Report of the 16th Flow and Virtual Crossmatch Exchange
June 12, 2019

Cells	91-92
Serum	93-96

For the 16th Flow and Virtual Crossmatch Exchange, Serum 90 (patient 2) and virtual donor V2 from Flow Crossmatch Exchange 15 (March 2019) were re-examined as serum 93 and cell 91. A comparison of virtual cross-match (VXM) predictions (serum 90 vs. V2) against the physical flow cross-match (FXM) (**serum 93 vs. cell 91**) are summarized in **Part 1** of this report.

Part 2 examines the single antigen data for the 4 sera examined (**serum nos. 93 - 96**) in this study. **Part 3** summarizes the flow cross-match results for 2 cells (**cell nos. 91 - 92**) against the 4 sera. Finally, in **Part 4**, the virtual crossmatch predictions for 4 potential donors (V1 - V4) against 2 sera (serum 95 and serum 96) are examined.

Part 1

Physical Flow Cytometric Crossmatch vs. Virtual Crossmatch

Among the 26 labs submitting VXM predictions for serum 90 vs. donor V2 in Exchange 15, 17 reported back physical T– and B-cell FXM results for the patient-donor pair (**serum 93 vs. cell 91**) in Exchange 16 (Table 1a). T-cell FXM results among labs were inconsistent with predictions, as only 8 of the 14 labs (57%) which had predicted the T-cell FXM to be negative, reported the physical T-cell FXM as negative (Table 1b). Better agreement

was observed among B-cell predictions and the physical B-cell FXM, as 13 of the 17 labs (76%) predicting the expected B-cell FXM to be positive, reported the physical B-cell FXM as positive as well.

In what seems to be the absence of class I DSA and the presence of strong class II DSA, we would expect to observe better agreement between predictions and the physical FXM. In the case of the T-cell FXM, 9

Table 1a. Summary of Virtual Crossmatch predictions vs. Physical Flow crossmatch results - Direct comparison

Exchange 015						Exchange 016				
Virtual Crossmatch - Serum 90 (Patient 2) vs. Donor V2						Physical Flow Crossmatch - Serum 93 vs. Cell 91				
Donor	Serum no.	#Labs	T-cell Prediction	B-cell Prediction		Cell	Serum no.	#Labs	T-cell Results	B-cell Results
V2	90	17	NEG(14) POS(2) Borderline(1)	POS(17)		91	93	17	NEG(10) POS(5) Borderline(2)	Positive(13) NEG(2) Borderline(1) NT(1)

Table 1b. Direct comparison of Physical Flow Crossmatch results vs. Virtual Crossmatch results

		T-cell Virtual XM (Exchange 15)						B-cell Virtual XM (Exchange 15)		
		+	-	Ø				+	-	Ø
Physical Flow XM (Exchange 16)	+		5			Physical Flow XM (Exchange 16)	+	13		
	-	1	8	1			-	2		
	Ø	1	1				Ø	2		

+/ - = postive/negative   Ø = uncertain/not typed   n = number of labs

labs indicated no class I DSA were present, however a few others (n = 7) did report anti-B44 (846) reactivity against cell 91. Although the strength of the DSA was weak, it still resulted in 5 labs reporting the T-cell FXM as positive and 2 reporting it as borderline. For the B-cell FXM, strong anti-DP5 (13295±3951) reactivity was reported by all labs against cell 91. Despite the strength of the antibody, 2 labs reported the B-cell FXM as negative and 1 reported it as borderline, illustrating that the sensitivity of the FXM could be variable at the DP-locus.

The reporting of class I DSA varied across the 2 studies (Table 1c), as only 3 labs reported weak anti-B44 (846) reactivity against cell 91 in Exchange 16, compared to 8 labs reporting anti-B44 (1793) reactivity in Exchange15. The weakness of the antibody and the decrease in its strength may have resulted in the decrease in its assignment. The reporting of class II DSA were more consistent, as anti-DP5 reactivity was reported by labs in Exchange 16 and Exchange 15, with respective MFI = 13294 and 16024.

Table 1c. Individual Physical Flow Crossmatch results vs. Virtual Crossmatch predictions - Direct Comparison

Cell #91 HLA Genotype: A*02:01-A*31:01-B*35:01:01G-B*44:02:01G-C*04:01:01G-C*05:01/DRB1*01:01-DRB1*15:01-DRB5*01:01-DQA1*01:01:01G-DQA1*01:02:01G-DQB1*05:01-DQB1*06:02-DPB1*02:01-DPB1*05:01:01G

| | Exchange 015 | | | | | Exchange 016 | | | |
| | Virtual Crossmatch - Patient MX-90 vs. Donor V2 | | | | | Physical Flow Crossmatch - Serum 93 vs. Cell 91 | | | |
Ctr	Virtual T-cell Prediction	Class I DSA(MFI)	Virtual B-cell Prediction	Class II DSA (MFI)	Ctr	T-Cell RESULT	Class I DSA(MFI)	B-Cell RESULT	Class II DSA(MFI)
206	Negative	no class I DSA	Positive	DP5 (18915)	206	Negative	no class I DSA	Positive	DP5
230	Negative	no class I DSA	Positive	DP5 (15376)	230	Negative	no class I DSA	Positive	DP5(16709)
774	Negative	no class I DSA	Positive	DP5 (16766)	774	Negative	no class I DSA	Negative	None
792	Negative	no class I DSA	Positive	DP5 (15385)	792	Positive	no class I DSA	Positive	DP5(12422)
1160	Negative	no class I DSA	Positive	DP5 (14562)	1160	Positive	B44(630)	Positive	DP5(12708)
2400	Negative	B44 (1508)	Positive	DP5 (18470)	2400	Negative	no class I DSA	Positive	DP5(14846)
3224	Negative	B44 (1584)	Positive	DP5 (19656)	3224	Positive	B44(1567)	Positive	DP5(17526)
3753	Negative	no class I DSA	Positive	DP5 (16325)	3753	Negative	no class I DSA	Positive	DP5(9957)
3966	Negative	no class I DSA	Positive	DP5 (16091)	3966	Positive	no class I DSA	Positive	no specificities assigned
4661	Positive	B44 (2228)	Positive	DP5 (15322)	4661	Borderline	B*44:02(807)	Positive	DPB*05:01(12774)
8001	Borderline	B44 (754)	Positive	DP5 (17935)	8001	Negative	no class I DSA	Positive	DPB1*05:01(16743)
8035	Negative	B44 (1399) Cw5 (851)	Positive	DP5 (17482)	8035	Negative	no class I DSA	Positive	DP5(8820)
8050	Negative	B44 (1255) Cw5 (1140)	Positive	DP5 (18937)	8050	Negative	no class I DSA	Borderline	DP5(16573)
8083	Negative	no class I DSA	Positive	DP5 (18010)	8083	Borderline	no class I DSA	Positive	DP5(13951)
8096	Positive	Cw4 (3376) A2 (8580) B35 (2121) Cw5 (2484)	Positive	DR1 (13222) DR15 (14354) DR51 (8846) DQ5 (16734) DP2 (14763) DP5 (8351) DQ6 (14354)	8096	Negative	no class I DSA	NT	
8103	Negative	no class I DSA	Positive	DP5 (10316)	8103	Negative	no class I DSA	Negative	no specificities assigned
8111	Negative	B44 (800)	Positive	DP5 (17500)	8111	Positive	B*44:02(685)	Positive	DPB1*05:01(14005)

Part 2

Class I and class II Luminex single antigen results for serum samples 93 - 96 are summarized in Tables 12 - 15 and individual results for each participating laboratory are listed in Tables 16 –22.

Antibody Identification

Serum 93 was previously examined as serum 90 in Exchange 15. In this present study, reactivity to A1, B57, B58, B76, B63, and A23 were reported once again by ≥ 90% agreement. Medium MFI values ranged from 3000 to 10776 compared to 4224 to 14622 in Exchange 16. Class II assignments were also consistent across the studies, with labs reporting reactivity to DR12, DR53, DR7, DR9, and DP5 with ≥ 90% agreement once again. Anti-DP13 and –DR52 reactivity was also reported by ≥ 90% of labs in this present study.

Against cell 91, only 5 labs reported weak reactivity to B44 (846), while others reported no class I DSA were present. Better agreement was achieved for the reporting of class II DSA, with 15 labs reporting anti-DP5 reactivity (13976). Against cell 92, class I and class II DSA were reported, with labs reporting anti-A1 (10766) and -DR52 (4617) reactivity. Additional reactivity to DP18 (16365) was also reported by a few (n = 16) labs.

For **Serum 94,** reactivity to B18 (5828), B64 (12981), B65 (13656), and B8 (5586) was reported by ≥ 90% of labs. In addition, good agreement (≥ 90%) was reported for DQ7, DR11, DR12, DR13, DR14, DR17, DR18, DR8, DR52, DR9, and DR7, with MFI values ranging from 2269 to 18465.

Only a few labs reported DSA against cell 91, with 2 labs reporting weak anti-Cw5 (1178) reactivity and 9 labs reporting anti-DR1 (1891) reactivity. The remainder of labs reported no DSA were present. By contrast, multiple DSA were reported against cell 92, with labs reporting reactivity to B8 (5586), DR13 (13531), DR17 (10433), DR52 (5042), and DQA1*05 (8369).

For **Serum 95**, anti-B65 (3000) reactivity was reported by all 17 labs. Good agreement (≥ 90%) was also achieved in the reporting of class II antibodies, as labs reported strong anti-DR13, -DR14, -DR17, -DR18, -DR52, -DR8, -DR11, and -DR12 reactivity, with MFI values ranging from 8322 to 14558.

The reporting of class II DSA against cell 91 was mixed among labs, with 11 labs reporting anti-DP2 (3464) reactivity and 8 labs reporting there were no class II DSA present. Against cell 92, multiple DSA (DR13, DR17, DR52) were reported, with respective MFI = 14458, 13684, and 11374. In addition, 6 labs reported anti-DP4 (3700) reactivity against cell 92. No class I DSA were reported against either cell.

For **serum 96,** strong class I reactivity was reported, with ≥ 90% of labs reporting reactivity to B27, B48, B55, B67, B7, B42, B60, B73, B56, and B61. Median MFI values ranged from 3851 to 18265. By contrast, the reporting of class II reactivity was mixed, as 8 labs reported anti-DR11 (1345) reactivity, 7 labs reported DR13 (1154) reactivity, and 3 labs reported this sample as class II negative. As no consensus was achieved for the reporting of class II antibodies, this sample was not graded for class II.

No class I or class II DSA were reported against cell 91. Against cell 92, only a single DSA was identified, as strong anti-B81 (B8101) reactivity was reported, with MFI = 17740.

Conclusion:

For antibody identification, good agreement (≥ 90%) was achieved among labs in the reporting of class I and class II specificities in the presence of class I antibodies with MFI values > 3000 (HLA-A and HLA-B loci) and for class II antibodies with MFI > 3500 (DR-locus).

The reporting of DSA against cell 91 was variable among labs for all but serum 93, as weak class I and class II DSA (MFI < 3500) resulted in some labs reporting the presence of DSA and others reporting the absence of DSA. Against cell 92, better agreement was achieved in the reporting of DSA across the 4 sera, as the strength of the immune dominate DSA (class I and class II) ranged from 4756 to 17740.

Genotypes of cells provided by UCLA

Cell 91 (Korean) - A*02:01-A*31:01-B*35:01:01G-B*44:02:01G-C*04:01:01G-C*05:01/DRB1*01:01-DRB1*15:01-DRB5*01:01-DQA1*01:01:01G-DQA1*01:02:01G-DQB1*05:01-DQB1*06:02-DPB1*02:01-DPB1*05:01:01G

Cell 92 (Black) - A*01:01-A*34:02-B*08:01-B*81:01:01G-C*07:01:01G-C*18:01:01G-DRB1*03:01-DRB1*13:01-DRB3*01:01-DRB3*02:02:01G-DQA1*01:03-DQA1*05:01-DQB1*02:01-DQB1*06:08-DPB1*04:01-DPB1*18:01

Flow cytometric crossmatch results for cell 91 and cell 92 against sera sample nos. 93 - 96 are summarized in Table 2. Individual results for each laboratory, along with reported class I and class II DSA for each sera, are listed in tables 4 - 11.

Flow Cytometric Crossmatch

Cell 91. Good agreement (≥ 80%) was achieved among labs in the reporting of T–cell FXM results against serum 94 - 96, in which all 3 were reported as negative in the absence of class I DSA. Interestingly, against serum 93, 5 labs reported the T-cell FXM as positive and 2 reported it as borderline, despite only a few labs (n = 5) reporting anti-B44 (846) reactivity against cell 91. For the B-cell FXM, good agreement was achieved against serum samples 93, 94, and 96. Against serum 95, no agreement was achieved among labs for the B-cell FXM, as 5 labs reported the B-cell FXM as positive and 1 reported it as borderline, in the presence of weak anti-DP2 (3464) reactivity.

Cell 92. Good agreement (≥ 80%) was achieved among labs for the T-cell FXM against serum 93, 95, and 96. In the case of cell 92 vs. serum 93 and serum 96, each were reported as positive in the presence of class I DSA with MFI > 10776. No agreement was achieved for the remaining T-cell FXM (cell 92 vs. serum 94), as 14 out of 22 labs reported it as positive in the presence of anti-B8 (5586) reactivity. For the B-cell FXM, 3 were reported as positive in good agreement. No agreement, however, was achieved for the B-cell FXM against serum 93, as 15 out of 22 labs reported it as positive in the presence of anti-DR52 (4617) and anti-DP18 (16365) reactivity.

Table 2. Summary of Flow crossmatch results for Cell #91 - #92 vs. Serum #93 - #96

Cell no.	Serum no.	#Labs	T-cell Results	B-cell Results	Cell no.	Serum no.	#Labs	T-cell Results	B-cell Results
91	93	22	POS(5) NEG(15) Borderline(2)	**POS(16)** *NEG(2)* Borderline(2) NT(2)	92	93	22	**POS(18)** *NEG(3)* Borderline(1)	POS(15) NEG(3) Borderline(2) NT(2)
91	94	22	**NEG(21)** Borderline(1)	**NEG(17)** *POS(3)* NT(2)	92	94	22	POS(14) NEG(7) Borderline(1)	**POS(20)** NT(2)
91	95	22	**NEG(22)**	POS(5) NEG(14) Borderline(1) NT(2)	92	95	22	**NEG(20)** *POS(1)* Borderline(1)	**POS(19)** *NEG(1)* NT(2)
91	96	22	**NEG(20)** *POS(2)*	**NEG(20)** *POS(1)* NT(1)	92	96	22	**POS(20)** NEG(2)	**POS(19)** *NEG(1)* NT(2)

agreement <80%

Conclusion:

Overall, good agreement was achieved for 6 out of 8 T-cell FXM. Among the positive T-cell FXM achieving good agreement, strong class I DSA (>10000) were observed. For cell 91 vs. serum 93, in which only 5 labs reported anti-B44 (916±363) reactivity, a number of labs (n = 5) reported the T-FXM as positive. Interestingly, in the case of cell 92 vs. 94, the variability observed in the T-cell FXM may be due to the presence of a single DSA (B8) of moderate strength (4881±2311).

