

Report of the 15th Flow and Virtual Crossmatch Exchange January 14, 2019

Cells	85-86
Serum	87-90

For the 15th Flow and Virtual Crossmatch Exchange, Serum 83 (patient 1) and virtual donor V3 from Flow Crossmatch Exchange 14 (September 2018) were re-examined as serum 87 and cell 85. A comparison of virtual crossmatch (VXM) predictions (serum 83 vs. V3) against the physical flow crossmatch (FXM) (serum 87 vs. cell 85) are summarized in **Part 1** of this

report. **Part 2** examines the single antigen data for the 4 sera examined (serum nos. 87 - 90) in this study. **Part 3** summarizes the flow crossmatch results for 2 cells (cell nos. 85 - 86) against the 4 sera. Finally, in **Part 4**, the virtual crossmatch predictions for 4 potential donors (V1 - V4) against 2 sera (serum 89 and serum 90) are examined.

Part 1

Physical Flow Cytometric Crossmatch vs. Virtual Crossmatch

Among the 24 labs submitting VXM predictions for serum 83 vs. donor V3 in Exchange 14, 20 reported back physical T-cell FXM results and 19 reported back physical B-cell FXM results for the patient-donor pair (serum 87 vs. cell 85) in Exchange 15 (Table 1a). T-cell FXM results among labs were, overall, consistent with predictions, as 14 labs reported the T-cell FXM as positive in agreement with predictions (Table 1b). Only 2 labs which had predicted the T-cell FXM to be positive, reported the physical FXM as negative. Meanwhile, the 4 labs predicting the T-cell FXM to be borderline, reported the physical FXM as positive as well. The reporting of B-cell FXM outcome was also consistent with predictions, as all 19 labs which had pre-

dicted the expected B-cell FXM to be positive, reporting the physical B-cell FXM as positive as well.

The reporting of DSA specificities and strength was also consistent across the 2 studies (Table 1c). In Exchange 14, anti-B58 (4530), -B55 (1269), -DR4 (12189), -DR53 (4740), -DQ4 (3185), and -DQA1*03 (6260) reactivity was reported against donor V3. In Exchange 15, the same antibodies, B58, B55, DR4, DR53, DQ4, and DQA1*03, were re-reported against cell 85, with labs reporting median MFI values of 4701, 1636, 12458, 5112, 5351, and 6345, respectively.

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

Exchange 014					Exchange 015				
Virtual Crossmatch - Serum 83 (Patient 1) vs. Donor V3					Physical Flow Crossmatch - Serum 87 vs. Cell 85				
Donor	Serum no.	#Labs	T-cell Prediction	B-cell Prediction	Cell	Serum no.	#Labs	T-cell Results	B-cell Results
V3	83	20	POS(16) Borderline(4)	POS(19) NEG(1)	85	87	20	POS(18) NEG(2)	POS(19) NT(1)

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

		T-cell Virtual XM (Exchange 14)					B-cell Virtual XM (Exchange 14)		
		+	-	∅			+	-	∅
Physical Flow XM (Exchange 15)	+	14		4	Physical Flow XM (Exchange 15)	+	19		
	-	2				-			
	∅					∅		1	

+ / - = positive/negative ∅ = uncertain/not typed

n = number of labs

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

Cell #085 HLA Genotype: A*11:01-A*33:03-B*55:02-B*58:01-C*01:02-C*03:02/DRB1*03:01-DRB1*04:05-DRB3*02:02-DRB4*01:03-DQA1*03:03-DQA1*05:01-DQB1*02:01-DQB1*04:01-DPB1*05:01-DPB1*14:01

Exchange 014					Exchange 015				
Virtual Crossmatch - Patient MX-083 vs. Donor V3					Physical Flow Crossmatch - Serum 87 vs. Cell 85				
Ctr	Virtual T-cell Prediction	Class I DSA(MFI)	Virtual B-cell Prediction	Class II DSA (MFI)	Ctr	T-Cell RESULT	Class I DSA(MFI)	B-Cell RESULT	Class II DSA(MFI)
206	Positive	B58(5409)	Positive	DR4(13854) DR53(7122)	206	Positive	B58(4700)	POSITIVE	DR4(13256), DR53(6064)
230	Positive	B58(5611)	Positive	DR4(14382) DR53(6500)	230	Positive	B58	POSITIVE	DR4, DR53
774	Positive	B58(4386)	Positive	DR4(12083)	774	Negative		POSITIVE	DRB1*04:05(10037), DR53(5516), DQA1*03(10692)
792	Positive	B55(1361) B58(4139)	Positive	DR4(10614) DR53(4298)	792	Positive	B58(4702), B55(1530)	POSITIVE	DR4(10963), DQ4(5351), DR53(5167)
836	Positive	B55(1274) B58(5841)	Positive	DR4(13126) DR53(7842) DQ4(5043) DQA1*03(5043)	836	Positive	B*55:02(2170), B*58:01(7563)	POSITIVE	DRB1*04:05(15306), DRB4*01:03(8713), DQB1*04:01/DQA1*03:03(8832)
1160	Positive	A11(425) B55(891) B58(3435)	Positive	DR4(7862) DR53(3022) DQ4(3199)	1160	Positive	B55(1476), B58(4283)	POSITIVE	DR4(7957), DQ4(4133), DR53(3068)
2400	Positive	B58(5287)	Positive	DR4(12682) DR53(5175) DQ4(2999)	2400	Positive	B55 (1848), B*58:01(5765)	POSITIVE	DRB1*04:05(11777), DRB4*01:03(4933), DQA1*03:03/ DQB1*04:01(5780)
3224	Positive	B55(1599) B58(5379)	Positive	DR4(10590) DR53(4650) DQ4(3968)	3224	Positive	B55(1948), B58(6066)	POSITIVE	DR4 (10746), DR53(5112), DQA1*03:03(6210), DQ4(6210)
3753	Positive	B55(1263) B58(4530)	Positive	DR4(11107) DR53(4740) DQ4(1991)	3753	Positive	B58(2542)	POSITIVE	DR4(8910), DQ4(1922), DR53(4140), DQA1*03(1481)
3966	Positive	B58(4835)	Positive	DR4(11174) DR53(4019) DQ4(3171) DQA1*03(3171)	3966	Positive		POSITIVE	
4661	Positive	B55(302) A33(109) B58(1376) Cw1(137) Cw9(150) A1101(319)	Positive	DR4(7501) DR17(56) DR52(36) DR53(1823) DQ2(100) DQ9(1803) DPw5(54) DP14(40)	4661	Positive	B*58:01(1667)	POSITIVE	DRB1*04:05(10379), DRB4*01:03(2550), DQB1*04:01(1017)
4985	Positive	B58(4946)	Positive	DR4(9914) DR53(4202)	4985	Positive	B55(3751), B58(9725)	POSITIVE	DR4(14023), DR53(7198)
8001	Positive	B58(5620) Cw10(566)	Positive	DR4(14276) DR53(6409) DQ4(5363) DQA1*03(5363)	8001	Positive	B*58:01(4192)	POSITIVE	DRB1*04:05 (12600), DRB4*01:03 (5107), DQB1*04:01/ DQA1*03:03 (5062)
8035	Borderline	B58(6528)	Positive	DR4(13901) DR53(6267) DQ4(2509) DQA1*03(5089)	8035	Positive	B58(5420)	POSITIVE	DR4(12385), DR53(5692), DQA1*03:03(5859), DQ4(2646)
8050	Borderline	B58(3010)	Positive	DR12(12295) DR53(5358) DQ4(2129)	8050	Positive	B55(1340), B58(4979)	POSITIVE	DR4(12458), DR53(5338), DQA1*03(1985), DQ4(2582)
8083	Positive	B58(5385)	Positive	DR4(10113) DR53(5242)	8083	Positive	B58(5768)	POSITIVE	DR4(12235), DR53(6521), DQ4(6871)
8096	Positive	A11(1720) B55(957) A33(886) B58(1639) Cw1(1219) Cw10(2449) Cw3(2981)	Negative	No class II DSA	8096	Negative		NT	
8103	Borderline	B58(706)	Positive	DR4(5949) DR52(1465)	8103	Positive		POSITIVE	DRB1*04:05
8107	Positive	B55(1392) B58(4424)	Positive	DR4(6518) DR53(2807)	8107	Positive	B58(6061), B*55:01 (1746) not on panel. Donor is B*55:02	POSITIVE	DRB1*04:05(12757), DRB4*01:03(6963), DQA1*03:03, DQB1*04:01(6657)
8109	Borderline	B55(1187) B58(4374)	Positive	DR4(13121) DR53(4395) DQ2(1006) DQ4(2839)	8109	Positive	B58(7680), B55(2502)	POSITIVE	DR4(18162), DQA1*03(12278), DR53(6993), DQ4(6407)

Part 2

Class I and class II Luminex single antigen results for serum samples 87 - 90 are summarized in Tables 12 - 15 and individual results for each

participating laboratory are listed in Tables 16 –22.

Antibody Identification

Serum 87 was previously examined as serum 83 in Exchange 14. In this present study, strong reactivity to A2, A68, A69, Cw2, Cw6, Cw18, as well as reactivity to a number of 5C specificities (B57, B71, B72, B75, B76, B49, B50, B58, B62, B63, B77, B46) was re-reported with $\geq 90\%$ consensus. Median MFI values ranged from 3854 to 12690, compared to 3543 to 12945 in Exchange 14. The reporting of Cw15 (7597) and B56 (3219), improved in this study, as the consensus for each rose from 86% and 81%, respectively, to 95% and 91%. DQ8, DQ9, DR4, DR53, and DQ6 were also reported by $\geq 90\%$ consensus, with MFI values ranging from 4494 to 12458.

Class I and class II DSA were detected against cell 85, with labs reporting anti-B58 (4701), -DR4 (12458), -DR53 (5112), -DQ4 (5351), and -DQA1*03 (6345) reactivity. Weak anti-B55 (1636) reactivity was also reported by some labs. Weak class I DSA were reported against cell 86, with labs reporting weak anti-B35 (2144) and -Cw4 (3564) reactivity. Only 2 labs reported the presence of class II DSA (DQ2, DQ7) against cell 86.

For **Serum 88**, strong reactivity to B8 (23662) was reported in complete consensus. Additional reactivity to A29, A33, A68, B18, B37, B64, B65, A34, A69, B38, B39, as well as reactivity to a number of 7C specificities (B42, B54, B55, B59, B41, B67) was reported with $\geq 90\%$ consensus. Median MFI values ranged from 4364 to 11814. No consensus was achieved for the reporting of class II specificities, as 60% of labs reported this sample as class II negative and 40% reported weak anti-DR17 (776) reactivity.

Anti-A33 (6200), -B55 (6872), and -Cw1 (6251) reactivity was reported against cell 85. Additional weak anti-DR17 (776) reactivity was reported by 3 labs. Against cell 86, strong anti-B8 (23662) reactivity was reported, along

with reactivity to Cw7 (3641) and Cw4 (3254). Additional weak DR17 (776) reactivity was reported by 4 labs.

Serum 89 was found to be reactive to 1C (A3, A29, A30, A36, A80, A1, A31) and 10C (A26, A33, A34, A74, A43, A32) specificities. Each were reported by $\geq 90\%$ consensus, with median MFI values ranging from 2703 to 17724. Reactivity to DR7 (5363) and DR9 (2862) was reported by 100% consensus.

Anti-A33 (3449) and anti-A11 (2204) reactivity was reported against cell 85. In addition, weak reactivity to DR53 (1270) was reported by 10 labs. A number of labs (n = 9) reported no class II DSA were present. Against cell 86, labs reported anti-A1 (4240) and -A26 (4631) reactivity. Weak anti-DQ2/DQA1*05 (1588) reactivity was reported against both cells by 5 labs.

For **serum 90**, strong reactivity to A1 (14622), B57 (11585), B58 (10226), B76 (6853), DR12 (6481), DR53 (17601), DR7 (18728), and DR9 (10606) was reported by 100% of labs. In addition, reactivity to A23, A24, A36, B63, A30, A43, A80, and DP5 antisera was reported with $\geq 90\%$ consensus. Median MFI values for the specificities ranged from 3519 to 16766.

Strong anti-B58 (10226) reactivity was reported against cell 85, along with weak anti-A11 (3172) and anti-B55 (1799) reactivity. Strong class II DSA were also reported against cell 85, with labs reporting anti-DR53 (17601), -DP5 (16766), and -DP14 (16141) reactivity. Against cell 86, strong anti-A1 (14622) reactivity was reported, along with reactivity to DR52 (7449) and DP6 (15540).

Conclusion:

Sera strongly positive to A1, A2, A29, B8 and a number of 5C and 10C specificities were examined in this study. Median MFI values for peak antibodies reported by 100% consensus were 17175 for class I specificities and 12182 for class II specificities.

The reporting of class I and class II DSA against cells 85 and 86 was consistent among labs across the 4 sera. Good agreement ($\geq 90\%$ consensus) was achieved among labs in the reporting of DSA when MFI values were above 4000 for HLA-A and B specificities and above 5000 for HLA-DR specificities. Agreement among labs in the reporting of DSA decreased as DSA strength fell below these values.

Genotypes of cells provided by UCLA

Cell 85 (Asian) - A*11:01-A*33:03-B*55:02-B*58:01-C*01:02-C*03:02/ DRB1*03:01-DRB1*04:05-DRB3*02:02-DRB4*01:03-DQA1*03:03-DQA1*05:01-DQB1*02:01-DQB1*04:01-DPB1*05:01-DPB1*14:01.

Cell 86 (Caucasian) - A*01:01-A*26:01-B*08:01-B*35:08-C*04:01-C*07:01/ DRB1*03:01-DRB1*11:01-DRB3*01:01-DRB3*02:02-DQA1*05:01-DQA1*05:05-DQB1*02:01-DQB1*03:01-DPB1*02:01-DPB1*06:01

Part 3

Flow cytometric crossmatch results for cell 85 and cell 86 against sera sample nos. 87 - 90 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 85. Good agreement ($\geq 80\%$) was achieved among labs in the reporting of T-cell FXM results for cell 85 against all 4 sera, as labs reported all 4 as positive. Only a few discrepancies were observed in which labs reported the T-cell FXM as negative or borderline, due to the presence class I DSA with MFI < 5000. B-cell FXM results were reported as positive in good agreement for cell 85 against serum samples 87, 88, and 90. Against serum 89, no agreement was achieved, as 17 labs reported the crossmatch as positive, 4 reported it as negative, and 1 reported borderline results in the presence of weak class I DSA (MFI < 4000).

