Report of the 12th Flow and Virtual Crossmatch Exchange
December 12, 2017

Cells	67-68
Serum	69-72

For the 12th Flow and Virtual Crossmatch Exchange, Serum (patient) MX-065 and virtual donor V4 from Flow Crossmatch Exchange 11 (June, 2017) were re-examined as serum 70 and cell 67. A comparison of virtual crossmatch (VXM) predictions (MX-065 vs. V4) against actual flow crossmatch (FXM) outcome (**serum 70 vs. cell 67**) are summarized in **Part 1** of this report. **Part 2** summarizes the flow crossmatch results for 2 cells (**cell nos. 67 - 68**) against 4 sera (**serum nos. 69 - 72**), and examines the single antigen data for the 4 sera. Finally, in **Part 3**, the virtual crossmatch predictions for 4 potential donors (V1 - V4) against 2 sera (serum 71 and serum 72) are examined.

Part 1

Actual Flow Cytometric Crossmatch vs. Virtual Crossmatch

A direct comparison of virtual crossmatch (VXM) predictions and actual FXM results for cell 67 (V4) against serum 70 (MX-065) are summarized in Table 1a. Of the 20 labs submitting VXM predictions in Exchange 11, 16 reported actual T-cell FXM results and 15 reported back actual B-cell FXM results in this present study. The 16 labs reporting back T-cell FXM results reported it as positive, in 100% agreement with predictions (Table 1b). The presence of multiple class I DSA (B27, B51) of moderate strength were reported each time. For the B-cell FXM, 12 labs reported the FXM as positive in agreement with predictions, while 3 reported it as negative (Table 1b).

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

Exchange 011					Exchange 012				
Virtual Crossmatch - MX-#065 (Patient 1) vs. Donor V4					Actual Flow Crossmatch - Serum 70 vs. Cell 67				
Cell no.	Serum no.	#Labs	T-cell Prediction	B-cell Prediction	Donor	Serum no.	#Labs	T-cell Results	B-cell Results
V4	65	20	POS(19) Borderline(1)	POS(20)	67	70	20	POS(16) NT (4)	POS(12) NEG(3) NT(5)

< 80% agreement

Table 1b. Direct comparison of Actual crossmatch results vs. Virtual crossmatch results

		T-cell Virtual XM (Exchange 11)					B-cell Virtual XM (Exchange 11)		
		+	-	Ø			+	-	Ø
Actual Flow XM (Exchange 12)	+	16	0	0	Actual Flow XM (Exchange 12)	+	12	0	0
	-	0	0	0		-	3	0	0
	Ø	3	0	1		Ø	5	0	0

\+ = postive   n = number of labs

\- = negative   Ø = uncertain/not typed

A side by side comparison of individual VXM and FXM results among labs (Table 1c) shows consistency in the reporting of DSA and DSA strength across the 2 studies. In Exchange 11, labs reported the presence of multiple class I DSA (B27, B51) against serum 65, with respective median MFI = 3095 and 5574. In this present study, anti-B27 (3178) and –B51 (4940) reactivity of similar strength was reported once again. For class II,

strong anti-DR53 reactivity was reported in both studies, with median values reported as 12509 in Exchange 11 and 12833 in Exchange 12. The presence of multiple class I DSA, along with the presence of strong class II DSA (MFI >12000), resulted in the good agreement among VXM predictions and actual FXM outcome.

Table 1c. Individual Actual Flow crossmatch results vs. Virtual crossmatch results - Direct Comparison

Exchange 011					Exchange 012				
Virtual Crossmatch - Patient MX-065 vs. Donor V4					Actual Crossmatch - Serum 70 vs. Cell 67				
Center	Virtual T-cell Prediction	Class I DSA (MFI)	Virtual B-cell Prediction	Class II DSA (MFI)	Center	T-Cell RESULT	Class I DSA(MFI)	B-Cell RESULT	Class II DSA(MFI)
23	Positive	B27 (3791) B51 (5565) Bw4 (4434)	Positive	DR53 (5950)	23	Positive	B27(3204) B51(4845)	Positive	DR53(6086)
54	Positive	A2 (1451) B27 (4251) B51 (6629)	Positive	DR53 (12999) DP11 (2003)	54	Positive	B27(3972), B51(6938), A2(2083)	Positive	DR53(18541)
206	Positive	B27 (3146) B51 (5151)	Positive	DR53 (14179)	206	Positive	B27(3264), B51(5233)	Positive	DR53(15959)
230	Positive	B27 (3739) B51 (6007)	Positive	DR53 (14200)	230	Positive	B27(3178), B51(5200)	Positive	DR53(13463), DP11(3471)
774	Positive	B27 (2123) B51 (4174) Bw4 (5346)	Positive	DR53 (13875)	774	Positive	B27(2940), B51(5172)	Negative	DR53(13892)
792	Positive	A2 (885) B27 (3097) B51 (4652)	Positive	DR53 (9344) DQ2 (730) DQ7 (805) DP11 (1659)	792	Positive	B27(2576), B51(4431), A2(837)	Positive	DR53(12974)
836	Positive	A2 (1383) B27 (2845) B51 (4527)	Positive	DR53 (11970) DP11 (2119)	836	NT		NT	
1160	Positive	A2 (1014) B27 (3559) B51 (5538) Bw4 (6944)	Positive	DR7 (825) DR53 (12128)	1160	Positive	B27(3342), B51(5686)	Positive	DR53(11310), DP11(2256)
1461	Positive	B27 (611) B51 (681)	Positive	DR7 (576) DR53 (3032)	1461	NT		NT	
3224	Positive	A2 (1336) B27 (3851) B51 (6461) Bw4 (7424)	Positive	DR7 (1067) DR53 (13140)	3224	Positive	B27(3871), B51(6305), A2(1555)	Positive	DR53(15321)
3753	Positive	B27 (2900) B51 (4916)	Positive	DR53 (10896)	3753	Positive	B27(2132), B51(3667)	Positive	DR53(12006), DP11(2247)
3966	Positive	B27 (2678) B51 (4642)	Positive	DR53 (10519)	3966	Positive	NT	Positive	NT
4661	Positive	A2 (193) B27 (826) B51 (599) A3 (37) Cw1 (66) Cw15 (56)	Positive	DR7 (111) DR16 (28) DR53 (862) DQ2 (76) DQ5 (56) DP11 (21) DP15 (42)	4661	Positive	B27(749), B51(631)	Positive	DR53(3753)
5219	Borderline	B27 (1433) B51 (844)	Positive	DR7 (528) DR53 (5809)	5219	NT		NT	
8001	Positive	A2 (1098) B27 (3602) B51 (5431)	Positive	DR7 (960) DR53 (11871)	8001	Positive	B27(3210), B51(5420)	Positive	DR53(13212)
8050	Positive	B27 (2323) B51 (4120)	Positive	DR53 (12760)	8050	Positive	B27(2109), B51(3611), A2(629)	Negative	DR53(9537)
8080	Positive	B27 (3490) B51 (5385)	Positive	DR53 (10712)	8080	NT		NT	
8083	Positive	B27 (1364) B51 (2225)	Positive	DR53 (9827) DP11 (1889)	8083	Positive	B27(3795), B51(5995)	Negative	DR53(13776)
8096	Positive	B27 (422)	Positive	DR53 (7348) DP11 (1931)	8096	Positive	NT	NT	NT
8103	Positive	Bw4 (1827)	Positive	DR53 (3339)	8103	Positive	B27(1158), B51(1403)	Positive	DR53(4010)

Antibody Identification

Class I and class II Luminex single antigen results for serum samples 69 - 72 are summarized in Tables 12 - 15 and individual results for each participating laboratory are listed in Tables 16 –23. Potential DSA reported are based on single antigen results reported by labs.

For **Serum 69**, strong class I DSA against cell 67 and cell 68 were detected. Anti-B27 (15590) reactivity was detected against cell 67, while strong reactivity to B41 (18352), Cw17 (6777), and Cw7 (9762) was detected against cell 68. Additional anti-A2 reactivity (6001) was also reported against each cell. For class II, weak anti-DQ2 (2286) reactivity against cell 67 was reported by 5 labs. No class II DSA were detected against cell 68.

Serum 70 was previously examined as serum 65 (Exchange 11). In this present study, anti-B27 (3178) and –B51(4940) reactivity was reported once again against cell 67 (donor V4 from exchange 11). Reactivity to A24 (7387) was reported against cell 68. In addition, weak reactivity to A2 (1208) was also reported by some (n=6) labs against each cell. For class II, strong anti-DR53 (12833) reactivity was reported against cell 67, along with anti-DP11 (2252) reactivity. Against cell 68, no DSA were detected, except for 2 labs reporting weak anti-DQ4 (1580) reactivity.

Serum 71 was reported as positive for class I and class II DSA against cell 67 and cell 68. Against cell 67, DSA strength was weak, with 9 labs reporting anti-Cw15 (1666) reactivity. By contrast, strong anti-B41 (13660) reactivity was reported against cell 68, with additional weak reactivity to Cw17 (1822) and A24 (2401) reported by labs. For class II, anti-DQ5 (5925) and -DR51 (2178) reactivity was reported against cell 67, while anti-DQ6 (5148) reactivity was reported against cell 68. Additional reactivity to DQA1*01 (6207) was also reported against each cell by 2 labs.

For **serum 72**, class I and II DSA were reported against each cell. Anti-A3 (3159) reactivity was reported against cell 67, while anti-Cw7 (7852) reactivity was reported against cell 68. Additional weak reactivity to A24 (1875) was also reported by a number (n=12) of labs. For class II, strong reactivity to DQ5 (10886) was reported against cell 67, while strong anti-DQ6 (13919) and –DR8 (6097) reactivity was reported against cell 68. In addition, 4 labs reported DQA1*01 (12883) reactivity against each cell.

Conclusion

For the **T-cell flow crossmatch**, good agreement (>80%) was achieved for 6/8 T-cell crossmatch pairs. In the case of the positive crossmatches, either multiple DSA or a single DSA with MFI >7000 was present. No agreement was achieved for the 2 remaining crossmatch pairs, serum 72 against cell 67 and cell 68. In the case of serum 72 vs. cell 67, the presence of only a single weak DSA, A3 (3159), may have resulted in the variability observed among labs. For serum 72 vs. cell 68, although multiple DSA were present, A24 (1875) and Cw7 (7852), variability was still observed in FXM outcome among labs. This shows the sensitivity of the T-cell FXM may be variable in the presence of multiple weak to moderate DSA, especially when the DSA is at the C-locus.

For the **B-cell flow crossmatch**, good agreement was observed for 5/8 crossmatch pairs. In each case, the B-cell FXM was reported as positive in the presence of strong class I DSA. For the remaining 3 crossmatch pairs, each were reported with <80% agreement. In the case of serum 70 vs, cell 67, 4 labs reported the crossmatch as negative, despite the presence of multiple class I DSA and strong anti-DR53 (12833) reactivity. For serum 71 against cell 67, only class II DSA (DQ5, DR51), of weak to moderate strength (5925 and 2178, respectively) were present, resulting in the variability observed in FXM results among labs. Finally, for serum 72 against cell 67, 12 labs reported the crossmatch as positive and 7 reported it as negative. The presence of a single class I DSA (A3) (3159) and a single class II DSA (DQ5) (10886) in this case, shows the sensitivity of the B-cell FXM may be variable not only in the presence of weak DSA, but also when the DSA present is at the DQB1-locus.

Part 2

Flow cytometric crossmatch results for cell 67 and cell 68 against sera sample nos. 69 - 72 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 67. The genotype for this sample from a Hispanic/Caucasian donor is A*02:01-A*03:02-B*27:05:02G-B*51:01-C*01:02:01G-C*15:02:01G-DRB1*07:01-DRB1*16:01-DRB4*01:01:01G-DRB5*02:02:01G-DQA1*01:02:01G-DQA1*02:01-DQB1*02:02-DQB1*05:02-DPB1*11:01-DPB1*15:01. Good agreement was achieved overall for the T-cell crossmatch for this cell against serum samples 69 –71, as no more than 3 discrepancies were observed for each. Against serum 72, no agreement was achieved, as 10 labs reported the T-cell FXM as positive and 11 reported it as negative. For the B-cell crossmatch, only the crossmatch against serum 69 was reported with good agreement, in which 16/19 labs reported it as positive. Against serum samples 70 - 72, agreement among labs was <80%, with the majority of labs reporting the B-cell crossmatch against serum 70 and serum 72 as positive and the B-cell crossmatch against serum 71 as negative.

Cell 68. The genotype for this sample from a Hispanic/Caucasian donor is A*02:01:01-A*24:02:01-B*39:24:01-B*41:01:01-C*07:01:01-C*17:01:01-DRB1*08:02:01-DRB1*13:02:01-DRB3*03:01:01-DQA1*01:02:01-DQA1*04:01:01-DQB1*04:02:01-DQB1*06:04:01-DPB1*02:01:02G-DPB1*04:02:01G. Good agreement was achieved for the T-cell crossmatches for this cell against serum samples 69 –71, as all 3 were reported as positive, with 2 discrepancies each. For the remaining T-cell crossmatch (cell 68 vs. serum 72), however, agreement among labs was < 80%, as 16 labs reported it as negative and 5 reported it as positive. For the B-cell crossmatch, the crossmatches against all 4 sera were reported as positive in good agreement. Against serum 70, no discrepancies were observed. Against sera samples 69, 71, and 72, only 1 or 2 discrepancies were observed among the crossmatches.

Table 2. Summary of Flow crossmatch results for Cell #067-#068 vs. Serum #069-#072

Cell no.	Serum no.	#Labs	T-cell Results	B-cell Results	Cell no.	Serum no.	#Labs	T-cell Results	B-cell Results
67	69	21	**POS(18)** *NEG(3)*	POS(16) *NEG(3)* NT(2)	68	69	21	**POS(19)** *NEG(2)*	**POS(18)** *NEG(1)* NT(2)
67	70	21	**POS(19)** *NEG(2)*	POS(15) NEG(4) NT(2)	68	70	21	**POS(19)** *NEG(2)*	**POS(19)** NT(2)
67	71	21	**NEG(19)** *POS(1)* NT(1)	NEG(13) POS(6) NT(2)	68	71	21	**POS(19)** *NEG(2)*	**POS(18)** NEG(1) NT(2)
67	72	21	POS(10) NEG(11)	POS(12) NEG(7) NT(2)	68	72	21	NEG(16) *POS(5)*	**POS(17)** *NEG(2)* NT(2)

< 80% consensus

Part 3

Virtual crossmatch predictions for donor V1 - V4 against sera (patient) samples 71 and 72 are summarized in Table 3 and individual laboratory predictions are listed in Tables 24 - 31. Fictional donor histories precede each patient-donor summary.