For the B-cell FXM, good agreement was also achieved for 6 out of 8 crossmatch pairs. Among the positive B-cell FXM achieving good (> 80%) agreement, strong class I and/or class II DSA were reported with MFI values > 10000. In the case of cell 91 vs. serum 95, the variability in the reporting of the B-cell FXM may have been due to the presence of a single weak (3819±1567) DSA at the DP-locus (DP2). Interestingly, for cell 92 vs. serum 93, 3 labs reported the B-cell FXM as positive and 2 reported it as borderline despite the presence of anti-A1 (10776) and anti-DR52 (4756) reactivity.

Part 4

Virtual crossmatch predictions for donor V1 - V4 against sera (patient) samples 95 and 96 are summarized in Table 3 and individual laboratory predictions are listed in Tables 28 - 34. Fictional donor histories precede each patient-donor summary.

Virtual Crossmatch Paper Challenge

For the virtual **T-cell crossmatch**, ≥ 80% agreememt was achieved among labs for 7 out of 8 pairs of predictions. Among the 7 predictions with good agreement, 2 were predicted as positive in the presence of immune dominate DSA with MFI > 17000. In case of donor V4 vs. serum 96, no agreement was achieved in predictions, as 16 labs predict it to be negative in the absence of class I DSA, while 4 predict it to be positive and 2 predict it to be borderline due to weak class I DSA.

For the virtual **B-cell crossmatch**, 6 out of 8 pairs of predictions were reported with ≥ 80% agreement among labs. Six of the B-cell predictions achieving good agreement were reported as positive, in the presence of immune dominate class I/II DSA with MFI > 11000. In the case of donor V3 vs. serum 96, 17 out of 22 labs predict the crossmatch to be positive, in the presence of strong class I DSA (MFI > 17142); among the remaining 5 labs, 3 predict the expected B-cell FXM to be negative and 2 predict borderline results. Once again, we would like to kindly remind participants to take into account both class I and class II DSA when predicting the expected physical B-cell FXM, as B-cells express both class I and class II antigens. Finally, for donor V4 vs. serum 96, variability in the reporting of class I and class II DSA resulted in 15 labs to predict the B-cell FXM to be negative, 6 labs to predict it as positive, and 1 to predict borderline results..

Table 3. Summary of Virtual Crossmatch Predictions (Serum #95 - #96 vs. Donors V1 - V4)

Donor no.	Serum no.	#Labs	T-cell Prediction	B-cell Prediction	Predicted Risk Assessment	Donor no.	Serum no.	#Labs	T-cell Prediction	B-cell Prediction	Predicted Risk Assessment
V1	95	22	**NEG(22)**	**POS(22)**	Unacceptable(21) Acceptable(1)	V2	95	22	**NEG(22)**	**POS(22)**	Acceptable(1) Unacceptable(21)
V1	96	22	**NEG(19)** POS(1) Borderline(1)	**NEG(19)** POS(2)	Acceptable(18) Unacceptable(2) Other(2)	V2	96	22	**POS(22)**	**POS(18)** NEG(2) Borderline(2)	Unacceptable(22)
Donor no.	Serum no.	#Labs	T-cell Prediction	B-cell Prediction	Predicted Risk Assessment	Donor no.	Serum no.	#Labs	T-cell Prediction	B-cell Prediction	Predicted Risk Assessment
V3	95	22	**NEG(22)**	**POS(22)**	Acceptable(1) Unacceptable(21)	V4	95	23	**NEG(22)**	**POS(22)**	Acceptable(1) Unacceptable(21)
V3	96	22	**POS(22)**	POS(17) NEG(3) Borderline(2)	Acceptable(1) Unacceptable(21)	V4	96	23	NEG(16) POS(4) Borderline(2)	NEG(15) POS(6) Borderline(1)	Acceptable(15) Unacceptable(4) Other(3)

agreement <80%

DSA Identification

Patient 1 (Serum 95)

Patient's fictional case history: *This individual is a 46 year old female being evaluated for her first transplant. The patient's HLA type is A*11:01-A*24:02-B*15:01-B*35:01-C*07:02-C*12:03-DRB1*15:01-DRB1*15:02-DRB5*01:01-DQB1*05:02-DPB1*05:01. The patient has had one prior pregnancy. The HLA type of the child is A*11:01-A*02:06-B*15:01-B*27:06-C*07:02-C*03:04-DRB1*04:01-DRB1*15:02-DRB4*01:03-DRB5*01:01-DQB1*03:01-DQB1*05:02-DPB1*05:01-DPB1*17:01.*

Good agreement was achieved for virtual T-cell FXM predictions for serum 95 against **donor V1,** as all 22 labs predict the expected T-cell FXM to be negative in the absence of class I DSA. Labs were also in agreement in their B-cell predictions, as all 22 labs predict the expected B-cell FXM to be positive. Strong class II DSA (DR17, DR52) were reported against donor V1, with respective MFI = 13684 and 11374. Additional anti-DP2 (3464) reactivity was also reported by some labs (n = 12). Good agreement was, in turn, achieved for predicted renal transplant risk assessments, as all but 1 lab predict the risk to be unacceptable.

For serum 95 vs. **donor V2**, good agreement was observed for virtual T-cell predictions, as 22 out of 22 labs predict the T-cell FXM to be negative in the absence of class I DSA. Complete agreement was also achieved for virtual B-cell predictions, with all 22 labs predicting the expected physical B-cell FXM to be positive. Strong anti-DR11 (9449) and anti-DR52 (11374) reactivity was reported against donor V2. In the presence of strong class II DSA, good agreement was also achieved for renal transplant risk assessments, as all but 1 lab predict the risk to be unacceptable.

Good agreement was achieved for virtual T-cell predictions for serum 95 against **donor V3**. No class I DSA were detected, resulting in 22 out of 22 labs to predict the expected T-cell FXM to be negative. Complete agreement was also achieved for B-cell predictions, with all 22 labs predicting the expected physical B-cell FXM to be positive in the presence of strong class II DSA (DR11, DR52), with respective MFI = 9449 and 11374. In line with predictions, good agreement was also achieved for predicted renal transplant risk assessments, as 21 out of 22 labs predict the risk to be unacceptable.

For serum 95 vs. **donor V4**, good agreement was observed for virtual T-cell predictions, as all 22 labs predict the expected T-cell FXM to be positive in the absence of class I DSA. Good agreement (100%) was also achieved for virtual B-cell predictions, with labs predicting the expected B-cell FXM to be positive. A number of strong class II DSA (DR17, DR18, DR52, DP401) were reported against donor V4. MFI values for reported DSA ranged from 3700 to 13684. Renal transplant risk assessment were also reported with good agreement, with 21 out of 22 labs accessing the predicted risk as unacceptable.

Virtual Donors – HLA genotype

Donor 1 (V1): A*29:02-A*30:02-B*15:10-B*49:01-C*03:04-C*07:01:01G/ DRB1*15:03-DRB1*03:01-DRB3*02:02:01G-DRB5*01:01-DQA1*01:02:01G-DQA1*05:01-DQB1*06:02-DQB1*02:01-DPB1*01:01-DPB1*02:01

Donor 2 (V2): A*11:01-A*24:02-B*40:10-B*48:01-C*04:03-C*08:01:01G-DRB1*15:02-DRB1*11:01-DRB3*02:02:01G-DRB5*01:01-DQA1*01:02:01G-DQA1*05:01:01G-DQB1*05:02-DQB1*03:01-DPB1*01:01:01G-DPB1*03:01:01G

Donor 3 (V3): A*11:01-A*33:03-B*48:01-B*56:04-C*01:02:01G-C*08:01:01G-DRB1*11:01-DRB3*02:02:01G-DQA1*05:01:01G-DQB1*03:01-DPB1*05:01:01G

Donor 4 (V4): A*02:01-A*36:01-B*53:01-B*58:01-C*03:02-C*04:01:01G/ DRB1*03:01-DRB1*03:02-DRB3*01:01-DRB3*02:02:01G-DQA1*04:01-DQA1*05:01-DQB1*02:01-DQB1*04:02-DPB1*01:01-DPB1*04:01

Patient 2 (Serum 96)

Patient's fictional case history: This individual is a 20 year old male being evaluated for his first transplant. The patient's HLA type is A*02:01-A*29:02-B*44:03-B*51:01-C*15:02-C*16:01-DRB1*04:04:01-DRB1*07:01-DRB4*01:01-DRB4*01:03-DQB1*02:02-DQB1*03:02- DPB1*05:01-DPB1*17:01.

For serum 96 (patient 2) vs. **donor V1**, good agreement was achieved for virtual T-cell predictions, with 19 out of 22 labs predicting the T-cell FXM to be negative, in the absence of class I DSA. One lab predicting the T-cell FXM to positive and 1 predicting it to be borderline, reported weak anti-Cw10 (1189) reactivity against donor V1. Good agreement was also achieved for virtual B-cell predictions, as 19 out of 21 labs predict the expected B-cell FXM to be negative in the absence of class I/II DSA. For renal transplant risk, 18 labs access the predicted risk as acceptable, 2 predict it to be unacceptable, and 2 labs indicated further evaluation is needed.

Good agreement was achieved for virtual T-cell predictions for serum 96 against **donor V2,** as 22 out of 22 labs predict the expected T-cell FXM to be positive, in the presence of strong class I DSA (B48, B60). Respective MFI values for each were 17142 and 18312. For B-cell predictions, 18 labs predict the expected B-cell FXM to be positive, 2 predict it to be negative and 2 predict borderline results. The majority of labs reported no class II DSA were present, resulting in B-cell predictions to be based on the class I DSA present. Predicted renal transplant risk assessments were reported as unacceptable in complete agreement for this donor-patient pair.

For serum 96 vs. **donor V3**, good agreement was observed for virtual T-cell predictions. All 22 labs predict the expected T-cell FXM to be positive, in the presence of strong anti-B48 (17142) and anti-B60 (18312) reactivity. No agreement (< 80%), however, was achieved for B-cell predictions, as 17 labs predict the expected physical B-cell FXM to positive, 3 predict it to be negative, and 2 predict borderline results. The majority of labs (n = 11) reported no class II DSA were present. Good agreement was achieved for predicted renal transplant risk, as 21 out of 22 labs access the risk as unacceptable.

Agreement among labs for virtual T– and B-cell predictions for serum 96 against **donor V4** was < 80%. Sixteen labs predict the expected T-cell FXM to be positive and 15 labs predict the expected B-cell FXM to be positive, in the absence of class I and class II DSA. Those labs predicting the T– and/or B-cell FXM to be positive, reported the presence of weak DSA with MFI values below 1200. As predictions were mixed among labs, so too were predicted renal transplant risk assessments. Fifteen labs access the risk as acceptable, 4 access it as unacceptable, and 3 noted further testing/investigation is needed.

Conclusion

In this Paper Challenge, good agreement (>90%) was observed for positive T-cell predictions in the presence of class I. In each case, MFI values for immune dominate DSA were above 11000. However, in cases where the strength of the antibody was weak (MFI < 1200), as in serum 96 vs. donor V4, the reporting of DSA was variable among labs, which in turn lead to variability in the reporting of T-cell predictions.

For positive B-cell predictions, 100% agreement was observed among labs in the presence of strong class I and/or class II DSA with MFI > 11000. However, in the absence of class II DSA, variability was still observed in B-cell predictions despite the presence of strong class I DSA (MFI > 18000), as in serum 96 vs. donors V2 and V3. Once again, it is important to consider the role of both class I and class II DSA in predicting the expected physical B-cell FXM as B-cells express both class I and class II antigens.

NEXT MAILING DATE: **September 11, 2019**

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Flow Cytometric Crossmatch

Cell #91 HLA Genotype: A*02:01-A*31:01-B*35:01:01G-B*44:02:01G-C*04:01:01G-C*05:01/DRB1*01:01-DRB1*15:01-DRB5*01:01-DQA1*01:01:01G-DQA1*01:02:01G-DQB1*05:01-DQB1*06:02-DPB1*02:01-DPB1*05:01:01G

Table 4. Individual Flow crossmatch results and DSA reported for Cell #091 vs. Serum #093

Ctr	Serum no	T-Cell Pos cutoff	T Cell MCS	RATIO	MESF	T-Cell RESULT	Class I DSA(MFI)	B-Cell Pos cutoff	B-cell MCS	RATIO	MESF	B-Cell RESULT	Class II DSA(MFI)	T-Cell NEG Control MC	B-Cell NEG Control MC	Pronase Treated
206	93	2.98	6.11	1.9		Negative		4.94	145.6	9.62		Positive	DP5	6.79	16.9	YES
230	93	2.7	0.5			Negative	None	4.8	2			Positive	DP5(16709)	1.7	2.8	YES
615	93		101			Negative			101			Borderline				YES
774	93	≥50	14			Negative	None	≥120	120			Negative	None	264	489	NO
792	93	52	62			Positive	None	106	228			Positive	DP5(12422)	195	243	YES
1160	93	50	50			Positive	B44(630)	70	292			Positive	DP5(12708)	220	220	YES
2400	93	17	15			Negative		23	30			Positive	DP5(14846)	56	31	YES
3135	93	1,2	1490	0,9		Negative						NT		1669		NO
3224	93	70	1			Positive	B44(1567)	140	218			Positive	DP5(17526)	266	236	YES
3753	93	50	72			Negative	None	100	243			Positive	DP5(9957)	194	267	YES
3766	93	83	-35			Negative	None	83	196.83			Positive	DP5(17905)	248	371.67	YES
3966	93	20	51			Positive		50	111			Positive		168	409	NO
4345	93					Negative						Positive				NO
4661	93	10	8			Borderline	B*44:02(807)	10	113			Positive	DPB*05:01(12774)	208	246	YES
8001	93	50	50			Negative		100	173			Positive	DPB1*05:01(16743)	279	376	YES
8035	93	>48	28			Negative	None	>90	134			Positive	DP5(8820)	144	264	YES
8050	93	50	34		1124	Negative		120	109		10691	Borderline	DP5(16573)	54	200	YES
8062	93	64	48			Negative	B44(1100)	90	138			Positive	DP5(17100)	150	334	YES
8083	93	90	111			Borderline		150	216			Positive	DP5(13951)	236	359	YES
8096	93	20	-0.43			Negative						NT		3.97		NO
8103	93	500	137	1.2		Negative		569	367	1.7		Negative		151.2	455.6	NO
8111	93	11	25			Positive	B*44:02(685)	38	132			Positive	DPB1*05:01(14005)	223	235	YES

Table 5. Individual Flow crossmatch results and DSA reported for Cell #091 vs. Serum #094