Cell 86. Good agreement was achieved among labs for 5 out of 8 T- and B-cell flow crossmatches for cell 86 against sera 87 - 90. Each were reported as positive. Against serum 87, no agreement was achieved for either the T- or B-cell FXM, as only weak anti-B35 (2144) and -Cw4 (3564) reactivity was detected against cell 86. No class II DSA were reported. Against serum 89, no agreement was achieved for the B-cell FXM, as 16 labs reported it as positive and 5 reported it as negative in the presence of anti-A26 (4631) and -A1 (4240) reactivity. No class II DSA were reported against cell 86.

Table 2. Summary of Flow crossmatch results for Cell #085-#86 vs. Serum #087-#090

Cell no.	Serum no.	#Labs	T-cell Results	B-cell Results	Cell no.	Serum no.	#Labs	T-cell Results	B-cell Results
85	87	23	POS(19) NEG(4)	POS(22) NT(2)	86	87	23	POS(16) NEG(3) Borderline(4)	POS(8) NEG(11) Borderline(2) NT(2)
85	88	23	POS(23)	POS(20) NEG(2) NT(2)	86	88	23	POS(23)	POS(21) NT(2)
85	89	23	POS(21) NEG(1) Borderline(1)	POS(17) NEG(4) Borderline(1) NT(2)	86	89	23	POS(21) NEG(1) Borderline(1)	POS(16) NEG(5) NT(2)
85	90	23	POS(23)	POS(22) NT(2)	86	90	23	POS(23)	POS(19) NEG(2) NT(2)
agreement <80%									

Conclusion:

In the presence of strong class I DSA (MFI > 10000), good agreement was observed among labs in the reporting of positive T- and B-cell FXM outcome. However, as DSA strength decreased (MFI < 5000), greater variability was observed in the reporting of FXM outcome, especially at the C-locus. For cell 85 and cell 86 vs. serum 89, the presence of multiple class I DSA, with MFI values ranging from 2204 to 4631, resulted in good agreement among T-cell FXM outcomes among labs. However, the

absence of class II DSA in the presence of weak class I DSA, may have played a role in the variability observed in the B-cell FXM. For cell 86 and serum 87, the presence of weak anti-B35 (2144) and anti-Cw4 (3564) reactivity, along with the absence of class II DSA, resulted in some labs to report the T- and B-cell crossmatch as either negative or borderline, and others to report it as positive.

Part 4

Virtual crossmatch predictions for donor V1 - V4 against sera (patient) samples 89 and 90 are summarized in Table 3 and individual laboratory

predictions are listed in Tables 23 - 30. Fictional donor histories precede each patient-donor summary.

Virtual Crossmatch Paper Challenge

For the virtual **T-cell crossmatch**, 4 out of 8 predictions were reported in good agreement (> 80%). Among the 4 predictions with good agreement, 2 were reported as negative, and 2 were reported as positive, in the presence of class I DSA with MFI values between 4000 and 5000. For the remaining T-cell predictions, a single class I DSA was reported. Predicted results were reported as either positive, borderline, or negative, with MFI values ranging from 2703 to 4631 for the DSA detected.

Better agreement was achieved for the virtual **B-cell crossmatch**, as 6 out of 8 predictions were reported with > 80% agreement. In each case, predictions for the expected B-cell FXM were reported as positive in the presence of class I and/or class II DSA. For serum 89 vs. donor V2, only a single class I DSA (A31), with MFI = 4252, was detected against donor V2.

No class II DSA were reported, resulting in 14 labs to predict the expected B-cell FXM to be positive, 7 to predict it to be negative, and 5 to predict borderline results. For serum 89 vs. donor V3, anti-A26 (4631) and -A30 (4568) reactivity was reported against donor V3, with a few labs (n=8) reporting anti-DR53 (1270) reactivity against the donor. Consequently, predictions were variable among labs, with 17 labs predicting the expected B-cell FXM to be positive, 5 predicting it to be negative, 4 predicting it to be borderline. As a reminder, both class I and class II DSA should be taken into consideration when predicting the expected physical B-cell FXM, as B-cells express both class I and class II antigens.

Table 3. Summary of Virtual Crossmatch Exchange #014 results (Serum #089-#90 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	89	26	POS(18) NEG(4) Borderline(4)	POS(25) NEG(1)	Unacceptable(24) Acceptable(2)	V2	89	26	POS(23) NEG(1) Borderline(2)	POS(14) NEG(7) Borderline(5)	Unacceptable(24) Acceptable(1) Other(1)
V1	90	26	NEG(24) POS(2)	POS(26)	Unacceptable(23) Acceptable(2) Other(1)	V2	90	26	NEG(21) Borderline(3) POS(2)	POS(25) Borderline(1)	Unacceptable(23) Acceptable(3)
V3	89	26	POS(25) Borderline(1)	POS(17) NEG(5) Borderline(4)	Unacceptable(25) Other(1)	V4	89	26	POS(19) NEG(4) Borderline(1) NT (2)	POS(22) Borderline(2) NT (2)	Unacceptable(23) Acceptable(1) Other(1) NT (1)
V3	90	26	POS(15) NEG(9) Borderline(1) NT (1)	POS(26)	Unacceptable(23) Acceptable(2) Other(1)	V4	90	26	POS(19) NEG(5) Borderline(2)	POS(26)	Unacceptable(25) Acceptable(1)

agreement <80%

DSA Identification

Patient 1 (Serum 89)

Patient's fictional case history: This individual is a 28 year old male being evaluated for his second transplant. The patient's HLA type is A*02:01-B*27:05-B*51:01-C*01:02-DRB1*01:01-DQB1*05:01-DPB1*05:01. The HLA typing of his first transplant is A*02:01-B*27:05-B*51:01-C*01:02-C*02:02-DRB1*01:01-DQB1*05:01-DQB1*05:04. The DP typing of the previous donor is unknown.

For serum 89 (patient 1), anti-A32 (2703) and anti-DR7 (5363) reactivity was reported against **donor V1**. Labs were split in the reporting of T-cell predictions in the presence of weak (MFI < 3000) class I DSA, as 18 labs predict the physical T-cell FXM to be positive, 4 predict it to be negative, and 4 predict it to be borderline. By contrast, good agreement was achieved for B-cell predictions, as 25 of 26 labs predict the expected physical B-cell FXM to be positive. Good agreement was also achieved for predicted risk assessment, as 24 out of 26 labs predict the risk to be unacceptable in the presence of class I and class II DSA.

Anti-A31 reactivity was reported against **donor V2**, with MFI = 4252. No class II DSA were reported against the donor. In the presence of DSA of moderate strength, good agreement was achieved for T-cell predictions, as 23 out of 26 labs predict the T-FXM to be positive. Less agreement was achieved for B-cell predictions, however, as 14 labs predict the expected physical B-cell FXM to be positive, 7 predict it to be negative, and 5 predict borderline results. For renal transplant risk, 24 of 25 labs assess the risk to be unacceptable. The 1 lab predicting an acceptable risk assessment, did not report either class I or class II DSA against the donor.

Anti-A26 (4631) and -A30 (4568) reactivity was detected against **donor V3**. Additional weak reactivity to DR53 (1270) was also reported by a few (n = 9) labs. The remaining labs indicated no class II DSA were present. In the presence of multiple class I DSA, 25 labs predict the expected T-cell FXM to be positive and 1 predicts it to be borderline. By contrast, no agreement was achieved for B-cell predictions, as 17 labs predict the expected B-cell FXM to be positive, 5 predict it to be negative, and 4 predict it to be borderline. Renal transplant risk assessments were in line with T-cell predictions, with 25 labs assessing the risk as unacceptable.

Against **donor V4**, labs reported anti-A26 (4631) and -DR9 (2862) reactivity. T-cell predictions were mixed among labs, as 19 labs predict the T-cell FXM to be positive, 4 predict it to be negative, and 1 predicts borderline results in the presence of a single class I DSA. A number of labs, including 3 predicting a negative T-cell FXM, noted the donor's A*26:03 is not represented on their single antigen panel. Better agreement was achieved for B-cell predictions, as 22 labs predict the expected B-cell FXM to be positive and 2 predict it to be borderline. Good agreement was also achieved for predicted risk assessment, with 23 labs predicting the risk as unacceptable.

Virtual Donors – HLA genotype

Donor 1 (V1): A*02:06-A*32:01-B*14:01-B*52:01-C*04:01:01G-C*08:02/DRB1*04:04-DRB1*07:01-DRB4*01:01:01G-DQA1*02:01-DQA1*03:01:01G-DQB1*02:02-DQB1*03:02-DPB1*03:01-DPB1*04:02.

Donor 2 (V2): A*02:01-A*31:01-B*35:01:01G-B*44:02:01G-C*04:01:01G-C*05:01/DRB1*01:01-DRB1*15:01-DRB5*01:01-DQA1*01:01:01G-DQA1*01:02:01G-DQB1*05:01-DQB1*06:02-DPB1*02:01-DPB1*05:01:01G.

Donor 3 (V3): A*26:01-A*30:01-B*38:01-B*49:01-C*07:01:01G-C*12:03/DRB1*04:02-DRB1*04:05-DRB4*01:01:01G-DQA1*03:01-DQA1*03:01:01G-DQB1*03:02-DPB1*01:01-DPB1*04:01.

Donor 4 (V4): A*24:02-A*26:03-B*51:01-B*15:01-C*14:02-C*15:02:01G/DRB1*09:01:02G-DRB1*14:03-DRB4*01:01:01G-DRB3*01:01-DQA1*03:01:01G-DQA1*05:01:01G-DQB1*03:01-DQB1*03:03-DPB1*02:01-DPB1*05:01:01G.

Patient 2 (Serum 90)

Patient's fictional case history: This individual is a 50 year old female being evaluated for her first transplant. The patient's HLA type is A*26:01-A*30:01-B*38:01-B*49:01-C*07:01-C*12:03-DRB1*04:02-DRB1*04:05-DRB4*01:01-DQA1*03:01-DQA1*03:01-DQB1*03:02-DPB1*04:01.

For serum 90 (patient 2), a number of self-reactive antibodies were detected, including A30 (4659) and DR53 (17601). As such, these self-antigens will not be graded as DSA.

Strong anti-DR7 (18728) reactivity was reported against **donor V1**. No class I DSA were reported against the donor. In the absence of class I DSA, 24 of 26 labs predict the expected T-cell FXM to be negative. Good agreement was also achieved for B-cell predictions, as all 26 labs predict the expected B-cell FXM to be positive. For predicted renal transplant risk, 23 labs assess the risk as unacceptable, and 1 noted the risk as high.

All 26 labs reported the presence of strong anti-DP5 (16766) reactivity against **donor V2**. By contrast, the reporting of class I DSA was mixed among labs, with the majority of labs (n= 13) indicating no class I DSA were present and a few labs (n = 12) reporting the presence of weak anti-B44 (1623) reactivity. In turn, variability was also observed in T-cell predictions, as 21 labs predict the expected T-cell FXM to be negative, 3 predict it to be borderline, and 2 predict it to be positive. B-cell predictions, however, were consistent among labs in the presence of strong class II DSA, as 25 of 26 labs predict the expected B-cell FXM to be positive. Twenty-three labs assess the predicated renal transplant risk as unacceptable.

Strong anti-DP1 (15198) reactivity was detected against **donor V3**. In addition, anti-A30 (4659) and -DR53 (17601) reactivity was reported. As some labs reported these self antigens as DSA and others did it, we observed variability in the reporting of T-cell predictions, as 15 labs predict the expected T-cell FXM to be positive, 9 predict it to be negative, and 1 predicts borderline results. By contrast, good agreement was achieved for B-cell predictions, as all 26 labs predict the expected B-cell FXM to be positive in the presence of strong class II DSA. Good agreement was also observed for predicted risk assessment, as 23 of 26 labs assess the potential risk as unacceptable.

Against **donor V4**, class I (A24) and class II (DR9, DP5, DR52) DSA were detected. Respective MFI values were reported as 4638, 10606, 16766, and 7449. T-cell predictions were mixed among labs, with 19 labs predicting the expected T-cell FXM to be positive, 5 predicting it to be negative, and 2 predicting borderline results. Better agreement was achieved for B-cell predictions, as all 26 labs predict the expected B-cell FXM to be positive in the presence of multiple DSA. For predicted renal transplant risk, 25 labs assess the risk as unacceptable and 1 lab assesses it as acceptable.

Conclusion

Overall, T-cell predictions were mixed across the 8 virtual crossmatches, with only 2 virtual T-cell crossmatches achieving concordance above 80%. Class I DSA detected was only moderate to weak (MFI < 4700) in strength, resulting in the variability observed in the predictions. The presence of self-reactive antibodies also played role in the variability observed in predictions, in particular, for serum 90 vs. donor V3. B-cell predictions, on the other hand, were more consistent, as the presence of strong class II DSA (MFI > 15000) resulted in labs to report the expected B-cell FXM for 3 patient-donor pairs as positive in complete agreement.

Predicted risk assessments for all 8 patient-donor pairs in this study were reported as unacceptable in good agreement. Only a few discrepancies were observed in which labs assessed the predicted risk as acceptable, noting no DSA were present or the strength of the DSA detected was

too weak to be detected by the crossmatch.

Overall, reported cPRA (calculated panel reactive antibodies) values for serum 89 and 90 were consistent among labs. For serum 89, 13 labs reported cPRA values of > 80%, in the presence of class I and class II antibodies. Five labs reported cPRA values below 30%. For serum 90, which was more broadly reactive than serum 89, 14 labs report cPRA values of > 90%, and 3 labs reported cPRA values below 60%. As mentioned in other reports, the variability observed in the reporting of cPRA values may be due to different criteria being used by labs for determining cPRA values. Some labs base the calculation on all unacceptable antibodies detected in the sera, others may only consider the DSA specifically directed against an individual donor.