Virtual Crossmatch Paper Challenge

For the virtual **T-cell crossmatch**, good agreement (< 80%) was achieved for 5/8 patient-donor pairs. Among the 5 pairs achieving good agreement, 3 pairs are predicted to be positive in complete agreement, in the presence of strong class I DSA (median MFI > 8500). For donor V2 against serum 71, 15 labs predict the crossmatch to be negative, 2 predict it to be positive, and 3 predict borderline results, as some labs reported no DSA were present, while others reported the presence of weak Cw5 (1724) reactivity. For V2 against serum 72, reactivity at the C-locus, may have also played a role in the lack of agreement observed in predictions among labs, as 13 labs predict the crossmatch to be positive, 5 predict it to be negative, and 2 predict borderline results. Finally, for donor V4 against serum 72, 15 labs predict the crossmatch to be positive, 4 predict it to be negative, and 1 predicts borderline results, in the presence of class I DSA, with MFI values ranging from 1875 to 7852.

For the virtual **B-cell crossmatch**, good agreement was also achieved for 5/8 patient-donor pairs. Among the 5 pairs achieving good agreeement, 2 were reported as positive in complete agreement, while only 2 or 3 discrepancies were observed for the remaining 3. In the case of the positive predictions, strong class I and class II DSA (MFI > 5900) were present. For the crossmatch of donor V2 against serum 71, the absence of class II DSA in the presence of weak anti-Cw5 (1724) reactivity, may have lead to the discrepancies observed in the predictions. For donor V2 vs. serum 72, variability in the reporting of class II DSA may have resulted in 14 labs predicting the crossmatch to be negative, 5 predicting it to be positive, and 1 predicting borderline results. Finally, for donor V4 against serum 71, 16 labs predict the crossmatch to be positive and 1 predicts borderline results in the presence of weak class II DSA. The 4 labs predicting the crossmatch to be negative did not report class II DSA against donor V4.

Table 3. Summary of Virtual Crossmatch Exchange #012 results (Serum #071-#72 versus Donor 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	71	21	POS(21)	POS(18) NEG(2) Borderline(1)	Unacceptable(21)	V2	71	21	POS(2) NEG(15) Borderline(3) U(1)	POS(1) NEG(19) Borderline(1)	Acceptable(16) Unacceptable(2) U(1) NT(2)
V1	72	21	POS(21)	POS(21)	Unacceptable(21)	V2	72	21	POS(13) NEG(5) Boderline(2) U(1)	POS(5) NEG(14) Borderline(1) U(1)	Acceptable(6) Unacceptable(14) U(1)

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	71	21	POS(1) NEG(20)	POS(15) NEG(4) Borderline(2)	Acceptable(5) Unacceptable(15) U(1)	V4	71	21	POS(21)	POS(16) NEG(4) Borderline(1)	Unacceptable(21)
V3	72	21	POS(17) NEG(2) Borderline(1) U(1)	POS(19) NEG(2)	Acceptable(1) Unacceptable(20)	V4	72	21	POS(15) NEG(4) Borderline(1) U(1)	POS(21)	Acceptable(1) Unacceptable(20)

< 80% consensus   U/NT = undetermined/not typed

DSA Identification

Virtual Donors – HLA genotype

Donor 1 (V1): A*01:01-A*11:01-B*35:01-*57:01-C*04:01-C*06:02/DRB1*07-DRB1*15-DRB4*01:03N-DRB5*01-DQA1*01:02:01G-DQA1*02:01-DQB1*03:03:02G-DQB1*05:02:01G-DP2-DP401.

Donor 2 (V2): A*02:01-B*40:05-B*44:02:01G-C*05:01-C*07:02:01G/DRB1*04:01-DRB1*14:02-DRB3*01:01:02G-DRB4*01:01:01G-DQA1*03:01:01G-DQA1*05:01:01G-DQB1*03:01-DPB1*02:01.

Donor 3 (V3): A*26:01-A*34:01-B*15:01-C*03:03:01G/DRB1*04:10-DRB1*1502-DRB4*01:01:01G-DRB5*01:02:01G-DQA1*01:01:01G-DQA1*03:01:01G-DQB1*04:02-DQB1*05:01-DPB1*01:01:01G.

Donor 4 (V4): A*02:01-A*24:03-B*07:02:01G-B*40:01-C*03:04-C*07:02:01G/DRB1*13:02-DRB1*15:01-DRB3*03:01-DRB5*01:01-DQA1*01:02:01G-DQB1*06:02-DQB1*06:04-DPB1*04:01:01G-DPB1*04:02:01G.

Patient 1 (Serum 71)

Patient's fictional case history: *This individual is a 34 year old female, with no prior pregnancies, being evaluated for her second transplant. The patient's HLA type is A3-A11-B51-B75-Cw1-Cw8/DR11-DR4-DR52-DR53-DQ7-DQ4. The HLA type of the donor is A3-A11-B51-B75-Cw5-Cw8/DR11-DR4-DR52-DR53-DQ8-DQ4.*

Anti-A1 (8580) reactivity was reported by all labs against **donor V1**. In addition, a few (n=-7) labs also reported weak reactivity to Cw6 (1389). By contrast, the reporting of class II DSA were mixed among labs. Some labs reported anti-DR51 (2178) and/or anti-DQ5 (5925) reactivity was present. Some reported reactivity to DQA1*01(6207). One lab noted class II DSA strength was very weak, while others did not report the presence of class II DSA. Good agreement was achieved for T-cell and B-cell predictions among labs for this donor-patient pair, as 21/21 labs predict the T-cell FXM to be positive and 18/21 predict the B-cell FXM to be positive. In line with predictions, renal transplant risk assessments were predicted as unacceptable in complete agreement.

Weak anti-Cw5 (1724) reactivity against **donor V2** was reported by a number (n=7) of labs. Four labs noted no class I DSA were present. As for class II, only 2 labs reported DSA against donor V2. The remainder of the labs either did not report DSA or noted no class II DSA were present. T-cell predictions were mixed among labs, with 15 labs predicting the T-cell FXM to be negative, 2 predicting it to be positive, and 3 predicting the results to be borderline. One lab noted it could not predict the T-cell crossmatch, as it could not test for B*40:05. Better agreement was observed for B-cell predictions, as 19/21 labs predict it to be negative. Sixteen labs assess the renal transplant risk for this patient-donor pair to be acceptable, while 2 labs assess the risk as unacceptable.

Only 2 labs reported the presence of class I DSA against **donor V3**, with each reporting DSA to A34. Reported class II DSA were DQ5 (5925), DR51 (2178), and DQA1*01 (6207). Good agreement was achieved for T-cell predictions, as all but 1 lab predict the crossmatch to be negative. The lab with the positive prediction had reported strong anti-A34 (9470) reactivity against this donor. By contrast, B-cell predictions were mixed among labs, with 15 labs predicting it to be positive, 4 predicting a negative crossmatch, and 2 predicting the crossmatch to be borderline. Consequently, renal transplant risk assessments were also mixed among labs, with 15 labs predicting the risk as unacceptable and 5 predicting it as acceptable.

Multiple class I and class II DSA were detected against **donor V4**. Class I DSA reported were B7 (10756) and B60 (8758), while class II DSA were reported as DQA1*01 (6207), DQ6 (5148), and DR51 (2178). In the presence of strong class I DSA, T-cell predictions were reported as positive in complete agreement. By contrast, B-cell predictions were variable among labs, with 16 predicting the crossmatch to be positive, 4 predicting it to be negative, and 1 predicting it to be borderline. All 4 labs predicting the B-cell crossmatch to be negative did not report class II DSA against this donor. For renal transplant risk assessment, all 21 labs predict the risk as unacceptable.

Patient 2 (Serum 72)

Patient's fictional case history: *This individual is a 45 year old male being evaluated for his first transplant. The patient's HLA type is A30-A2-B42-B39-Cw17-Cw12/DR18-DR11-DR52-DQ4-DQ7.*

Multiple class I and class II DSA were reported against **donor V1**. Reported class I DSA included A11 (11540), A1 (3901), and Cw6 (1194). For class II, anti-DQ5 (10886), -DQ9 (3363), and -DQA1*01 (12883) reactivity was reported. Not surprisingly, complete agreement was achieved for T– and B-cell crossmatch predictions, as labs predict each to be positive in the presence of strong DSA. In turn, good agreement was observed for renal transplant risk assessment, as 21/21 labs predict it to be unacceptable.

Anti-Cw7 (7852) reactivity was reported against **donor V2** by 18/21 labs. One lab noted no class I DSA were present, and another ruled out Cw7 as a DSA by phenotype bead assays. For class II, 4 labs reported anti-DR14 (2146) reactivity against this donor. The remainder of the labs (n=16) either did not report DSA or noted no class II DSA were present. Weak class I DSA and variability in the reporting of class II, in turn, lead to variability in T– and B-cell predictions; 13 labs predict the T-cell crossmatch to be positive, 5 predict it to be negative, and 2 predict borderline results. For B-cell predictions, 14 predict the crossmatch to be negative, 5 predict it to be positive, and 1 lab predicts it to be borderline. Consequently, transplant risk assessments varied among labs, with 14 labs predicting the risk as unacceptable and 6 predicting it as acceptable.

Class I and class II DSA were reported against **donor V3**. Class I DSA reactivity was weak, with labs reporting DSA to A26 (3012) and A34 (2024). The class II DSA present was much stronger, with labs reporting anti-DQ5 and –DQA1*01 reactivity, with respective MFI = 10886 and 12883. T-cell predictions were mixed among labs, with 1 lab predicting the crossmatch to be positive, 2 predicting it to be negative, and 1 predicting borderline results. Better agreement was achieved for B-cell predictions, as 19/21 predict the crossmatch to be positive in the presence of strong class II DSA. For predicted renal transplant risk, all but 20 labs assess the risk as unacceptable.

Multiple class I and class II DSA were reported against **donor V4**. For class I, anti-Cw7 and –A24 reactivity was reported with respective MFI = 7852 and 1875. Class II reactivity was stronger, with labs reporting anti-DQ6 (13919) and –DQA1*01 (12883) reactivity. T-cell predictions were mixed among labs, as 15 labs predict the crossmatch to be positive, 4 predict it to be negative, and 1 predicts borderline results. By contrast, B-cell predictions were reported in complete agreement as positive. Predicted risk assessment was reported with good agreement as well, with 20/21 predicting the risk as unacceptable.

Conclusion

Overall, good agreement was achieved in virtual crossmatch predictions, in the presence of strong class I DSA (MFI > 8000) or in combination with class II DSA of moderate strength (MFI = 5000 to 6000). However, when DSA strength was weak < 5000, greater variability was observed in the reporting of DSA, which lead to greater variability in crossmatch predictions among labs.

Along with virtual predictions and DSA, participants also provided renal transplant risk assessments for the 8 virtual-donor pairs from an immunological point of view. Good agreement (> 80% agreement) was observed for 6 of the virtual pairs, in which 5 were reported as unacceptable in the presence of strong class I or class II DSA and 1 was reported as accepta-

ble in the absence of DSA. For the remaining 2 assessments, variability in T-cell and/or B-cell predictions led to variability in assessed risk.

As with crossmatch predictions, variability was also observed in the reporting of cPRA (calculated panel reactive antibodies) values for serum 71 and serum 72. The cPRA values for each serum were reported by 15 labs. Reported values were broad for each serum, with values for serum 71, ranging from 0% to 97%, and values for serum 72 ranging from 15% to 97%. The variability observed in the values may be due to interpretation. While some labs calculate the cPRA based on all unacceptable antibodies detected in the sera, others look at DSA specifically directed against an individual virtual donor.

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Flow Crossmatch Results

Cell #067 HLA Genotype: A*02:01-A*03:02-B*27:05:02G-B*51:01-C*01:02:01G-C*15:02:01G-DRB1*07:01-DRB1*16:01-DRB4*01:01:01G-DRB5*02:02:01G-DQA1*01:02:01G-DQA1*02:01-DQB1*02:02-DQB1*05:02-DPB1*11:01-DPB1*15:01

Table 4. Individual Flow crossmatch results and DSA reported for Cell #067 vs. Serum #069

Center	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
23	69	10	386			Positive	B27(13350)	40	111			Positive		576	877	NO
54	69					Negative	B27(18027)					Positive	DQ2(2763)			NO
206	69	2.98	344.85	33.38		Positive	B27(17023)	4.94	223.55	13.81		Positive		10.65	17.45	YES
230	69		0.7			Negative	B27(14368)		0.5			Negative				YES
615	69	40	506			Positive	NT	40	407			Positive		185	256	YES
774	69	≥ to 120 MCS	197			Positive	B27(14958)	≥ to 120 MCS	209			Positive		295	362	NO
792	69	52	298			Positive	B27(17932)	106	275			Positive	DQ2(3960), DR16(409)	238	238	YES
1160	69	90	429			Positive	B27(17325)	120	373			Positive	DQ2(2286)	223	239	YES
2400	69	40	313			Positive	B27(15590)	80	346			Positive		175	171	NO
3135	69	1,2	8433	2.5		Positive						NT		3354		NO
3224	69	70	381			Positive	B27(13034)	140	220			Positive		250	254	YES
3625	69	40	357			Positive	B27(15551)	40	212			Positive		0.463	3.11	NO
3753	69	50	384			Positive	B27(17728)	100	329			Positive		228	229	YES
3966	69	20	235			Positive	NT	50	197			Positive		136	237	NO
4345	69					Positive	NT					Negative				NO
4661	69	20	57			Positive	B27(7828)	20	38			Positive		215	218	YES
8001	69	50	340			Positive	B27(17546)	100	291			Positive		276	338	YES
8050	69	50	256		15532	Positive	B27(21989)	120	154		18649	Positive		137	256	NO
8083	69	90	50			Negative	B27(17378)	150	-8			Negative	DQ2(2091)	427	410	YES
8096	69	12.5	170.75			Positive	NT	NT				NT		11.79	NT	NO
8103	69	66.48	1295	*1.7		Positive	B27(9479)	644.3	3005	*1.2		Positive				NO

Table 5. Individual Flow crossmatch results and DSA reported for Cell #067 vs. Serum #070