Ctr	Serum no	T-Cell Pos cutoff	T Cell MCS	RATIO	MESF	T-Cell RESULT	Class I DSA(MFI)	B-Cell Pos cutoff	B-cell MCS	RATIO	MESF	B-Cell RESULT	Class II DSA(MFI)	T-Cell NEG Control MC	B-Cell NEG Control MC	Pronase Treated
206	94	2.98	0.36	1.05		Negative		4.94	8.05	1.48		Negative		6.79	16.9	YES
230	94	2.7	0.1			Negative	None	4.8	0.5			Negative	None	1.7	2.8	YES
615	94		166			Borderline			259			Positive				YES
774	94	>50	-21			Negative	None	>120	-39			Negative	None	264	489	NO
792	94	52	23			Negative	None	106	139			Positive	DR1(2102)	195	243	YES
1160	94	50	4			Negative	None	70	71			Positive	DR1(1883)	220	220	YES
2400	94	17	9			Negative		23	5			Negative		56	31	YES
3135	94	1,2	1390	0,8		Negative						NT		1669		NO
3224	94	70				Negative	Cw5(1425)	140				Negative	DR1 2239	266	236	YES
3753	94	50	10			Negative	None	100	73			Negative	None	194	267	YES
3766	94	83	-89			Negative	None	83	-40.67			Negative	DR1(2582)	248	371.67	YES
3966	94	20	14			Negative		50	0			Negative		168	409	NO
4345	94					Negative						Negative				NO
4661	94	10	0			Negative		10	0			Negative	DRB1*01:01(840)	208	246	YES
8001	94	50	-11			Negative		100	40			Negative	DR1(1417)	279	376	YES
8035	94	>48	16			Negative	None	>90	12			Negative	None	144	264	YES
8050	94	50	0		703	Negative		120	0		1655	Negative	DR1(1182)	54	200	YES
8062	94	64	-15			Negative	Cw5(800)	90	38			Negative	DR1(2200)	150	334	YES
8083	94	90	46			Negative		150	108			Negative		236	359	YES
8096	94	20	-1.95			Negative						NT		3.97		NO
8103	94	500	126	1.2		Negative		569	349	1.7		Negative		151.2	455.6	NO
8111	94	11	4			Negative		38	30			Negative	DRB1*01:01(1327)	223	235	YES

Table 6. Individual Flow crossmatch results and DSA reported for Cell #091 vs. Serum #095

Ctr	Serum no	T-Cell Pos cutoff	T Cell MCS	RATIO	MESF	T-Cell RESULT	Class I DSA(MFI)	B-Cell Pos cutoff	B-cell MCS	RATIO	MESF	B-Cell RESULT	Class II DSA(MFI)	T-Cell NEG Control MC	B-Cell NEG Control MC	Pronase Treated
206	95	2.98	2.36	1.35		Negative		4.94	17.55	2.04		Negative		6.79	16.9	YES
230	95	2.7	0.1			Negative	None	4.8	0.4			Negative	None	1.7	2.8	YES
615	95		98			Negative			158			Positive Pronase				YES
774	95	≥50	-21			Negative	None	≥120	-42			Negative	None	264	489	NO
792	95	52	27			Negative	None	106	140			Positive	DP2(3349)	195	243	YES
1160	95	50	2			Negative	None	70	81			Positive	DP2(2117)	220	220	YES
2400	95	17	14			Negative		23	3			Negative	DP2(3451)	56	31	YES
3135	95	1,2	1497	0,9		Negative						NT		1669		NO
3224	95	70				Negative		140				Borderline	DP2 4929	266	236	YES
3753	95	50	19			Negative	None	100	62			Negative	DP2(2904)	194	267	YES
3766	95	83	-109			Negative	None	83	9.83			Negative	DP2(4505)	248	371.67	YES
3966	95	20	20			Negative		50	0			Negative		168	409	NO
4345	95					Negative						Positive				NO
4661	95	10	0			Negative		10	10			Positive	DPB1*02:01(3079),DPB1*05:01(2706)	208	246	YES
8001	95	50	-2			Negative		100	71			Negative	DPB1*02:01(4238)	279	376	YES
8035	95	>48	0			Negative	None	>90	10			Negative	None	144	264	YES
8050	95	50	0		771	Negative		120	0		3277	Negative	DP2(4096)	54	200	YES
8062	95	64	-11			Negative		90	26			Negative	DP2(3600)	150	334	YES
8083	95	90	16			Negative		150	31			Negative		236	359	YES
8096	95	20	0.44			Negative						NT		3.97		NO
8103	95	500	119	1.2		Negative		569	260	1.7		Negative		151.2	455.6	NO
8111	95	11	6			Negative		38	36			Negative	DPB1*02:01(3422)	223	235	YES

Table 7. Individual Flow crossmatch results and DSA reported for Cell #091 vs. Serum #096

Ctr	Serum no	T-Cell Pos cutoff	T Cell MCS	RATIO	MESF	T-Cell RESULT	Class I DSA(MFI)	B-Cell Pos cutoff	B-cell MCS	RATIO	MESF	B-Cell RESULT	Class II DSA(MFI)	T-Cell NEG Control MC	B-Cell NEG Control MC	Pronase Treated
206	96	2.98	0.85	1.12		Negative		4.94	5.1	1.3		Negative		6.79	16.9	YES
230	96	2.7	0.1			Negative	None	4.8	0.3			Negative	None	1.7	2.8	YES
615	96		98			Negative			36			Negative				YES
774	96	≥50	-31			Negative	None	≥120	-66			Negative	None	264	489	NO
792	96	52	13			Negative	None	106	123			Positive	None	195	243	YES
1160	96	50	<0			Negative	None	70	10			Negative	None	220	220	YES
2400	96	17	11			Negative		23	5			Negative		56	31	YES
3135	96	1,2	2232	1,3		Positive						Negative		1669		NO
3224	96	70				Negative		140				Negative		266	236	YES
3753	96	50	12			Negative	None	100	20			Negative	None	194	267	YES
3766	96	83	-99			Negative	None	83	-68.67			Negative	None	248	371.67	YES
3966	96	20	9			Negative		50	0			Negative		168	409	NO
4345	96					Negative						Negative				NO
4661	96	10	0			Negative		10	0			Negative		208	246	YES
8001	96	50	-13			Negative		100	-16			Negative		279	376	YES
8035	96	>48	0			Negative	None	>90	0			Negative	None	144	264	YES
8050	96	50	0		795	Negative		120	0		1796	Negative		54	200	YES
8062	96	64	-19			Negative		90	-48			Negative		150	334	YES
8083	96	90	76			Negative		150	111			Negative		236	359	YES
8096	96	20	-1.81			Negative						NT		3.97		NO
8103	96	500	128	1.2		Positive		569	418	1.7		Negative		151.2	455.6	NO
8111	96	11	0			Negative		38	12			Negative		223	235	YES

Cell #92 HLA Genotype: A*01:01-A*34:02-B*08:01-B*81:01:01G-C*07:01:01G-C*18:01:01G-DRB1*03:01-DRB1*13:01-DRB3*01:01-DRB3*02:02:01G-DQA1*01:03-DQA1*05:01-DQB1*02:01-DQB1*06:08-DPB1*04:01-DPB1*18:01

Table 8. Individual Flow crossmatch results and DSA reported for Cell #092 vs. Serum #093

Ctr	Serum no	T-Cell Pos cutoff	T Cell MCS	RATIO	MESF	T-Cell RESULT	Class I DSA(MFI)	B-Cell Pos cutoff	B-cell MCS	RATIO	MESF	B-Cell RESULT	Class II DSA(MFI)	T-Cell NEG Control MC	B-Cell NEG Control MC	Pronase Treated
206	93	2.94	15.24	2.64		Borderline	A1	4.94	54.2	3.38		Borderline	DP18	9.27	22.8	YES
230	93	3.4	0.5			Negative	None	4.9	1			Negative	None	2.4	2.8	YES
615	93		160			Positive			566			Positive				YES
774	93	≥50	93			Positive	A1 7955	≥120	65			Negative	None	258	369	NO
792	93	52	124			Positive	A11(10883)	106	200			Positive	DP18(12657), DR52(2853)	213	191	YES
1160	93	50	234			Positive	A1(10088); B81(725)	70	267			Positive	DR52(2519)	234	191	YES
2400	93	17	63			Positive	A1(12292)	23	53			Positive	DR52(4138), DP18(16101)	50	19	YES
3135	93	1,2	2195	0,9		Negative						NT		2499		NO
3224	93	70	130			Positive	A1(16276); B81(1372); Cw18(1292)	140	94			Positive	DRB3*01(5089); DPB1*04:01(1515); DP18(18359), potential DPA1*02:01	266	236	YES
3753	93	50	109			Positive	A1(5887)	100	110			Positive	DRB3*01:01(1452)	208	229	YES
3766	93	83	169			Positive	A1(14437)	83	143.5			Positive	DR52(6365)	240	309	YES
3966	93	20	116			Positive		50	130			Positive		182	247	NO
4345	93					Positive						Positive				NO
4661	93	10	69			Positive	A*01:01(7826)	10	89			Positive	DRB1*03:01(2688), DRB3*01:01(2371), DPB1*04:01(10861)	215	232	YES
8001	93	50	207			Positive	A1(13576), B81(1169)	100	231			Positive	DRB3*01:01(3565), DPB1*04:01(1142), DPB1*18:01(17175)	267	314	YES
8035	93	>48	145			Positive	A1(7484), B81(998), Cw18(1046)	>90	157			Positive	DRB3*01:01(2619)	180	251	YES
8050	93	50	157		4315	Positive	A1(7624) Cw18(1115)	120	113		7111	Borderline	DR52(DRB3*01:01)(3729)	63	156	YES
8062	93	64	164			Positive	A1(13200), Cw18(1500), B81(800)	90	162			Positive	DR52(4100)	168	198	YES
8083	93	90	332			Positive	A1(13487)	150	266			Positive	DR52(4321)	251	272	YES
8096	93	20	8.46			Negative						NT		4.14		NO
8103	93	977	196	1.2		Positive	A*01:01(1235)	2505	621	1.7		Negative		183.6	921.4	NO
8111	93	9	53			Positive	A1(10507); C*18(1597); B81(992)	14	17			Positive	DPB1*18:01/ DPA1*02:01(14386); DRB3*01:01(3341); DPB1*04:01(873)	239	289	NO

Table 9. Individual Flow crossmatch results and DSA reported for Cell #092 vs. Serum #094

Ctr	Serum no	T-Cell Pos cutoff	T Cell MCS	RATIO	MESF	T-Cell RESULT	Class I DSA(MFI)	B-Cell Pos cutoff	B-cell MCS	RATIO	MESF	B-Cell RESULT	Class II DSA(MFI)	T-Cell NEG Control MC	B-Cell NEG Control MC	Pronase Treated
206	94	2.94	4.54	1.49		Negative	B8	4.94	438.2	20.22		Positive	DR13 DR17	9.27	22.8	YES
230	94	3.4	3.5			Positive	B8(6214)	4.9	8.5			Positive	DR13(14388), DR17(10803), DR52(5424), DQA1*05(8314)	2.4	2.8	YES
615	94		260			Positive			330			Positive				YES
774	94	>50	52			Positive	B8 6033	>120	307			Positive	DR13(15133); DR17(12172); DR52(5042)	258	369	NO
792	94	52	92			Positive	B8(5671)	106	418			Positive	DR13(10802), DR17(9581), DQ2(8060), DR52(5151)	213	191	YES
1160	94	50	88			Positive	B8(5089)	70	471			Positive	DR13(10710); DR17(9104); DQ2(5332); DR52(3371)	234	191	YES
2400	94	17	27			Positive	B8(6745)	23	256			Positive	DR13(13450), DR17(10820), DR52(5111), DQA1*05:01(9122)	50	19	YES
3135	94	1,2	2162	0,9		Negative						NT		2499		NO
3224	94	70	2			Positive	A*34:02(1017); B8(8406)	140	346			Positive	DR13(14264); DR17(11194); DR52(6590); DQA1*05:01(8666)	266	236	YES
3753	94	50	32			Negative	B8(3084)	100	338			Positive	DQA1*05(6064), DR17(12288), DR13(15445), DR52(3805)	208	229	YES
3766	94	83	60.5			Negative	B8(7886)	83	381.5			Positive	DR17(14069), DR13(15832), DRB3*01:01(6951), DRB3*02:02(4999), DQA1*05:01(11370)	240	309	YES
3966	94	20	75			Positive		50	343			Positive		182	247	NO
4345	94					Negative						Positive				NO
4661	94	10	9			Borderline	B*08:01(1002)	10	216			Positive	DRB1*03:01(12242), DRB1*13:01(12237), DRB3*01:01(7496), DRB3*02:02(3924), DQA1*05:01/ DQB1*02:01(1025)	215	232	YES

Table 9. Individual Flow crossmatch results and DSA reported for Cell #092 vs. Serum #094

Ctr	Serum no	T-Cell Pos cutoff	T Cell MCS	RATIO	MESF	T-Cell RESULT	Class I DSA(MFI)	B-Cell Pos cutoff	B-cell MCS	RATIO	MESF	B-Cell RESULT	Class II DSA(MFI)	T-Cell NEG Control MC	B-Cell NEG Control MC	Pronase Treated
8001	94	50	84			Positive	B8(5826)	100	379			Positive	DR13(12058), DRB3*01:01(4826), DRB3*02:02(2816), DR17(10245), DQA1*05:01(7240)	267	314	YES
8035	94	>48	60			Positive	B8(4615)	>90	286			Positive	DRB1*03:01(8928), DR13(10,676), DR52(3278), DQA1*05:01(5568)	180	251	YES
8050	94	50	31		1195	Negative	B8(6519)	120	265		33486	Positive	DR13(17988) DR17(14852) DR52(4552) DQA1*05(8424)	63	156	YES
8062	94	64	79			Positive	B8(6700)	90	331			Positive	DR13(15100), DR17(12000), DQA1*05:01(6700), DR52(5000)	168	198	YES
8083	94	90	310			Positive	B8(6233)	150	508			Positive	DR13(12255), DR17(10621), DR52(4909), DQA1*05:01(8591)	251	272	YES
8096	94	20	0.16			Negative						NT		4.14		NO
8103	94	977	241	1.2		Positive	B*08:01(525)	2505	949	1.7		Positive	DRB1*03:01(9695), DRB1*13:01(9733), DRB3*01:91(3862), DRB3*02:02	183.6	921.4	NO
8111	94	9	16			Positive	B8(3691); A1(961)	14	114			Positive	DRB1*13:01(16209); DR17(13894); DQB1*02:01/ DQA1*05:01(8493); DRB3*01:01(5299)	239	289	NO

Table 10. Individual Flow crossmatch results and DSA reported for Cell #092 vs. Serum #095