NEXT MAILING DATE: March 27, 2019

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Flow Cytometric Crossmatch

Cell #085 HLA Genotype: A*11:01-A*33:03-B*55:02-B*58:01-C*01:02-C*03:02/DRB1*03:01-DRB1*04:05-DRB3*02:02-DRB4*01:03-DQA1*03:03-DQA1*05:01-DQB1*02:01-DQB1*04:01-DPB1*05:01-DPB1*14:01

Table 4a. Individual Flow crossmatch results and DSA reported for Cell #085 vs. Serum #087

Ctr	Serum no	T-Cell Pos cutoff	T Cell MCS	RATIO	MESF	T-Cell RESULT	Class I DSA(MFI)	B-Cell Pos cutoff	B-cell MCS	RATIO	MESF	B-Cell RESULT	Class II DSA(MFI)	T-Cell NEG Control MC	B-Cell NEG Control MC	Pronase Treated
206	87	2.98	36.7	5.03		Positive	B58(4700)	4.94	507	35.21		Positive	DR4(13256), DR53(6064)	7.3	14.4	YES
230	87	1	5			Positive	B58	2	45			Positive	DR4, DR53	0.9	1.4	YES
774	87	50	42			Negative		120	262			Positive	DRB1*04:05(10037), DR53(5516), DQA1*03(10692)	281	395	NO
792	87	52	123			Positive	B58(4702), B55(1530)	106	302			Positive	DR4(10963), DQ4(5351), DR53(5167)	240	331	YES
836	87	70	79			Positive	B*55:02(2170), B*58:01(7563)	135	204			Positive	DRB1*04:05(15306), DRB4*01:03(8713), DQB1*04:01/ DQA1*03:03(8832)	0	0	NO
1160	87	90	212			Positive	B55(1476), B58(4283)	120	511			Positive	DR4(7957), DQ4(4133), DR53(3068)	183	160	YES
2400	87	40	129			Positive	B55 (1848), B*58:01(5765)	80	232			Positive	DRB1*04:05(11777), DRB4*01:03(4933), DQA1*03:03/ DQB1*04:01(5780)	153	350	NO
3135	87	1,2	1992	1,1		Negative						NT		1745		NO
3224	87	70	43			Positive	B55(1948), B58(6066)	140	317			Positive	DR4 (10746), DR53(5112), DQA1*03:03(6210), DQ4(6210)	250	254	YES
3753	87	50	204			Positive	B58(2542)	100	408			Positive	DR4(8910), DQ4(1922), DR53(4140), DQA1*03(1481)	193	230	YES
3966	87	20	85			Positive		50	239			Positive		185	362	NO
4345	87					Negative						Positive				NO
4661	87	10	57			Positive	B*58:01(1667)	10	140			Positive	DRB1*04:05(10379), DRB4*01:03(2550), DQB1*04:01(1017)	196	249	YES
4985	87	40	69			Positive	B55(3751), B58(9725)	80	268			Positive	DR4(14023), DR53(7198)	191	224	NO

Table 4a. Individual Flow crossmatch results and DSA reported for Cell #085 vs. Serum #087

Ctr	Serum no	T Cell Pos cutoff	T Cell MCS	RATIO	MESF	T-Cell RESULT	Class I DSA(MFI)	B Cell Pos cutoff	B-cell MCS	RATIO	MESF	B-Cell RESULT	Class II DSA(MFI)	T Cell NEG Control MC	B Cell NEG Control MC	Pronase Treated
8001	87	50	138			Positive	B*58:01(4192)	100	309			Positive	DRB1*04:05 (12600), DRB4*01:03 (5107), DQB1*04:01/ DQA1*03:03 (5062)	246	350	YES
8035	87	>48	157			Positive	B58(5420)	>90	282			Positive	DR4(12385), DR53(5692), DQA1*03:03(5859), DQ4(2646)	106	188	YES
8050	87	50	56		1238	Positive	B55(1340), B58(4979)	120	381		43912	Positive	DR4(12458), DR53(5338), DQA1*03(1985), DQ4(2582)	78	104	YES
8083	87	90	215			Positive	B58(5768)	150	336			Positive	DR4(12235), DR53(6521), DQ4(6871)	246	296	YES
8096	87	20	7.47			Negative						NT		24.62		NO
8103	87	127.2		1.2	192	Positive		2330.7		1.7	7122	Positive	DRB1*04:05	106	1371	NO
8107	87	96	235			Positive	B58(6061), B*55:01 (1746) not on panel. Donor is B*55:02	129	390			Positive	DRB1*04:05(12757), DRB4*01:03(6963), DQA1*03:03, DQB1*04:01(6657)	264	371	YES
8109	87	2.2		12.92		Positive	B58(7680), B55(2502)	2.3		115.54		Positive	DR4(18162), DQA1*03(12278), DR53(6993), DQ4(6407)			YES
8111	87	25	111			Positive	B58(4800), B55(1400), Cw10(500)	29	332			Positive	DR4(14000), DR53(5000), DQ4/DQA*03(5400)	230	235	YES

Table 4b. Individual CDC crossmatch results and DSA reported for Cell #085 vs. Serum #087

Ctr	Serum no	T Cell Pos cutoff	T Cell MCS	RATIO	MESF	T-Cell RESULT	Class I DSA(MFI)	B Cell Pos cutoff	B-cell MCS	RATIO	MESF	B-Cell RESULT	Class II DSA(MFI)	T Cell NEG Control MC	B Cell NEG Control MC	Pronase Treated
4079	87					Negative	B*58:01(1021)					Positive	DRB1*04:05(5039)			YES

Table 5a. Individual Flow crossmatch results and DSA reported for Cell #085 vs. Serum #088

Ctr	Serum no	T Cell Pos cutoff	T Cell MCS	RATIO	MESF	T-Cell RESULT	Class I DSA(MFI)	B Cell Pos cutoff	B-cell MCS	RATIO	MESF	B-Cell RESULT	Class II DSA(MFI)	T Cell NEG Control MC	B Cell NEG Control MC	Pronase Treated
206	88	2.98	93.05	12.75		Positive	A33(6833), B55(6754)	4.94	299.5	20.8		Positive	No Class II DSA	7.3	14.4	YES
230	88	1	12			Positive	A33	2	42			Positive	No Class II DSA	0.9	1.4	YES
774	88	50	76			Positive	B55(6974), Cw1(6284), A33(5780)	120	107			Negative	No Class II DSA	281	395	NO
792	88	52	209			Positive	A33(6986), B55(6739), Cw1(6017)	106	208			Positive	No Class II DSA	240	331	YES
836	88	70	142			Positive	A*33:03(11169), B*55:02(15295), C*01:02(9532)	135	163			Positive	DRB1*03:01(1110)	0	0	NO
1160	88	90	329			Positive	A33(5801), B55(6854)	120	420			Positive	DR17(406)	183	160	YES
2400	88	40	211			Positive	A*33:03(7997), B55(8778), C*01:02(6916)	80	174			Positive	No Class II DSA	153	350	NO
3135	88	1,2	2751	1,6		Positive						NT	No Class II DSA	1745		NO
3224	88	70	142			Positive	A33(9287), B55(9339), Cw1(8164)	140	250			Positive	DR17 1021	250	254	YES
3753	88	50	327			Positive	A33(5157), B55(5723), Cw1(5858)	100	339			Positive	No Class II DSA	193	230	YES
3966	88	20	173			Positive		50	204			Positive		185	362	NO
4345	88					Positive						Positive				NO
4661	88	10	104			Positive	A*33:03(3823), B*55:01(3116), C*01:02(2356)	10	131			Positive	No Class II DSA	196	249	YES
4985	88	40	113			Positive	A33(10287), B55(10121), Cw1(8724)	80	178			Positive	No Class II DSA	191	224	NO
8001	88	50	247			Positive	A*33:03(5505), C*01:02(4792), B55(5237)	100	261			Positive	No Class II DSA	246	350	YES
8035	88	>48	258			Positive	A33(6125), Cw1(7276)	>90	254			Positive	DR17 (1022)	106	188	YES
8050	88	50	140		2908	Positive	A33(5589), B55(7556), Cw1(6977)	120	239		10365	Positive	No Class II DSA	78	104	YES

Table 5a. Individual Flow crossmatch results and DSA reported for Cell #085 vs. Serum #088

Ctr	Serum no	T Cell Pos cutoff	T Cell MCS	RATIO	MESF	T-Cell RESULT	Class I DSA(MFI)	B Cell Pos cutoff	B-cell MCS	RATIO	MESF	B-Cell RESULT	Class II DSA(MFI)	T Cell NEG Control MC	B Cell NEG Control MC	Pronase Treated
8083	88	90	293			Positive	A33(8428), Cw1(7404)	150	321			Positive	No Class II DSA	246	296	YES
8096	88	20	41.43			Positive						NT		24.62		NO
8103	88	127.2		1.2	165	Positive	A*33(1201), B*55(934), C*01:02(723)	2330.7		1.7	2310	Negative	No Class II DSA	106	1371	NO
8107	88	96	346			Positive	A33(10073), Cw1(8479), B*55:01 (9761) not on panel. Donor is B*55:02	129	248			Positive	No Class II DSA	264	371	YES
8109	88	2.2		38.93		Positive	A33(8197), B55(7647), Cw1(6874)	2.3		36.87		Positive	No Class II DSA			YES
8111	88	25	142			Positive	B55(7000), Cw1(7000), A33(4200)	29	169			Positive	NEG (v lowDR17)	230	235	YES

Table 5b. Individual CDC crossmatch results and DSA reported for Cell #085 vs. Serum #088

Ctr	Serum no	T Cell Pos cutoff	T Cell MCS	RATIO	MESF	T-Cell RESULT	Class I DSA(MFI)	B Cell Pos cutoff	B-cell MCS	RATIO	MESF	B-Cell RESULT	Class II DSA(MFI)	T Cell NEG Control MC	B Cell NEG Control MC	Pronase Treated
4079	88					Negative	A*33:03(1805), B55 (1347), C*01:02(1181)					Positive	No Class II DSA			YES

Table 6a. Individual Flow crossmatch results and DSA reported for Cell #085 vs. Serum #089

Ctr	Serum no	T Cell Pos cutoff	T Cell MCS	RATIO	MESF	T-Cell RESULT	Class I DSA(MFI)	B Cell Pos cutoff	B-cell MCS	RATIO	MESF	B-Cell RESULT	Class II DSA(MFI)	T Cell NEG Control MC	B Cell NEG Control MC	Pronase Treated
206	89	2.98	36.35	4.98		Positive	A33(3803)	4.94	109	7.57		Positive	No Class II DSA	7.3	14.4	YES
230	89	1	5			Positive	A33, A11	2	9			Positive	No Class II DSA	0.9	1.4	YES
774	89	50	49			Negative		120	55			Negative	No Class II DSA	281	395	NO
792	89	52	127			Positive	A33(3611), A11(2332)	106	124			Positive	No Class II DSA	240	331	YES
836	89	70	85			Positive	A*11:01(3374), A*33:03(5285)	135	68			Negative	DRB4*01:03(1957), DQB1*02:01/ DQA1*05:01(1588)	0	0	NO
1160	89	90	233			Positive	A11(2013), A33(3054)	120	309			Positive	No Class II DSA	183	160	YES
2400	89	40	116			Positive	A*11:01(2843), A*33:03(4326)	80	85			Borderline	DRB4*01:03(1138)	153	350	NO
3135	89	1,2	2198	1,3		Positive						NT		1745		NO
3224	89	70	64			Positive	A11(3017), A33(4631)	140	166			Positive	DR53(1293)	250	254	YES
3753	89	50	182			Positive	A11(2697), A33(3875)	100	203			Positive	DR53(1246)	193	230	YES
3966	89	20	115			Positive		50	128			Positive		185	362	NO
4345	89					Positive						Negative				NO
4661	89	10	29			Positive	A*11:01(1781), A*33:03(2222)	10	82			Positive	DRB4*01:03(607)	196	249	YES
4985	89	40	84			Positive	A11(4691), A33(7129)	80	151			Positive	No Class II DSA	191	224	NO
8001	89	50	163			Positive	A*11:01 (1557), A*33:03 (2823)	100	191			Positive	DRB4*01:03(1149)	246	350	YES
8035	89	>48	136			Positive	A11 (1932), A33 (3449)	>90	113			Positive	DR53(1393), DQA1*05:01(1232)	106	188	YES
8050	89	50	64		1343	Positive	A11(1728), A33(3118)	120	172		5245	Positive	DR53(1206), DQ2(1031)	78	104	YES
8083	89	90	202			Positive	A11(2153), A33(3863)	150	263			Positive	No Class II DSA	246	296	YES
8096	89	20	45.42			Positive						NT		24.62		NO
8103	89	127.2		1.2	142	Borderline	A*11(530), A*33 (699)	2330.7		1.7	1900	Negative	No Class II DSA	106	1371	NO
8107	89	96	229			Positive	A*11:01(2481), A*33:03(3978)	129	154			Positive	DRB4*01:03 (1529), DQ2/DQA1*05:01, DQB1*02:01(1283)	264	371	YES
8109	89	2.2		13.67		Positive	A33(6151), A11(3746)	2.3		10.3		Positive	No Class II DSA			YES
8111	89	25	106			Positive	A33(2500), A11(1400)	29	164			Positive	DR53(1400), DQ2/DQA1*05(500)	230	235	YES

Table 6b. Individual CDC crossmatch results and DSA reported for Cell #085 vs. Serum #089

Ctr	Serum no	T Cell Pos cutoff	T Cell MCS	RATIO	MESF	T-Cell RESULT	Class I DSA(MFI)	B Cell Pos cutoff	B-cell MCS	RATIO	MESF	B-Cell RESULT	Class II DSA(MFI)	T Cell NEG Control MC	B Cell NEG Control MC	Pronase Treated
4079	89					Negative	A*11:01 (511), A*33:03 (657)					Positive	no DSA			YES

Table 7a. Individual Flow crossmatch results and DSA reported for Cell #085 vs. Serum #090