Center	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)	NEG Control MC	NEG Control MC	Pronase Treated
23	70	10	166			Positive	B27(3204) B51(4845)	40	43			Positive	DR53(6086)	576	877	NO
54	70					Positive	B27(3972), B51(6938), A2(2083)					Positive	DR53(18541)			NO
206	70	2.98	50.05	5.7		Positive	B27(3264), B51(5233)	4.94	63.9	4.66		Positive	DR53(15959)	10.65	17.45	YES
230	70		10.9			Positive	B27(3178), B51(5200)		24.1			Positive	DR53(13463), DP11(3471)			YES
615	70	40	292			Positive	NT	40	301			Positive	NT	185	256	YES
774	70	≥ to 120 MCS	50			Positive	B27(2940), B51(5172)	≥ to 120 MCS	84			Negative	DR53(13892)	295	362	NO
792	70	52	127			Positive	B27(2576), B51(4431), A2(837)	106	192			Positive	DR53(12974)	238	238	YES
1160	70	90	243			Positive	B27(3342), B51(5686)	120	277			Positive	DR53(11310), DP11(2256)	223	239	YES
2400	70	40	164			Positive	B27(2595), B51(4940)	80	251			Positive	DR53(10335), DP11(1794)	175	171	NO
3135	70	1,2	3670	1,1		Negative						NT		3354		NO
3224	70	70	180			Positive	B27(3871), B51(6305), A2(1555)	140	116			Positive	DR53(15321)	250	254	YES
3625	70	40	147			Positive	B27(1810), B51(3151)	40	103			Positive	None	0.463	3.11	NO
3753	70	50	220			Positive	B27(2132), B51(3667)	100	230			Positive	DR53(12006), DP11(2247)	228	229	YES
3966	70	20	173			Positive	NT	50	166			Positive	NT	136	237	NO
4345	70					Negative	NT					Negative	NT			NO
4661	70	20	159			Positive	B27(749), B51(631)	20	180			Positive	DR53(3753)	215	218	YES
8001	70	50	155			Positive	B27(3210), B51(5420)	100	179			Positive	DR53(13212)	276	338	YES
8050	70	50	141		4508	Positive	B27(2109), B51(3611), A2(629)	120	115		12259	Negative	DR53(9537)	137	256	NO
8083	70	90	109			Positive	B27(3795), B51(5995)	150	84			Negative	DR53(13776)	427	410	YES
8096	70	12.5	32.93			Positive	NT	NT				NT	NT	11.79	NT	NO
8103	70	66.48	349			Positive	B27(1158), B51(1403)	644.3	2043			Positive	DR53(4010)			NO

Table 6. Individual Flow crossmatch results and DSA reported for Cell #067 vs. Serum #071

Center	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)	NEG Control MC	NEG Control MC	Pronase Treated
23	71	10	6			Negative	no DSA	40	0			Negative	DQ5(4164)	576	877	NO
54	71					Negative	no DSA					Negative	DQ5(6591), DR51(3935), DQA1*01(5616)			NO
206	71	2.98	-0.39	0.96		Negative	no DSA	4.94	2.65	1.15		Negative	DQ5(5384)	10.65	17.45	YES
230	71		0			Negative	no DSA		0.4			Negative	No DSA			YES
615	71	40				Repeat required		40	172			Positive	NT	185	256	YES
774	71	≥ to 120 MCS	-36			Negative	no DSA	≥ to 120 MCS	-16			Negative	No DSA	295	362	NO
792	71	52	28			Negative	no DSA	106	123			Positive	DQ5(9933), DR51(3205), DR16(1091)	238	238	YES
1160	71	90	<0			Negative	no DSA	120	93			Negative	DQ5(6288), DR51(1830), DR16(702)	223	239	YES
2400	71	40	9			Negative	no DSA	80	87			Positive	DQ5(5562)	175	171	NO
3135	71	1,2	3507	1,0		Negative						NT		3354		NO
3224	71	70				Negative, Shifted	no DSA	140				Negative	DQ5(6820), DR51(2823)	250	254	YES
3625	71	40	34			Negative	no DSA	40	9			Positive	DQ5(6914)	0.463	3.11	NO
3753	71	50	15			Negative	no DSA	100	54			Negative	DQ5(3888), DR51(2490)	228	229	YES
3966	71	20	16			Negative		50	34			Negative	NT	136	237	NO
4345	71					Negative						Negative	NT			NO
4661	71	20	15			Negative	no DSA	20	21			Positive	DQ5(384), DR51(564)	215	218	YES
8001	71	50	-12			Negative	no DSA	100	48			Negative	DQ5(3780), DR51(2104)	276	338	YES
8050	71	50	0		748	Negative	no DSA	120	19		4365	Negative	DQ5(3939), DR51(1988)	137	256	NO
8083	71	90	80			Negative	no DSA	150	102			Negative	DQ5(8488), DR51(3265)	427	410	YES
8096	71	12.5	9.46			Negative	A2(3588)	NT				NT	DR53(633), DR16(843)	11.79	NT	NO
8103	71	66.48	115			Positive	no DSA	644.3	1016			Positive	NT			NO

Table 7. Individual Flow crossmatch results and DSA reported for Cell #067 vs. Serum #072

Center	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)	NEG Control MC	NEG Control MC	Pronase Treated
23	72	10	64			Negative	A3(2912)	40	31			Negative	DQ5(6081)	576	877	NO
54	72					Negative	A3(5580)					Negative	DQ5(14723)			NO
206	72	2.98	8.05	1.76		Negative	No DSA	4.94	32.6	2.87		Positive	DQ5(11515), DQA1*01(9447)	10.65	17.45	YES
230	72		0.3			Negative	A3(3524)		1			Negative	DQ5(10385)			YES
615	72	40	173			Positive	NT	40	251			Positive	NT	185	256	YES
774	72	$\geq$ to 120 MCS	-7			Negative	A3(2081)	$\geq$ to 120 MCS	43			Negative	DQ5(11636)	295	362	NO
792	72	52	55			Positive	A3(3405)	106	151			Positive	DQ5(11426)	238	238	YES
1160	72	90	76			Negative	A3(2714)	120	203			Positive	DQ5(10246)	223	239	YES
2400	72	40	34			Negative	A3(2804)	80	143			Positive	DQ5(8476)	175	171	NO
3135	72	1,2	3429	1,0		Negative	NT						NT	3354		NO
3224	72	70	49			Positive	A3(4291)	140	69			Positive	DQ5(13188), DQA1*01(18285)	250	254	YES
3625	72	40	66			Positive	A3(2160)	40	68			Positive	DQ5(7674)	0.463	3.11	NO
3753	72	50	78			Positive	A3(4069)	100	150			Positive	DQ5(11512)	228	229	YES
3966	72	20	101			Positive	NT	50	126			Positive	NT	136	237	NO
4345	72					Negative	NT					Negative	NT			NO
4661	72	20	25			Positive	No DSA	20	40			Positive	DQ5(1807)	215	218	YES
8001	72	50	61			Positive	A3(3711)	100	130			Positive	DQ5(11762)	276	338	YES
8050	72	50	0		958	Negative	A3(2063)	120	52		6225	Negative	DQ5(8301)	137	256	NO
8083	72	90	89			Negative	A3(4783)	150	48			Negative	DQ5(16322)	427	410	YES
8096	72	12.5	15.27			Positive	A3(1031)	NT				NT	DQ5(1233), DP11(2269)	11.79	NT	NO
8103	72	66.48	176			Positive	A3(1065)	644.3	1327			Positive	DQ5(1994), DQA1*01(3317)			NO

Cell #068 HLA Genotype: A*02:01:01-A*24:02:01 B*39:24:01-B*41:01:01-C*07:01:01-C*17:01:01-DRB1*08:02:01-DRB1*13:02:01-DRB3*03:01:01-DQA1*01:02:01-DQA1*04:01:01-DQB1*04:02:01-DQB1*06:04:01-DPB1*02:01:02G-DPB1*04:02:01G

Table 8. Individual Flow crossmatch results and DSA reported for Cell #068 vs. Serum #069

Center	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
23	69	10	380			Positive	A2(6842), B41(17473), Cw17(8234), Cw7(10610)	40	197			Positive	No DSA	558	807	NO
54	69					Negative	A2(10117), B41(14997), Cw17(7202), Cw7(9762)					Positive	No DSA			NO
206	69	2.98	132.75	13.95		Positive	A2(6488), B41(18352)	4.94	116.25	8.62		Positive	No DSA	10.25	15.25	YES
230	69		1			Negative	A2(5597), B41(17932), Cw7(9394)		1			Negative	No DSA			YES
615	69	40	501			Positive	NT	40	365			Positive	NT	175	291	YES
774	69	> to 120 MCS	223			Positive	A2(6283), B41(19020), Cw17(6326), Cw7(9208)	> to 120 MCS	210			Positive	No DSA	261	359	NO
792	69	52	253			Positive	A2(7633), B41(18253), Cw7(7459), Cw7(10355)	106	235			Positive	DR13(762)	222	238	YES
1160	69	90	366			Positive	A2(5556), B41(19980), Cw17(6694)	120	325			Positive	No DSA	245	269	YES
2400	69	40	304			Positive	A2(5539), B41(18948), Cw17(6777), Cw7(10317)	80	196			Positive	No DSA	169	313	NO
3135	69	1,2	6884	3,0		Positive	NT					NT		2290		NO
3224	69	70	205			Positive	A2(6001), B41(18490), Cw17(6404), Cw7(8803)	140	205			Positive	No DSA	250	254	YES
3625	69	40	301			Positive	A2(6850), B41(20231), Cw17(9629), Cw7(11256)	40	139			Positive	No DSA	0.415	4.138	NO

Table 8. Individual Flow crossmatch results and DSA reported for Cell #068 vs. Serum #069

Center	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
3753	69	50	326			Positive	A2(5873), B41(20276), Cw17(8913), Cw7(11176)	100	298			Positive	No DSA	233	225	YES
3966	69	20	255			Positive	NT	50	208			Positive	NT	141	257	NO
4345	69					Positive	NT					Positive	NT			NO
4661	69	10	19			Positive	A2(1836), B41(5118), Cw17(1370), Cw7(2067)	20	24			Positive	No DSA	232	236	YES
8001	69	50	313			Positive	A2(5834), B41(16981), Cw17(6408), Cw7(9253)	100	273			Positive	No DSA	253	322	YES
8050	69	50	300		18507	Positive	A2(10667), B41(23692), Cw17(13572), Cw7(16486)	120	165		23375	Positive	No DSA	107	266	NO
8083	69	90	351			Positive	A2(7391), B41(17499), Cw17(8891), Cw7(10451)	150	310			Positive	No DSA	314	357	YES
8096	69	12.5	122.69			Positive	NT	NT				NT		11.86	NT	NO
8103	69	72.84	419	*1.2		Positive	A2(2358), B41(8415), Cw17(3778), Cw7(5040)	1030.2	1601	*1.7		Positive	No DSA			NO

Table 9. Individual Flow crossmatch results and DSA reported for Cell #068 vs. Serum #070

Center	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)	NEG Control MC	NEG Control MC	Pronase Treated
23	70	10	179			Positive	A24(7387)	40	186			Positive	DP402(6000)	558	807	NO
54	70					Negative	A24(11961), A2(2083)					Positive	DP4(12269)			NO
206	70	2.98	20.15	2.97		Positive-weak	A24(7612)	4.94	111.75	8.33		Positive	No DSA	10.25	15.25	YES
230	70		7.5			Positive	A24(8487)		29			Positive	DP402(9023)			YES
615	70	40	289			Positive		40	346			Positive	NT	175	291	YES
774	70	≥ to 120 MCS	28			Negative	A24(5688)	≥ to 120 MCS	121			Positive	DP4(8646)	261	359	NO
792	70	52	99			Positive	A24(7372), A2(837)	106	256			Positive	DP4(8599), DQ4(1725)	222	238	YES
1160	70	90	173			Positive	A24(8784)	120	328			Positive	DP402(8869)	245	269	YES
2400	70	40	107			Positive	A24(7154)	80	182			Positive	DP4(7014)	169	313	NO
3135	70	1,2	2938	1,3		Positive						NT	NT	2290		NO
3224	70	70	116			Positive	A24(11007), A2(1555)	140	202			Positive	DP402(10743)	250	254	YES
3625	70	40	102			Positive	A24(5012)	40	141			Positive	DP402(5647)	0.415	4.138	NO
3753	70	50	162			Positive	A24(4722),	100	285			Positive	DP402(8405)	233	225	YES
3966	70	20	117			Positive		50	218			Positive		141	257	NO
4345	70					Positive						Positive				NO
4661	70	10	89			Positive	A24(1841)	20	177			Positive	DP402(3516)	232	236	YES
8001	70	50	171			Positive	A24(8771)	100	270			Positive	DP4(9361)	253	322	YES
8050	70	50	149		3558	Positive	A24(4668), A2(629)	120	177		26595	Positive	DP4(3928)	107	266	NO
8083	70	90	206			Positive	A24(9852)	150	249			Positive	DP4(10945)	314	357	YES
8096	70	12.5	22.49			Positive	NT	NT				NT	NT	11.86	NT	NO
8103	70	72.84	669			Positive	A24(3088)	1030.2	5055			Positive	DP4(3949)			NO

Table 10. Individual Flow crossmatch results and DSA reported for Cell #068 vs. Serum #071

Center	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)	NEG Control MC	NEG Control MC	Pronase Treated
23	71	10	246			Positive	B41(8851), Cw17(1822)	40	133			Positive	DQ6(2343)	558	807	NO
54	71					Negative	B41(17344), Cw17(2875)					Positive	DQA1*01(5616)			NO
206	71	2.98	53.55	6.22		Positive	B41(14164)	4.94	44.15	3.9		Positive	No DSA	10.25	15.25	YES
230	71		1.5			Negative	B41(15719)		1			Negative	No DSA			YES
615	71	40	428			Positive	NT	40	312			Positive		175	291	YES
774	71	≥ to 120 MCS	147			Positive	B41(12318)	≥ to 120 MCS	100			Positive	No DSA	261	359	NO
792	71	52	206			Positive	B41(13418), Cw17(1368)	106	209			Positive	DQ6(8624)	222	238	YES
1160	71	90	289			Positive	B41(13901), Cw17(1592)	120	248			Positive	DQ6(5148)	245	269	YES
2400	71	40	193			Positive	B41(14151)	80	154			Positive	DQ6(4129)	169	313	NO
3135	71	1,2	2932	1,3		Positive	NT					NT		2290		NO
3224	71	70	132			Positive	B41(16286), Cw17(2429)	140	131			Positive	DQ6(5663)	250	254	YES
3625	71	40	171			Positive	B41(13179), Cw17(1892)	40	76			Positive	DQ6(6273)	0.415	4.138	NO
3753	71	50	241			Positive	B41(16969)	100	212			Positive	DQ6(4238)	233	225	YES
3966	71	20	176			Positive	NT	50	173			Positive	NT	141	257	NO
4345	71					Positive	NT					Positive	NT			NO
4661	71	10	111			Positive	B41(2041)	20	119			Positive	No DSA	232	236	YES
8001	71	50	235			Positive	B41(16339), Cw17(1704)	100	210			Positive	DQ6(2857)	253	322	YES
8050	71	50	202		6293	Positive	B41(11348), Cw17(1602)	120	129		15870	Positive	DQ6(2894)	107	266	NO
8083	71	90	280			Positive	B41(13337), Cw17(2429)	150	255			Positive	DQ6(7452)	314	357	YES
8096	71	12.5	33.18			Positive	B41(3821), Cw17(4965)	NT				NT	DR13(681)	11.86	NT	NO
8103	71	72.84	263			Positive	B41(3807)	1030.2	1839			Positive	NT			NO

Table 11. Individual Flow crossmatch results and DSA reported for Cell #068 vs. Serum #072