Ctr	Serum no	T-Cell Pos cutoff	T Cell MCS	RATIO	MESF	T-Cell RESULT	Class I DSA(MFI)	B-Cell Pos cutoff	B-cell MCS	RATIO	MESF	B-Cell RESULT	Class II DSA(MFI)	T-Cell NEG Control MC	B-Cell NEG Control MC	Pronase Treated
206	95	2.94	3.19	1.34		Negative		4.94	730.7	33.05		Positive	DR13 DR17 DR52	9.27	22.8	YES
230	95	3.4	0			Negative	None	4.9	2.2			Positive	DR52(15888) DR17(16080), DR13(17469)	2.4	2.8	YES
615	95		91			Negative			613			Positive				YES
774	95	≥50	-4			Negative	None	≥120	373			Positive	DR13(16233); DR17(13311); DR52(11951)	258	369	NO
792	95	52	39			Negative	None	106	401			Positive	DR13(14440), DR17(12913), DR52(7905), DP4(3700), DP18(2592)	213	191	YES
1160	95	50	8			Negative	None	70	533			Positive	DR13(12361); DR17(10722); DR52(6215)	234	191	YES
2400	95	17	26			Positive	No DSA	23	302			Positive	DR13(13649), DR17(14467), DR52(10143), DP4(3630), DP18(2698)	50	19	YES
3135	95	1,2	2326	0,9		Negative						NT		2499		NO
3224	95	70				Negative		140	391			Positive	DR17(17560); DR13(18812); DR52(17437); DP4(5584); DPA1*01(5584).	266	236	YES
3753	95	50	15			Negative	None	100	330			Positive	DP401(3216), DR17(14056), DR13(13686), DR52(8229)	208	229	YES
3766	95	83	-50			Negative	None	83	443.5			Positive	DR17(17696), DR13(20037), DRB3*01:01(11524), DRB3*02:02(8935), DP4(5056).	240	309	YES
3966	95	20	20			Negative		50	360			Positive		182	247	NO
4345	95					Negative						Positive				NO
4661	95	10	0			Negative		10	256			Positive	DRB1*03:01(10164), DRB1*13:01(10740), DRB3*01:01(7442), DRB3*02:02(4131), DPB1*18:01(3022)	215	232	YES

Table 10. Individual Flow crossmatch results and DSA reported for Cell #092 vs. Serum #095

Ctr	Serum no	T-Cell Pos cutoff	T Cell MCS	RATIO	MESF	T-Cell RESULT	Class I DSA(MFI)	B-Cell Pos cutoff	B-cell MCS	RATIO	MESF	B-Cell RESULT	Class II DSA(MFI)	T-Cell NEG Control MC	B-Cell NEG Control MC	Pronase Treated
8001	95	50	18			Negative		100	426			Positive	DR13(18424), DR17(16312), DRB3*01:01(9923), DRB3*02:02(8196), DPB1*04:01(4865)	267	314	YES
8035	95	>48	0			Negative	None	>90	305			Positive	DRB1*03:01(10146), DR13(9997), DR52(6730), DP4(3078)	180	251	YES
8050	95	50	11		974	Negative		120	368		95687	Positive	DR13(17281) DR17(17290) DR52(10873) DP4(4156)	63	156	YES
8062	95	64	-19			Negative		90	346			Positive	DR13(17900), DR17(14600), DR52(8400), DR52(7000), DP4(4000), DP18(2600)	168	198	YES
8083	95	90	22			Negative		150	417			Positive	DR13(17357), DR17(15230), DR52(9459)	251	272	YES
8096	95	20	-0.83			Negative						NT		4.14		NO
8103	95	977	194	1.2		Borderline		2505	845	1.7		Negative		183.6	921.4	NO
8111	95	9	7			Negative		14	111			Positive	DRB1*13:01(17888); DR17(15593); DR52(7871); DPB1*04:01(3925); DPB1*18:01(2506)	239	289	NO

Table 11. Individual Flow crossmatch results and DSA reported for Cell #092 vs. Serum #096

Ctr	Serum no	T-Cell Pos cutoff	T Cell MCS	RATIO	MESF	T-Cell RESULT	Class I DSA(MFI)	B-Cell Pos cutoff	B-cell MCS	RATIO	MESF	B-Cell RESULT	Class II DSA(MFI)	T-Cell NEG Control MC	B-Cell NEG Control MC	Pronase Treated
206	96	2.94	81.74	9.82		Positive	B81	4.94	259.7	12.39		Positive	None	9.27	22.8	YES
230	96	3.4	1.1			Positive	B81(20215)	4.9	0.5			Positive	None	2.4	2.8	YES
615	96		377			Positive			483			Positive				YES
774	96	>50	228			Positive	B81 18480	>120	240			Positive		258	369	NO
792	96	52	216			Positive	B81(16380)	106	281			Positive	None	213	191	YES
1160	96	50	313			Positive	B81(16124); B8(887)	70	367			Positive	Weak antibody against DR52 group shared epitope(DR13, DR17, DR52) detected.	234	191	YES
2400	96	17	128			Positive	B81(18736)	23	180			Positive	None	50	19	YES
3135	96	1,2	2280	0,9		Negative						NT		2499		NO
3224	96	70	291			Positive	B8(1370); B81(21322)	140	263			Positive	DR13(1459); DR17(958)	266	236	YES
3753	96	50	176			Positive	B81(14664)	100	179			Positive	None	208	229	YES
3766	96	83	280.5			Positive	B81(22540)	83	273.5			Positive	None	240	309	YES
3966	96	20	203			Positive		50	265			Positive		182	247	NO
4345	96					Positive						Negative				NO
4661	96	10	105			Positive	B*0801(1050), B*81:01(14843)	10	122			Positive	DRB1*03:01(1280), DRB1*13:01(1655), DRB3*01:01(1145), DRB3*02:02(751)	215	232	YES
8001	96	50	325			Positive	B8(1102), B81(20527)	100	346			Positive	DR13(1173), DR17(1017), DRB3*01:01(586), DRB3*02:02(665)	267	314	YES
8035	96	>48	217			Positive	B8(873), B81(12034)	>90	210			Positive	DR13(838), DQA1*05(825)	180	251	YES
8050	96	50	248		10911	Positive	B81(20076)	120	185		14815	Positive	DR13(1154)	63	156	YES
8062	96	64	246			Positive	B81(20700), B8(1000)	90	274			Positive	DR13(1000), DR17(700)	168	198	YES
8083	96	90	359			Positive	B81(20686)	150	339			Positive		251	272	YES
8096	96	20	19.43			Negative						NT		4.14		NO
8103	96	977	317	1.2		Positive	B*81:01(4017)	2505	2245	1.7		Positive	None	183.6	921.4	NO
8111	96	9	78			Positive	B81(18465)	14	67			Positive	DRB1*13:01(878)	239	289	NO

Single Antigen

Table 12. Summary of Single Antigen results for Serum #93

Class I							
*** Serum 93 ***							
20 typing Labs							
Antigen	No.Labs	Consensus	Median	Mean	Std Dev	Min	Max
A1	20	100%	10776	9921	4423	1235	16267
B57	20	100%	8292	7789	3344	1113	12881
B58	20	100%	6812	6381	2886	590	10829
B76	20	100%	4046	4005	1743	472	6290
B63	19	95%	4600	4504	1620	640	7097
A23	18	90%	3000	2745	1340	504	5433
A30	17	85%	3694	3359	1523	536	6205
A80	17	85%	2428	2444	939	371	4126
A24	15	75%	3757	3107	1554	531	5828
A43	15	75%	2675	2705	866	1029	4403
A36	14	70%	2558	2514	868	493	4090
B27	14	70%	2030	1899	625	668	3034
B75	10	50%	1538	1670	724	473	2936
A11	8	40%	1768	1766	476	981	2751
B54	8	40%	1291	1261	385	668	1921
A25	7	35%	1353	1485	605	488	2464
B45	7	35%	1015	1194	352	839	1847
B42	6	30%	1439	1543	402	1001	2129
B44	6	30%	846	916	363	371	1567
B55	6	30%	1153	1290	446	756	2130
B82	6	30%	1120	1335	624	848	2706
A1102	5	25%	2000	1834	708	931	2751
B56	5	25%	1200	1287	283	904	1767
B67	5	25%	1400	1440	298	1001	1904
Cw18	5	25%	1291	1249	159	1046	1500
B7	4	20%	975	983	309	601	1382
B81	4	20%	1084	1046	213	725	1293
Cw17	4	20%	1201	1082	458	371	1556
A1101	3	15%	1965	1814	329	1358	2120
A3	2	10%	1082	1081	327	755	1408
B2708	2	10%	1551	1551	404	1147	1955

Class II							
*** Serum 93 ***							
20 typing Labs							
Antigen	No.Labs	Consensus	Median	Mean	Std Dev	Min	Max
DR12	20	100%	3584	3681	1789	760	9158
DR53	20	100%	15572	14074	5352	3255	21353
DR7	20	100%	17699	16479	4351	5214	22779
DR9	20	100%	7476	7239	2488	2723	12551
DP13	19	95%	12773	11823	5220	1743	19702
DPw5	18	90%	13976	13295	3951	1957	17905
DR52	18	90%	4617	4756	2596	735	11256
DP11	17	85%	11519	10850	4272	2817	17033
DP14	17	85%	13964	12839	3733	3436	17133
DP17	17	85%	14000	13168	3597	5806	17932
DPw1	17	85%	12668	12186	5322	1588	19790
DP15	16	80%	9270	9123	1855	5800	12025
DP9	16	80%	14681	14258	3658	6651	19435
DP19	15	75%	4100	4772	2522	2427	11592
DPw3	15	75%	16019	13353	6276	505	19640
DPw6	15	75%	14378	12412	5728	511	18210
DP10	14	70%	14693	14141	2231	9645	17570
DPA1*02	14	70%	14427	14329	4013	7728	20108
DPA1*04	12	60%	5200	5161	2163	2383	10522
DP18	7	35%	16365	16136	1717	12657	18359
DP20	7	35%	2375	2250	579	1276	3064
DP28	7	35%	7143	7129	2109	4335	11105
DPw4	3	15%	4500	4223	2411	1142	7028

Blue = DSA against cell #91 only
Gold = DSA against cell #92 only
Green = DSA aginst cell #91 and #92

Table 13. Summary of Single Antigen results for Serum #94

Class I							
*** Serum 94 ***							
20 typing Labs							
Antigen	No.Labs	Consensus	Median	Mean	Std Dev	Min	Max
B18	20	100%	5828	5608	2332	1047	9306
B64	20	100%	12981	11683	4840	1715	18007
B65	20	100%	13656	12189	4669	2658	17854
B8	20	100%	5586	4881	2311	525	8405
B46	17	85%	8662	8402	2495	714	11962
A33	16	80%	1953	1901	846	506	3280
Cw16	16	80%	2930	2837	1052	768	4656
B39	14	70%	3100	2989	1085	298	4952
B51	14	70%	2379	2389	765	624	3881
Cw1	14	70%	5432	5248	1489	2924	7829
Cw12	14	70%	4450	4356	1384	1323	6938
B78	9	45%	1500	1417	524	535	2021
B38	7	35%	1300	1547	330	1284	2179
B52	7	35%	1393	1467	310	1054	2020
B37	6	30%	1197	1312	298	1000	1835
Cw10	6	30%	1270	1483	419	1034	2124
Cw6	6	30%	1948	2001	606	1272	3002
B3901	4	20%	4126	3515	1760	721	5088
Cw2	4	20%	1748	1756	331	1340	2190
B7801	3	15%	2021	1807	629	952	2448
Cw5	2	10%	1178	1177	247	931	1424

Class II							
*** Serum 94 ***							
20 typing Labs							
Antigen	No.Labs	Consensus	Median	Mean	Std Dev	Min	Max
DQ7	20	100%	18465	16234	5922	3958	24600
DR11	20	100%	10961	10870	2487	4662	14669
DR12	20	100%	9590	9268	2421	3186	12865
DR13	20	100%	13531	12714	3282	3687	17988
DR14	20	100%	10855	10581	2465	3720	14695
DR17	20	100%	10433	10174	2645	2586	14852
DR18	20	100%	8995	9178	1993	4208	13170
DR8	20	100%	9669	9239	2400	2639	13540
DR52	19	95%	5042	5065	1457	2494	8578
DR9	19	95%	2840	2717	1002	638	4942
DR7	18	90%	2269	2193	649	711	3243
DQA1*05	14	70%	8369	8860	4454	1491	18000
DR1	12	60%	1891	1810	475	1036	2582
DQA1*04	5	25%	1000	1778	1205	960	4097
DQA1*06	4	20%	16179	14163	5594	5295	19000
DR1403	3	15%	8673	8977	2361	6249	12009
DR1404	3	15%	7567	7962	2594	5001	11319
DR4	3	15%	1568	2316	1400	1104	4278
DQ2	2	10%	6282	6282	1778	4504	8060

Blue = DSA against cell #91 only
Gold = DSA against cell #92 only
Green = DSA aginst cell #91 and #92

Table 14. Summary of Single Antigen results for Serum #095

Class I							
*** Serum 95 ***							
17 typing Labs							
Antigen	No.Labs	Consensus	Median	Mean	Std Dev	Min	Max
B65	17	100%	3000	2915	1059	667	4855
B64	15	88%	2600	2535	568	1667	3584
B67	1	5%	1112	1112	-	1112	1112

Blue = DSA against cell #91 only

Gold = DSA against cell #92 only

Green = DSA aginst cell #91 and #92

Class II							
*** Serum 95 ***							
20 typing Labs							
Antigen	No.Labs	Consensus	Median	Mean	Std Dev	Min	Max
DR13	20	100%	14558	14458	3497	6212	20037
DR14	20	100%	11929	11962	2498	6279	16082
DR17	20	100%	13684	13416	2968	6255	17696
DR18	20	100%	11804	11566	2215	6770	15468
DR52	20	100%	11374	11920	3402	5860	18079
DR8	20	100%	9389	9525	2261	4622	13052
DR11	19	95%	9449	9722	1917	5375	12819
DR12	19	95%	8322	8278	1944	4020	12015
DPw2	14	70%	3464	3819	1567	1871	8725
DPA1*01	13	65%	2635	3236	1134	2094	5583
DPw4	11	55%	3700	4139	1803	1916	9155
DP19	10	50%	2908	2845	481	2030	3679
DP23	10	50%	3327	3462	672	2376	4638
DP18	9	45%	2698	3661	2750	1884	11317
DP20	9	45%	2626	2546	473	1702	3294
DPA1*03	9	45%	2060	2152	516	1398	3181
DP28	8	40%	3045	3115	616	2091	3928
DPw1	7	35%	3185	3998	2466	2500	9987
DPw3	7	35%	2598	2519	392	1721	2892
DPw6	6	30%	2534	2259	508	1523	2743
DP402	5	25%	2822	2930	809	1916	4386
DP13	4	20%	2103	3643	3396	927	9442
DP11	3	15%	2289	3405	1829	1943	5985
DP17	3	15%	1055	3414	3492	837	8351
DP401	3	15%	3400	4066	1075	3216	5583
DR1403	3	15%	9253	8434	1749	6004	10046
DPA1*04	2	10%	1007	1007	82	925	1089
DPw5	2	10%	8646	8646	6186	2460	14832
DQ2	2	10%	8912	8911	8279	633	17190
DQ4	2	10%	5149	5148	4553	596	9701
DQ6	2	10%	5934	5933	5384	550	11317
DQ7	2	10%	4354	4354	3206	1148	7560
DQ8	2	10%	4868	4868	3772	1096	8640
DQ9	2	10%	4736	4735	3955	781	8690
DR1404	2	10%	7362	7361	1336	6026	8697
DR3	2	10%	8639	8638	1869	6770	10507