Ctr	Serum no	T Cell Pos cutoff	T Cell MCS	RATIO	MESF	T-Cell RESULT	Class I DSA(MFI)	B Cell Pos cutoff	B-cell MCS	RATIO	MESF	B-Cell RESULT	Class II DSA(MFI)	T Cell NEG Control MC	B Cell NEG Control MC	Pronase Treated
206	90	2.98	59.1	8.1		Positive	B58(10226)	4.94	717.5	49.83		Positive	DR53(19799), DP5(18915), DP14(18544)	7.3	14.4	YES
230	90	1	6			Positive	B58	2	58			Positive	DR53, DP5	0.9	1.4	YES
774	90	50	101			Positive	B*58:01 10765	120	313			Positive	DR53(18191), DP5(16767), DP14(15750)	281	395	NO
792	90	52	187			Positive	B58(9418), A11(2138), B55(1631)	106	349			Positive	DR53(16476), DP5(15385), DP14(14831)	240	331	YES
836	90	70	112			Positive	A*11:01(3898), B*55:02(4939), B*58:01(16369)	135	266			Positive	DRB4*01:03(23254), DP5(21535), DP14(20648)	0	0	NO
1160	90	90	264			Positive	A11(2129), B55(1047), B58(8157)	120	554			Positive	DR53(14859), DP5(14562), DP14(13932)	183	160	YES
2400	90	40	169			Positive	A11:01(3071), B55(1993), B*58:01(11468)	80	275			Positive	DRB4*01:03(19638), DPB1*14:01(17399)	153	350	NO
3135	90	1,2	2462	1,4		Positive						NT		1745		NO
3224	90	70	126			Positive	A11(2959), B55(2521), B58(13597)	140	376			Positive	DR53(20730), DP5(19656), DP14(19349)	250	254	YES
3753	90	50	269			Positive	A11(1549), B55(1163), B58(7801)	100	479			Positive	DR53(15921), DP5(16325), DP14(16141)	193	230	YES
3966	90	20	158			Positive		50	301			Positive		185	362	NO
4345	90					Positive						Positive				NO

Table 7a. Individual Flow crossmatch results and DSA reported for Cell #085 vs. Serum #090

Ctr	Serum no	T Cell Pos cutoff	T Cell MCS	RATIO	MESF	T-Cell RESULT	Class I DSA(MFI)	B Cell Pos cutoff	B-cell MCS	RATIO	MESF	B-Cell RESULT	Class II DSA(MFI)	T Cell NEG Control MC	B Cell NEG Control MC	Pronase Treated
4661	90	10	94			Positive	A*11:01(3478), B*58:01(9063)	10	185			Positive	DRB4*01:03(10309), DPB1*05:01(15322), DPB1*14:01(13589)	196	249	YES
4985	90	40	85			Positive	A11(3376), B55(2865), B58(13459)	80	294			Positive	DR53(21153), DP5(20218)	191	224	NO
8001	90	50	207			Positive	A*11:01(1410), B55(1323), B*58:01(8842)	100	349			Positive	DRB4*01:03(19661), DPB1*05:01(17935), DPB1*14:01(16842)	246	350	YES
8035	90	>48	200			Positive	A11(1494), B58(11714)	>90	369			Positive	DR53(17412), DP5(17482), possible DP14(17163)	106	188	YES
8050	90	50	158		3492	Positive	A11(1320), B55(1663), B58(10939)	120	429		71538	Positive	DR53(18707), DP5(18937), DP14(18702)	78	104	YES
8083	90	90	171			Positive	B58(10869)	150	336			Positive	DR53(19835), DP5(18180), DP14(17915)	246	296	YES
8096	90	20	29.16			Positive						NT	24.62			NO
8103	90	127.2		1.2	172	Positive	B*58:01(849)	2330.7		1.7	2978	Positive	DPB1*05 (10316)	106	1371	NO
8107	90	96	282			Positive	B58(11092), A*11:01(2319), B*55:01(1661) Not on panel. Donor is B*55:02.	129	454			Positive	DRB4*01:03(18937), DP5(16672), DP(16313)	264	371	YES
8109	90	2.2		20.01		Positive	B58(14619), A11(3260), B55(2683)	2.3		151.26		Positive	DR53(25034), DP5(24274), DP14(23703), DR52(13042)			YES
8111	90	25	139			Positive	B58(9000), B55(1500), A11(700)	29	353			Positive	DRB4*01:03(19000), DP5(17000), DP14(16000)	230	235	YES

Table 7b. Individual CDC results and DSA reported for Cell #085 vs. Serum #090

Ctr	Serum no	T Cell Pos cutoff	T Cell MCS	RATIO	MESF	T-Cell RESULT	Class I DSA(MFI)	B Cell Pos cutoff	B-cell MCS	RATIO	MESF	B-Cell RESULT	Class II DSA(MFI)	T Cell NEG Control MC	B Cell NEG Control MC	Pronase Treated
4079	90					Negative	B*58:01(1348)					Positive	DRB4*01:01 (5487)			YES

Cell #085 HLA Genotype: A*01:01-A*26:01-B*08:01-B*35:08-C*04:01-C*07:01/DRB1*03:01-DRB1*11:01-DRB3*01:01-DRB3*02:02-DQA1*05:01-DQA1*05:05-DQB1*02:01-DQB1*03:01-DPB1*02:01-DPB1*06:01

Table 8a. Individual Flow crossmatch results and DSA reported for Cell #086 vs. Serum #087

Ctr	Serum no	T-Cell Pos cutoff	T Cell MCS	RATIO	MESF	T-Cell RESULT	Class I DSA(MFI)	B-Cell Pos cutoff	B-cell MCS	RATIO	MESF	B-Cell RESULT	Class II DSA(MFI)	T-Cell NEG Control MC	B-Cell NEG Control MC	Pronase Treated
206	87	2.98	32.65	3.2		Borderline		4.94	31.05	1.91		Negative	no class II DSA	10.2	16.25	YES
230	87	1	0.5			Negative		2	1.5			Negative	no class II DSA	1.4	1.5	YES
774	87	50	75			Positive	B35(1922)	120	78			Negative	no class II DSA	267	316	NO
792	87	52	123			Positive	Cw4(3228), B35(2122)	106	114			Positive	DQ2(2504), DQ7(1584)	216	235	YES
836	87	70	51			Borderline	B*35:08(3114), C*04:01(5126)	135	57			Negative	no class II DSA	0	0	NO
1160	87	90	184			Positive	B35(1948), Cw4(2526)	120	136			Positive	no class II DSA	183	160	YES
2400	87	40	68			Positive	B35(2242), C*04:01(3441)	80	-2			Negative	no class II DSA	161	305	NO
3135	87	1.2	1419	1,1		Negative						NT-		1253		NO
3224	87	70	17			Borderline	Cw4(3602)	140	0			Negative	no class II DSA	250	254	YES
3753	87	50	83			Positive	B35(1065), Cw4(2001)	100	53			Negative	no class II DSA	212	233	YES
3966	87	20	60			Positive		50	32			Borderline		177	276	NO
4345	87					Positive						Negative				NO
4661	87	10	47			Positive	B*35:08(504), C*04:01(516)	10	43			Positive	no class II DSA	209	213	YES
4985	87	40	68			Positive	B35(4550), Cw4(5757)	80	161			Positive	DQ2(3335), DQ7(2758)	207	162	NO
8001	87	50	121			Positive	B35(1790), C*04:01(2939)	100	84			Negative	no class II DSA	305	332	YES
8035	87	>48	119			Positive	Cw4(3852); B*35:01 bead only; no bead for B*35:08 or C*07:01	>90	93			Borderline	no class II DSA	119/126	130/132	YES
8050	87	50	114		2654	Positive	B35(2144), Cw4(3640)	120	138		3219	Positive	no class II DSA	94	90	YES
8083	87	90	313			Positive	Cw4 (4124)	150	236			Positive	no class II DSA	246	244	YES
8096	87	20	5.11			Negative						NT		18.18		NO
8103	87	93.72		1.2	105	Borderline	C*04:02(982)	936.1		1.7	642	Negative	no class II DSA	78.1	551	NO
8107	87	96	218			Positive	B*35:01 (2520) but donor is B*35:08 which is not on panel; Cw4 (4179)	129	117			Negative	no class II DSA	276	357	YES
8109	87	2.2		9.4		Positive	Cw4(6087), B35(3900)	2.3		5		Positive	no class II DSA			YES
8111	87	25	96			Positive	Cw4(3000), B35(2000)	29	88			Positive	no class II DSA	225	204	YES

Table 8b. Individual CDC results and DSA reported for Cell #086 vs. Serum #087

Ctr	Serum no	T-Cell Pos cutoff	T Cell MCS	RATIO	MESF	T-Cell RESULT	Class I DSA(MFI)	B-Cell Pos cutoff	B-cell MCS	RATIO	MESF	B-Cell RESULT	Class II DSA(MFI)	T-Cell NEG Control MC	B-Cell NEG Control MC	Pronase Treated
4079	87					Negative	B*35:08(322), C*04:01(491)					Negative	no class II DSA			YES

Table 9a. Individual Flow crossmatch results and DSA reported for Cell #086 vs. Serum #088

Ctr	Serum no	T-Cell Pos cutoff	T Cell MCS	RATIO	MESF	T-Cell RESULT	Class I DSA(MFI)	B-Cell Pos cutoff	B-cell MCS	RATIO	MESF	B-Cell RESULT	Class II DSA(MFI)	T-Cell NEG Control MC	B-Cell NEG Control MC	Pronase Treated
206	88	2.98	269	26.37		Positive	B8(22861)	4.94	251.5	15.48		Positive	no class II DSA	10.2	16.25	YES
230	88	1	56			Positive	B8	2	51			Positive	no class II DSA	1.4	1.5	YES
774	88	50	388			Positive	B8 24454	120	346			Positive	no class II DSA	267	316	NO
792	88	52	343			Positive	B8(22310), Cw7(3080), Cw4(2887)	106	334			Positive	no class II DSA	216	235	YES
836	88	70	347			Positive	B*08:01(30280), C*04:01(4394)	135	301			Positive	DRB1*03:01(1110)	0	0	NO
1160	88	90	476			Positive	B8(22149)	120	467			Positive	DR17(406), DR11(82), DR52(279)	183	160	YES
2400	88	40	411			Positive	B*08:01(25207), C*04:01(3327), C*07:01(3745)	80	299			Positive	no class II DSA	161	305	NO
3135	88	1,2	5222	4,2		Positive						NT	1253			NO
3224	88	70	309			Positive	B8(23918), Cw4(3134), Cw7(3892)	140	252			Positive	DR17(1021), DR52(804)	250	254	YES
3753	88	50	296			Positive	B8(24294), Cw4(2516), Cw7(2912)	100	271			Positive	no class II DSA	212	233	YES
3966	88	20	341			Positive		50	318			Positive		177	276	NO
4345	88					Positive						Positive				NO
4661	88	10	305			Positive	B*08:01(16403)	10	236			Positive	no class II DSA	209	213	YES
4985	88	40	298			Positive	B8(25560), C4(4092), C7(4169)	80	356			Positive	no class II DSA	207	162	NO
8001	88	50	399			Positive	B*08:01 (24042), C*04:01 (1945), Cw7 (1888)	100	384			Positive	no class II DSA	305	332	YES
8035	88	>48	413			Positive	B8 (28516), Cw4 (3265); C*07:02 bead only; no bead for C*07:01 or B*35:08	>90	369			Positive	DR7(1022), DR52(862)	119/126	130/132	YES
8050	88	50	378		38475	Positive	B8(28922) Cw4(2875) Cw7(3641)	120	379		37319	Positive	no class II DSA	94	90	YES
8083	88	90	526			Positive	B8 (23134); Cw4 (3254)	150	524			Positive	no class II DSA	246	244	YES
8096	88	20	217.06			Positive						NT	18.18			NO
8103	88	93.72		1.2	1936	Positive	B*08(9061)	936.1		1.7	3132	Positive	no class II DSA	78.1	551	NO
8107	88	96	524			Positive	B8 (23306); Cw4 (3858); C*07:02 (4453) but donor is C*07:01 which is not on panel.	129	435			Positive	no class II DSA	276	357	YES
8109	88	2.2		193.6		Positive	B8(26873), Cw7(3668), Cw4(3296)	2.3		116.17		Positive	no class II DSA			YES
8111	88	25	245			Positive	B8(25000), Cw7(3400), Cw4(2700)	29	254			Positive	no class II DSA	225	204	YES

Table 9b. Individual CDC crossmatch results and DSA reported for Cell #086 vs. Serum #088

Ctr	Serum no	T-Cell Pos cutoff	T Cell MCS	RATIO	MESF	T-Cell RESULT	Class I DSA(MFI)	B-Cell Pos cutoff	B-cell MCS	RATIO	MESF	B-Cell RESULT	Class II DSA(MFI)	T-Cell NEG Control MC	B-Cell NEG Control MC	Pronase Treated
4079	88					Positive	B*08:01(11077)					Positive	no class II DSA			YES

Table 10a. Individual Flow crossmatch results and DSA reported for Cell #086 vs. Serum #089

Ctr	Serum no	T-Cell Pos cutoff	T Cell MCS	RATIO	MESF	T-Cell RESULT	Class I DSA(MFI)	B-Cell Pos cutoff	B-cell MCS	RATIO	MESF	B-Cell RESULT	Class II DSA(MFI)	T-Cell NEG Control MC	B-Cell NEG Control MC	Pronase Treated
206	89	2.98	43.3	4.25		Positive	A1(4629), A26(5032)	4.94	44.95	2.77		Positive	no class II DSA	10.2	16.25	YES
230	89	1	8			Positive	A1	2	7.2			Positive	no class II DSA	1.4	1.5	YES
774	89	50	132			Positive	A1(3100), A26(3584)	120	104			Negative	no class II DSA	267	316	NO
792	89	52	160			Positive	A26(4631), A1(4223)	106	171			Positive	no class II DSA	216	235	YES
836	89	70	98			Positive	A*01:01(6898), A*26:01(7579)	135	82			Negative	DQB1*02:01/ DQA1*05:01(1588)	0	0	NO
1160	89	90	284			Positive	A1(3591), A26(3807)	120	274			Positive	no class II DSA	183	160	YES
2400	89	40	151			Positive	A*01:01(5273), A*26:01(6040)	80	50			Negative	no class II DSA	161	305	NO
3135	89	1.2	1658	1.3		Positive						NT	1253			NO
3224	89	70	74			Positive	A1(5900), A26(6305)	140	53			Positive	no class II DSA	250	254	YES
3753	89	50	140			Positive	A1(4421), A26(4982)	100	107			Positive	no class II DSA	212	233	YES
3966	89	20	148			Positive		50	91			Positive		177	276	NO
4345	89					Positive						Negative				NO
4661	89	10	94			Positive	A*01:01(2578), A*26:01(3892), B*08:01(1973)	10	68			Positive	no class II DSA	209	213	YES
4985	89	40	92			Positive	A1(8305), A26(8584)	80	178			Positive	no class II DSA	207	162	NO
8001	89	50	160			Positive	A*01:01(3383), A*26:01(3898)	100	156			Positive	no class II DSA	305	332	YES
8035	89	>48	171			Positive	A1(3745), A26(4680)	>90	153			Positive	DQA1*05 (1232)	119/126	130/132	YES
8050	89	50	116		2681	Positive	A1(3634), A26(4599)	120	144		3422	Positive	DQ2(1031)	94	90	YES
8083	89	90	328			Positive	A26(6057)	150	285			Positive	no class II DSA	246	244	YES
8096	89	20	17.59			Negative						NT	18.18			NO
8103	89	93.72		1.2	134	Borderline	A*01:01(626)	936.1		1.7	553	Negative		78.1	551	NO
8107	89	96	278			Positive	A1(5209), A26(5699)	129	192			Positive	DQ2/DQA1*05:01, DQB1*02:01(1283)	276	357	YES
8109	89	2.2		20.19		Positive	A26(7834), A1(7224)	2.3		12.29		Positive	no class II DSA			YES
8111	89	25	143			Positive	A26(3400), A1(2400)	29	143			Positive	DQ2/DQA*05(500)	225	204	YES