Center	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)	NEG Control MC	NEG Control MC	Pronase Treated
23	72	10	62			Negative	Cw7(6974), A24 (1505)	40	195			Positive	DQ6(6887), DR8(3616)	558	807	NO
54	72					Negative	Cw7(7900), A24(3146)					Negative	DQ6(19752), DR8(7426)			NO
206	72	2.98	2.7	1.26		Negative	No DSA	4.94	103.75	7.8		Positive	DQ6(13186), DR8(6771), DQA1*01(9447)	10.25	15.25	YES
230	72		0			Negative	Cw7(12453)		2.5			Positive	DQ6(15609), DR9(6964)			YES
615	72	40	122			Positive		40	340			Positive	NT	175	291	YES
774	72	> to 120 MCS	12			Negative	Cw7(7316)	> to 120 MCS	142			Positive	DQ6(16114), DR8(5740)	261	359	NO
792	72	52	46			Negative	Cw7(7198), A24(1784)	106	255			Positive	DQ6(15647), DR9(6986)	222	238	YES
1160	72	90	27			Negative	A24(1380)	120	318			Positive	DQ6(14651), DR8(5361)	245	269	YES
2400	72	40	15			Negative	Cw7(7826)	80	145			Positive	DQ6(10073), DR8(5743)	169	313	NO
3135	72	1,2	2089	0,9		Negative	NT					NT		2290		NO
3224	72	70				Negative, Shifted	Cw7(7733), A24(2381)	140	203			Positive	DQ6(18285), DR8(6852)	250	254	YES
3625	72	40	31			Negative	Cw7(7411), A24(1178)	40	139			Positive	DQ6(10756), DR8(4633)	0.415	4.138	NO
3753	72	50	33			Negative	Cw7(9552), A24(2154)	100	248			Positive	DQ6(12937), DR8(8004)	233	225	YES
3966	72	20	53			Positive	NT	50	183			Positive	NT	141	257	NO
4345	72					Negative	NT					Positive	NT			NO
4661	72	10	6			Negative	No DSA	20	58			Positive	DQ6(2944), DR8(2154)	232	236	YES
8001	72	50	42			Negative	Cw7(7878), A24(1965)	100	278			Positive	DQ6(16457), DR8(6358)	253	322	YES
8050	72	50	20		888	Negative	Cw7(8208)	120	112		13218	Negative	DQ6(10513), DR8(5836)	107	266	NO
8083	72	90	231			Positive	Cw7(9321), A24(2801)	150	238			Positive	DQ6(20325), DR8(11704)	314	357	YES
8096	72	12.5	13.6			Positive	A24(4057)	NT				NT	DQ6(2309), DR8(1802), DR13(2182)	11.86	NT	NO
8103	72	72.84	123			Positive	Cw7(2400), A24(864)	1030.2	2694			Positive	DQ6(3317), DR8(2259)			NO

Single Antigen Results

Table 12. Summary of Single Antigen results for Serum #069

Class I							
*** Serum 69 ***							
17 typing Labs							
Antigen	No.Labs	Consensus	Median	Mean	Std Dev	Min	Max
A2	17	100%	6001	6272	2102	1836	10667
A29	17	100%	12653	11997	3005	4428	17761
A31	17	100%	13687	12852	3631	2522	18468
A32	17	100%	16343	15789	3430	7208	22961
A33	17	100%	11976	11188	2911	3026	15537
A74	17	100%	15796	15143	3417	6190	21901
B13	17	100%	14822	13924	3879	2514	18758
B27	17	100%	15590	15549	3255	7828	21989
B41	17	100%	18352	17301	4265	5118	23692
B45	17	100%	9696	9606	2890	2165	13743
B47	17	100%	10181	10375	2421	3827	15909
B48	17	100%	19946	18555	5619	1941	28526
B50	17	100%	10244	10157	2957	2338	14261
B60	17	100%	19845	18965	4181	11092	29295
B61	17	100%	18782	18515	4243	7025	26380
B7	17	100%	16910	15981	3690	5730	22865
B73	17	100%	17535	17184	3919	7128	25521
Cw10	17	100%	16721	15529	4569	3122	22438
Cw9	17	100%	14647	14069	4294	2739	21908
B42	16	94%	7617	8054	2292	2969	13439
B46	16	94%	7451	7743	2458	1770	14660
B49	16	94%	5711	5629	1539	1881	8314
A30	15	88%	9741	9175	3061	1263	12910
Cw16	15	88%	9320	9287	3234	1225	16554
Cw17	15	88%	6777	7204	2610	1370	13572
Cw7	15	88%	9762	9519	2999	2067	16486
B8	13	76%	2647	3037	1264	995	5796
B55	12	70%	2641	3776	3131	1749	13841
B81	12	70%	17832	18725	4465	12773	28734
Cw12	12	70%	2823	3469	1433	1750	7023
Cw8	12	70%	5727	6127	2155	3590	11026
Cw2	11	64%	4391	4732	1398	3369	8677
B67	10	58%	1940	2120	869	1282	4235
A36	9	52%	1279	1454	490	916	2452
Cw14	9	52%	2295	2548	1213	1245	5117
A66	8	47%	7362	7478	1867	3301	10056

Class II							
*** Serum 69 ***							
4 typing Labs							
Antigen	No.Labs	Consensus	Median	Mean	Std Dev	Min	Max
DQ2	5	100%	2286	2629	712	2047	3960
DQA1*05	4	80%	2257	2369	347	2047	2919
DP10	1	20%	472	472	-	472	472
DP13	1	20%	492	492	-	492	492
DP14	1	20%	469	469	-	469	469
DP23	1	20%	445	445	-	445	445
DP28	1	20%	454	454	-	454	454
DPw1	1	20%	852	852	-	852	852
DPw4	1	20%	301	301	-	301	301
DPw5	1	20%	865	865	-	865	865

DSA present

Blue = DSA against cell #067 only
Gold = DSA against cell #068 only
Green = DSA against cell #067 and #68

Table 13. Summary of Single Antigen results for Serum #070

Class I							
*** Serum 70 ***							
17 typing Labs							
Antigen	No.Labs	Consensus	Median	Mean	Std Dev	Min	Max
A23	17	100%	7848	7388	2612	1597	11783
A24	17	100%	7387	7150	2625	1841	11961
A25	17	100%	5480	5236	1748	1214	7957
A32	17	100%	6489	5977	1991	1443	9022
B27	17	100%	3178	2889	1060	749	5211
B37	17	100%	2984	2711	919	443	3838
B38	17	100%	5320	4686	1539	1048	6745
B49	17	100%	4969	4592	1479	1048	6727
B51	17	100%	4940	4546	1597	631	6938
B52	17	100%	3999	3531	1184	474	5097
B53	17	100%	4473	4275	1342	1045	6351
B57	17	100%	5452	5289	1728	1302	8237
B58	17	100%	5493	5039	1719	1019	7565
B59	17	100%	3906	3529	1163	558	5218
B63	17	100%	4934	4576	1566	1241	7625
B77	17	100%	3994	3664	1161	816	5282
B44	16	94%	2913	2730	961	710	4117
B13	13	76%	2719	2572	604	1470	3370
B47	13	76%	1527	1579	559	427	2368
Bw4	11	64%	4085	4572	1744	1841	7388
A80	9	52%	1456	1763	661	1008	3320
A2	6	35%	1208	1253	474	629	2083
A2403	4	23%	4679	4954	3131	1340	9119
A69	3	17%	1078	1136	407	669	1661
A1	2	11%	764	764	280	484	1044
A68	2	11%	950	949	361	589	1310
B35	2	11%	840	840	329	511	1169
B76	2	11%	1513	1513	578	935	2091
A203	1	5%	1019	1019	-	1019	1019
B15	1	5%	1811	1811	-	1811	1811
B62	1	5%	6499	6499	-	6499	6499

DSA present

Blue = DSA against cell #067 only
Gold = DSA against cell #068 only
Green = DSA against cell #067 and #68

Class II							
*** Serum 70 ***							
17 typing Labs							
Antigen	No.Labs	Consensus	Median	Mean	Std Dev	Min	Max
DR11	17	100%	4618	4536	1249	2178	6447
DR4	17	100%	17564	16275	3092	9756	20495
DP18	16	94%	6698	6640	2113	3049	10639
DP28	16	94%	6659	6571	2240	2444	10362
DPw2	16	94%	8268	7774	2337	3493	12103
DPw3	16	94%	7193	6897	2139	3235	10862
DR10	16	94%	3189	3201	1142	570	5219
DR53	16	94%	12833	11679	3998	3753	18541
DP14	15	88%	5977	5604	1944	1990	8821
DP17	15	88%	5982	5395	1816	1939	8784
DP9	15	88%	6263	5753	1865	2161	8839
DP20	14	82%	7457	7283	1449	5107	10006
DR14	14	82%	2721	2615	1005	483	4572
DP10	13	76%	6111	5870	1412	4037	8251
DPw6	13	76%	5919	5788	1485	3461	8613
DR9	12	70%	2230	2090	751	529	3295
DR1	10	58%	2391	2392	755	1396	3877
DP402	8	47%	8186	7521	2159	3516	10743
DPw4	8	47%	8623	8088	2816	3928	12269
DQ7	8	47%	1618	1620	676	419	2801
DQ9	8	47%	1873	1872	829	426	3339
DQ8	7	41%	2173	2328	756	1111	3806
DPA1*01	6	35%	3798	5040	3324	1872	10916
DP19	5	29%	1911	2199	589	1775	3353
DP23	5	29%	1567	1713	481	1310	2641
DP11	4	23%	2252	2442	623	1794	3471
DP13	4	23%	1452	1648	510	1181	2510
DPA1*03	4	23%	3419	3760	2013	1300	6905
DPw1	4	23%	1639	1933	585	1516	2938
DQA1*03	4	23%	2056	2073	461	1447	2734
DP401	3	17%	2037	2165	202	2008	2451
DQ4	2	11%	1580	1579	146	1434	1725
DQA1*05	2	11%	1426	1425	75	1351	1500
DQA1*06	2	11%	1306	1305	55	1251	1360
DR1404	2	11%	2102	2101	1687	415	3788
DR7	2	11%	654	654	233	421	887

Table 14. Summary of Single Antigen results for Serum #071

Class I							
*** Serum 71 ***							
18 typing Labs							
Antigen	No.Labs	Consensus	Median	Mean	Std Dev	Min	Max
A1	18	100%	8580	8075	2972	1209	13738
B41	18	100%	13660	12371	4578	2041	17344
B42	18	100%	13488	12487	4425	2417	17644
B7	18	100%	10756	10104	3322	2953	15578
B8	18	100%	22453	20566	4947	8728	25305
B59	17	94%	5353	5109	1430	1161	7646
B60	17	94%	8758	8139	2347	2476	11999
B48	16	88%	9966	9547	2376	1898	12858
A36	15	83%	2653	2833	694	1699	4353
B76	15	83%	2407	2586	664	1603	4523
A23	14	77%	2649	2905	1062	1292	5802
B65	14	77%	2822	2846	581	2088	4431
B81	14	77%	10364	9835	3101	2857	15150
A80	13	72%	2036	2955	2848	1480	12634
B37	12	66%	2217	2187	341	1420	2787
B64	12	66%	2215	2290	534	1600	3709
Cw17	11	61%	1822	2185	991	1363	4965
Cw5	11	61%	1724	2116	621	1361	3094
A24	10	55%	2401	2563	792	1219	4173
B18	9	50%	1844	1912	501	1380	3085
Cw15	9	50%	1666	2009	594	1285	2949
Cw18	9	50%	1553	1870	957	1111	4412
Cw2	8	44%	1540	1526	342	1106	2014
A74	7	38%	1195	1387	317	1139	1987
A32	6	33%	1317	1512	336	1218	2119
Cw6	6	33%	1389	1350	231	990	1689
B39	5	27%	1175	1333	425	1038	2169
B8101	5	27%	11064	7978	4916	1275	13345
A29	3	16%	1259	1231	375	758	1676
B61	3	16%	1302	1264	235	959	1531
A66	2	11%	3784	3783	3372	412	7155
B27	2	11%	1568	1568	926	642	2494
B38	2	11%	1065	1064	426	639	1490
B3901	2	11%	1472	1472	139	1333	1611
B44	2	11%	2429	2428	1980	449	4408
B46	2	11%	1794	1793	1187	607	2980

Class II							
*** Serum 71 ***							
13 typing Labs							
Antigen	No.Labs	Consensus	Median	Mean	Std Dev	Min	Max
DQ5	14	100%	5925	5638	2260	384	9933
DR103	13	92%	2460	2427	1216	532	4699
DR1	12	85%	2249	2248	1054	536	4315
DQ6	11	78%	5148	5042	1892	2343	8624
DR51	11	78%	2178	2274	995	564	3935
DR15	6	42%	831	840	375	276	1366
DR16	3	21%	843	878	161	702	1091
DQA1*01	2	14%	6207	6206	591	5616	6797
DP11	1	7%	823	823	-	823	823
DP13	1	7%	467	467	-	467	467
DP14	1	7%	425	425	-	425	425
DP17	1	7%	680	680	-	680	680
DPw1	1	7%	779	779	-	779	779
DPw5	1	7%	1427	1427	-	1427	1427
DR13	1	7%	681	681	-	681	681

DSA present

Blue = DSA against cell #067 only
Gold = DSA against cell #068 only
Green = DSA against cell #067 and #68

Table 15. Summary of Single Antigen results for Serum #072

Class I							
*** Serum 72 ***							
18 typing Labs							
Antigen	No.Labs	Consensus	Median	Mean	Std Dev	Min	Max
A25	18	100%	3994	3969	1612	516	7439
A26	18	100%	3012	3324	1411	452	6350
A1	17	94%	3901	3883	1379	1568	6533
A36	17	94%	3164	3167	1192	911	5564
A3	16	88%	3159	3158	1254	1031	5580
A43	16	88%	3690	3859	1152	1736	6253
A11	15	83%	11540	11285	3471	4269	16664
A80	15	83%	2564	2736	830	1313	4466
Cw7	14	77%	7852	7928	2047	2400	12453
A34	13	72%	2024	2138	899	659	3866
A24	12	66%	1875	2077	867	864	4057
A66	11	61%	3672	3975	1658	1227	7031
Cw18	11	61%	3158	3233	340	2863	3882
B73	9	50%	1481	1594	347	1159	2269
A6601	7	38%	3235	3115	1450	586	5545
Cw6	7	38%	1194	1264	137	1121	1542
Cw8	6	33%	1619	1599	437	1049	2248
Cw12	5	27%	1294	2307	1532	1010	4804
A1101	4	22%	9026	8523	4429	2929	13112
A1102	4	22%	9413	8876	5138	2616	14064
A2403	3	16%	1654	1595	574	864	2267
B38	3	16%	1030	1899	1474	693	3974
B39	3	16%	1339	1297	307	902	1651
A2	1	5%	3143	3143	-	3143	3143
B13	1	5%	2920	2920	-	2920	2920
B15	1	5%	3902	3902	-	3902	3902
B27	1	5%	2599	2599	-	2599	2599
B35	1	5%	1772	1772	-	1772	1772
B46	1	5%	4858	4858	-	4858	4858
B47	1	5%	2556	2556	-	2556	2556