Table 15. Summary of Single Antigen results for Serum #096

Class I							
*** Serum 96 ***							
20 typing Labs							
Antigen	No.Labs	Consensus	Median	Mean	Std Dev	Min	Max
B27	20	100%	5529	5103	2011	1007	7941
B48	20	100%	17142	15059	6518	538	22445
B55	20	100%	4070	3664	1550	305	5935
B67	20	100%	4591	4006	1739	320	6733
B7	20	100%	18265	17053	4930	2784	22804
B42	19	95%	4948	4653	1779	510	7389
B60	19	95%	18312	16882	4664	1959	21718
B73	19	95%	4525	4217	1502	582	6597
B56	18	90%	3851	3600	1079	640	5339
B61	18	90%	4007	3842	1290	522	6135
B54	17	85%	2643	2481	1004	342	3897
B81	17	85%	18480	15845	5907	2013	22540
B82	17	85%	3508	3266	1261	506	5230
A32	10	50%	3560	3586	1299	1102	6137
B2708	8	40%	5849	5263	2375	1355	7959
B57	8	40%	1726	1655	802	399	3092
A6602	7	35%	2000	1887	768	529	2761
A66	6	30%	2243	1968	747	529	2639
B13	6	30%	1166	1518	791	910	3212
B47	6	30%	1127	1179	309	826	1685
B8	6	30%	1025	1047	166	873	1370
Cw10	6	30%	1189	1229	188	967	1535
B8101	5	25%	17000	15944	6588	4017	22540
Cw9	5	25%	1206	1240	190	1059	1597
B53	4	20%	1871	2008	703	1188	3105
B58	4	20%	1893	2013	585	1366	2901
B77	4	20%	1767	1984	722	1241	3163
B703	3	15%	7950	9800	4766	5112	16339
B8201	3	15%	3947	4146	630	3494	4999

Class II							
*** Serum 96 ***							
11 typing Labs							
Antigen	No.Labs	Consensus	Median	Mean	Std Dev	Min	Max
DR11	8	73%	1345	1273	554	520	2310
DR13	7	64%	1154	1179	500	316	2008
DR8	5	45%	1090	970	358	289	1349
DR14	4	36%	1117	1040	457	328	1600
DQ7	3	27%	1000	819	294	405	1053
DQA1*05	3	27%	825	722	294	322	1019
DQA1*06	3	27%	831	781	204	510	1003
DR17	3	27%	1017	865	414	300	1280
DR52	3	27%	1014	988	511	349	1601
NEG	3	27%	-	-	-	-	-
DR12	2	18%	702	701	373	329	1074
DR9	2	18%	766	765	260	506	1025

Blue = DSA against cell #91 only
Gold = DSA against cell #92 only
Green = DSA aginst cell #91 and #92

Table 16. Individual laboratory results for Serum #093 - class I by Luminex

											**** Serum 93 ****																
Ctr	A1	B57	B58	B76	B63	A23	A30	A80	A24	A43	A36	B27	B75	A11	B54	A25	B45	B42	B44	B55	B82	A1102	B56	B67	Cw18	Other	Manufacturer
54	10669	9214	7200	3843	4818	2272	2476	2174	2606	2195	2178	2309		1633													One Lambda
206	14216	10201	8507	5861	5569	3866	4441		3995	3447																	One Lambda
230	15229	11000	9603	6286	6188	4354	5246	3696		4175	3528																One Lambda
774	7955	8353	6624	4086	4570			2124																			One Lambda
792	10883	7800	6549	4005	4341	2957	3694	2428	3308	2192	2485	1860	1796	1742													One Lambda
1160	10088	7446	6152	3830	3863	2561	3064	2272		1997	2034	1712	1279	1794	1035	1407	839	1001	767	756	848		904	1001		B7,B81	One Lambda
2400	12292	8231	7442	4354	4600	3251	3987	2787	4106	2507	2631		2320														One Lambda
3224	16267	12881	10829	6290	7097	5433	6205	4126	5828	4403	4090	3034	2936		1921	2464	1847	1984	1567	1554		2378	1767	1904	1291	B7,A3,B8101,B2708>	One Lambda
3753	5887	4738	4196	2503	2935			1251			1139																One Lambda
3766	14437	11030	8992	5547	6003	4176	5229	3474	4831	3182	3227	2377	2479	2751	1509	2176						2751				A1101	One Lambda
4661	7826	4995	3735	3160	4000	3003	2559	1154	3757	2041	2246	1187			821	1309	843		807		1178	1110				A3,B2708,A1101	Lifecodes
8001	13576	10096	8246	4941	5751	3428	4175	2777	3844	2675	2881	2424	1092	1800	1559	1353	1015	1577		1226	1062		1373	1578		B81	One Lambda
8029	2090	1174	917	714	680	587	536		728																		Lifecodes
8035	7484	7027	6269	3737	4319	1733	1944	2079	1418	1795	1375	1605	1130		1282		994	1268	884	1079	1021	931	1191	1320	1046	B7,B81,Cw17	One Lambda
8050	7624	7585	6510	3887	4154	1016	1505	1746		1029		1396													1115	Cw17	One Lambda
8062	13200	11300	9000	6000	5600	3000	3300	2900	2800	2800	2100	2200	1200	1400	1300	1200	1300	1300	1100	1000	1200		1200	1400	1500	Cw17	One Lambda
8079	12000	9000	7000	4600	5000	3000	4000	3000	4000	3000	3000	2200	2000										2000				One Lambda
8083	13487	10702	8582	5317	5461	3477	3904	3203	4140	3143	2940	2485		2029													One Lambda
8096	1975	1897	688	472		806	850	371	531		493	668	473	981	668	488	1522	2129	371	2130	2706				1293	Cw4,Cw6,A2,B60>	One Lambda
8103	1235	1113	590	686	640	504			721																	B15	Lifecodes
Avg	9921	7789	6382	4006	4505	2746	3360	2445	3108	2705	2515	1900	1671	1766	1262	1485	1194	1543	916	1291	1336	1834	1287	1441	1249		
Std Dev.S	4538	3431	2961	1788	1664	1379	1570	968	1608	897	901	648	763	508	411	654	380	440	397	489	683	791	317	333	177		
MFI %CV	46%	44%	46%	45%	37%	50%	47%	40%	52%	33%	36%	34%	46%	29%	33%	44%	32%	29%	43%	38%	51%	43%	25%	23%	14%		

Blue = DSA against cell #91 only

Gold = DSA against cell #92 only

Green = DSA aginst cell #91 and #92

Table 17. Individual laboratory results for Serum #94 - #95 class I by Luminex

Ctr	**** Serum 94 ****																					**** Serum 95 ****			
	B18	B64	B65	B8	B46	A33	Cw16	B39	B51	Cw1	Cw12	B78	B38	B52	B37	Cw10	Cw6	B3901	Cw2	Other	B65	B64	Other	Manufacturer
54	4962	11764	11948	4931	7371		2167	2678	1729	3688	3681										2821	2024		One Lambda
206	6906	13497	13957	4847	8513																			One Lambda
230	8097	17017	17144	6214	10587			3710		6964	2000										3413	2000		One Lambda
774	5823	13501	13774	6033	8112			2593	2275												2428	3237		One Lambda
792	6321	12672	13903	5671	8662	2188	3140	3540	2404	4989	4522						1644				3182	2377		One Lambda
1160	4958	10880	11180	5089	6576	1679	2513	3200		3988	4075	1219	1284	1054	1073	1034	1435				2337	1811		One Lambda
2400	5832	13469	13538	6745	9195	2131	3844	3970	2353	5875	5084						2251				3752	3021		One Lambda
3224	9306	18007	17854	8405	11962	3172	4549		3881	7444	6761		2179	2020	1575	2124	2403	5088	1942	B54,B73,Cw5,B7801	4855	3584	B67	One Lambda
3753	4343	10250	11112	3084	6158	1350	2247	1440	1489	2924	2670										2675	1667		One Lambda
3766	7794	17028	17513	7886	11469	3280	4656	4952	3210	7829	6938	2021	1849	1720	1835	2001	3002	4952	2190	B7801	4012	3105		One Lambda
4661	2908	5114	6091	1002		1050	781													B7801	751			Lifecodes
8001	7867	15373	15930	5826	10157	3213	3385	3515	2995	5990	4582	1802	1638	1611	1267	1287	1272		1340		1847	2869		One Lambda
8029	1562	3712	4325	793	714	692	768		624			535					721				667			Lifecodes
8035	5426	10503	10345	4615	6944	1971	2476	2531	2253	3779	3354	1470	1286	1275	1127	1252					3799	2803		One Lambda
8050	8549	16419	17061	6519	10214	1934	2759	2818	3084	3792	4381	1646	1293	1393							2984	1875		One Lambda
8062	7100	15600	16600	6700	9200	1800	3100	3000	2500	4300	4400	1500	1300	1200	1000	1200					3400	2600		One Lambda
8079	5600	12000	12000	5500	8000	2300	3300		2200	6000	4500						3300				3000	2200		One Lambda
8083	6429	13289	13894	6233	9001	2356	3197	3610	2452	5922	4724										3638	2858		One Lambda
8096	1333	1715	2658	1010		795	2524	298		1323	560								1553	A24,A2,B60,A66 >				One Lambda
8103	1047	1859	2970	525		506														B14				Lifecodes
Avg	5608	11683	12190	4881	8402	1901	2838	2990	2389	5249	4357	1417	1547	1468	1313	1483	2001	3515	1756		2915	2535		
Std Dev.S	2393	4966	4790	2371	2572	874	1086	1126	794	1546	1436	555	356	335	327	459	664	2032	382		1091	588		
MFI %CV	43%	43%	39%	49%	31%	46%	38%	38%	33%	29%	33%	39%	23%	23%	25%	31%	33%	58%	22%		37%	23%		

Blue = DSA against cell #91 only

Gold = DSA against cell #92 only

Green = DSA aginst cell #91 and #92

Table 18. Individual laboratory results for Serum #096 - class I by Luminex

Ctr	B27	B48	B55	B67	B7	B42	B60	B73	B56	B61	B54	B81	B82	A32	B2708	B57	A6602	A66	B13	B47	B8	Cw10	B8101	Cw9	Other	Manufacturer
																**** Serum 96 ****										
54	5497	14807	4076	4686	16199	5160	15884	4475	3887	3457	2643	15252		2951	5413										B8201	One Lambda
206	5977	18417	4288	4844	19605	5370	18987	4585	3814	4066		19292	3627													One Lambda
230	6169	20501	4274	4982	21098	5841	20498	4867	3951	4450	2741	20215	3807	2446	6284											One Lambda
774	5561	18224	3865	4495	18791	4852	18312	4525	3575	3853	2465	18480	3508													One Lambda
792	4986	16060	3346	3606	17061	4020	16498	3905	3032	4125	2080	16380	2900	3001			1932									One Lambda
1160	4745	15741	3276	3634	15906	4160	16436	3721	2862	3372	2324	16124	2936	3419		1525	1432		1022	826	887				B53,B77,B58,B41	One Lambda
2400	4974	18518	4063	3784	18739	4255	18333	4607	3337	3694		18736	3053	4297		2075										One Lambda
3224	7760	21072	5935	6294	22169	7210	20715	6597	5195	6135	3794			4049	7959	1927	2761		1634	1442	1370	1535	21322	1597	B53,B77,B58,B8201	One Lambda
3753	2654	15059	1987	2182	14729	2356	15363	2529	1766	1904	1134	14664	1734													One Lambda
3766	6871	22445	4642	4965	22804	5882	21718	5418	3968	5468	2930	22540	3947	4760	6827	2217	2556	2556					22540		B53,B77,B58,B8201	One Lambda
4661	6425	8913	4759	4836	17791	4948	16634	4262	4208	2578	3897		5009		7533		2615			1685	1050		14843		B703	Lifecodes
8001	6795	20175	4637	5105	21116	5683	20393	5422	4283	4960	2918	20527	3997	1102			2554	1231	1232	1102	1179			1206		One Lambda
8029	1064	3209	776	754	10325	702	9243	694	640	522	552	7632	680		1355										B703	Lifecodes
8035	4317	11433	3403	3779	12639	4130	12126	3880	3187	2888	2225	12034	3070			809	1316		910	868	873	967		1059		One Lambda
8050	6496	19955	4879	5370	21030	5548	20314	5262	4371	4014	3003	20076	4329						1022		1198			1240		One Lambda
8062	6200	19800	4700	5300	21300	5800	20600	4700	4100	4300	3100	20700	4000			1200		1600	1100		1000	1100		1100		One Lambda
8079	5100	16000	3500	3800	17000	4600	17000	4100	3300	4000	2200		3200	3700	5200		2000						17000			One Lambda
8083	7941	19409	5841	6733	20601	7389	19749	6000	5339	5386	3831	20686	5230	6137		3092		2639							B53,B77,B58	One Lambda
8096	1007	538	305	320	2784		1959			342	2013			399				3212			1399				Cw6,A11,A24,A2 >	One Lambda
8103	1535	918	731	661	9379	510		582				4017	506		1535		529	529					4017		B40,B703	Lifecodes
Avg	5104	15060	3664	4007	17053	4653	16882	4217	3601	3843	2481	15845	3267	3586	5263	1656	1887	1968	1518	1179	1047	1230	15944	1240		
Std Dev.S	2063	6687	1591	1784	5058	1828	4792	1543	1110	1328	1035	6089	1300	1369	2538	858	830	818	867	339	182	206	7366	213		
MFI %CV	40%	44%	43%	45%	30%	39%	28%	37%	31%	35%	42%	38%	40%	38%	48%	52%	44%	42%	57%	29%	17%	17%	46%	17%		