Table 10b. Individual CDC crossmatch results and DSA reported for Cell #086 vs. Serum #088

Ctr	Serum no	T Cell Pos cutoff	T Cell MCS	RATIO	MESF	T-Cell RESULT	Class I DSA(MFI)	B Cell Pos cutoff	B-cell MCS	RATIO	MESF	B-Cell RESULT	Class II DSA(MFI)	T Cell NEG Control MC	B Cell NEG Control MC	Pronase Treated
4079	89					Negative	A*01:01(741), A*26:01(1098)					Positive	no class II DSA			YES

Table 11a. Individual Flow crossmatch results and DSA reported for Cell #086 vs. Serum #090

Ctr	Serum no	T Cell Pos cutoff	T Cell MCS	RATIO	MESF	T-Cell RESULT	Class I DSA(MFI)	B Cell Pos cutoff	B-cell MCS	RATIO	MESF	B-Cell RESULT	Class II DSA(MFI)	T Cell NEG Control MC	B Cell NEG Control MC	Pronase Treated
206	90	2.98	59.45	5.83		Positive	A1(16295)	4.94	84.2	5.18		Positive		10.2	16.25	YES
230	90	1	12			Positive	A1	2	11			Positive		1.4	1.5	YES
774	90	50	141			Positive	A1(14764)	120	160			Positive	DP6(17996), DR52(9563)	267	316	NO
792	90	52	181			Positive	A1(14100)	106	252			Positive	DR52(4350), DP6(2635)	216	235	YES
836	90	70	143			Positive	A*01:01(23034), A*26:01(1442)	135	143			Positive	DRB3*01:01(7960), DP6(22509)	0	0	NO
1160	90	90	314			Positive	A1(13159)	120	310			Positive	DR52(3428); DP6(15306)	183	160	YES
2400	90	40	187			Positive	A*01:01(17165)	80	123			Positive	DRB3*01:01(4992), DPB1*06:01(10917)	161	305	NO
3135	90	1,2	1897	1,5		Positive						NT		1253		NO
3224	90	70	139			Positive	A1(19089)	140	140			Positive	DR52(6737), DP6(20968)	250	254	YES
3753	90	50	187			Positive	A1(12936)	100	187			Positive	DRB3*01(4968), DP6(9569)	212	233	YES
3966	90	20	196			Positive		50	173			Positive		177	276	NO
4345	90					Positive						Negative				NO
4661	90	10	149			Positive	A*01:01(14622), A*26:01(827), B*08:01(6210)	10	134			Positive	DRB3*01(3251), DPB1*05:01(15322)	209	213	YES
4985	90	40	85			Positive	A1(18468)	80	199			Positive	DP6(12627)	207	162	NO
8001	90	50	238			Positive	A*01:01 (14638)	100	250			Positive	DRB3*01:01(3765), DPB1*06:01(18767)	305	332	YES
8035	90	>48	179			Positive	A1(13485), B*35:01 bead only; no bead for B*35:08	>90	185			Positive	DR52(7449), DP6(10823)	119/126	130/132	YES
8050	90	50	183		5298	Positive	A1(13123)	120	225		8990	Positive	DR52/ DRB3*01:01(5888), DP6(11648)	94	90	YES
8083	90	90	219			Positive	A1(16387)	150	226			Positive	DR52(6513), DP6(19309)	246	244	YES
8096	90	20	56.46			Positive						NT		18.18		NO
8103	90	93.72		1.2	188	Positive	A*01:01(1968)	936.1		1.7		Negative		78.1	551	NO
8107	90	96	328			Positive	A1(16439)	129	270			Positive	DRB3*01:01(5522), DP6(10768)	276	357	YES
8109	90	2.2		33.43		Positive	A1(21152)	2.3		23.85		Positive	DR52(13042), DPA1*02(24713)			YES
8111	90	25	179			Positive	A1(9400)	29	200			Positive	DRB3*01:01(4200), DP6(10000)	225	204	YES

Table 11b. Individual CDC results and DSA reported for Cell #086 vs. Serum #090

Ctr	Serum no	T Cell Pos cutoff	T Cell MCS	RATIO	MESF	T-Cell RESULT	Class I DSA(MFI)	B Cell Pos cutoff	B-cell MCS	RATIO	MESF	B-Cell RESULT	Class II DSA(MFI)	T Cell NEG Control MC	B Cell NEG Control MC	Pronase Treated
4079	90					Negative	A*01:01(3268)					Negative	DPB1*06:01(600)			YES

Single Antigen

Table 12. Summary of Single Antigen results for Serum #087

*** Serum #087 ***							
23 typing Labs							
Antigen	No.Labs	Consensus	Median	Mean	Std Dev	Min	Max
A2	23	100%	12690	12751	4967	2658	20907
A68	23	100%	7536	7693	3241	1319	14238
A69	23	100%	8210	7636	3779	1024	15039
B57	23	100%	6949	6725	2845	965	12800
B71	23	100%	4530	4283	2030	561	8793
B72	23	100%	4882	4664	2130	572	9546
B75	23	100%	5513	5609	2398	917	10199
B76	23	100%	6321	5945	2510	904	11031
B49	22	95%	4158	3995	1737	938	8330
B50	22	95%	4204	4405	2000	958	9650
B58	22	95%	4701	4984	2265	1021	10190
B62	22	95%	7868	7644	3047	1198	13906
B63	22	95%	4511	4740	2102	893	9809
B77	22	95%	5657	5420	2413	802	10827
Cw15	22	95%	7597	7366	3599	578	13395
B46	21	91%	3854	3763	1667	510	7355
B56	21	91%	3219	3656	1836	562	8008
Cw18	21	91%	6847	6204	2968	641	11609
Cw2	21	91%	5927	5813	2748	1073	12080
Cw6	21	91%	5689	5662	2525	911	10555
B52	20	86%	2438	2553	1200	531	5142
Cw5	20	86%	7523	7116	3111	1163	12322
B35	19	82%	2144	2231	1064	409	4549
Cw17	19	82%	4987	4973	2380	1143	8977
Cw4	19	82%	3564	3607	1948	491	8863
B51	18	78%	2621	2912	1204	530	5952
B53	18	78%	2035	2423	1816	487	8863
B13	16	69%	2248	2588	1491	300	7071
B55	13	56%	1636	1900	829	611	3752
B78	9	39%	1175	1494	1029	289	4105
Cw12	8	34%	1654	1849	620	1206	3251
B44	6	26%	1072	2229	3049	259	9002
A11	5	21%	1026	2400	2810	535	7992
A24	5	21%	1204	1939	2211	246	6287
A3	5	21%	1096	1129	671	284	2249
B45	5	21%	1248	1901	1275	1006	4422

*** Serum #087 ***							
23 typing Labs							
Antigen	No.Labs	Consensus	Median	Mean	Std Dev	Min	Max
DQ8	23	100%	9557	8533	3246	1724	15236
DQ9	23	100%	8300	8345	3655	1755	15997
DR4	23	100%	12458	12338	3073	4557	18071
DR53	23	100%	5112	4945	1747	1036	8713
DQ6	22	95%	4494	4585	2208	625	9926
DQ5	16	69%	2573	3176	2302	1118	11610
DQ4	15	65%	5351	5198	2955	1079	12637
DQA1*03	13	56%	6345	6965	4397	1335	15997
DR1	11	47%	1378	1598	968	202	4052
DQ2	6	26%	2486	2522	917	882	3774
DQ7	6	26%	2065	3351	3290	1143	10610
DQA1*01	4	17%	4972	5692	2788	2900	9926
DR9	4	17%	1211	1121	588	220	1843
DR7	3	13%	1175	1072	656	222	1819

Blue = DSA against cell #085 only

Gold = DSA against cell #086 only

Green = DSA against cell #085 and #086

Table 13. Summary of Single Antigen results for Serum #088

*** Serum #088 ***							
23 typing Labs							
Antigen	No.Labs	Consensus	Median	Mean	Std Dev	Min	Max
A29	23	100%	5312	5236	2054	854	9033
A33	23	100%	6200	6466	2367	1201	11169
A68	23	100%	5200	5194	2070	1241	9279
B18	23	100%	9738	9390	3268	1640	15772
B37	23	100%	7237	7092	2306	1410	11493
B42	23	100%	11556	10800	4317	1695	20463
B54	23	100%	9376	8917	3076	2124	14337
B55	23	100%	6872	7089	3391	934	18255
B59	23	100%	11814	11112	4259	1550	17661
B64	23	100%	9382	8805	3391	1191	14139
B65	23	100%	7480	7208	2667	1016	11688
B8	23	100%	23662	22428	5099	9061	30280
A34	22	95%	7700	7516	2651	1405	12483
A69	22	95%	5026	5778	3505	822	18476
B38	22	95%	4364	4378	1932	590	9242
B41	22	95%	6352	6080	2459	1049	11162
B67	22	95%	4862	4866	1816	840	8252
B39	21	91%	5903	5777	2056	703	10670
Cw1	20	86%	6251	5894	2388	723	9532
Cw12	20	86%	5156	5021	2131	810	8757
A3	19	82%	2221	2318	1090	692	4941
Cw14	19	82%	5120	4868	2282	661	10944
Cw15	19	82%	7149	6964	2651	598	11196
Cw16	19	82%	3172	3324	1981	656	10483
Cw5	19	82%	5397	5286	2306	673	8877
Cw8	19	82%	5450	5305	2025	960	9913
Cw18	18	78%	4345	4064	1460	493	6312
Cw7	17	73%	3641	4020	3801	382	18476
A32	15	65%	2065	2229	1152	315	5161
Cw4	15	65%	3254	3230	872	1945	5270
Cw6	15	65%	2344	3071	3388	456	15403
A31	13	56%	1632	1779	790	247	2919
A74	9	39%	1272	1962	1860	242	6933
A30	8	34%	1486	1620	943	311	3555
A36	8	34%	1414	1804	1365	552	5270
B61	6	26%	1280	1834	1341	1063	4808

*** Serum #088 ***							
10 typing Labs							
Antigen	No.Labs	Consensus	Median	Mean	Std Dev	Min	Max
NEG	6	60%					
DR17	4	40%	776	767	304	406	1110
DR11	2	20%	132	131	17	115	148
DR13	2	20%	278	278	111	167	389
DR14	2	20%	214	214	61	153	275
DR18	2	20%	399	398	106	293	504
DR52	2	20%	601	601	261	340	862
DR8	2	20%	230	230	42	188	272
DP11	1	10%	198	198	-	198	198
DP13	1	10%	580	580	-	580	580
DP14	1	10%	457	457	-	457	457
DP17	1	10%	230	230	-	230	230
DP18	1	10%	318	318	-	318	318
DPw1	1	10%	378	378	-	378	378
DPw6	1	10%	215	215	-	215	215
DPw3	1	10%	273	273	-	273	273
DPw4	1	10%	386	386	-	386	386
DPw5	1	10%	670	670	-	670	670

Blue = DSA against cell #085 only

Gold = DSA against cell #086 only

Green = DSA against cell #085 and #086

Table 14. Summary of Single Antigen results for Serum #089

*** Serum #089 ***							
23 typing Labs							
Antigen	No.Labs	Consensus	Median	Mean	Std Dev	Min	Max
A26	23	100%	4631	4765	1985	1098	9234
A29	23	100%	17724	16391	5251	4174	24379
A3	23	100%	2932	3126	1459	581	6426
A30	23	100%	4568	4474	1952	761	8289
A33	23	100%	3449	3598	1561	674	7278
A34	23	100%	4360	4428	1908	801	7970
A36	23	100%	3560	3755	1484	1011	7281
A74	23	100%	4029	3878	1741	591	7777
A80	23	100%	4882	4352	2095	636	8604
A1	22	95%	4240	4268	1834	626	8305
A31	22	95%	4252	4221	1913	470	8275
A43	22	95%	12687	12175	4082	3219	19013
A32	21	91%	2703	2676	1079	402	5148
A25	19	82%	2006	2099	970	400	5134
A66	18	78%	2989	3217	1223	891	6221
A11	16	69%	2626	2643	1135	530	5264
A68	16	69%	1659	2350	2393	414	11184
A69	9	39%	1439	2856	3615	718	12949
A6602	6	26%	2433	2675	1685	718	5467
A1101	5	21%	1781	1842	1202	511	3374
A1102	4	17%	2461	2412	1592	413	4315
A23	4	17%	1216	1236	284	858	1657
A6601	4	17%	2830	2781	1564	619	4849

*** Serum #089 ***							
23 typing Labs							
Antigen	No.Labs	Consensus	Median	Mean	Std Dev	Min	Max
DR7	23	100%	5363	5231	1834	1386	8350
DR9	23	100%	2862	2776	1004	833	4732
DR53	12	52%	1270	1486	978	255	4265
DQ2	3	13%	1588	2294	1412	1031	4265