Class II							
*** Serum 72 ***							
18 typing Labs							
Antigen	No.Labs	Consensus	Median	Mean	Std Dev	Min	Max
DQ5	18	100%	10886	9426	4184	1233	16322
DQ6	18	100%	13919	12560	5474	2309	20325
DR8	18	100%	6097	5850	2325	1802	11704
DQ8	16	88%	3228	3055	1359	518	5789
DQ9	15	83%	3363	3572	1487	781	7234
DR12	9	50%	1635	1486	558	401	2376
DR10	5	27%	1339	1446	275	1067	1798
DQA1*01	4	22%	12883	11842	5915	3317	18285
DR1404	3	16%	2279	4096	2652	2165	7846
DR14	2	11%	2012	2012	153	1859	2165
DP11	1	5%	2269	2269	-	2269	2269
DP13	1	5%	1967	1967	-	1967	1967
DPA1*01	1	5%	3317	3317	-	3317	3317
DQ4	1	5%	1175	1175	-	1175	1175
DQA1*02	1	5%	2725	2725	-	2725	2725
DQA1*03	1	5%	3471	3471	-	3471	3471
DR1	1	5%	1239	1239	-	1239	1239
DR13	1	5%	2182	2182	-	2182	2182
DR15	1	5%	2431	2431	-	2431	2431
DR16	1	5%	1693	1693	-	1693	1693
DR51	1	5%	2007	2007	-	2007	2007
DR52	1	5%	2159	2159	-	2159	2159

DSA present

Blue = DSA against cell #067 only
Gold = DSA against cell #068 only
Green = DSA against cell #067 and #68

Table 16. Individual laboratory results for Serum #069 - class I by Luminex

Ctr no.	A2	A29	A31	A32	A33	A74	B13	B27	B41	B45	B47	B48	B50	B60	B61	B7	B73	Cw10	Cw9	B42	B46	B49	A30	Cw16	Cw17	Cw7
23	6842	13906	15916	16531	13828	16043	11554	13350	17473	8208	9510	18432	8760	19272	17518	13942	16699	13614	12546	10923	7368	6283	8994	11870	8234	10610
54	10117	14867	13289	14134	12323	13689	16888	18027	14997	13743	11539	14173	13757	12618	14753	17073	16207	16721	17218	7441	9477	6385	9170	9204	7202	9762
206	6488	10988	13379	17783	9831	16684	13886	17023	18352	9391	10035	18234	10244	17267	18676	17700	18945	16722	16257	6113	6988	4266				
230	5597	10700	13321	16315	10200	15733	12700	14368	17932	9534	10181	18203	10230	17224	18342	16345	17631	14400	14618	6455	6898	4656				9394
774	6283	11453	11484	16343	9257	15215	15726	14958	19020	8666	9626	22185	9540	22594	21188	17265	19076	18103	16341	7417	8556	4346	6389	9263	6326	9208
792	7633	12908	13687	16429	11992	15796	17038	17932	18253	11847	11853	18381	12155	16181	18590	17604	18784	17106	15386	9169	8973	7478	10515	10416	7459	10355
836	5762	11052	12605	15753	10879	15348	15558	15242	18472	9070	9798	22148	9685	21219	22797	17002	17535	16375	13804	7084	6661	5044	9180	8565	6407	8607
1160	5556	13704	15007	17083	13300	16911	16667	17325	19980	9696	9981	21978	9974	21000	21441	17170	18972	17299	14106	9280	6853	5842	11591	9988	6694	
2400	5539	11142	12387	15443	11681	15021	13462	15590	18948	10578	11129	20328	11076	19845	19160	16910	17212	15869	14647	8649	7656	6372	10620	9320	6777	10317
3224	6001	12653	13722	15897	11976	15723	14822	13034	18490	10255	9016	20451	10490	20257	19392	15246	17325	16362	13585	7444	6534	5579	9741	8803	6404	8803
3625	6850	13079	14110	16930	12803	16100	15872	15551	20231	10867	13179	19946	12846	20455	20287	16669	17326	18954	14461	10432	8834	7605	12534	11303	9629	11256
3753	5873	11925	15121	17811	12207	16505	14417	17728	20276	10509	11787	22783	11058	22990	21353	18544	19817	17567	16963	8149	8519	5322	10731	9935	8913	11176
4661	1836	4428	2522	7208	3026	6190	2514	7828	5118	2165	3827	1941	2338	11092	7025	5730	7128	3122	2739				1263	1225	1370	2067
8001	5834	12729	13774	15907	11491	15909	15547	17546	16981	9539	10364	16685	10049	15044	17612	16561	17102	16526	14751	6122	6610	4193	8978	8487	6408	9253
8050	10667	17761	18468	22961	15537	21901	18758	21989	23692	13545	15909	28526	14261	29295	26380	22865	25521	22438	21908	13439	14660	8314	12910	16554	13572	16486
8083	7391	14522	14431	17604	13857	17023	14781	17378	17499	12084	11083	20790	12210	20674	18782	16477	17978	17771	15189	7789	7533	6506	11175	10020	8891	10451
8096	NT																									
8103	2358	6148	5274	8296	6009	7651	6519	9479	8415	3617	7569	10255	4003	15380	11470	8576	8885	5053	4659	2969	1770	1881	3848	4362	3778	5040
Avg	6272	11998	12853	15790	11188	15144	13924	15550	17302	9607	10376	18555	10157	18965	18516	15981	17185	15530	14069	8055	7743	5630	9176	9288	7204	9519
Std Dev.S	2166	3097	3742	3535	3001	3522	3999	3356	4396	2979	2495	5791	3048	4309	4373	3804	4039	4710	4426	2367	2539	1589	3168	3348	2702	3104
MFI %CV	35%	26%	29%	22%	27%	23%	29%	22%	25%	31%	24%	31%	30%	23%	24%	24%	24%	30%	31%	29%	33%	28%	35%	36%	38%	33%

Blue = DSA against cell #067 only

Gold = DSA against cell #068 only

Green = DSA against cell #067 and #68

Table 16. Individual laboratory results for Serum #069 - class I by Luminex (cont.)

Ctr no.	B8	B55	B81	Cw12	Cw8	Cw2	B67	A36	Cw14	A66	A6602	Cw1	B2708	B54	B56	B62	A68	A69	B72	B8101	Cw15	B39	B57	B58	B71	Other	
23	4950	3572	19742	5188	7690	4264	2755	2452	4079		7555	2718		2090	2394	2418	1580	1534	2314		1393	1530	1299	1239	1179	B78,A1,A23>	
54	3357	2637	12773	2827	5733	5233	2186		1930	10056		2580					1839	1772			1538						One Lambda
206			16650																								One Lambda
230			16729										17069														
774			22539	5721						7019			17794														One Lambda
792	3666	3567	16581	4122	6138	4745	2568	1998	2499	8907		2419		2082	2015	1623	1419	1289	1739		1462	1121	1150	1045	724	Cw4,A24,B7	One Lambda
836	2050	13841		3334	9590	3369	1373	1092	2295		6611	1776	17020			1093				21083					1119	A203,A210:	One Lambda
1160	2390	2293	21324				1550	1279	1644		7235			1192	1153	1023			1020								One Lambda
2400	2647	2644	18935	2818	4928	4128				7280																	One Lambda
3224	2205	2202		2296	4045	3601	1282	1091	1405		6495	1393	15775	1202	1189			1060		20360						A203	One Lambda
3625	4059	3528		4514	5877	5431	2268	1826	2719	8663		1745	17031	2464	2499	2517	1192	1164	2510	20678	1038	1216	1320	1466	1061	B78,A23,B7	One Lambda
3753	2513	2210	23045	2612	4473	4650	1693	1357			8548			1154												A1	One Lambda
4661											2221		7828							7067						A203,B703	Lifecodes
8001	1913	1749	14730	1750	3590	3573	1291	1082	1245	7444		1440															One Lambda
8050	5796	4593	28734	7023	11026	8677	4235		5117		12126	5583		1575	1190	1228	3234	2835			2534	1723	2005	1798		B38,B37	One Lambda
8083	2944	2479		2709	4721	4391				7157										20068							One Lambda
8096	NT																										
8103	995		12921	2445			916			3301	3301		9479													B40,B703,C	Lifecodes
Avg	3037	3776	18725	3470	6128	4733	2120	1455	2548	7478	6762	2457	14571	1680	1740	1650	1853	1719	1729	17851	1593	1398	1444	1387	1021		
Std Dev.S	1316	3270	4663	1497	2251	1466	916	520	1287	1996	3059	1362	4113	532	637	667	807	666	690	6040	560	279	382	324	204		
MFI %CV	43%	87%	25%	43%	37%	31%	43%	36%	50%	27%	45%	55%	28%	32%	37%	40%	44%	39%	40%	34%	35%	20%	26%	23%	20%		

Blue = DSA against cell #067 only

Gold = DSA against cell #068 only

Green = DSA against cell #067 and #68

Table 17. Individual laboratory results for Serum #070 - class I by Luminex

Ctr no.	A23	A24	A25	A32	B27	B37	B38	B49	B51	B52	B53	B57	B58	B59	B63	B77	B44	B13	B47	Bw4	A80	A2	A2403	A69	A1	A68	Other	
23	7254	7387	6088	6502	3204	3296	5320	4969	4845	4041	4807	5389	5493	3911	4824	3994	2929	2739	1942	4085								
54	11783	11961	7957	9022	3972	3838	6745	6727	6938	5097	6351	8237	7565	5218	6628	5282	4117	3370	2368		3320	2083		1661	1044	1310	B76,B35	One Lambda
206	8517	7612	5885	7120	3264	3417	5344	5495	5233	4214	5044	6363	6115	3955	5428	4097												One Lambda
230	8569	8487	6028	6886	3178	3013	5340	5137	5200	4028	4876	5897	5662	3906	4934	4229	2700	2719		4500								
774	6844	5688	5400	6489	2940	2984	5313	5242	5172	3999	4458	6076	5853	3951	4805	4010	3034	2501										One Lambda
792	7560	7372	4999	5378	2576	2614	4358	4350	4431	3340	3936	4889	4687	3353	4170	3467	2605	2134	1501		1559	837		669	484	589	B76,B35	One Lambda
836	8195	8144	5471	6233	5211	2720	5658	4775	4658	3551	4430	5452	4991	3696	7625	3935	3035	2545	1527		1406	1231	6760				B62	One Lambda
1160	8802	8784	6262	7173	3342	3445	5330	5484	5686	4270	4870	6156	5925	4332	5061	4432	3529	2920	1918	6156	1427							One Lambda
2400	7848	7154	5480	6470	2595	2680	4603	4548	4940	3691	4473	5279	4838	3434	4966	3932	2897	2363		3639								One Lambda
3224	10660	11007	7432	8281	3871	3599	6434	6361	6305	4875	5857	7388	7336	4902	6076	5105	4066	3343	2205	7388	2424	1555	9119	1078			A203	One Lambda
3625	5012	5012	3485	3738	1812	1738	2910	3058	3151	2409	2931	3886	3463	2536	2787	2642	1948	1636	1109		1008							One Lambda
3753	5103	4722	3929	4552	2132	2294	3938	3792	3667	3105	3742	4292	4286	3276	3875	2708	2029	1933	1490	3078	1428							One Lambda
4661	1597	1841	1214	1443	749	443	1048	1048	631	474	1045	1302	1019	558	1241	816	710		427	1841			1340					Lifecodes
8001	9117	8771	6107	6929	3210	3203	5558	5494	5420	4202	5109	6439	5849	4163	5065	4434	3295	2781	1976	6439	1846	1185						One Lambda
8050	5822	4668	4190	4986	2109	2102	3748	3825	3611	2773	3268	4122	4142	2799	3386	2787	1776	1470	1106	3299	1456	629						One Lambda
8083	10235	9852	7084	8155	3795	3694	6283	5998	5995	4622	5642	6765	6789	4664	5113	4767	3854	3348	2130	6789								One Lambda
8096	NT																											
8103	2684	3088	2003	2261	1158	1010	1734	1763	1403	1349	1843	1993	1650	1343	1811	1651	1158		832	3088			2598				B15	Lifecodes
Avg	7388	7150	5236	5978	2889	2711	4686	4592	4546	3532	4275	5290	5039	3529	4576	3664	2730	2557	1579	4573	1764	1253	4954	1136	764	950		
Std Dev.S	2692	2706	1801	2052	1092	947	1587	1525	1646	1220	1384	1781	1772	1198	1614	1196	992	607	582	1829	701	519	3616	499	396	510		
MFI %CV	36%	38%	34%	34%	38%	35%	34%	33%	36%	35%	32%	34%	35%	34%	35%	33%	36%	24%	37%	40%	40%	41%	73%	44%	52%	54%		

Blue = DSA against cell #067 only

Gold = DSA against cell #068 only

Green = DSA against cell #067 and #68

Table 18. Individual laboratory results for Serum #071 - class I by Luminex

Ctr no.	A1	B41	B42	B7	B8	B59	B60	B48	A36	B76	A23	B65	B81	A80	B37	B64	Cw17	Cw5	A24	B18	Cw15	Cw18	B39	B3901	Other	
23	6539	8851	9552	7501	17155	3458	6283	7380	2392	1603	1901	2383	7335	1487	1797	2009	1822	2931	2092	1443	2476	2028	1038		Cw2,Cw6	
54	13738	17344	17644	15578	21057	7646	11999	12858	4090	4523	4381	4431	15150	3706	2787	3709	2875	3094	4173	3085	2949	1974	2169		Cw2,A32,A29>	One Lambda
206	10795	14164	14835	13189	23171	5353	9408	10342	3253	3337			13119													One Lambda
230	10598	15719	16076	11774	24648	5944	9725	11145	3172	2678	2805	2873	11893	2291	2359	2280										
774	8818	12318	12653	11109	22420	5092	8769	9327	2378	3124		2771	10615	2259		2149										One Lambda
792	7991	13418	12977	10032	21965	5582	7898	9299	2471	2219	2569	3012	9982	1943	2194	2418	1368	1410	2397	1901	1352	1111	1248		Cw2,A32,B61>	One Lambda
836	8858	15699	15365	11605	25030	6128	8884	10947	2656	2269	2685	2911		1993	2505	2380	1363	1361	2403	1880	1285			1333	Cw2,A32>	One Lambda
1160	7792	13901	13868	10698	25021	5138	8565	9731	2480	2122	2570	2562	10161	1764	2023	1927	1592	1600		1579		1307	1039		A32	One Lambda
2400	8342	14151	14624	10693	25305	5459	8587	10294	2423	2276	2789	2885	10567						2686							One Lambda
3224	11621	16286	16485	14141	20244	6504	10513	11686	4353	2068	3708	3584		2705	2058	2858	2429	2684	3655	2387	2770	1928		1611	Cw2,A32,B61>	One Lambda
3625	6728	13179	12079	10328	21023	5278	7874	8878	2230	2443	2409	2108	10100	1831	2240	1786	1892	1669	1969	1380	1610	1553			Cw2,Cw6	One Lambda
3753	9096	16969	16909	12082	23415	6055	9726	11091	2653	2683	2332	3092	11771	2294	2492	2380			1219	1844						One Lambda
4661	1209	2041	2417	2953	8728																				B61,B703>	Lifecodes
8001	8942	16339	16174	11699	23018	5518	8758	10200	2716	2407	2613	2583	10852	2036	2068	1991	1704	1691	2398	1712	1624	1308	1175		Cw2,A32,Cw6	One Lambda
8050	6968	11348	11180	9256	22924	4755	7173	7979	1699	2258	1292	2088	8882	1480	1420	1600	1602	1724			1666	1215			Cw2	One Lambda
8083	9706	13337	13107	10814	22485	4835	8858	9709	3540	2785	2822	2561			2305		2429	2405	2638		2353				B8101	One Lambda
8096	5520	3821	5021	4900	12210	2957	2476				5802		4412	12634			4965	2710			4412				A2,A66,B49>	
8103	2101	3807	3807	3520	10375	1161	2882	1898					2857												B40,B8101>	Lifecodes
Avg	8076	12372	12487	10104	20566	5110	8140	9548	2834	2586	2906	2846	9835	2956	2187	2291	2186	2116	2563	1912	2009	1871	1334	1472		
Std Dev.S	3058	4711	4554	3418	5090	1474	2419	2454	719	687	1102	603	3218	2965	357	558	1040	652	834	532	630	1015	476	197		
MFI %CV	38%	38%	36%	34%	25%	29%	30%	26%	25%	27%	38%	21%	33%	100%	16%	24%	48%	31%	33%	28%	31%	54%	36%	13%		