Blue = DSA against cell #91 only

Gold = DSA against cell #92 only

Green = DSA aginst cell #91 and #92

Table 19. Individual laboratory results for Serum #093 - class II by Luminex

												**** Serum 93 ****												
Ctr	DR12	DR53	DR7	DR9	DP13	DPw5	DR52	DP11	DP14	DP17	DPw1	DP15	DP9	DP19	DPw3	DPw6	DP10	DPA1*02	DPA1*04	DP18	DP20	DP28	Other	
54	3900	15174	17383	6753	13087	12336	6251	11771	12377	12050	13853	7564	13704	2427	14275	12689	11488	13853	3441					One Lambda
206	3473	16920	18264	7951	15235	14891			15774	15713			16994		17539	15725	15386	15474		16365				One Lambda
230	4354	18470	19654	8035	17577	16709	6469	15797	16194	16343	18616	10683	18151		18606	16035	15452			17256				One Lambda
774	9158	21353	18015	12551	5257		11256	5273			7906		6693					20108	10522					One Lambda
792	2736	13317	15114	6635	12773	12422	4482	10827	12469	11956	12668	7889	13199	2861	13938	12517	11631			12657	1640	4335		One Lambda
1160	3076	13048	16485	6440	12898	12709		11519	12222	11520	13698	8147	12581	2611	13609	13340	11972	13768	3519		1276			One Lambda
2400	3286	15970	20245	8457	10959	14846	4138	8436	14633	14089	10020	9831	16083	3306	16685	14711	14186			16101		5002		One Lambda
3224	4944	18882	21178	10531	18429	17525	7574	16450	17133	17235	16460	11447		4806	19009	18058	16856	19009		18359	3064	7143	DP401	One Lambda
3753	1457	10855	14521	4513		9957	1909		10157	9595		5800	10831				9645	10158	2383					One Lambda
3766	4187	19978	22779	10377	19702	17905	6365	17033		17932	19790	12025	19435	4100	19640	18210	17570	19790	7110		2722			One Lambda
4661	3042	7026	11694	6488	11858	12774	2688	11868	11413	8905	11845	9344	10681	11592				12774	6170			11105		Lifecodes
8001	3695	18832	18525	8152	17573	16743	5307	15831	16522	16375	18820	10478	17522	4255	18689	16447	15798		6164	17175	2573	6164	DPw4	One Lambda
8029	760	4217	10314	3271	7602	8206	735	6742	7121	5806	7544	5807	6651	6965	505	532		7728				7728	DPw4	Lifecodes
8035	2633	10565	11623	4883	5974	8820	3338	5026			6275			2439	4350	5190		8655	3483				DPA1*03	One Lambda
8050	3827	18534	21063	8742	11738	16573	4751	9334	17038	16618	11557	10897	18326	3838	7805	9641	16057	17313	5797		2375			One Lambda
8062	5100	18300	20000	9500	16400	17000	7000	15200	15700	15500	18200	10700	16700	4200	17700	18200	15200	17500	5400		2100			One Lambda
8079	3000	15000	17000	7000	15000	14000	3000	13000	14000	14000	15000	9000	14000	3000			13000	15000	5000					One Lambda
8083	4154	16369	19013	8076	2252	13951	6903	2817	13964	13696	3332	9196	15362		16019	14378	13737			15043				One Lambda
8096	5906	3255	5214	2723	1743	1957	2413		3436		1588				1932								DR1,DR4,DR8>	One Lambda
8103	933	5418	11500	3718	8596		1044	7542	8111	6527		7168	7916	8500		511		9478	2947			8430		Lifecodes
Avg	3681	14074	16479	7240	11824	13296	4757	10851	12839	13168	12187	9124	14259	4773	13353	12412	14141	14329	5161	16137	2250	7130		
Std Dev.S	1836	5491	4464	2553	5363	4065	2671	4403	3848	3707	5486	1916	3778	2610	6496	5929	2315	4165	2259	1854	626	2277		
MFI %CV	50%	39%	27%	35%	45%	31%	56%	41%	30%	28%	45%	21%	26%	55%	49%	48%	16%	29%	44%	11%	28%	32%		

Blue = DSA against cell #91 only
Gold = DSA against cell #92 only
Green = DSA aginst cell #91 and #92

Table 20. Individual laboratory results for Serum #094 - class II by Luminex

Ctr	DQ7	DR11	DR12	DR13	DR14	DR17	DR18	DR8	DR52	DR9	DR7	DQA1*05	DR1	DQA1*04	DQA1*06	Other	
							**** Serum 94 ****										
54	17930	9138	7738	11292	9238	8870	7704	7511	4091	2047	1697	17930	1593				One Lambda
206	13481	7798	6757	11462	8076	8798	7214	8517									One Lambda
230	21013	10980	9580	14388	11159	10803	8954	9982	5424	3249	2768	8314					One Lambda
774	20168	12260	11151	15133	12595	12172	10399	10689	5042	2403	2045						One Lambda
792	17550	9728	9224	11932	10167	9581	8177	9162	5783	3412	2669		2102			DQ2	One Lambda
1160	19179	10865	8686	11913	10066	9104	8307	8318	4588	2109	1612	5332	1883				One Lambda
2400	16112	11318	9701	13450	10709	10820	9903	9985	5111	2840	2658	9122					One Lambda
3224	19858	10962	10598	14263	11589	11194	9672	10247	6589	3904	2869	8666	2239	997	18916	DR4	One Lambda
3753	15298	12816	10188	15445	11582	12288	11450	10962	3805	1784	1687	6064					One Lambda
3766	24438	14669	12865	17607	14695	14069	12120	12402	8578	4126	3243	11370	2582	1840		DR4	One Lambda
4661	10605	14269	11754	13611	13084	12242	10439	10792	7496	3181	3098	1491	1036			DR1403,DR1404	Lifecodes
8001	19797	10960	9570	14150	10510	10245	8737	9942	5129	2852	2259	7240	1417				One Lambda
8029	4388	7648	4935	6781	6896	6080	6842	4889	2494	638	711					DR1403,DR1404	Lifecodes
8035	11103	8721	7693	10676	8496	8928	8151	7892	3278	2041	1887	10895	1304	960	13441		One Lambda
8050	19417	14527	12451	17988	14116	14852	13170	13540	4552	2375	2278	8424	1182				One Lambda
8062	24600	14100	12500	15100	12700	12000	11400	11300	5000	2300	1800	6700	2200	1000			One Lambda
8079	19000	11000	9600	12000	11000	10000	8000	9300	6000	3000	2400	18000			19000		One Lambda
8083	20299	10928	9784	13682	11397	10621	9035	9395	6065	3290	2563		2287			DPA1*05	One Lambda
8096	3958	4662	3186	3687	3720	2586	4208	2639	3350	4942		4504	1898	4097	5295	DR103,DR4,DR16,DR53 >	One Lambda
8103	6494	10070	7418	9733	9835	8242	9695	7320	3862	1147	1230					DR3,DR1403,DR1404,DQ3	Lifecodes
Avg	16234	10871	9269	12715	10582	10175	9179	9239	5065	2718	2193	8861	1810	1779	14163		
Std Dev.S	6076	2551	2484	3367	2529	2714	2045	2463	1497	1030	668	4622	496	1348	6459		
MFI %CV	37%	23%	27%	26%	24%	27%	22%	27%	30%	38%	30%	52%	27%	76%	46%		

Blue = DSA against cell #91 only

Gold = DSA against cell #92 only

Green = DSA aginst cell #91 and #92

Table 21. Individual laboratory results for Serum #095 - class II by Luminex

															**** Serum 95 ****									
Ctr	DR13	DR14	DR17	DR18	DR52	DR8	DR11	DR12	DPw2	DPA1*01	DPw4	DP19	DP23	DP18	DP20	DPA1*03	DP28	DPw1	DPw3	DPw6	DP402	DP13	Other	
54	13181	10627	11815	9381	11817	8038	7700	6704	2581	2581	2831	2030	2376		1702	1702								One Lambda
206	14675	12552	15001	12326	10613	10684	9973	7702																One Lambda
230	17469	13975	16080	12723	15888	10901	10693	9159																One Lambda
774	16233	11468	13311	11516	11951	9060	9228	8094																One Lambda
792	14440	11858	12913	10724	13076	9460	9449	8553	3349		3700	2569	3033	2592	2272		2843	2857	2208	1577		1674	DP11	One Lambda
1160	12361	10196	10722	9353	10931	7884	8149	7221		2390						1398								One Lambda
2400	13649	12120	14467	11911	10143	10278	10134	8322	3579		3630	3092	3453	2698	2660		2889	3185	2856	2473			DP11	One Lambda
3224	18812	15816	17560	15108	17436	12885	12644	11764	4929	5583		3679	4638	3774	3294		3928	3319	2892	2595	4386	2531	DP401	One Lambda
3753	13686	11379	14056	11696	8229	9317	9187	6779	2904	2129		2764	2900		2325					2822			DP401	One Lambda
3766	20037	16082	17696	15468	18079	13052	12819	12015	4505	5056	5056	3086	4234		3117		3890							One Lambda
4661	10740	9220	10164	8974	9324	6523	8485	6041	3079	3381				3022		3181		2562	2743	2928			DR3,DR1403,DP17>	Lifecodes
8001	18424	14995	16312	13745	16312	11904	12288	10113	4238	3253	4865	3383	4002		2821	2060	3580	3466						One Lambda
8029	9622	9266	9183	10186	8646	6486		5691	3011		3143			2768			2672	2598	2646			927	DR7,DR1403,DR1404>	Lifecodes
8035	9997	8608	10146	8576	6730	7478	7217			2356	3078				2008	2091							DPA1*04	One Lambda
8050	17281	14657	17290	14753	10873	12360	11761	8847	4096	2635	4156	3051	3891		2626	1917								One Lambda
8062	17900	13200	14600	12600	14100	11200	11000	9500	3600	2500	4000	2500	3200	2600	2100	2200	3200		2800					One Lambda
8079	15000	12000	13000	11000	13000	9000	9000	8000	3000	3300		2300	2900	2300			2500	2500		2600			DP401	One Lambda
8083	17357	14241	15230	12455	15699	11448	11183	10131		4821					2837									One Lambda
8096	12087	10715	12520	12074	9704	7920	8436	8633	8725		9155			11317				9987				9442	DR1,DR103,DR4,DR7>	One Lambda
8103	6212	6279	6255	6770	5860	4622	5375	4020	1871	2094	1916			1884		2069			1721	1523	1916		DR3,DR1403,DR1404	Lifecodes
Avg	14458	11963	13416	11567	11921	9525	9722	8278	3819	3237	4139	2845	3463	3662	2546	2152	3115	3998	2520	2260	2930	3644		
Std Dev.S	3588	2563	3046	2272	3491	2320	1970	1998	1626	1180	1891	507	709	2916	502	547	659	2664	423	557	904	3921		
MFI %CV	25%	21%	23%	20%	29%	24%	20%	24%	43%	36%	46%	18%	20%	80%	20%	25%	21%	67%	17%	25%	31%	108%		

Blue = DSA against cell #91 only

Gold = DSA against cell #92 only

Green = DSA aginst cell #91 and #92

Table 22. Individual laboratory results for Serum #096 - class II by Luminex

Ctr		DR11	DR13	DR8	DR14	DQ7	DQA1*05	DQA1*06	DR17	DR52	DR12	DR9	Other	
					**** Serum 96 ****									
54	no specificities assigned													One Lambda
206	no specificities assigned													One Lambda
230	NEG													One Lambda
774	no specificities assigned													One Lambda
792	no specificities assigned													One Lambda
1160	no specificities assigned													One Lambda
2400	no specificities assigned													One Lambda
3224		1599	1459	1090	1080									One Lambda
3753	no specificities assigned													One Lambda
3766	NEG													One Lambda
4661		2310	2008	1349	1600				1280	1601	1074	1025	DR3,DR1403,DR1404	Lifecodes
8001		1558	1483	1097	1154	1053			1017	1014				One Lambda
8029	NEG													Lifecodes
8035		946	838				825	831						One Lambda
8050		1390	1154	1026			1019	1003						One Lambda
8062		1300	1000			1000								One Lambda
8079	no specificities assigned													One Lambda
8083	no specificities assigned													One Lambda
8096		520	316	289	328	405	322	510	300	349	329	506	DR1,DR103,DR4,DR7>	One Lambda
8103		563												Lifecodes
Avg		1273	1180	970	1041	819	722	781	866	988	702	766		
Std Dev.S		592	540	400	528	360	360	250	507	626	527	367		
MFI %CV		47%	46%	41%	51%	44%	50%	32%	59%	63%	75%	48%		

Blue = DSA against cell #91 only

Gold = DSA against cell #92 only

Green = DSA aginst cell #91 and #92

Paper Challenge

Table 28. Individual Virtual crossmatch results for Serum #95 vs Donor# V1

Donor #V1 HLA A*29:02-A*30:02-B*15:10-B*49:01-C*03:04-C*07:01:01G/DRB1*15:03-DRB1*03:01-DRB3*02:02:01G-DRB5*01:01-DQA1*01:02:01G-DQA1*05:01-DQB1*06:02-DQB1*02:01-DPB1*01:01-DPB1*02:01

Center	Patient	% CPRA	Virtual T Cell Prediction	Class I DSA (MFI)	Virtual B-cell prediction	Class II DSA(MFI)	Risk Assessment	Comments
54	95	69	Negative	No Class I DSA	Positive	DR17(11815) DR52(5573) DPw1(1959) DPw2(2581)	Unacceptable	
206	95	68%	Negative	No Class I DSA	Positive	DR17(15001) DR52(10613)	Unacceptable	
230	95	69	Negative	No Class I DSA	Positive	DR17(16080) DR52(15888)	Unacceptable	
774	95	69.44	Negative	No Class I DSA	Positive	DR17(13311) DR52(5316)	Unacceptable	
792	95	69	Negative	No Class I DSA	Positive	DR17(12913) DR52(7205) DPw1(2857) DPw2(3349)	Unacceptable	
1160	95		-		-		-	
1461	95		Negative	No Class I DSA	Positive	DR17(4390) DR52(1558) DPw2(1042)	Unacceptable	
2400	95	69%	Negative	No Class I DSA	Positive	DR17(14196) DR52(6487) DPw2(3451)	Unacceptable	Unacceptable due to Class II DSA
3224	95	70	Negative	No Class I DSA	Positive	DR17(17560) DR52(8839) DPw2(4929)	Unacceptable	
3753	95	69.44%	Negative	No Class I DSA	Positive	DR17(14056) DR52(8229) DPw2(2904)	Unacceptable	Linkage w/ DPA1*01(2129) Potential DSA
3766	95	83%	Negative	No Class I DSA	Positive	DR17(17696) DR52(8935) DPw2(4505)	Unacceptable	No C*07:01 bead included in Single Antigen Class I Kit. Please see main comments for list of cannot excludes for potential DPA1 DSAs. Multiple strong HLA Class II DSAs. Antibody specificities and strengths should be confirmed by a second sample.
3966	95	69	Negative	No Class I DSA	Positive	DR17(11724) DR52(8475) DPw1(2174) DPw2(2810)	Unacceptable	
4661	95	24%	Negative	No Class I DSA	Positive	DR17(10164) DR52(4131) DPw2(3079)	Unacceptable	Epitope 149H,111K
8001	95	69	Negative	No Class I DSA	Positive	DR17(16312) DR52(8196) DPw2(4238)	Unacceptable	C*07:01 not on LSAB panel
8029	95	0%	Negative	No Class I DSA	Positive	DR17(9183) DR52(3811) DPw2(3011)	Unacceptable	B-CELL Prediction : Positive
8035	95	69%	Negative	No Class I DSA	Positive	DR17(10146) DR52(4895) DPw1(2591) DPw2(3030)	Unacceptable	As per our program, this is unacceptable--However, some programs may have other options as desensitization--if they can make sure the DSAs are not Complement binding.