Blue = DSA against cell #085 only

Gold = DSA against cell #086 only

Green = DSA against cell #085 and #086

Table 15. Summary of Single Antigen results for Serum #090

*** Serum #090 ***							
23 typing Labs							
Antigen	No.Labs	Consensus	Median	Mean	Std Dev	Min	Max
A1	23	100%	14622	13833	5045	1698	23034
B57	23	100%	11585	10986	4318	1274	19402
B58	23	100%	10226	9297	3957	849	16369
B76	23	100%	6853	6240	2707	798	11988
A23	22	95%	4224	4571	1917	779	9274
A24	22	95%	4638	4871	2514	777	10556
A36	22	95%	3519	3753	1570	797	7276
B63	22	95%	7291	7117	3225	1130	16771
A30	21	91%	4659	5385	1887	2333	10244
A43	21	91%	3878	4002	1642	545	8060
A80	21	91%	3974	4002	1512	942	7696
B27	19	82%	3020	3223	1116	929	5848
A25	18	78%	2209	2379	929	1100	4241
B42	17	73%	2163	2199	773	515	3771
B54	17	73%	2174	2328	773	597	3780
A11	16	69%	2865	2662	950	1090	4693
B56	16	69%	1875	1982	774	521	3434
B67	16	69%	2186	2350	685	1394	3843
B55	14	60%	1799	2447	1676	1047	7185
B75	14	60%	2382	2570	1085	1218	4763
B82	13	56%	1698	2294	1917	1001	8580
B45	12	52%	1890	2153	1114	694	5081
A3	11	47%	1608	1642	698	676	3086
B44	10	43%	1623	1793	691	798	3147
B7	8	34%	1790	1737	375	1203	2300
B81	8	34%	1618	1926	1039	911	4345
Cw17	8	34%	2373	2736	1818	872	7185
Cw18	8	34%	2142	2070	522	1205	2782
A29	6	26%	1519	1976	1416	902	5081
B2708	5	21%	2840	2585	968	810	3694
A1101	3	13%	3478	3445	384	2959	3898
A1102	3	13%	3824	4038	1110	2799	5493
A2403	3	13%	1355	1403	161	1234	1620
Cw5	3	13%	1140	1492	711	852	2484

*** Serum #090 ***							
23 typing Labs							
Antigen	No.Labs	Consensus	Median	Mean	Std Dev	Min	Max
DR12	23	100%	6481	6107	2594	1081	10472
DR53	23	100%	17601	16581	4809	5487	25034
DR7	23	100%	18728	18697	3445	11153	24914
DR9	23	100%	10606	10502	2872	4165	16507
DPw5	21	91%	16766	16024	3299	8351	21535
DPw1	20	86%	15198	14568	4218	6656	22598
DP11	19	82%	13655	13302	3265	8234	19772
DP13	19	82%	14501	14325	3295	7781	20913
DP14	19	82%	16141	15555	3123	8770	20648
DR52	19	82%	7449	8102	3722	1232	16734
DP17	18	78%	15284	14693	3398	7048	20076
DP9	18	78%	16700	15865	3429	8261	21073
DPw3	18	78%	15325	12448	6543	684	21729
DPw6	18	78%	15540	13041	6630	600	22509
DP15	17	73%	11048	10764	2161	7009	14848
DP19	17	73%	6124	6818	2704	3100	14204
DP10	15	65%	15604	15672	2105	11700	19685
DP28	12	52%	8184	8761	2647	4821	15449
DPA1*02	12	52%	16970	17491	4079	8771	24713
DP20	11	47%	3268	3081	810	1724	4725
DPA1*04	10	43%	7524	7776	3757	3198	17048
DP18	8	34%	18613	16669	6316	762	22860
DP401	6	26%	2044	4784	4683	1137	13658
DPw4	4	17%	8740	9030	7241	1049	17593
DR10	3	13%	509	5128	6815	112	14763

Blue = DSA against cell #085 only

Gold = DSA against cell #086 only

Green = DSA against cell #085 and #086

Table 16. Individual laboratory results for Serum #087 - class I by Luminex

**** Serum 87 ****																														
Ctr	A2	A68	A69	B57	B71	B72	B75	B76	B49	B50	B58	B62	B63	B77	Cw15	B46	B56	Cw18	Cw2	Cw6	B52	Cw5	B35	Cw17	Cw4	B51	B53	B13	B55	
54	15163	9043	8822	7530	4728	4965	6250	6569	4178	4442	4987	8218	4501	5731	10108	3854	3179	7663	6744	6984	2326	8493	1980	4987	3189	2555	1830	2114	1483	
206	14915	9086	9414	7018	4805	5018	6198	6321	4239	4155	4700	8498	4454	5784		3828	3219													
230	12267	7514	7296	6566	4399	4780	5352	5533	3803	3953	4329	7651	4170	5303	7197	3509	2860				2137	6876				2441				
774	12488	7150	6508	6949	4389	4693	5513	6306	3925	4041	4463	7682	4177	5172	8950	3161	3113	6999	5927	6252	2255	8085	1922			2505	1525			
792	13464	8033	8265	6887	4530	4882	5873	5939	4174	4175	4702	7663	4520	5582	6518	3677	3185	5772	5290	5385	2425	6328	2122	4912	3228	2687	1905	2181	1530	
836	20888	11996	12025	10677	7250	7585	10199	9257	6490	6656	7563	11637	9809	8625	13395	5891	7186	10933	12080	9751	3748	12322	4311	8747	5126	3993	3017	3265	2322	
1160	12168	7191	6571	6306	4180	4369	5236	5298	3673	3658	4283	6868	4074	5085	6125	3366	2894	5442	4698	4834	2245	5816	1948	3675	2526	2479	1598	2059	1476	
2400	14968	8982	9817	7532	4768	4958	5688	6737	4544	4232	5886	7866	5526	6146	6939	4411	3742	6414	5909	5689	2701	7382	2314	5135	3564	3049	2149	2314		
3224	17567	10747	10443	9022	5747	6162	7315	7860	4950	5179	6066	10031	5518	7363	10889	4579	4303	8781	7429	7860	2935	9606	2540	5974	3601	3233	2378	2763	1948	
3753	7684	4176	4761	3813	2397	2704	2729	3296	2005	2031	2542	4224	2445	2911	3542	2050	1600	3324	3026	3077	1243	3703	1065	2769	2001	1282				
4079	3408	1911	1526	1666	896	990	1349	1373	938	958	1021	1577		1311	1415	510	562	1226	1501	1711	531	1163	409	1143	491		487	300		
4661	6322	3794	1563	2960	1662	1599	2298	2399	1607	1700	1667	3563	1516	2138	2364	675	8008	2290	2518	3215	677	2237	650	2103	3482		672			
4985	20907	14238	15039	12800	8793	9546	9380	11031	8330	7963	9725	13906	8669	10827	13160	7355	6921	11609	10087	10555	5142	12149	4549	8767	5989	4385	4474	4198	3752	
8001	14111	8036	8299	6586	4012	4390	5373	5351	3555	3511	4192	7235	4017	5008	6050	3298	2747	5576	5028	4927	2036	5976	1790	4676	2939	2183	1549	1769	1124	
8029	8815	4897	3868	4126	2226	2392	3431	3551	2416	2274	2586		3069	3075	3034	1212	1497	2913	3382	3794	1075	2686	1193	2567	686	530	992	655	611	
8035	12690	7536	8210	7680	5022	5268	5446	7000	4558	4500	5420	8645	4982	6368	9121	4157	3696	7233	6864	6659	2655	8855	2325	6248	3853	2317	2265	2147	1636	
8050	12598	7188	7695	7090	4696	5170	5105	6334	4142	4244	4979	8187	4530	5748	7996	3924	3323	6899	6400	6144	2451	7664	2144	5714	3640	2075	1921	1911	1340	
8079	9800	5500	5000	4300	2500	2600	3800	3300	2300	2500	2600	4800	2300	3400	4000			3300	2900	3000		3700		2500						
8083	16176	10143	10993	8446	5547	5824	7076	7218	4814	4936	5768	9143	5131	6806	10199	4389	3815	8230	7589	7137	2674	9191	2504	6887	4124	3016	2148	2483		
8096	7533	5136	3242	5479	2121	4422	7220	7992	1504	9650	4305	7869	6598		9284	3970	1689	6847	6529	4133	5063		2200	1724	8863	5952	8863	7071	3242	
8103	2658	1319	1024	965	561	572	917	904				1198	893	802	578			641	1073	911					982					
8107	15982	9935	10948	8800	5834	6356	7606	7475	5189	5257	10190	9751	5573	6991	9834	4588	3932	8262	7784	7348	2828	9210	2520	6996	4179	3210	2360	2442	1746	
8109	20710	13394	14316	11491	7450	8045	9665	9697	6571	6902	7681	11973	7814	9083	11359	6623	5318	9931	9326	9539	3923	10882	3908	8977	6087	4533	3498	3739	2502	
Avg	12751	7693	7637	6726	4283	4665	5610	5945	3996	4405	4984	7645	4740	5421	7366	3763	3657	6204	5814	5662	2554	7116	2231	4974	3608	2913	2424	2588	1901	
Std																														
Dev.S	5079	3313	3864	2909	2075	2178	2451	2566	1777	2047	2318	3119	2151	2470	3684	1708	1881	3041	2816	2588	1231	3192	1093	2445	2001	1239	1869	1540	863	
MFI																														
%CV	40%	43%	51%	43%	48%	47%	44%	43%	44%	46%	47%	41%	45%	46%	50%	45%	51%	49%	48%	46%	48%	45%	49%	49%	55%	43%	77%	60%	45%	

Blue = DSA against cell #085 only
 Gold = DSA against cell #086 only
 Green = DSA against cell #085 and #086

Table 16. Individual laboratory results for Serum #087 (cont.) - class I by Luminex

	**** Serum 87 ****									Manufacturer
Ctr	B78	Cw12	B44	A11	A24	A3	B45	Cw403	Other	
54	1009	1352		1026						One Lambda
206										One Lambda
230										One Lambda
774										One Lambda
792										One Lambda
836	1654	1991	1350	1432	1358	2249	1609	7252	A203,B48,B27,A74 >	One Lambda
1160	1063			1018			1006			One Lambda
2400										One Lambda
3224		1507	1078		1204	1096	1222		A203,A2403,B7801	One Lambda
3753										One Lambda
4079	289		259		246	284		1818	A74,A2403,A1101,A1102	Lifecodes
4661								3482		Lifecodes
4985		3251							B70,B21,B5,A28 >	One Lambda
8001										One Lambda
8029	844		625	535	600	653		3921	A203,B15,A29,A32 >	Lifecodes
8035	1307	1447	1065				1248			One Lambda
8050	1175	1206								One Lambda
8079										One Lambda
8083										One Lambda
8096	4105	1800	9002	7992	6287	1366	4422		B60,B61,B48,A66 >	One Lambda
8103								982	A203,B15	Lifecodes
8107										One Lambda
8109	2002	2240								One Lambda
Avg	1494	1849	2230	2401	1939	1130	1901	3491		
Std										
Dev.S	1092	663	3340	3142	2472	750	1426	2420		
MFI										
%CV	73%	36%	150%	131%	127%	66%	75%	69%		

Blue = DSA against cell #085 only

Gold = DSA against cell #086 only

Green = DSA against cell #085 and #086

Table 17. Individual laboratory results for Serum #088 - class I by Luminex

**** Serum 88 ****																													
Ctr	A29	A33	A68	B18	B37	B42	B54	B55	B59	B64	B65	B8	A34	A69	B38	B41	B67	B39	Cw1	Cw12	A3	Cw14	Cw15	Cw16	Cw5	Cw8	Cw18	Cw7	
54	5554	6904	5721	9738	7503	11701	9377	6872	11814	9448	7347	23662	8112	5153	4549	6397	4872	5903	5966	4903	2221	4427	7138	2610	5312	5143	3857	2521	
206	4624	6828	5863	10341	7237	11974	9483	6754	13045	9559	7812	22861	8728	5851	4168	5936	4600	5112											
230	5337	6888	5659	9126	6463	11383	9111	6663	11301	9020	7120	23938	7833	4898	4348	5785	4683	5295			2104		6912						
774	4801	5800	4003	9754	8048	11556	9376	6974	11700	9382	7480	24454	7234	3616		6690	5284	5916	6284	8384			7149		5367	5575			
792	5496	6986	5812	9492	7120	11071	9194	6739	11998	9290	7763	22310	7566	5264	4379	5778	4651	5599	6017	4718	2350	4624	6830	2946	5397	5078	3977	3080	
836	9033	11169	9279	15772	11493	20463	14337	18255	17661	14139	11688	30280	12483	9004	9242	11162	8252	10670	9532	8757	4941	10944	11196	10483	8877	9913	6312	4662	
1160	5312	5801	5000	8974	7210	11053	8380	6854	11111	9012	7241	22149	7978	4300	4172	6306	4852	5553		4626	2583			2450			3906		
2400	6952	7647	6202	11661	9448	12771	11481	8847	13984	11102	9211	25316	8451	6794	5293	8402	5921	6662	7049	5809	2844	5999	8607	3635	7024	5450	5020	3864	
3224	8068	9287	8008	12101	7834	14672	12455	9339	14804	12271	9761	23918	11022	7483	5962	8082	6720	7775	8164	6801	3439	6078	9311	3845	7072	7075	4548	3891	
3753	3904	5157	3359	8452	6144	9877	8179	5723	11407	8190	6724	24294	5525	3768	3576	5371	3976	4404	5858	4336		4347	6158	2857	5146	4598	3566	2912	
4079	1090	1683	1517	2770	2338	2568	2728	1347	3090	2145	2161	11077	1778	822	1070	1049	840		1181	810	692	1189	598	656	673	960	493	382	
4661	2766	3823	3484	5256	4391	4823	5359	3116	5083	4231	4148	16403		1810	2357	2035	1818	2336	2356	1685	1295	2170		1238	1032	2132			
4985	7817	9784	8020	14088	10784	15331	13035	10121	16226	13670	11195	25559	10599	7973	7240	9622	8033	9017	8721	7828	3849	7145	10354	4555	8125	7860	6028	4169	
8001	4037	5505	4389	8198	5524	9684	7478	5237	11078	7798	6221	24042	6114	4275	3043	4596	3337	3942	4792	3517	1397	3458	5252	2064	3977	3776	2699	1888	
8029	3198	4246	3666	5602	4749	5638	6082	3223	5943	4600	4572	18148	4506	1873	2413	2210	2300		2724	2042	1558	2581	1023	1528	1141	2442	938	798	
8035	4915	6125	3719	10938	7995	12889	10222	7662	13549	10356	8252	28516	6691	4369	5275	6851	5579	6266	7276	5877	1222	5497	7927	3535	6362	5826	4547	4051	
8050	4326	5589	3554	10699	8030	12561	9959	7556	12852	10224	8284	28922	6407	3963	4680	6902	5402	6088	6977	5497	1005	5265	7699	3172	6279	5642	4547	3641	
8079	4700	6200	5200	8900	6400	10700	8400	6000	11400	8400	6600	21400	7300	4600	3700	5500	4500	5100	5300	4500	2000	4300	5800	2400	4800	4800	3700	2300	
8083	6982	8428	7059	11534	8008	13292	10917	8142	13054	11052	8512	23134	9710	7453	5353	7203	5627	6353	7404	5677	2801	5120	8194	3182	6720	6049	4294	3593	
8096	6390	5680	3746	6760	7164	4503	4462	9284	3274	4053	3121	16237	6369	18476	3178	2296	3160	4917	6218	2281	1438	6933	4808	4792	3244	5161	4716	18476	
8103	854	1201	1241	1640	1410	1695	2124	934	1550	1191	1016	9061	1405		590			703	723			661							
8107	8021	9806	8666	12754	9630	15170	12751	9761	14937	12730	10366	23306	10655	8889	7082	8811	7396	7778	8479	6977	3916	6438	9547	3958	7800	7649	5610	4453	
8109	6256	8197	6306	11428	8194	13047	10219	7648	14732	10672	9198	26874	8896	6487	4667	6790	5249	5935	6874	5409	2388	5322	7818	3268	6098	5678	4395	3668	
Avg	5236	6467	5194	9390	7092	10801	8918	7089	11113	8806	7208	22429	7516	5778	4379	6081	4866	5777	5895	5022	2318	4868	6964	3325	5287	5306	4064	4021	
Std																													
Dev.S	2100	2420	2116	3342	2358	4414	3145	3468	4355	3467	2727	5214	2714	3587	1977	2517	1859	2106	2450	2186	1120	2345	2723	2035	2369	2080	1502	3918	
MFI																													
%CV	40%	37%	41%	36%	33%	41%	35%	49%	39%	39%	38%	23%	36%	62%	45%	41%	38%	36%	42%	44%	48%	48%	39%	61%	45%	39%	37%	97%	