Blue = DSA against cell #067 only

Gold = DSA against cell #068 only

Green = DSA against cell #067 and #68

Table 19. Individual laboratory results for Serum #072 - class I by Luminex

Ctr no.	A25	A26	A1	A36	A3	A43	A11	A80	Cw7	A34	A24	A66	Cw18	B73	A6601	Cw6	Cw8	Cw12	A1101	A1102	A2403	B38	B39	Other	
23	2938	2368	3158	2584	2912	2674	8106	1895	6974	1432	1505		2868	1299	3235	1251	2248								
54	7439	6350	6533	5564	5580	6253	16664	4466	7900	3866	3146	7031	3158	2269		1542							1651		One Lambda
206	4551	3962	4065	3164		4462	12460					4988													One Lambda
230	4791	3614	4868	3551	3524	4320	15500	2877	12453																
774	3881	2741	2785	2202	2081	2944	9818	2516	7316		3445														One Lambda
792	4065	3212	3901	3244	3405	3555	12350	2564	7198	2024	1784	4042	3456	1438		1384	1717	1294				693	902	B67,A32,A33>	One Lambda
836	4403	5107	4216	3560	4348	3824		2687	8827	2138	1709		3428	1159	3832	1194	1521	4804	12603	13823	1654				One Lambda
1160	3380	2625	3465	2802	2714	3160	11400	2116		1741	1380				3213										One Lambda
2400	3537	2717	3452	2906	2804	3183	11540	2312	7826			3672	2910												One Lambda
3224	5459	4363	5062	4209	4291	5027		3390	7733	3100	2381		2949	1606	5545	1192	1087		13112	14064	2267	1030	1339		One Lambda
3625	3203	2224	2395	2027	2160	2907	9081	1802	7411	1724	1178	3142	2863												One Lambda
3753	5107	4678	4964	4397	4069	4740	14612	3451	9552	2539	2154	3211	3373	1663											One Lambda
4661	516	452												586					2929	2616					Lifecodes
8001	4752	3927	4614	3880	3711	4094	13726	3139	7878	2539	1965	4904	2978	1481		1170	1049								One Lambda
8050	3923	2811	2892	2187	2063	3137	9657	2414	8208	1522			3698	1341	3576	1121	1974	1010							One Lambda
8083	6126	5084	6321	5074	4783	5732	14649	4099	9321	3448	2801	6249	3882	2092											One Lambda
8096	1313	2087	1765	911	1031		4269			659	4057	1227						3393					3974	A2,B15,B60>	
8103	2073	1514	1568	1581	1065	1736	5449	1313	2400	1062	864	1823			1823			1038	5449	5002	864				Lifecodes
Avg	3970	3324	3884	3167	3159	3859	11285	2736	7928	2138	2077	3976	3233	1594	3116	1265	1599	2308	8523	8876	1595	1899	1297		
Std Dev.S	1659	1452	1421	1228	1296	1190	3593	859	2124	936	905	1739	356	368	1566	148	479	1713	5114	5932	703	1805	376		
MFI %CV	42%	44%	37%	39%	41%	31%	32%	31%	27%	44%	44%	44%	11%	23%	50%	12%	30%	74%	60%	67%	44%	95%	29%		

Blue = DSA against cell #067 only

Gold = DSA against cell #068 only

Green = DSA against cell #067 and #68

Table 20. Individual laboratory results for Serum #069 - class II by Luminex

Ctr no.	DQ2	DQA1*05	DP10	DP13	DP14	DP23	DP28	DPw1	DPw4	DPw5	DR10	DR11	DR12	DR13	DR14	DR16	DR17	DR18	DR4	Other	
23																					
54	2763																				One Lambda
206																					One Lambda
230	0																				One Lambda
774	0																				One Lambda
792	3960		472	492	469	445	454	852	301	865	417	590	433	762	1041	409	570	516	480	DR8,DR52,DR7>	One Lambda
836	2047	2047																			One Lambda
1160	2286																				One Lambda
2400		2413																			One Lambda
3224																					
3625		2919																			One Lambda
3753	0																				One Lambda
4661																					Lifecodes
8001		2100																			One Lambda
8050																					One Lambda
8083	2091																				One Lambda
8096	NT																				
8103	NT																				Lifecodes
Avg	1643	2370																			
Std Dev.S	1488	400																			
MFI %CV	91%	17%																			

Blue = DSA against cell #067 only

Gold = DSA against cell #068 only

Green = DSA against cell #067 and #68

Table 21. Individual laboratory results for Serum #070 - class II by Luminex

Ctr	DR11	DR4	DP18	DP28	DPw2	DPw3	DR10	DR53	DP14	DP17	DP9	DP20	DR14	DP10	DPw6	DR9	DR1	DP402	DPw4	DQ7	DQ9	DQ8	DP11	Other	Lab
23	3911	9756	4784	4697	6126	5133	2143	6086	4089	4694	4850	5311	1285	4072	4354	1619		6000							
54	6167	20495	10639	10362	12103	10862	5219	18541	8821	8784	8839	10006	4572	8251	8613	3295	3877			12269	2801	3339	3806	DP19,DP23>	One Lambda
206	5806	18896					4536	15959					3254												One Lambda
230	5029	17564	6869	6112	9148	8094	3380	13463				7430						9023					3471		One Lambda
774	5049	17239	7540	7576	9047	7507	3643	13892	6458	6235	6560	7484	3009	6445	6218		2468			8646					One Lambda
792	5081	17769	7506	7629	8497	7712	3629	12974	5977	5982	6263	7263	3087	6111	6479	2592	2628			8599	1694	1938	2173	DQ4,DP19>	One Lambda
836	4180	18890	6526	6840	7870	6878	3210	12692	5269	5205	5555	6905	2608	5235	5635	2061	2166	7966			1351	1642	1958	DPA1*01,DP19>	One Lambda
1160	4977	18466	8148	8623	8120	8594	2777	11310	6661	6159	7119	7899	2614	6589	6466	2778	1464	8869					2256	DPA1*01,DQA1*03	One Lambda
2400	3875	16065	5637	5211	7046	5911	2794	10335	5618	4741	5350	5833	2389	4404	4834					7014			1794		One Lambda
3224	6228	17701	9404	9463	10916	9510	4611	15321	7747	7251	7484	9363	3723	7985	8088	2740	3239	10743			2105	2559	2564	DPA1*01,DP19>	
3625	3920	14117	4348	5335	4959	4810	1969		3937	4030	3879	5107	1601	4050	4291	1012	1396	5647			1038	1086	1111		One Lambda
3753	4529	18249	6451	6477	8416	6805	3162	12006	6383	6139	6816	7614		5595	5919	2195	1586	8405					2247	DP401	One Lambda
4661	2178	11266	3049	2444	3493	3235	570	3753	1990	1939	2161		483			529		3516			419	426		DR7,DPA1*01>	Lifecodes
8001	4618	19027	7474	7983	9008	7658	3167	13212	6271	6175	6623	7630	2827	6169	6747	2377	2313			9361	1541	1808	2097	DPA1*01,DP19>	One Lambda
8050	2708	14106	4953	4704	5600	4688	2045	9537	4168	3873	4475	5326	1924	4037	4148	1624				3928					One Lambda
8083	6447	16364	9435	9042	9961	9450	4372	13776	8360	7513	7923	8795	3239	7373		2264	2786			10945	2015	2184	2592		One Lambda
8096	NT																								
8103	2419	10715	3486	2642	4079	3510		4010	2321	2209	2403		3461							3949				DPA1*01,DPA1*03	Lifecodes
Avg	4537	16276	6641	6571	7774	6897	3202	11679	5605	5395	5753	7283	2615	5870	5789	2091	2392	7521		8089	1621	1873	2329		
Std Dev.S	1287	3187	2183	2314	2413	2209	1180	4129	2012	1879	1931	1504	1043	1470	1546	784	796	2308		3010	722	886	817		
MFI %CV	28%	20%	33%	35%	31%	32%	37%	35%	36%	35%	34%	21%	40%	25%	27%	38%	33%	31%		37%	45%	47%	35%		

Blue = DSA against cell #067 only

Gold = DSA against cell #068 only

Green = DSA against cell #067 and #68

Table 22. Individual laboratory results for Serum #071 - class II by Luminex

Ctr	DQ5	DR103	DR1	DQ6	DR51	DR15	DR16	DQA1*01	DP11	DP13	DP14	DP17	DPw1	DPw5	DR12	DR13	DR4	Other
23	4164	1045		2343														
54	6591	4699	4315		3935	1366		5616										One Lambda
206	5384																	One Lambda
230	0																	One Lambda
774	0																	One Lambda
792	9933	3872	3298	8624	3205	1138	1091			425			779	1427	379			One Lambda
836	6797	2694	2422	5851	2178			6797										One Lambda
1160	6288	1872	1749	5148	1830	605	702											One Lambda
2400	5562			4129														One Lambda
3224	6820	3318	3025	5663	2823	1057												
3625	6914	1669	1379	6273														One Lambda
3753	3888	2925	2358	4238	2490													One Lambda
4661	384	532	536		564	276												Lifecodes
8001	3780	2460	2139	2857	2104													One Lambda
8050	3939	2086	1805	2894	1988													One Lambda
8083	8488	3648	3210	7452	3265													One Lambda
8096		735	750		633	602	843		823	467		680				681	393	
8103	NT																	Lifecodes
Avg	4933	2427	2249	5043	2274	841	879	6207										
Std Dev.S	2911	1265	1101	1984	1044	410	197	835										
MFI %CV	59%	52%	49%	39%	46%	49%	22%	13%										

Blue = DSA against cell #067 only

Gold = DSA against cell #068 only

Green = DSA against cell #067 and #68

Table 23. Individual laboratory results for Serum #072 - class II by Luminex

Ctr	DQ5	DQ6	DR8	DQ8	DQ9	DR12	DR10	DQA1*01	DR1404	DR14	DP11	DP13	DPA1*01	DQ4	DQA1*02	DQA1*03	DR1	DR13	Other	
23	6081	6887	3616	1754	2101		1725													
54	14723	19752	7426	5206	5724	2376														One Lambda
206	11515	13186	6771	3898	3834			9447												One Lambda
230	10385	15609	6964	2091	2896															One Lambda
774	11636	16114	5740																	One Lambda
792	11426	15647	6986	3777	4281	1879	1798							1175						One Lambda
836	11387	16319	7098	3162	3471	1635	1302	16319	7846						2725	3471				One Lambda
1160	10246	14651	5361	3294	3363	1073														One Lambda
2400	8476	10073	5743	3311	2994															One Lambda
3224	13188	18285	6852	4284	4925	1737		18285												
3625	7674	10756	4633	2647	2814		1067													One Lambda
3753	11512	12937	8004	2823	3155	1801	1339													One Lambda
4661	1807	2944	2154	1026	781	401			2279											Lifecodes
8001	11762	16457	6358	3301	3523	1549														One Lambda
8050	8301	10513	5836	2002	2490															One Lambda
8083	16322	20325	11704	5789	7234															One Lambda
8096	1233	2309	1802	518		923				1859	2269	1967					1239	2182	DR51,DR52>	
8103	1994	3317	2259					3317	2165	2165			3317							Lifecodes
Avg	9426	12560	5850	3055	3572	1486	1446	11842	4097	2012										
Std Dev.S	4305	5632	2392	1403	1539	592	307	6831	3248	216										
MFI %CV	46%	45%	41%	46%	43%	40%	21%	58%	79%	11%										

Blue = DSA against cell #067 only

Gold = DSA against cell #068 only

Green = DSA against cell #067 and #68

Virtual Crossmatch Results

Table 24. Individual Virtual crossmatch results for Serum #71 vs Donor #V1

Donor #V1 HLA A*01:01-A*11:01-B*35:01-B*57:01-C*04:01-C*06:02/DRB1*07-DRB1*15-DRB4*01:03N-DRB5*01-DQA1*01:02:01G-DQA1*02:01-DQB1*03:03:02G-DQB1*05:02:01G-DPw2-DP401