Table 28. Individual Virtual crossmatch results for Serum #95 vs Donor# V1

Donor #V1 HLA A*29:02-A*30:02-B*15:10-B*49:01-C*03:04-C*07:01:01G/DRB1*15:03-DRB1*03:01-DRB3*02:02:01G-DRB5*01:01-DQA1*01:02:01G-DQA1*05:01-DQB1*06:02-DQB1*02:01-DPB1*01:01-DPB1*02:01

Center	Patient	% CPRA	Virtual T Cell Prediction	Class I DSA (MFI)	Virtual B-cell prediction	Class II DSA(MFI)	Risk Assessment	Comments
8050	95	69	Negative	No Class I DSA	Positive	DR17(17290) DR52(10873) DPw2(4096)	Unacceptable	DPA1 typing of this donor is not available to determine if DPA1*01(MFI=2635) and DPA1*03(MFI=1917) antibodies in this serum are DSA.
8062	95		NT		NT		-	
8079	95	100	Negative	No Class I DSA	Positive	DR17(13000) DR52(6200) DPw1(2514) DPw2(3000)	Unacceptable	
8080	95	69	Negative	No Class I DSA	Positive	DR17(16442) DR52(8782) DPw1(3501) DPw2(4575)	Unacceptable	B Cell prediction Positive
8083	95	69	Negative	No Class I DSA	Positive	DR52(7914) DPw2(4247)	Unacceptable	Due to Class II antibody
8096	95		Negative	No Class I DSA	Positive	DR17(12520) DR52(9911) DQ2(17190) DPw1(9988) DPw2(9478) DQ6(9828) DQA1*05(12520)	Acceptable-	
8103	95		Negative	No Class I DSA	Positive	DR3(6255) DR52(5860) DPw2(1871)	Unacceptable	
8111	95	68	Negative	No Class I DSA	Positive	DR17(15593) DR52(6380) DPw2(3422)	Unacceptable	DSA MFI listed are allele-specific values

Table 29. Individual Virtual crossmatch results for Serum #95 vs Donor# V2

Donor #V2 HLA A*11:01-A*24:02-B*40:10-B*48:01-C*04:03-C*08:01:01G-DRB1*15:02-DRB1*11:01-DRB3*02:02:01G-DRB5*01:01-DQA1*01:02:01G-DQA1*05:01:01G-DQB1*05:02-DQB1*03:01-DPB1*01:01:01G-DPB1*03:01:01G

Center	Patient	% CPRA	Virtual T Cell Prediction	Class I DSA (MFI)	Virtual B-cell prediction	Class II DSA(MFI)	Risk Assessment	Comments
54	95	69	Negative	No Class I DSA	Positive	DR11(7699) DR52(6639) DPw1(2193) DPw3(1700)	Unacceptable	
206	95	68%	Negative	No Class I DSA	Positive	DR11(9973) DR52(10613)	Unacceptable	
230	95	69	Negative	No Class I DSA	Positive	DR11(10494) DR52(10808)	Unacceptable	
774	95	69.44	Negative	No Class I DSA	Positive	DR11(9228) DR52(5316)	Unacceptable	
792	95	69	Negative	No Class I DSA	Positive	DR11(9449) DR52(7205) DPw1(2857) DPw3(2208)	Unacceptable	No Class I DSA
1461	95		Negative	No Class I DSA	Positive	DR11(3220) DR52(1558) DPw3(967)	Unacceptable	
2400	95	69%	Negative	No Class I DSA	Positive	DR52(6487)	Unacceptable	Unacceptable due to Class II DSA.
3224	95	70	Negative	No Class I DSA	Positive	DR11(12644) DR52(8839) DPA1*01(5584)	Unacceptable	
3753	95	69..44%	Negative	No Class I DSA	Positive	DR11(9187) DR52(8229)	Unacceptable	Repeat mismatch from Paternal antigen exposure(Pregnancy)
3766	95	83%	Negative	No Class I DSA	Positive	DR11(12708) DR52(8935)	Unacceptable	No B*40:10 bead, and no C*04:03 bead included in Single Antigen I Kit. Please see main comments for list of cannot excludes for potential DPA1 DSAs. Multiple strong HLA Class II DSAs. Anitbody specificities and strengths should be confimred by a seccond sample.
3966	95	69	Negative	No Class I DSA	Positive	DR11(7152) DR52(8475) DPw1(2174) DPw3(1977)	Unacceptable	
4661	95	24%	Negative	No Class I DSA	Positive	DR11(8485) DR52(4131) DPw3(2562)	Unacceptable	Epitope 149H
8001	95	69	Negative	No Class I DSA	Positive	DR11(12288) DR52(8196)	Unacceptable	B*40:10, C*04:03 not in LSAB panel
8029	95	0%	Negative	No Class I DSA	Positive	DR11(7523) DR52(3811) DPw3(2598)	Unacceptable	B-CELL Prediction : Positive
8035	95	69%	Negative	No Class I DSA	Positive	DR11(7461) DR52(4895) DPw1(2591) DPw3(1842)	Unacceptable	NO Class I DSA DETECTED, however no bead to B*40:10 allele available. As per our program, this is unacceptable--However, some programs may have other options as desensitization--if they can make sure the DSAs are not Complement binding.
8050	95	69	Negative	No Class I DSA	Positive	DR11(11761) DR52(10873)	Unacceptable	DPA1 typing of this donor is not available to determine if DPA1*01(MFI=2635) and DPA1*03(MFI=1917) antibodies in this serum are DSA.

Table 29. Individual Virtual crossmatch results for Serum #95 vs Donor# V2

Donor #V2 HLA A*11:01-A*24:02-B*40:10-B*48:01-C*04:03-C*08:01:01G-DRB1*15:02-DRB1*11:01-DRB3*02:02:01G-DRB5*01:01-DQA1*01:02:01G-DQA1*05:01:01G-DQB1*05:02-DQB1*03:01-DPB1*01:01:01G-DPB1*03:01:01G

Center	Patient	% CPRA	Virtual T Cell Prediction	Class I DSA (MFI)	Virtual B-cell prediction	Class II DSA(MFI)	Risk Assessment	Comments
8062	95		NT		NT		-	
8079	95	100	Negative	No Class I DSA	Positive	DR11(9000) DR52(13000) DPw1(2500)	Unacceptable	
8080	95	69	Negative	No Class I DSA	Positive	DR11(12161) DR52(8782) DPw1(3501) DPw3(3153)	Unacceptable	B Cell prediction Positive
8083	95	69	Negative	No Class I DSA	Positive	DR11(11183) DR52(7914)	Unacceptable	Due to Class II antibody
8096	95		Negative	No Class I DSA	Positive	DR11(8436) DR52(9911) DPw1(9988) DQA1*05(12520)	Acceptable-	
8103	95	0	Negative	No Class I DSA	Positive	DR11(5269) DR52(2643)	Unacceptable	
8111	95	68	Negative	No Class I DSA	Positive	DR11(10822) DR52(6380)	Unacceptable	DSA MFI listed are allele-specific values

Table 30. Individual Virtual crossmatch results for Serum #95 vs Donor# V3

Donor #V3 HLA A*11:01-A*33:03-B*48:01-B*56:04-C*01:02:01G-C*08:01:01G-DRB1*11:01-DRB3*02:02:01G-DQA1*05:01:01G-DQB1*03:01-DPB1*05:01:01G

Center	Patient	% CPRA	Virtual T Cell Prediction	Class I DSA (MFI)	Virtual B-cell prediction	Class II DSA(MFI)	Risk Assessment	Comments
54	95	69	Negative	No Class I DSA	Positive	DR11(7699) DR52(5573)	Unacceptable	
206	95	68%	Negative	No Class I DSA	Positive	DR11(9973) DR52(10613)	Unacceptable	
230	95	69	Negative	No Class I DSA	Positive	DR11(10494) DR52(10809)	Unacceptable	
774	95	69.44	Negative	No Class I DSA	Positive	DR11(9228) DR52(5316)	Unacceptable	
792	95	69	Negative	No Class I DSA	Positive	DR11(9449) DR52(7205)	Unacceptable	No Class I DSA
1461	95		Negative	No Class I DSA	Positive	DR11(3220) DR52(1558)	Unacceptable	
2400	95	69%	Negative	No Class I DSA	Positive	DR11(10000) DR52(6487)	Unacceptable	Unacceptable due to Class II DSA.
3224	95	70	Negative	No Class I DSA	Positive	DR11(12644) DR52(8839)	Unacceptable	
3753	95	69.44%	Negative	No Class I DSA	Positive	DR11(9187) DR52(8229)	Unacceptable	
3766	95	83%	Negative	No Class I DSA	Positive	DR11(12708) DR52(8935)	Unacceptable	No B*56:04 bead included in Single Antigen I Kit. Please see main comments for list of cannot excludes for potential DPA1 DSAs. Multiple strong HLA Class II DSAs. Anitbody specificities and strengths should be confimred by a seccond sample.
3966	95	69	Negative	No Class I DSA	Positive	DR11(7152) DR52(8475)	Unacceptable	
4661	95	24	Negative	No Class I DSA	Positive	DR11(8485) DR52(4131) DPw3(2562)	Unacceptable	Epitope 13SE,111K
8001	95	69	Negative	No Class I DSA	Positive	DR11(12288) DR52(8196)	Unacceptable	B*56:04 not in LSAB panel
8029	95	0%	Negative	No Class I DSA	Positive	DR11(7523) DR52(3811)	Unacceptable	B-CELL Prediction : Positive
8035	95	69%	Negative	No class I DSA	Positive	DR11(7461) DR52(4895)	Unacceptable	NO Class I DSA DETECTED, however no bead to B*56:04 allele available. As per our program, this is unacceptable--However, some programs may have other options as desensitization--if they can make sure the DSAs are not Complement binding.
8050	95	69	Negative	No Class I DSA	Positive	DR11(11761) DR52(10873)	Unacceptable	DPA1 typing of this donor is not available to determine if DPA1*01(MFI=2635) and DPA1*03(MFI=1917) antibodies in this serum are DSA.
8062	95		NT		NT		-	
8079	95	100	Negative	No Class I DSA	Positive	DR11(9000) DR52(6200)	Unacceptable	
8080	95	69	Negative	No Class I DSA	Positive	DR11(12161) DR52(8782)	Unacceptable	B Cell prediction Positive
8083	95	69	Negative	No Class I DSA	Positive	DR11(11183) DR52(7914)	Unacceptable	Due to Class II antibody
8096	95		Negative	No Class I DSA	Positive	DR11(8436) DR52(9911) DQA1*05(12520)	Acceptable-	
8103	95	0	Negative	No Class I DSA	Positive	DR11(5269) DR52(2643)	Unacceptable	
8111	95	68	Negative	No Class I DSA	Positive	DR11(10823) DR52(6380)	Unacceptable	DSA MFI listed are allele-specific values

Table 31. Individual Virtual crossmatch results for Serum #95 vs Donor# V4

Donor #V4 HLA A*02:01-A*36:01-B*53:01-B*58:01-C*03:02-C*04:01:01G/DRB1*03:01-DRB1*03:02-DRB3*01:01-DRB3*02:02:01G-DQA1*04:01-DQA1*05:01-DQB1*02:01-DQB1*04:02-DPB1*01:01-DPB1*04:01

Center	Patient	% CPRA	Virtual T Cell Prediction	Class I DSA (MFI)	Virtual B-cell prediction	Class II DSA(MFI)	Risk Assessment	Comments
54	95	69	Negative	No Class I DSA	Positive	DR17(11815) DR18(9381) DR52(6435) DPw1(1959) DPw4(2831)	Unacceptable	
206	95	68%	Negative	No Class I DSA	Positive	DR17(15001) DR18(12326) DR52(10613)	Unacceptable	
230	95	69	Negative	No Class I DSA	Positive	DR17(16081) DR18(12733) DR52(10808)	Unacceptable	
774	95	69.44	Negative	No Class I DSA	Positive	DR17(13311) DR52(7520)	Unacceptable	
792	95	69	Negative	No Class I DSA	Positive	DR17(12913) DR18(10724) DR52(7905) DPw1(2857) DPw4(3700)	Unacceptable	
1461	95		Negative	No Class I DSA	Positive	DR17(4390) DR18(3814) DR52(2841)	Unacceptable	
2400	95	69%	Negative	No Class I DSA	Positive	DR17(14196) DR18(11548) DR52(8915) DPw2(3451) DP401(4027)	Unacceptable	Unacceptable due to Class II DSA.
3224	95	70	Negative	No Class I DSA	Positive	DR17(17560) DR18(15108) DR52(8839) DP401(5584)	Unacceptable	
3753	95	69..44%	Negative	No Class I DSA	Positive	DR17(14056) DR18(11696) DR52(8229) DP401(3216)	Unacceptable	
3766	95	83%	Negative	No Class I DSA	Positive	DR17(17696) DR18(15468) DR52(11524) DPw4(5056)	Unacceptable	Please see main comments for list of cannot excludes for potential DPA1 DSAs. Multiple strong HLA Class II DSAs. Anitbody specificities and strengths should be confimred by a seccond sample.
3966	95	69	Negative	No Class I DSA	Positive	DR17(11724) DR18(9532) DR52(8475) DPw1(2174) DPw4(2793)	Unacceptable	
4661	95	24%	Negative	No Class I DSA	Positive	DR17(10164) DR18(8974) DR52(7442)	Unacceptable	Epitope 13SE
8001	95	69	Negative	No Class I DSA	Positive	DR17(16312) DR18(13745) DR52(9923) DPw4(4865)	Unacceptable	
8029	95	0%	Negative	No Class I DSA	Positive	DR17(9183) DR18(8388) DR52(6805)	Unacceptable	B CELL Prediction : Positive
8035	95	69%	Negative	No Class I DSA	Positive	DR17(10146) DR18(8576) DR52(5472) DPw1(2591) DP401(3410)	Unacceptable	As per our program, this is unacceptable--However, some programs may have other options as desensitization--if they can make sure the DSAs are not Complement binding.

