01	982:01	983:01	987:01	988:01	989:01	990:01	991:01	992:01	993:01
994:01	996:01	997:01	998:01	999:01	1000:01	1001:01	1002:01	1003:01	1004:01
1005:01	1006:01	1007:01	1008:01	1009:01	1010:01	1011:01	1012:01	1013:01	1014:01
1015:01	1016:01	1017:01	1018:01	1019:01	1020:01	1021:01	1022:01	1023:01	1024:01
1025:01	1026:01	1027:01	1028:01	1030:01	1031:01	1032:01	1033:01	1034:01	1035:01
<u>1036:01</u>	<u>1037:01</u>	<u>1038:01</u>	<u>1039:01</u>	<u>1040:01</u>	<u>1042:01</u>	<u>1043:01</u>	<u>1046:01</u>	<u>1047:01</u>	<u>1048:01</u>
<u>1049:01</u>	<u>1050:01</u>	<u>1051:01</u>	<u>1052:01</u>	<u>1053:01</u>	<u>1054:01</u>	<u>1055:01</u>	<u>1056:01</u>	<u>1057:01</u>	<u>1058:01</u>
<u>1059:01</u>	<u>1060:01</u>	<u>1061:01</u>	<u>1062:01</u>	<u>1063:01</u>	<u>1064:01</u>	<u>1065:01</u>	<u>1066:01</u>	<u>1067:01</u>	<u>1068:01</u>
<u>1069:01</u>	<u>1071:01</u>	<u>1072:01</u>	<u>1073:01</u>	<u>1074:01</u>	<u>1075:01</u>	<u>1076:01</u>	<u>1077:01</u>	<u>1078:01</u>	<u>1080:01</u>
<u>1081:01</u>	<u>1082:01</u>	<u>1083:01</u>	<u>1085:01</u>	<u>1086:01</u>	<u>1087:01</u>	<u>1088:01</u>	<u>1089:01</u>	<u>1090:01</u>	<u>1091:01</u>
<u>1092:01</u>	<u>1093:01</u>	<u>1094:01</u>	<u>1095:01</u>	<u>1096:01</u>	<u>1097:01</u>	<u>1099:01</u>	<u>1100:01</u>	<u>1101:01</u>	<u>1102:01</u>
<u>1103:01</u>	<u>1104:01</u>	<u>1105:01</u>	<u>1106:01</u>	<u>1107:01</u>	<u>1108:01</u>	<u>1109:01</u>	<u>1110:01</u>	<u>1111:01</u>	<u>1113:01</u>

<u>1114:01</u>	<u>1115:01</u>	<u>1116:01</u>	<u>1117:01</u>	<u>1118:01</u>	<u>1119:01</u>	<u>1120:01</u>	<u>1122:01</u>	<u>1123:01</u>	<u>1124:01</u>
<u>1125:01</u>	<u>1126:01</u>	<u>1127:01</u>	<u>1128:01</u>	<u>1129:01</u>	<u>1130:01</u>	<u>1131:01</u>	<u>1132:01</u>	<u>1133:01</u>	<u>1134:01</u>
<u>1136:01</u>	<u>1137:01</u>	<u>1138:01</u>	<u>1139:01</u>	<u>1140:01</u>	<u>1141:01</u>	<u>1142:01</u>	<u>1143:01</u>	<u>1144:01</u>	<u>1145:01</u>
<u>1146:01</u>	<u>1147:01</u>	<u>1148:01</u>	<u>1149:01</u>	<u>1150:01</u>	<u>1151:01</u>	<u>1152:01</u>	<u>1153:01</u>	<u>1155:01</u>	<u>1156:01</u>
<u>1157:01</u>	<u>1158:01</u>	<u>1159:01</u>	<u>1160:01</u>	<u>1161:01</u>	<u>1162:01</u>	<u>1163:01</u>	<u>1164:01</u>	<u>1165:01</u>	<u>1166:01</u>
<u>1167:01</u>	<u>1168:01</u>	<u>1170:01</u>	<u>1171:01</u>	<u>1172:01</u>	<u>1173:01</u>	<u>1174:01</u>	<u>1175:01</u>	<u>1176:01</u>	<u>1177:01</u>
<u>1178:01</u>	<u>1179:01</u>	<u>1180:01</u>	<u>1181:01</u>	<u>1182:01</u>	<u>1183:01</u>	<u>1184:01</u>	<u>1185:01</u>	<u>1186:01</u>	<u>1187:01</u>
<u>1188:01</u>	<u>1189:01</u>	<u>1190:01</u>	<u>1192:01</u>	<u>1194:01</u>	<u>1195:01</u>				

13.5.A HLA Typing Requirements for OPTN KPD Candidates

Before a candidate can appear on an OPTN KPD match run, the paired candidate’s transplant hospital is responsible for reporting to the OPTN serological split level molecular typing results for *all* of the following:

- HLA-A
- HLA-B
- HLA-Bw4
- HLA-Bw6
- HLA-DR

If the candidate has unacceptable antigens listed for any of the following HLA types, then the paired candidate’s transplant hospital is responsible for reporting to the OPTN serological split level molecular typing results for the corresponding HLA type before the candidate can appear on an OPTN KPD match run:

- HLA-C
- HLA-DR51
- HLA-DR52
- HLA-DR53
- HLA-DPA1
- HLA-DPB1
- HLA-DQA1
- HLA-DQB1

13.5.C HLA Typing Requirements for OPTN KPD Donors

Before a donor can appear on an OPTN KPD match run, the donor's transplant hospital is responsible for reporting to the OPTN serological split level molecular typing results for *all* of the following:

- HLA-A
- HLA-B
- HLA-Bw4
- HLA-Bw6
- HLA-C
- HLA-DR
- HLA-DR51
- HLA-DR52
- HLA-DR53
- HLA-DPA1
- HLA-DPB1
- HLA-DQA1
- HLA-DQB1

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