Center	Patient	CPRA	Virtual T Cell Prediction	Class I DSA (MFI)	Virtual B-cell prediction	Class II DSA (MFI)	Risk Assessment	Comments
23	71		Positive	Cw6 (1688) A1 (6540)	Positive	DQ5 (4164) DQA1*01 (2560)	Unacceptable	
54	71	*95	Positive	Cw6 (1509) A1 (13738)	Positive	DR51 (3935) DQ5 (1652)	Unacceptable	
206	71	67%	Positive	A1 (10795)	Positive	DQ5 (5384)	Unacceptable	
230	71	62	Positive	A1 (10598)	Negative		Unacceptable	Very weak possible class II DSA present
774	71	24	Positive	A1 (8800)	Positive	No DSA	Unacceptable	
792	71	92	Positive	A1 (7991)	Positive	DR15 (1138) DQ5 (3156)	Unacceptable	
1160	71	88%	Positive	A1 (7792)	Positive	DR15 (605) DR51 (1638) DQ5 (1431)	Unacceptable	
1461	71		Positive	A24 (378) B60 (1991) B48 (1030) B7 (2584) B703 (2401) A1 (1484) A23 (294) A36 (473) B76 (340) B41 (2492) B42 (2682) B59 (664) B8 (7270) B81 (1765)	Positive	DR1 (421) DR103 (479) DR15 (272) DR16 (203) DR51 (483) DQ5 (251) DQ6 (507) DQA1*01 (565)	Unacceptable	
2400	71	69%	Positive	A1 (8341)	Positive		Unacceptable	
3224	71	97	Positive	Cw6 (1407) A1 (11621)	Positive	DR15 (1058) DR51 (2537) DQ5 (1536)	Unacceptable	
3625	71		Positive	Cw6 (1370) A1 (6728)	Positive	DQ5 (3006) DQA1*01 (3006)	Unacceptable	
3753	71	84.62	Positive	A1 (9096)	Positive	DR51 (2490) DQ5 (3888)	Unacceptable	
3966	71	95	Positive	A1 (8282)	Positive	DR51 (1773) DQ5 (3714)	Unacceptable	
4661	71	56%	Positive	Cw4 (197) Cw6 (250) A1 (1209) B57 (170) B35 (104) A1101 (98)	Positive	DR7 (6) DR15 (276) DR51 (520) DR53 (80) DQ5 (146) DQ9 (68) DPw2 (72) DP401 (63)	Unacceptable	Ab against Epitope 163RG;Ab against Epitope 96EV, 71A
5219	71	CLASSI:7%, CLASSII:1%	Positive	A1 (1090)	Borderline	DR51 (592)	Unacceptable	
8001	71	94	Positive	Cw6 (1137) A1 (8942)	Positive	DR15 (656) DR51 (1904) DQ5 (775)	Unacceptable	
8050	71	82%	Positive	A1 (6968)	Positive	DR51 (1988)	Unacceptable	Multiple DSA; High kidney points
8080	71	92	Positive	Cw6 (1847) A1 (10173)	Positive	DR51 (1869) DQ5 (1925)	Unacceptable	
8083	71		Positive	A1 (9706)	Positive	DQA1*01 (7452)	Unacceptable	Also A1 which is expressed on B cells
8096	71		Positive	A1 (5520)	Positive	DR15 (602) DR51 (633)	Unacceptable	
8103	71	0	Positive	A1 (2101)	Negative		Unacceptable	

Table 25. Individual Virtual crossmatch results for Serum #71 vs Donor #V2

Donor #V2 HLA A*02:01-B*40:05-B*44:02:01G-C*05:01-C*07:02:01G/DRB1*04:01-DRB1*14:02-DRB3*01:01:02G-DRB4*01:01:01G-DQA1*03:01:01G-DQA1*05:01:01G-DQB1*03:01-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
23	71		Negative	Cw5 (2931)	Negative		Acceptable	
54	71	95	Positive	Cw5 (3094)	Negative		Acceptable	
206	71	67%	Negative	No CLASS I DSA PRESENT	Negative	No DSA	Acceptable	
230	71	62	Negative	No DSA	Negative	No DSA	Acceptable	Weak Cw5
774	71	0	Negative	No DSA	Negative	No DSA	Acceptable	
792	71	92	Negative	Cw5 (1410)	Negative	No DSA	Acceptable	
1160	71	88%	Negative - Borderline Neg/weak Pos	Cw5 (1600)	Negative - Borderline Neg/weak Pos		–	Due to the presence of weak DSA against Cw5, also prior donor mismatched antigen, paired kidney exchange is recommended or direct donation with closely post-transplant DSA monitoring
1461	71		Negative	A24 (378) B60 (1991) B48 (1030) B7 (2584) B703 (2401) A1 (1484) A23 (294) A36 (473) B76 (340) B41 (2492) B42 (2682) B59 (664) B8 (7270) B81 (1765)	Negative	DR1 (421) DR103 (479) DR15 (272) DR16 (203) DR51 (483) DQ5 (251) DQ6 (507) DQA1*01 (565)	Acceptable	
2400	71	69%	Negative		Negative		Acceptable	
3224	71	97	U	Cw5 (2684)	Negative		U	Virtual T-cell crossmatch cannot be determined, cannot test for B*40:05, weak Cw5 unlikely to cause positive crossmatch; Risk assessment cannot be determined, prospective crossmatch indicated.
3625	71		Negative	Cw5 (1669)	Negative		Acceptable	
3753	71	84.62	Negative	No DSA	Negative	No DSA	Acceptable	No HLA-Class I donor specific antibodies detected;No HLA-Class II donor specific antibodies detected.
3966	71	95	Negative		Negative		Acceptable	B*40:01 not include in SAB panel
4661	71	56%	Negative	A2 (166) B50 (100) B44 (123) Cw5 (179) Cw7 (100)	Negative	DR4 (75) DR14 (69) DR52 (39) DR53 (80) DQ7 (57) DPw2 (72)	Acceptable	
5219	71	CLASSI:7%, CLASSII:1%	Negative		Negative		Acceptable	HLA B*40:05 and DRB1*14:02 is not represented in the LSA Kit; HLA DRB1*14:02 is not represented in the LSA Kit

Table 25. Individual Virtual crossmatch results for Serum #71 vs Donor #V2

Donor #V2 HLA A*02:01-B*40:05-B*44:02:01G-C*05:01-C*07:02:01G/DRB1*04:01-DRB1*14:02-DRB3*01:01:02G-DRB4*01:01:01G-DQA1*03:01:01G-DQA1*05:01:01G-DQB1*03:01-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
8001	71	94	Borderline	Cw5 (1691)	Negative		Unacceptable	B*40:05 not included in LSAB panel
8050	71	82%	Negative	Cw5 (1724)	Negative		Acceptable	
8080	71	92	Negative	Cw5 (2657)	Negative	No DSA	Acceptable	Repeated mismatch identified, communicate with the clinical program
8083	71		Negative	Cw5 (2405)	Negative		Acceptable	
8096	71		Positive	A2 (3588) B44 (4408) Cw5 (2710)	Positive	DR4 (393)	Unacceptable	
8103	71		Borderline	B40 (2882)	Negative		Confirm with flow or CDC crossmatch	B*40:01 was detected indicating possible risk. B*40:05 is not in the kit we use;

Table 26. Individual Virtual crossmatch results for Serum #71 vs Donor #V3

Donor #V3 HLA A*26:01-A*34:01-B*15:01-C*03:03:01G/DRB1*04:10-DRB1*15:02-DRB4*01:01:01G-DRB5*01:02:01G-DQA1*01:01:01G-DQA1*03:01:01G-DQB1*04:02-DQB1*05:01-DPB1*01:01:01G

Center	Patient	CPRA	Virtual T Cell Prediction	Class I DSA (MFI)	Virtual B-cell prediction	Class II DSA (MFI)	Risk Assessment	Comments
23	71		Negative		Positive	DQ5 (4164) DQA1*01 (2560)	Acceptable	
54	71	95	Negative		Positive	DQA1*05 (6591)	Unacceptable	Virtual B cell positive
206	71	67%	Negative	No CLASS I DSA PRESENT	Positive	DQ5 (5315)	Unacceptable	
230	71	62	Negative	No Class I DSA	Negative		Acceptable	very weak possible DSA present
774	71	0	Negative	No Class I DSA	Negative		Acceptable	
792	71	92	Negative	No Class I DSA	Positive	DR15 (1005) DQ5 (9933)	Unacceptable	
1160	71	88%	Negative		Positive	DR15 (605) DR51 (1638) DQ5 (6288)	Unacceptable	
1461	71		Negative	A24 (378) B60 (1991) B48 (1030) B7 (2584) B703 (2401) A1 (1484) A23 (294) A36 (473) B76 (340) B41 (2492) B42 (2682) B59 (664) B8 (7270) B81 (1765)	Positive	DR1 (421) DR103 (479) DR15 (272) DR16 (203) DR51 (483) DQ5 (251) DQ6 (507) DQA1*01 (565)	Unacceptable	
2400	71	69%	Negative		Positive	DQ5 (5455)	Unacceptable	
3224	71	97	Negative		Positive	DR15 (1000) DR51 (2838) DQ5 (6820)	-	
3625	71		Negative		Positive	DQ5 (6914)	Unacceptable	
3753	71	84.62	Negative		Positive	DR51 (2490) DQ5 (3888)	Unacceptable	Patient is only 84.6% cPRA. Recommend to wait for another donor. If proceed, patient is at risk of AMR. Recommend augmented immunospression and close post transplant monitoring.
3966	71	95	Negative		Positive	DR51 (1773) DQ5 (8504)	Unacceptable	
4661	71	56%	Negative	B15 (75) A26 (95) A34 (56) Cw9 (150)	Positive	DR4 (54) DR15 (205) DR51 (520) DR53 (80) DQ4 (64) DQ5 (85) DPw1 (92)	Unacceptable	Ab against 71A, 96EV
5219	71	CLASSI:7%, CLASSII:1%	Negative		Borderline	DR51 (560)	Acceptable	To proceed with caution in view of borderline positivity associated with DR51. HLA A*34:01 is not represented in the LSA Kit; HLA DRB5*01:02 and DRB1*04:10 alleles are not represented in the LSA kit.
8001	71	94	Negative		Positive	DR15 (582) DQ5 (3780)	Unacceptable	DRB1*04:10, DRB5*01:02 not included in LSAB panel
8050	71	82%	Negative		Negative	DR51 (1988) DQ5 (3938)	Unacceptable	Multiple DSA; High kidney points
8080	71	92	Negative	No Class I DSA	Borderline	DR51 (1765) DQ5 (6309)	Unacceptable	Communicate with the clinical program
8083	71		Negative		Positive	DQ5 (8488) DQA1*01 (8488)	Unacceptable	
8096	71		Positive	A34 (9470)	Positive	DR4 (393) DR15 (602) DR51 (633)	Unacceptable	
8103	71		Negative		Negative		Acceptable	

Table 27. Individual Virtual crossmatch results for Serum #71 vs Donor #V4

Donor #V4 HLA A*02:01-A*24:03-B*07:02:01G-B*40:01-C*03:04-C*07:02:01G/DRB1*13:02-DRB1*15:01-DRB3*03:01-DRB5*01:01-DQA1*01:02:01G-DQB1*06:02-DQB1*06:04-DPB1*04:01:01G-DPB1*04:02:01G

Center	Patient	CPRA	Virtual T Cell Prediction	Class I DSA (MFI)	Virtual B-cell prediction	Class II DSA (MFI)	Risk Assessment	Comments
23	71		Positive	B60 (6283) B7 (7501)	Positive	DQ6 (2343) DQA1*01 (2560)	Unacceptable	
54	71	95	Positive	B60 (11999) B7 (15578)	Positive	DR51 (3760) DQA1*01 (1652)	Unacceptable	
206	71	67%	Positive	B60 (9295) B7 (13189)	Negative	No Class II DSA	Unacceptable	
230	71	62	Positive	B60 (9838) B7 (11774)	Negative		Unacceptable	Very weak possible class II DSA present
774	71	8	Positive	B60 (8700) B7 (11000)	Negative	No Class II DSA	Unacceptable	
792	71	92	Positive	B60 (7898) B7 (10032)	Positive	DR51 (3205) DQ6 (2308)	Unacceptable	
1160	71	88%	Positive	A24 (498) B60 (8565) B7 (10698)	Positive	DR15 (605) DR51 (1638) DQ6 (1389)	Unacceptable	
1461	71		Positive	A24 (378) B60 (1991) B48 (1030) B7 (2584) B703 (2401) A1 (1484) A23 (294) A36 (473) B76 (340) B41 (2492) B42 (2682) B59 (664) B8 (7270) B81 (1765)	Positive	DR1 (421) DR103 (479) DR15 (272) DR16 (203) DR51 (483) DQ5 (251) DQ6 (507) DQA1*01 (565)	Unacceptable	
2400	71	69%	Positive	B60 (8467) B7 (10600)	Positive	DR51 (1479)	Unacceptable	
3224	71	97	Positive	B60 (10513) B7 (14141)	Positive	DR15 (1000) DR51 (2823)	Unacceptable	weak Positive
3625	71		Positive	B60 (7874)	Positive	DR51 (1317) DQ6 (2649)	Unacceptable	
3753	71	84.62	Positive	A24 (2265) B60 (9726) B7 (12082)	Positive	DR51 (2490) DQ6 (4238)	Unacceptable	
3966	71	95	Positive	B60 (8502) B7 (10528)	Positive	DR51 (1773)	Unacceptable	
4661	71	56%	Positive	A2 (166) B60 (1531) B7 (2953) Cw10 (135) Cw7 (100) A2403 (203)	Positive	DR13 (44) DR15 (276) DR51 (520) DR52 (32) DQ6 (267) DP402 (79) DP401 (63)	Unacceptable	Ab against 180E; Ab against 71A, 96EV
5219	71	CLASSI:7%, CLASSII:1%	Positive	B40 (868) B60 (868) B7 (3011)	Borderline	DR51 (560)	Unacceptable	HLA DRB1*13:02 allele is not represented in the LSA Kit.
8001	71	94	Positive	B60 (8758) B7 (11699)	Positive	DR15 (614) DR51 (1904) DQ6 (593)	Unacceptable	DRB1*13:02 not included in LSAB panel
8050	71	82%	Positive	B60 (7173) B7 (9256)	Positive	DR51 (1988)	Unacceptable	Multiple DSA; High kidney points
8080	71	92	Positive	B60 (9885) B7 (12936)	Positive	DR51 (1869)	Unacceptable	
8083	71		Positive	B60 (8858) B7 (10814)	Positive	DQA1*01 (7452)	Unacceptable	Also B7 and B60 which are expressed on B cells
8096	71		Positive	A2 (3588) B60 (2476) B7 (4900) B42 (5021)	Positive	DR13 (681) DR15 (602) DR51 (633)	Unacceptable	
8103	71		Positive	B40 (2882) B7 (3520)	Negative		Unacceptable	

Table 28. Individual Virtual crossmatch results for Serum #72 vs Donor #V1

Donor #V1 HLA A*01:01-A*11:01-B*35:01-B*57:01-C*04:01-C*06:02/DRB1*07-DRB1*15-DRB4*01:03N-DRB5*01-DQA1*01:02:01G-DQA1*02:01-DQB1*03:03:02G-DQB1*05:02:01G-DPw2-DP401