Blue = DSA against cell #085 only
 Gold = DSA against cell #086 only
 Green = DSA against cell #085 and #086

Table 17. Individual laboratory results for Serum #088 (cont.) - class I by Luminex

**** Serum 88 ****										
Ctr	A32	Cw4	Cw6	A31	A74	A30	A36	B61	Other	
54	1947	2380	1781	1632	1235	1127		1063		One Lambda
206										One Lambda
230										One Lambda
774										One Lambda
792	1847	2887	2117	1578						One Lambda
836	3168	4394	3271	2658	2140	2008	1788	1509	Cw403,Cw2,B3901,B3902	One Lambda
1160	2217			1545	1272	1184	1201			One Lambda
2400	2432	3331	2654	2365						One Lambda
3224	2866	3134	2586	2367	1808	1788	1601	1065		One Lambda
3753	1135	2516								One Lambda
4079	315		456	247	242	311	552		Cw403,B3901	Lifecodes
4661		1963					1043		Cw403,A24	Lifecodes
4985	3441	4092	3439	2919					A28,B14	One Lambda
8001		1945	1284							One Lambda
8029	776		949	643	609	781	1226		Cw403,A66,B3901	Lifecodes
8035	1731	3265	2494	1406	1244			1154		One Lambda
8050	1450	2875	2250	1073						One Lambda
8079										One Lambda
8083	2065	3254	2189							One Lambda
8096	5161	5270	15403	1948	6933	3555	5270	4808	A11,A24,A2,B60 >	One Lambda
8103									B14,B3901	Lifecodes
8107	2894	3858	2855	2746	2177	2208	1751	1405		One Lambda
8109		3296	2344							One Lambda
Avg	2230	3231	3071	1779	1962	1620	1804	1834		
Std										
Dev.S	1193	903	3506	822	1972	1008	1459	1469		
MFI										
%CV	53%	28%	114%	46%	101%	62%	81%	80%		

Blue = DSA against cell #085 only

Gold = DSA against cell #086 only

Green = DSA against cell #085 and #086

Table 18. Individual laboratory results for Serum #089 - class I by Luminex

	**** Serum 89 ****																				Manufacturer	
Ctr	A26	A29	A3	A30	A33	A34	A36	A74	A80	A1	A31	A43	A32	A25	A66	A11	A68	A69	A6602	A1101	Other	
54	5075	17724	3195	4943	3853	5245	3977	4158	4945	4737	4401	12662	2703	2006	3172	2878	1643	1055				One Lambda
206	5032	18829	3376	4568	3803	5265	4157	4337	4930	4629	4611	14112			2980							One Lambda
230	4237	16161	2932	4587	3433	4709	3560	3608	4143	4014	4102	11659	2331	1751	2957	2555						One Lambda
774	3584	16404	2016	3764	2633	4153	2389	2908	3801	3100	3293	10485	2476		2482							One Lambda
792	4631	16256	3401	4968	3744	4950	3804	4070	4531	4223	4450	12016	2594	2038	3557	3012	1606					One Lambda
836	9234	23902	5784	7546	5806	7970	6122	6346	7323	6898	6723	17516	4169	3118			2625	1905	5467	3374	B44,A23,A1102,A6601	One Lambda
1160	3807	14486	2681	4390	3119	4360	3280	3411	3838	3591	3824	10124	2141	1622	2767	2487	1134	718			A23	One Lambda
2400	6124	19808	4056	5411	4542	4510	4573	4978	5091	5312	6121	14758	3055	2354	4108	3254						One Lambda
3224	6305	21035	4536	6409	4631	6726	5260	5294	6358	5900	5678	15859	3746	2708			2098	1429	4112	3017	A23,A1102,A6601	One Lambda
3753	4982	17969	3413	4630	3875	3870	3965	4474	5187	4421	4796	13742	2775	2094	3349	2697	1731	1439				One Lambda
4079	1098	4174	581	774	674	801	1058	606	668	741	470	3219	402	400			414		718	511	A1102,A6601	Lifecodes
4661	3892	10738	1972	2748	2298	3011	3512	2089	2037		1598	8442	1524	1482			1674		2565	1781	A1102,A6601	Lifecodes
4985	8584	22322	6426	8289	7278	7074	7281	7777	8604	8305	8275	18463	5148	5134	6221	5264	3397	2584			A28	One Lambda
8001	3898	16702	2606	4059	3113	4079	3003	3240	3693	3383	3468	11604	2026	1482	2500	2279	1334					One Lambda
8029	2592	9253	1446	1945	1640	2077	2564	1529	1609	1818	1219	6736	1093	939	1896	1334	1031					Lifecodes
8035	4680	18908	2757	3740	3449	3428	3183	4029	5003	3745	4015	12711	2973	1834	2998	1932	1551	1211				One Lambda
8050	4599	19389	2464	3675	3118	3228	2983	3693	4882	3634	3808	13341	2780	1718	2701	1728	1343					One Lambda
8079	3400	13900	2400	3900	2700	3800	2800	2900	3400	3100	3200	9700	2000						2300			One Lambda
8083	6057	19239	3734	5685	4779	5697	4385	4975	5175	5033	5127	13975	2966	2066	3900	2987						One Lambda
8096	3023	12245	2034	2470	2983	2282	2757	2771	974	4256	1440		1685	1614	2099	1751	11184	12949			Cw4,Cw6,A24,A2 >	One Lambda
8103	1230	4297	662	761	699	846	1011	591	636	626		3356			891	530			891	531		Lifecodes
8107	5699	18893	3778	5625	4098	5867	4374	4586	5513	5209	4938	14372	3218	2265	3623	2839	1797					One Lambda
8109	7834	24379	5656	8037	6507	7897	6368	6835	7777	7224	7326	19013	4411	3272	5717	4772	3051	2415				One Lambda
Avg	4765	16392	3126	4475	3599	4428	3755	3878	4353	4268	4222	12176	2677	2100	3218	2644	2351	2856	2676	1843		
Std																						
Dev.S	2030	5369	1492	1996	1596	1951	1517	1781	2142	1877	1958	4178	1106	997	1259	1172	2471	3834	1845	1344		
MFI																						
%CV	43%	33%	48%	45%	44%	44%	40%	46%	49%	44%	46%	34%	41%	47%	39%	44%	105%	134%	69%	73%		

Blue = DSA against cell #085 only
 Gold = DSA against cell #086 only
 Green = DSA against cell #085 and #86

Table 19. Individual laboratory results for Serum #090 - class I by Luminex

	**** Serum 90 ****																						Manufacturer		
Ctr	A1	B57	B58	B76	A23	A24	A36	B63	A30	A43	A80	B27	A25	B42	B54	A11	B56	B67	B55	B75	B82	B45	Other		
54	14885	12796	11043	6210	4335	4728	4082	7367	4430	3878	3974	3840	2072	2490	2500	3093	2269	2568	1935	1548	1955	1723	B44,B7,A29,A3 >	One Lambda	
206	16295	11585	10226	7162	5000	5635	3904	7056	5961	4136	3926													One Lambda	
230	14578	10840	9070	5716	4112	4548	3223	6222	4641	3720	3444	2459	2159			2379								One Lambda	
774	14764	12941	10765	7396	3743	3346	3008	7214	4172	3930	4302	2861				2820				2876				One Lambda	
792	14100	11023	9418	6348	4904	5340	3815	6913	5610	3844	3929	3020	2353	1915	2085	2997	1837	2046	1613	2535	1589			One Lambda	
836	23034	19402	16369	11988	9274	10556	7276	16771	10244	8060	7696	5848	4241	3771	3780		3434	3843	5296	4763		3251	B44,B7,A26,A29 >	One Lambda	
1160	13159	10024	8157	5293	3808		2933	5297	4390	2974	3127	2233	2094	1458	1462	2944	1280	1479	1047	1218	1206	1215	B44,A3,A*24:02	One Lambda	
2400	17188	13156	11576	7712	5597	7232	5084	8150	7149	4930	4863	3164	2902	2394	2603	3581	2305	2446		3855	2119			One Lambda	
3224	19089	15765	13597	9161	6514	7137	5144	9282	6808	5494	5474	4724	2811	3081	3181		2835	3007	2521	1645		2430	B44,B7,A29,A3 >	One Lambda	
3753	12936	8938	7801	4581	3055	3375	2683	5238	4017	2405	2823	1939	1384	1513	1580	1549	1359	1496	1163	1732	1098		B81,Cw17	One Lambda	
4079	3268	1684	1348	1071	779	1119	797			545													B62	Lifecodes	
4661	14622	10494	9063	8411	6807	8201	6158	9517	6037	5584	3264	3204	4214	1555	2080		1590	1394	1356		3314	2485	B44,B7,A29,A3 >	Lifecodes	
4985	18468	14494	13459	9062	6431	7357	5428	9981	7568	5414	5794	4171	3256	3162	3370	3947	3007	3232	2865	4089				A9,B22,B17	One Lambda
8001	14638	10768	8842	5217	3862	4362	3071	6106	4659	3022	3187	2589	1644	1562	1715	2093	1571	1666	1323	1226	1196	1075	A3,B81	One Lambda	
8029	7386	4237	3388	2826	2194	2669	1923	3143	2333	1606	942	929	1264	515	597	1090	521				1001	694	B44,A3,B2708	Lifecodes	
8035	13485	12522	11715	7196	3117	2713	2575	7786	3636	3447	4101	2944	1100	2282	2323	1495	2145	2463	1947	2111	1849	1851	B44,B7,A29,A3 >	One Lambda	
8050	13123	12310	10939	7127	3018	2400	2329	7378	3655	3158	4032	2640	1100	2054	2099	1320	1839	2125	1663		1632	1600	B44,B7,B81,A*24:02	One Lambda	
8079	10900	8400	6700	4000	2900	3200	2400	4200	3700	2300	2400													One Lambda	
8083	16387	13343	10869	6853	4816	5443	4098	7674	5327	4386	4031	3432	2230	2163	2174	2910		2174		2312				One Lambda	
8096	6585	6616	2940	2177	2910	2177	2185	1563	3545		1582	2768	2188	2185	2545	2919	889	2198	7185	2452	8580	5081	Cw4,Cw6,A2,B60 >	One Lambda	
8103	1698	1274	849	798		777		1130																B15	Lifecodes
8107	16439	12721	11092	7585	5805	6181	4231	7594	6451	4934	4675	3390	2373	2065	2097	2777	1910	2169	1661		1698	1928	A3,Cw18	One Lambda	
8109	21152	17347	14619	9642	7591	8677	6232	11000	8763	6291	6489	5090	3447	3221	3399	4693	2929	3296	2684	3619	2588	2505	B44,B7,A3,B81 >	One Lambda	
Avg	13834	10986	9298	6241	4571	4872	3754	7117	5386	4003	4003	3223	2380	2199	2329	2663	1983	2350	2447	2570	2294	2153			
Std																									
Dev.S	5158	4415	4046	2768	1962	2573	1607	3301	1934	1683	1549	1146	956	796	797	981	799	707	1739	1126	1995	1164			
MFI																									
%CV	37%	40%	44%	44%	43%	53%	43%	46%	36%	42%	39%	36%	40%	36%	34%	37%	40%	30%	71%	44%	87%	54%			

Blue = DSA against cell #085 only
 Gold = DSA against cell #086 only
 Green = DSA against cell #085 and #86

Table 20. Individual laboratory results for Serum #087 - class II by Luminex

**** Serum 87 ****											
Ctr	DQ8	DQ9	DR4	DR53	DQ6	DQ5	DQ4	DQA1*03	DR1	Other	Manufacturer
54	11784	12380	11984	5023	6861	3143	5990	2029	1261		One Lambda
206	6439	5615	13256	6064							One Lambda
230	9818	10156	12108	4729	4246			6242			One Lambda
774	10659	10692	12345	5516	6107	2756		10692			One Lambda
792	9557	9645	12986	5167	5808	2484	5351		1550	DQ2,DQ7	One Lambda
836	15236	15997	18044	8713	9926	4672	8832	15997	2633	DR9,DQ2,DQ7,DQA1*01 >	One Lambda
1160	7296	7844	9750	3068	4869	2210	4133	1335			One Lambda
2400	7352	7545	12828	4701	3704	2338		6090			One Lambda
3224	10515	10583	13073	5112	6442	2922	6210	10583	1108	DQA1*01	One Lambda
3753	6179	6138	8910	4140	3063	2138	1922	1481			One Lambda
4079	1724	1755	4557	1036	625				202	DR103,DR7,DR9	Lifecodes
4661	3815	3850	10379	2550	2127		1079			DQ7	Lifecodes
4985	10271	10670	15589	6710	5749					DQ2,DQ3,DQ7	One Lambda
8001	9887	10107	14559	5107	4741	2016	5062	6345	1351	DQA1*03:01	One Lambda
8029	4954	5120	13014	3413	2580	1118	1686		773	DR7,DR9,DQ2,DQ7	Lifecodes
8035	7816	7989	12385	5692	3832	2159	2646	7190	1378	DQA1*01	One Lambda
8050	7789	8023	12458	5338	3662	2150	2582	1985	1404		One Lambda
8079	7800	8300	12400	4500	4200			8300		DQA1*01	One Lambda
8083	12246	13030	14397	6521	7624	3365	6871			DQ2	One Lambda
8096	11111	1885	10708	6406	1666	11610	12637		4052	DR7,DR8,DR9,DR10 >	One Lambda
8103	2069	2153	5940	1303	1074					DQ3	Lifecodes
8107	10342	10189	14052	6255	5616	3084	6657		1869		One Lambda
8109	11619	12288	18071	6689	6359	2662	6319	12288			One Lambda
Avg	8534	8346	12339	4946	4586	3177	5198	6966	1598		
Std Dev.S	3319	3737	3142	1786	2260	2377	3058	4577	1015		
MFI											
%CV	39%	45%	25%	36%	49%	75%	59%	66%	63%		