Table 31. Individual Virtual crossmatch results for Serum #95 vs Donor# V4

Donor #V4 HLA A*02:01-A*36:01-B*53:01-B*58:01-C*03:02-C*04:01:01G/DRB1*03:01-DRB1*03:02-DRB3*01:01-DRB3*02:02:01G-DQA1*04:01-DQA1*05:01-DQB1*02:01-DQB1*04:02-DPB1*01:01-DPB1*04:01

Center	Patient	% CPRA	Virtual T Cell Prediction	Class I DSA (MFI)	Virtual B-cell prediction	Class II DSA(MFI)	Risk Assessment	Comments
8050	95	69	Negative	No Class I DSA	Positive	DR17(17290) DR18(14753) DR52(10873) DPw4(4156)	Unacceptable	DPA1 typing of this donor is not available to determine if DPA1*01(MFI=2635) and DPA1*03(MFI=1917) antibodies in this serum are DSA.
8062	95		NT		NT		-	
8079	95	100	Negative	No Class I DSA	Positive	DR17(13000) DR18(11000) DR52(8000) DPw1(2500) DPw4(3400)	Unacceptable	
8080	95	69	Negative	No Class I DSA	Positive	DR17(16442) DR18(13865) DR52(9871) DPw1(3501) DPw4(5192)	Unacceptable	B Cell prediction Positive
8083	95	69	Negative	No Class I DSA	Positive	DR17(15230) DR18(12455) DR52(9459)	Unacceptable	Due to Class II antibody
8096	95		Negative	No Class I DSA	Positive	DR17(12520) DR18(12074) DR52(10529) DQ2(12516) DPw1(9984) DQA1*04(10677) DQA1*05(12520)	Acceptable-	
8103	95	0	Negative	No Class I DSA	Positive	DR3(6255) DR52(3967)	Unacceptable	
8111	95	68	Negative	No Class I DSA	Positive	DR17(15593) DR18(13160) DR52(7871) DPw4(3925)	Unacceptable	DSA MFI listed are allele-specific values

Table 32. Individual Virtual crossmatch results for Serum #96 vs Donor# V1

Donor #V1 HLA A*29:02-A*30:02-B*15:10-B*49:01-C*03:04-C*07:01:01G/DRB1*15:03-DRB1*03:01-DRB3*02:02:01G-DRB5*01:01-DQA1*01:02:01G-DQA1*05:01-DQB1*06:02-DQB1*02:01-

Center	Patient	% CPRA	Virtual T Cell Prediction	Class I DSA(MFI)	Virtual B-cell prediction	Class II DSA(MFI)	Risk Assessment	Comments
54	96	46	Negative	No Class I DSA	Negative	No class II DSA	Acceptable	
206	96	43%	Negative	No Class I DSA	Negative	No class II DSA	Acceptable	
230	96	46	Negative	No Class I DSA	Negative	No class II DSA	Acceptable	
774	96	43.47	Negative	No Class I DSA	Negative	No class II DSA	Acceptable	
792	96	48	Negative	No Class I DSA	Negative	No class II DSA	Acceptable	
1461	96		Negative	No Class I DSA	Negative	No class II DSA	Acceptable	
2400	96	51%	Negative	No Class I DSA	Negative	No class II DSA	Acceptable	
3224	96	90	NT	Cw10(1249)	NT	DR17(958)	Weak Class I and Class DSA might not cause a positive XM.	Weak DSA might not cause a positive XM. A Negative Flow XM would be expected. Close Post Transplant HLA antibody monitoring recommended.
3753	96	43.47%	Negative	No Class I DSA	Negative	No class II DSA	Acceptable	
3766	96	65%	Negative	No Class I DSA	Negative	No class II DSA	Acceptable	No C*07:01 bead included in Single Antigen Class I Kit. Cannot exclude DSA to C*07:01 as no bead specific for this allele included in the Class I Single Antigen Kit. Antibody specificities and strengths should be confirmed by a second sample.
3966	96	48	Negative	No Class I DSA	Negative	No class II DSA	Acceptable	
4661	96	62%	Negative	No Class I DSA	Positive	DR17(1280)	Unacceptable	Epitope 96H
8001	96	93	Borderline	Cw10(990)	Negative	DR17(1017) DR52(665)	Needs futher investigation	
8029	96	10%	Negative	No Class I DSA	Negative	No class II DSA	Acceptable	Donor specific class I&II HLA antibodies are not detected.
8035	96	37	Negative	Cw10(910)	Negative	No class II DSA	Acceptable	
8050	96	91	Negative	Cw10(1198)	Negative	No class II DSA	Acceptable	
8062	96		NT		NT		-	
8079	96	50	Negative	No Class I DSA	Negative	No class II DSA	Acceptable	
8080	96	91	Negative	No Class I DSA	Negative	No class II DSA	Acceptable	
8083	96	58	Negative	No Class I DSA	Negative	No class II DSA	Acceptable	
8096	96		Positive	A29(1148) A30(1033)	Positive	DR17(300) DR52(443) DQ2(300) DPW1(316) DQA1*05(300)	Unacceptable	
8103	96	7	Negative	No Class I DSA	Negative	No class II DSA	Acceptable	
8111	96	40	Negative	Cw10(948)	Negative	No class II DSA	Acceptable	DSA MFI listed are allele-specific values

Table 33. Individual Virtual crossmatch results for Serum #96 vs Donor# V2

Donor #V2 HLA A*11:01-A*24:02-B*40:10-B*48:01-C*04:03-C*08:01:01G-DRB1*15:02-DRB1*11:01-DRB3*02:02:01G-DRB5*01:01-DQA1*01:02:01G-DQA1*05:01:01G-DQB1*05:02-DQB1*03:01-DPB1*01:01:01G-DPB1*03:01:01G

Center	Patient	% CPRA	Virtual T Cell Prediction	Class I DSA(MFI)	Virtual B-cell prediction	Class II DSA(MFI)	Risk Assessment	Comments
54	96	46	Positive	B40(15883) B48(14807)	Negative	No class II DSA	Unacceptable	
206	96	43%	Positive	B60(18987) B48(18417)	Positive	No class II DSA	Unacceptable	
230	96	46	Positive	B60(20499) B48(20502)	Positive	No class II DSA	Unacceptable	Class I DSA
774	96	43.47	Positive	B60(18312) B48(18224)	Positive	No class II DSA	Unacceptable	
792	96	48	Positive	B48(16060)	Positive	No class II DSA	Unacceptable	No Class II DSA - Positivity due to Class I antibody
1461	96		Positive	B60(6670) B48(3315)	Positive	No class II DSA	Unacceptable	
2400	96	51%	Positive	B60(18325) B48(18511)	Positive	No class II DSA	Unacceptable	Due to Class I DSA
3224	96	90	Positive	B48(21073)	Positive	DR11(1502)	Unacceptable	CANNOT RULE OUT POTENTIAL DSA TO B*40:10.
3753	96	43.47%	Positive	B60(15363) B48(15059)	Positive	No class II DSA	Unacceptable	
3766	96	65%	Positive	B60(21718) B48(22445)	Positive	No class II DSA	Unacceptable	No B*40:10 or C*04:03 beads included in the Class I Single Antigen Kit. No B*40:10 bead included in the Class I Single Antigen Kit, however B*40:01 bead is strongly positive. Strong DSA to B48. Antibody specificities and strengths should be confirmed by a second sample.
3966	96	48	Positive	B60(17665) B48(17883)	Borderline	DR11(722)	Unacceptable	B*40:10 is not in SAB panel
4661	96	62%	Positive	B60(16634) B48(8913)	Positive	DR11(2085)	Unacceptable	Epitope 163EW. Epitope 96H .
8001	96	93	Positive	B48(20175)	Positive	DR11(1549) DR52(665) DQ7(1053)	Unacceptable	B*40:10, C*04:03 not in LSAB panel
8029	96	10%	Positive	B48(3209)	Positive	No class II DSA	Unacceptable	Intermediate risk
8035	96	37	Positive	B48(11433)	Positive	DR11(951) DQ7(827)	Unacceptable	Our B cell Positivity is based mainly on the Class I DSAs. No Class II DSAs that can clearly account for a B cell positivity was detected; No bead for B*40:10 allele
8050	96	91	Positive	B60(20314) B48(19955)	Positive	DR11(1390)	Unacceptable	
8062	96		NT		NT		-	
8079	96	50	Positive	B48(16000)	Negative	No class II DSA	Unacceptable	
8080	96	91	Positive	B60(20959) B48(20640)	Positive	DR11(1712)	Unacceptable	Patient demonstrates Class I reactivity
8083	96	58	Positive	B48(19409)	Positive	No class II DSA	Unacceptable	B*48:01 is expressed on B cells; no B*40:10 beads in PRA kit
8096	96		Positive	B60(1952) B48(638)	Positive	DR11(476) DR52(443) DQA1*05(300)	Unacceptable	
8103	96	7	Positive	B40(5126) B48(918)	Borderline	DR11(563)	Unacceptable	
8111	96	40	Positive	B60(17573) B48(17294)	Positive	DR11(1235)	Unacceptable	DSA MFI listed are allele-specific values. DSA MFI listed are allele-specific values. B-cell positive based on Class I antibodies.

Table 34. Individual Virtual crossmatch results for Serum #96 vs Donor# V3

Donor #V3 HLA A*11:01-A*33:03-B*48:01-B*56:04-C*01:02:01G-C*08:01:01G-DRB1*11:01-DRB3*02:02:01G-DQA1*05:01:01G-DQB1*03:01-DPB1*05:01:01G

Center	Patient	% CPRA	Virtual T Cell Prediction	Class I DSA(MFI)	Virtual B-cell prediction	Class II DSA(MFI)	Risk Assessment	Comments
54	96	46	Positive	B48(14807)	Negative	No class II DSA	Unacceptable	
206	96	43%	Positive	B48(18417) B56(3814)	Positive	No class II DSA	Acceptable	
230	96	69	Positive	B48(20502) B56(3951)	Negative	No class II DSA	Unacceptable	
774	96	43.47	Positive	B48(18224) B56(3575)	Positive	No class II DSA	Unacceptable	
792	96	48	Positive	B48(16060)	Positive	No class II DSA	Unacceptable	
1461	96		Positive	B48(3315) B56(510)	Positive	No class II DSA	Unacceptable	
2400	96	51%	Positive	B60(18325) B48(18511)	Positive	No class II DSA	Unacceptable	Due to Class I DSA
3224	96	90	Positive	B48(21073) B56(5196)	Positive	DR11(1502)	Unacceptable	
3753	96	43.47%	Positive	B48(15059) B56(1766)	Positive	No class II DSA	Unacceptable	
3766	96	65%	Positive	B48(22445) B56(3968)	Positive	No class II DSA	Unacceptable	No B*56:04 bead included in Class I Single Antigen Kit. No B*56:04 bead included in Class I Single Antigen Kit. However B*56:01 bead moderately positive. Strong B48 DSA. Antibody specificities and strengths should be confirmed by a second sample.
3966	96	48	Positive	B48(17854) B56(2536)	Borderline	DR11(722)	Unacceptable	B*56:04 is not in SAB panel
4661	96	62%	Positive	B48(8913) B56(4208)	Positive	DR11(2085)	Unacceptable	Epitope 163EW,65QIA. Epitope 96H
8001	96	93	Positive	B48(20175)	Positive	DR11(1549) DR52(665) DQ7(1053)	Unacceptable	B*56:04 not in LSAB panel
8029	96	10%	Positive	B48(3209)	Positive	No class II DSA	Unacceptable	Donor specific class II HLA antibodies are not detected. Intermediate risk
8035	96	37%	Positive	B48(11433)	Positive	DR11(951) DQ7(827)	Unacceptable	Our B cell Positivity is based mainly on the Class I DSAs. No Class II DSAs that can clearly account for a B cell positivity was detected. No bead to B*56:04
8050	96	91	Positive	B48(19955) B56(4371)	Positive	DR11(1390)	Unacceptable	
8062	96		NT		NT		-	
8079	96	50	Positive	B48(16000)	Negative	No class II DSA	Unacceptable	
8080	96	91	Positive	B48(20640) B56(6325)	Positive	DR11(1712) DQ7(1577)	Unacceptable	Patient demonstrates Class I reactivity
8083	96	58	Positive	B48(19409)	Positive	No class II DSA	Unacceptable	B*48:01 is expressed on B cells
8096	96		Positive	B48(638)	Positive	DR11(476) DR52(443) DQ7(410) DQA1*05(300)	Unacceptable	
8103	96	7	Positive	B48(918)	Borderline	DR11(563)	Unacceptable	
8111	96	40	Positive	B48(17294) B56(4241)	Positive	DR11(1235)	Unacceptable	DSA MFI listed are allele-specific values. B-cell positive based on Class I antibodies. DSA MFI listed are allele-specific values.

Table 34. Individual Virtual crossmatch results for Serum #96 vs Donor# V4

Donor #V4 HLA A*02:01-A*36:01-B*53:01-B*58:01-C*03:02-C*04:01:01G/DRB1*03:01-DRB1*03:02-DRB3*01:01-DRB3*02:02:01G-DQA1*04:01-DQA1*05:01-DQB1*02:01-DQB1*04:02-DPB1*01:01-DPB1*04:01

Center	Patient	% CPRA	Virtual T Cell Prediction	Class I DSA(MFI)	Virtual B-cell prediction	Class II DSA(MFI)	Risk Assessment	Comments
54	96	46	Negative	No Class I DSA	Negative	No class II DSA	Acceptable	
206	96	43%	Negative	No Class I DSA	Negative	No class II DSA	Acceptable	
230	96	46	Negative	No Class I DSA	Negative	No class II DSA	Acceptable	
774	96	43.47	Negative	No Class I DSA	Negative	No class II DSA	Acceptable	
792	96	48	Negative	No Class I DSA	Negative	No class II DSA	Acceptable	
1461	96		Negative	No Class I DSA	Negative	No Class II DSA	Acceptable	
2400	96	51%	Positive	B53(1826) B58(1948)	Positive	No class II DSA	Unacceptable	Due to Class I DSA
3224	96	90	Borderline	B53(1689) B58(1637) Cw10(1535)	Borderline	DR17(958) DR18(778)	A FINAL physical XM should be run to evaluate compatibility.	Weak Class I and Class II antibodies might not cause a positive XM. Class II antibodies just under established cut-off.
3753	96	43.47%	Negative	No Class I DSA	Negative	No class II DSA	Acceptable	
3766	96	65%	Positive	B53(2052) B58(2148)	Positive	No class II DSA	Low risk	DSAs between 1500 (positive cut off) and 2000 are considered weak and would therefore pose a low risk. Antibody specificities and strengths should be confirmed by a second sample.
3966	96	48	Negative	No Class I DSA	Negative	No class II DSA	Acceptable	
4661	96	62%	Negative	No Class I DSA	Positive	DR17(1280) DR52(1145)	Unacceptable	Epitope 96H
8001	96	93	Borderline	Cw10(1179)	Negative	DR17(1017) DR18(829) DR52(621)	Needs futher investigation	
8029	96	10%	Negative	No Class I DSA	Negative	No class II DSA	Acceptable	Donor specific class I&II HLA antibodies are not detected
8035	96	37%	Negative	Cw10(1023)	Negative	No Class II DSA	Acceptable	
8050	96	91	Negative	Cw10(1198)	Negative	No Class II DSA	Acceptable	
8062	96		NT		NT		-	
8079	96	50	Negative	No Class I DSA	Negative	No class II DSA	Acceptable	
8080	96	91	Positive	B53(1714) B58(1739) Cw10(1549)	Positive	No class II DSA	Unacceptable	Patient demonstrates Class I reactivity
8083	96	58	Positive	B53(3105) B58(2901)	Positive	No class II DSA	Unacceptable	Due to expression of Class I on B cells
8096	96		Negative	No Class I DSA	Positive	DR17(300) DR18(295) DR52(346) DQ2(375) DQ4(249) DQA1*04(241) DQA1*05(300)	Acceptable	
8103	96	7	Negative	No Class I DSA	Negative	No class II DSA	Acceptable	
8111	96	40	Negative	Cw10(1148)	Negative	No class II DSA	Acceptable	DSA MFI listed are allele-specific values. Flow Negative but DSA Positive.