Center	Patient	CPRA	Virtual T Cell Prediction	Class I DSA (MFI)	Virtual B-cell prediction	Class II DSA (MFI)	Risk Assessment	Comments
23	72		Positive	A11 (8106) A1 (3158)	Positive	DQ5 (6031) DQ9 (2101) DQA1*01 (6685)	Unacceptable	
54	72	98	Positive	Cw6 (1542) A11 (15189) A1 (6533)	Positive	DQ5 (10442) DQ9 (4268) DQA1*02 (4268)	Unacceptable	
206	72	86%	Positive	A11 (12460) A1 (4065)	Positive	DQ5 (9858) DQ9 (3122)	Unacceptable	
230	72	95	Positive	A11 (15517) A1 (4868)	Positive	DR5 (11800)	Unacceptable	
774	72	50	Positive	A11 (9000) A1 (2700)	Positive	DQ5 (11000)	Unacceptable	
792	72	96	Positive	Cw6 (1384) A11 (11461) A1 (3901)	Positive	DQ5 (8564) DQ9 (3554)	Unacceptable	
1160	72	91%	Positive	A11 (10564) A1 (3465)	Positive	DQ5 (5415) DQ9 (2852)	Unacceptable	
1461	72		Positive	A11 (2661) A66 (582) A1 (498) A25 (608) A26 (449) A36 (553) A43 (445) Cw7 (765) Cw12 (585)	Positive	DR8 (1293) DR12 (277) DR1404 (1455) DQ5 (1155) DQ8 (671) DQ9 (458) DQ6 (2058) DQA1*01 (2058)	Unacceptable	
2400	72	95%	Positive	A11 (10865) A1 (3333)	Positive	DQ5 (6959)	Unacceptable	
3224	72	95	Positive	Cw6 (1192) A1 (5062) A1101 (13112)	Positive	DQ5 (9542) DQ9 (4925) DQA1*01 (16164)	Unacceptable	
3625	72		Positive	A11 (9081) A1 (2395)	Positive	DQ5 (5240) DQ9 (2814)	Unacceptable	
3753	72	96.84	Positive	A11 (14612) A1 (4964)	Positive	DQ5 (11512) DQ9 (3155)	Unacceptable	
3966	72	59	Positive	Cw6 (1993) A11 (10987) A1 (4162)	Positive	DQ5 (8504) DQA1*01 (12968)	Unacceptable	
4661	72	59%	Positive	Cw4 (190) Cw6 (222) A1 (261) B57 (103) B35 (117) A1101 (2929)	Positive	DR7 (101) DR15 (164) DR51 (118) DR53 (106) DQ5 (1794) DQ9 (781) DPw2 (70) DP401 (159)	Unacceptable	Ab against Epitope 163RW ;Ab against 45GV
5219	72	CLASSI:9%, CLASSII:16%	Positive	A11 (4522) A1 (567) A1101 (4522)	Positive	DQ3 (768) DQ5 (2087) DQ9 (768) DQA1*01 (3956)	Unacceptable	
8001	72	98	Positive	Cw6 (1170) A11 (12767) A1 (4614)	Positive	DQ5 (7958) DQ9 (3523) DQA1*01 (13548)	Unacceptable	
8050	72	98%	Positive	Cw6 (1121) A11 (9657) A1 (2892)	Positive	DQ5 (8301) DQ9 (2490)	Unacceptable	Multiple DSA; High kidney points
8080	72	97	Positive	A1 (4454) A1101 (11847)	Positive	DQ5 (8769) DQ9 (3562)	Unacceptable	
8083	72		Positive	A11 (13817) A1 (6321)	Positive	DQ9 (7234) DQA1*01 (19358) DQA1*02 (7234)	Unacceptable	Also A1 and A11 which are expressed on B cells
8096	72		Positive	A11 (4269) A1 (1765) B35 (1772)	Positive	DR15 (2431) DR51 (2007) DQ5 (1233)	Unacceptable	
8103	72		Positive	A11 (5449) A1 (1568) A1101 (5449)	Positive	DQ5 (1994) DQA1*01 (3317)	Unacceptable	

Table 29. Individual Virtual crossmatch results for Serum #72 vs Donor #V2

Donor #V2 HLA A*02:01-B*40:05-B*44:02:01G-C*05:01-C*07:02:01G/DRB1*04:01-DRB1*14:02-DRB3*01:01:02G-DRB4*01:01:01G-DQA1*03:01:01G-DQA1*05:01:01G-DQB1*03:01-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
23	72		Negative	Cw7 (6975)	Negative		Acceptable	
54	72	98	Positive	Cw7 (7900)	Negative		Unacceptable	
206	72	86%	Negative	No DSA	Negative	No DSA	Acceptable	
230	72	95	Borderline	Cw7 (12453)	Negative	No DSA	Acceptable	Cw7 needs crossmatch
774	72	49	Positive	Cw7 (7300)	Negative	No DSA	Unacceptable	Unacceptable for deceased donor. Living donor requires further testing before exclusion
792	72	96	Positive	Cw7 (7198)	Positive	No DSA	Unacceptable	
1160	72	91%	Negative		Negative		Acceptable	B*40:05 is not present on the antibody panel, use B50 instead to evaluate DSA status. Cw7 (MFI = 7044) reactivity detected by SAB was ruled out by phenotype bead assays.
1461	72		Positive	A11 (2661) A66 (582) A1 (498) A25 (608) A26 (449) A36 (553) A43 (445) Cw7 (765) Cw12 (585)	Negative	DR8 (1293) DR12 (277) DR1404 (1455) DQ5 (1155) DQ8 (671) DQ9 (458) DQ6 (2058) DQA1*01 (2058)	Unacceptable	
2400	72	95%	Positive	Cw7 (7606)	Negative		Unacceptable	
3224	72	95	Borderline	Cw7 (7733)	Negative		Need prospective crossmatch	DSA to B*40:05 cannot be determined.
3625	72		Positive	Cw7 (7411)	Negative		Unacceptable	
3753	72	96.84	Negative	Cw7 (9552)	Negative		Acceptable	DSA to Cw7 can not be ruled out. Recommend to proceed with immunosuppression augmented with IVIG, STAT single antigen Class I and Class II, and close post transplant monitoring for HLA antibodies.
3966	72	59	Positive	Cw7 (7650)	Negative		Unacceptable	
4661	72	59%	Negative	A2 (77) B50 (146) B44 (152) Cw5 (146) Cw7 (679)	Negative	DR4 (98) DR14 (101) DR52 (43) DR53 (106) DQ7 (83) DPw2 (70)	Acceptable	
5219	72	CLASSI:9%, CLASSII:16%	Positive	Cw7 (767)	Negative		Unacceptable	HLA C*07:02 and HLA DRB1*14:02 alleles are not represented in the LSA Kit; HLA DRB1*14:02 allele is not represented in the LSA Kit.

Table 29. Individual Virtual crossmatch results for Serum #72 vs Donor #V2

Donor #V2 HLA A*02:01-B*40:05-B*44:02:01G-C*05:01-C*07:02:01G/DRB1*04:01-DRB1*14:02-DRB3*01:01:02G-DRB4*01:01:01G-DQA1*03:01:01G-DQA1*05:01:01G-DQB1*03:01-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
8001	72	98	Positive	Cw7 (7878)	Positive		Unacceptable	B*40:05 not included in LSAB panel
8050	72	98%	Unpredictable	Cw7 (8208)	Unpredicatable		Unacceptable	High MFI DSA; high kidney points
8080	72	97	Positive	Cw7 (8684)	Positive	No DSA	Unacceptable	
8083	72		Positive	Cw7 (9321)	Positive	DQA1*03 (4114)	Unacceptable	Also Cw7 which is expressed on B cells
8096	72		Positive	A2 (3143) B60 (2982) Cw5 (1100)	Positive	DR4 (477) DR14 (1859) DR52 (2159) DQ5 (1233)	Unacceptable	
8103	72		Positive	Cw7 (1466)	Borderline	DR14 (2165)	Unacceptable	DRB1*14:04 detected indicating risk, but DRB1*14:02 not in kit.

Table 30. Individual Virtual crossmatch results for Serum #72 vs Donor #V3

Donor #V3 HLA A*26:01-A*34:01-B*15:01-C*03:03:01G/DRB1*04:10-DRB1*15:02-DRB4*01:01:01G-DRB5*01:02:01G-DQA1*01:01:01G-DQA1*03:01:01G-DQB1*04:02-DQB1*05:01-DPB1*01:01:01G

Center	Patient	CPRA	Virtual T Cell Prediction	Class I DSA (MFI)	Virtual B-cell prediction	Class II DSA (MFI)	Risk Assessment	Comments
23	72		Negative	A34 (1432)	Positive	DQ5 (6081) DQA1*01 (6685)	Acceptable	
54	72	98	Positive	A26 (6350) A34 (3054)	Positive	DQ5 (14723) DQA1*01 (19752)	Unacceptable	
206	72	86%	Positive	A26 (3962)	Positive	DQ5 (13052)	Unacceptable	
230	72		Borderline	A26 (3756)	Positive	DQ5 (13987) DQA1*01 (17028)	Unacceptable	
774	72	30	Positive	A26 (2700)	Positive	DQ5 (11600)	Unacceptable	
792	72	96	Positive	A26 (3212) A31 (1474)	Positive	DQ5 (11426)	Unacceptable	
1160	72	91%	Positive	A26 (2625) A34 (1219)	Positive	DQ5 (10246)	Unacceptable	
1461	72		Positive	A11 (2661) A66 (582) A1 (498) A25 (608) A26 (449) A36 (553) A43 (445) Cw7 (765) Cw12 (585)	Positive	DR8 (1293) DR12 (277) DR1404 (1455) DQ5 (1155) DQ8 (671) DQ9 (458) DQ6 (2058) DQA1*01 (2058)	Unacceptable	
2400	72	95%	Positive	A26 (2565) A34 (1184)	Positive	DQ5 (9789)	Unacceptable	
3224	72	95	Positive	A26 (4363) A34 (2259)	Positive	DQ5 (13188) DQA1*01 (13189)	Unacceptable	
3625	72		Positive	A26 (2224) A34 (1724)	Negative		Unacceptable	
3753	72	96.84	Positive	A26 (4678) A34 (2539)	Positive	DQ5 (11512)	Unacceptable	
3966	72	59	Positive	A26 (3476) A34 (2652)	Positive	DQ5 (8504) DQA1*01 (9081) DQA1*03 (3568)	Unacceptable	
4661	72	59%	Positive	B15 (91) A26 (452) A34 (289) Cw9 (154)	Positive	DR4 (62) DR15 (91) DR51 (118) DR53 (106) DQ4 (123) DQ5 (703) DPw1 (166)	Unacceptable	Ab against 163RW; Ab against 45GV
5219	72	CLASSI:9%, CLASSII:16%	Positive	A26 (1034) A34 (800)	Negative		Unacceptable	HLA A*34:01 is not represented in the LSA Kit; HLA DRB5*01:02 and DRB1*04:10 alleles is not represented in the LSA kit.
8001	72	98	Positive	A26 (3927) A34 (1927)	Positive	DQ5 (11762) DQA1*01 (11762)	Unacceptable	DRB1*04:10, DRB5*01:02 not included in LSAB panel
8050	72	98%	Unpredictable	A26 (2811) A34 (1522)	Positive	DQ5 (8301)	Unacceptable	Multiple DSA; High kidney points
8080	72	97	Negative	A26 (3974) A34 (1721)	Positive	DQ5 (11111)	Unacceptable	
8083	72		Positive	A26 (5084) A34 (2463)	Positive	DQ5 (16322) DQA1*01 (16322) DQA1*03 (4114)	Unacceptable	Also A26 and A34 which are expressed on B cells
8096	72		Positive	B15 (3902) A26 (2087) A34 (659)	Positive	DR4 (477) DR51 (2007) DQ5 (1233)	Unacceptable	
8103	72		Positive	A26 (1514) A34 (1062)	Positive	DQ5 (1824) DQA1*01 (801)	Unacceptable	

Table 31. Individual Virtual crossmatch results for Serum #72 vs Donor #V4

Donor #V4 HLA A*02:01-A*24:03-B*07:02:01G-B*40:01-C*03:04-C*07:02:01G/DRB1*13:02-DRB1*15:01-DRB3*03:01-DRB5*01:01-DQA1*01:02:01G-DQB1*06:02-DQB1*06:04-DPB1*04:01:01G-DPB1*04:02:01G

Center	Patient	CPRA	Virtual T Cell Prediction	Class I DSA (MFI)	Virtual B-cell prediction	Class II DSA (MFI)	Risk Assessment	Comments
23	72		Negative	A24 (1505) Cw7 (6975)	Positive	DQ6 (2343) DQA1*01 (6685)	Acceptable	
54	72	98	Positive	A24 (2888) Cw7 (7900)	Positive	DQ6 (11301) DQA1*01 (17608)	Unacceptable	
206	72	86%	Negative		Positive	DQ6 (9199)	Unacceptable	
230	72	95	Positive	Cw7 (12453)	Positive	DQ6 (9848)	Unacceptable	
774	72	68	Positive	Cw7 (7300)	Positive	DQ6 (8400)	Unacceptable	
792	72	96	Positive	A24 (1631) Cw7 (7198)	Positive	DQ6 (7765)	Unacceptable	
1160	72	91%	Borderline Neg/Weak Pos	A24 (1297)	Positive	DQ6 (6991)	Unacceptable	Cw7 (MFI=7044) reactivity detected by SAB was ruled out by phenotype bead assays
1461	72		Positive	A11 (2661) A66 (582) A1 (498) A25 (608) A26 (449) A36 (553) A43 (445) Cw7 (765) Cw12 (585)	Positive	DR8 (1293) DR12 (277) DR1404 (1455) DQ5 (1155) DQ8 (671) DQ9 (458) DQ6 (2058) DQA1*01 (2058)	Unacceptable	
2400	72	95%	Negative		Positive	DQ6 (14717)	Unacceptable	
3224	72	95	Positive	Cw7 (7733) A2403 (2267)	Positive	DQ6 (10106) DQA1*01 (16164)	Unacceptable	DQB1*06:02 10106, DQB1*06:04 8273
3625	72		Positive	Cw7 (7411)	Positive	DQ6 (6058)	Unacceptable	
3753	72	96.84	Positive	A24 (2154) Cw7 (9552)	Positive	DQ6 (12937)	Unacceptable	
3966	72	59	Positive	A24 (1691) Cw7 (7650)	Positive	DQ6 (9927) DQA1*01 (8118)	Unacceptable	
4661	72	59%	Negative	A2 (77) B60 (96) B7 (130) Cw10 (154) Cw7 (679) A2403 (221)	Positive	DR13 (114) DR15 (164) DR51 (118) DR52 (82) DQ6 (2944) DP402 (87) DP401 (159)	Unacceptable	Ab against 45GV
5219	72	CLASSI:7%, CLASSII:16%	Positive	A24 (505) Cw7 (767) A2403 (505)	Positive	DQ6 (3956) DQA1*01 (3956)	Unacceptable	HLA DRB1*13:02 is not represented in the LSA Kit.
8001	72	98	Positive	A24 (1804) Cw7 (7878)	Positive	DQ6 (8284) DQA1*01 (13548)	Unacceptable	DRB1*13:02 not included in LSAB panel
8050	72	98%	Unpredictable	Cw7 (8208)	Positive	DQ6 (10513)	Unacceptable	Multiple DSA; High kidney points
8080	72	97	Positive	Cw7 (8684) A2403 (1816)	Positive	DQ6 (17458)	Unacceptable	
8083	72		Positive	A24 (2523) Cw7 (9321)	Positive	DQ6 (15937) DQA1*01 (19358)	Unacceptable	Also A24 and Cw7 which are expressed on B cells
8096	72		Positive	A24 (4057) A2 (3143) B60 (2982)	Positive	DR13 (2182) DR15 (2431) DR51 (2007) DR52 (2159) DQ6 (2309)	Unacceptable	
8103	72		Positive	A24 (864) Cw7 (2400) A2403 (864)	Positive	DQ6 (3317) DQA1*01 (3317)	Unacceptable	