Blue = DSA against cell #085 only

Gold = DSA against cell #086 only

Green = DSA against cell #085 and #86

Table 21. Individual laboratory results for Serum #088 - #089 - class II by Luminex

**** Serum 88 ****										**** Serum 89 ****					
Ctr	DR17	DR11	DR13	DR14	DR18	DR52	DR8	Other		Ctr	DR7	DR9	DR53	Other	Manufacturer
54	no specificities assigned									54	3772	2023			One Lambda
206	no specificities assigned									206	6227	3356			One Lambda
230	NEG									230	4413	2511			One Lambda
774	NEG									774	5041	2560			One Lambda
792	NEG									792	5398	2945			One Lambda
836	1110									836	8241	4397	1957	DQ2,DQA1*05	One Lambda
1160	406	115	167	153	293		188	DRB3*01:01,DRB3*03:01		1160	3131	1642			One Lambda
2400	no specificities assigned									2400	5363	2862			One Lambda
3224								weak DR52 group		3224	6681	3761	1293		One Lambda
3753	NEG									3753	5262	2944	1246		One Lambda
4079	NEG									4079	1386	833	255		Lifecodes
4661	no specificities assigned									4661	2985	1910	607		Lifecodes
4985	no specificities assigned									4985	7787	4099			One Lambda
8001	NEG									8001	5480	2824	1149		One Lambda
8029	no specificities assigned									8029	4165	2641	778		Lifecodes
8035	1022						862			8035	5871	3015	1393	DQA1*05	One Lambda
8050	no specificities assigned									8050	6271	3165	1206	DQ2	One Lambda
8079	no specificities assigned									8079	4800	2400			One Lambda
8083	no specificities assigned									8083	7161	3707			One Lambda
8096	530	148	389	275	504	340	272	DR1,DR103,DR4,DR7 >		8096	3899	1281	4265	DQ2,DR10,DR11,DR12>	One Lambda
8103	no specificities assigned									8103	1890	944			Lifecodes
8107	no specificities assigned									8107	6752	3303	1529		One Lambda
8109	no specificities assigned									8109	8350	4732	2155		One Lambda
Avg	767	132	278	214	399	601	230				5232	2776	1486		
Std															
Dev.S	351	23	157	86	149	369	59				1875	1026	1022		
MFI															
%CV	46%	18%	56%	40%	37%	61%	26%				36%	37%	69%		

Blue = DSA against cell #085 only
 Gold = DSA against cell #086 only
 Green = DSA against cell #085 and #86

Table 22. Individual laboratory results for Serum #090 - class II by Luminex

**** Serum 90 ****																								
Ctrl	DR12	DR53	DR7	DR9	DPw5	DPw1	DP11	DP13	DP14	DR52	DP17	DP9	DPw3	DPw6	DP15	DP19	DP10	DP28	DPA1*02	DP20	DPA1*04	Other	Manufacturer	
54	6943	17601	18482	10253	15011	15945	13655	14501	13877	9369	13431	14904	15628	15773	9170	4165	12853	4821	16440	1724		DP401	One Lambda	
206	6542	19799	19874	11965	18915				18544		17569	19013					17655						One Lambda	
230	5672	16342	17480	8164	15807		14549	15486	15029		14374	14976		16715	9735		14317		15029				One Lambda	
774	7018	18191	20000	11822	16766	18398	15566	16060	15750	9563	15126	16828	17220	17996	11406	5270	14954	6824				DP18	One Lambda	
792	5379	16476	16743	9687	15385	16310	14277	15174	14831	6564	14382	15144	16215	16061	10242	5218	14224	6370		2933		DP18	One Lambda	
836	9927	23254	23557	14469	21535	22598	19772	20913	20648	12380	20076	21073	21729	22509	14848	8796	19685	10170	22860	4725	10170	DPw2,DP18>	One Lambda	
1160	4208	14859	17792	8900	14562	15705	13214	14630	13932		13562	14446	15022	15306	9112	3968	13140		15280	1950	5146	DRB3*01:01,D RB3*03:01	One Lambda	
2400	5772	18138	20732	11320	18612	12743	11040	12948	17513	6737	16805	18532	9055	11029	12374	6068	16532	7322		3436		DP18	One Lambda	
3224	8428	20730	21588	14014	19656	20058	17739	19128	19349	10882	18625	19569	20454	20968	13039	7174	17676	8469	20968	3662		DP18,DP401>	One Lambda	
3753	5560	15921	18728	9166	16325	10633	9752	11357	16141	6656	15441	17044	7737	9569	10965	5113	15245		17048	2599	17048	DRB3*01:01,D RB3*03:01	One Lambda	
4079	1081	5487	11153	4296	9660	8657	8595	9416	8770		7048	8261	684	600	7009	8389		8943				DR10,DP401	Lifecodes	
4661	3137	10309	15414	8502	15322	14690	13892	14271	13589	3254	11234	12788	1833	1634	12163	14204		15449				DP18,DP401	Lifecodes	
4985	9223	21154	23330	12605						10728													One Lambda	
8001	4980	19661	19703	9736	17935	18882	16934	17708	16842	5905	16473	17656	18509	18767	11114	5060	17126			2563	6163	DPw4,DP18	One Lambda	
8029	3767	12724	18025	12039	17996	17390				3754			2521	2307					18078		9224	DR10,DPw4	Lifecodes	
8035	6481	17412	21522	10552	17482	11744	10652	12360		7449			8418	10822					16892		7325	DPA1*03	One Lambda	
8050	6854	18707	21827	12031	18937	12552	11385	13465	18702	7670	17777	19003	9040	11648	13097	6124	17523		19813	3533	8072	DP401, DRB3*01:01,D RB3*03:01	One Lambda	
8079	2700	14000	15400	7000	12900	13400	11400	13000	12300	3800	11500	12700			7400	3100	11700		14000		3700		One Lambda	
8083	7956	19835	19588	12877	18180	18993	17155	18031	17915	10805	17246	18299	18974	19309	12793	6611	16848	7898		3502		DP18	One Lambda	
8096	10472	10539	14124	10606	8351	6656		7781	16734	16734			16734										DR1,DR4,DR8>	One Lambda
8103	1152	6255	11788	4165	10316	9626	9034	9676	8771	1232	7935	8764			7480	9277		9641	8771		3198		Lifecodes	
8107	6869	18936	18270	10891	16871	17448	15902	16280	16313	7422	15878	16572	17513	18235	11048	6543	15604	7722		3268	7722		One Lambda	
8109	10342	25034	24914	16507		8938	8234			13042			6785	5496		10829		11510	24713				DPw4	One Lambda
Avg	6107	16581	18697	10503	16025	14568	13302	14326	15555	8102	14693	15865	12448	13041	10764	6818	15672	8762	17491	3081	7777			
Std																								
Dev.S	2653	4917	3522	2936	3381	4328	3354	3385	3209	3824	3497	3528	6732	6823	2228	2787	2179	2764	4260	850	3961			
MFI																								
%CV	43%	30%	19%	28%	21%	30%	25%	24%	21%	47%	24%	22%	54%	52%	21%	41%	14%	32%	24%	28%	51%			

Blue = DSA against cell #085 only
 Gold = DSA against cell #086 only
 Green = DSA against cell #085 and #86

Paper Challenge

Table 23. Individual Virtual crossmatch results for Serum #89 vs Donor #V1

Donor #V1: A*02:06-A*32:01-B*14:01-B*52:01-C*04:01:01G-C*08:02/DRB1*04:04-DRB1*07:01-DRB4*01:01:01G-DQA1*02:01-DQA1*03:01:01G-DQB1*02:02-DQB1*03:02-DPB1*03:01-DPB1*04:02

Center	Patient	% CPRA	Virtual T Cell Prediction	Class I DSA (MFI)	Virtual B-cell prediction	Class II DSA (MFI)	Risk Assessment	Comments
54	89	87	Positive	A26 (5075) A30 (3939)	Negative		Unacceptable	
206	89	69	Negative		Positive	DR7 (6227)	Unacceptable	
230	89	73	Borderline	A32 (2503)	Positive	DR7 (4413)	Unacceptable	
774	89	26	Positive	A32 (2476)	Positive	DR7 (5041)	Unacceptable	
792	89	87	Positive	A32 (2594)	Positive	DR7 (5398)	Unacceptable	
1160	89	81	Positive	A32 (2141)	Positive	DR7 (3131)	Unacceptable	
1461	89		Negative		Positive	DR7 (1391)	Unacceptable	
2400	89	83	Positive	A32 (2957)	Positive	DR7 (5275)	Unacceptable	
3224	89	93	Negative		Positive	DR7 (21588) DR53 (17059)	Acceptable	
3753	89	92	Positive	A32 (2775)	Positive	DR7 (5262) DR53 (1246)	Unacceptable	
3966	89	71	Positive	A32 (2352)	Positive	DR7 (4360)	Unacceptable	
4079	89		Positive	A32 (400)	Positive	DR7 (1386)	Unacceptable	
4661	89	92	Positive	A32 (1524)	Positive	DR7 (2985)	Unacceptable	Epitope 94T1. Epitope 78V2.
4985	89	25	Positive	A32 (5148)	Positive	DR7 (7891) DR53 (2038)	Unacceptable	
8001	89	92	Positive	A32 (2026)	Positive	DR7 (5480) DR53 (893)	Unacceptable	C*08:02 not in LSAB panel
8029	89	23	Positive	A32 (1093)	Positive	DR7 (4165) DR53 (778)	Unacceptable	
8035	89	59	Borderline	A32 (2973)	Positive	DR7 (5871) DR53 (1393)	Acceptable	In cases like these we would recommend a real cross match because the strength of the reaction will depend on the density of the antigens on a specific donor. Our B cell Positivity is based on both Class I and II DSA.
8050	89	77	Borderline	A32 (2780)	Positive	DR7 (6271) DR53 (1206) DQ2 (1031)	Unacceptable	
8079	89	100	Positive	A32 (2000)	Positive	DR7 (4800)	Unacceptable	
8080	89	87	Borderline	A32 (3587)	Positive	DR7 (5662)	Unacceptable	
8083	89	83	Positive	A32 (2966)	Positive	DQ7 (7161)	Unacceptable	
8096	89		Positive	Cw4 (3359) A2 (12099) B52 (11184) A32 (16854) CW8 (3586)	Positive	DR7 (3899) DR53 (4265) DQ2 (4265)	Unacceptable	
8103	89	8	Negative		Positive	DR7 (1890)	Unacceptable	
8107	89	92	Positive	A32 (3218)	Positive	DR7 (6752) DR53 (1500)	Unacceptable	
8109	89	92	Positive	A32 (4412)	Positive	DR7 (8350)	Unacceptable	
8111	89	25	Positive	A32 (2000)	Positive	DR7 (6200) DR53 (1400)	Unacceptable	

Table 24. Individual Virtual crossmatch results for Serum #89 vs Donor #V2

Donor #V2: A*02:01-A*31:01-B*35:01:01G-B*44:02:01G-C*04:01:01G-C*05:01/DRB1*01:01-DRB1*15:01-DRB5*01:01-DQA1*01:01:01G-DQA1*01:02:01G-DQB1*05:01-DQB1*06:02-DPB1*02:01-DPB1*05:01:01G

Center	Patient	CPRA	Virtual T Cell Prediction	Class I DSA (MFI)	Virtual B-cell prediction	Class II DSA (MFI)	Risk Assessment	Comments
54	89	87	Positive	A31 (4402)	Negative	No class II DSA	Unacceptable	
206	89	69	Positive	A31 (4611)	Positive	No class II DSA	Unacceptable	
230	89	73	Positive	A31 (4260)	Positive	No class II DSA	Unacceptable	
774	89	5	Positive	A31 (3293)	Positive	No class II DSA	Unacceptable	
792	89	87	Positive	A31 (4450)	Positive	No class II DSA	Unacceptable	
1160	89	81	Positive	A31 (3824)	Positive	No class II DSA	Unacceptable	
1461	89		Positive	A31 (559)	Negative	No class II DSA	Unacceptable	
2400	89	83	Positive	A31 (6010)	Positive	No class II DSA	Unacceptable	positive based on Class I reactivity
3224	89	93	Positive	A31 (5678)	Negative	No class II DSA	Unacceptable	
3753	89	92	Positive	A31 (4796)	Positive	No class II DSA	Unacceptable	
3966	89	71	Positive	A31 (2772)	Negative	No class II DSA	Unacceptable	
4079	89		Positive	A31 (470)	Positive	No class II DSA	Unacceptable	
4661	89	92	Positive	A31 (1598)	Positive	No class II DSA	Unacceptable	Epitope 94TI. No class II DSA.
4985	89	25	Positive	A31 (8274)	Positive	No class II DSA	Unacceptable	
8001	89	92	Positive	A31 (3468)	Borderline	No class II DSA	Unacceptable	
8029	89	23	Positive	A31 (1219)	Negative	No class II DSA	Unacceptable	
8035	89	59	Borderline	A31 (4014)	Borderline	No class II DSA	POTENTIAL POSITIVE	In cases like these we would recommend a real cross match because the strength of the reaction will depend on the density of the antigens on a specific donor. Our B cell Borderline prediction is based mainly on the Class I DSAs. No Class II DSAs were detected.
8050	89	77	Borderline	A31 (3808)	Borderline	No class II DSA	Unacceptable	
8079	89	100	Positive	A31 (3200)	Negative	No class II DSA	Unacceptable	
8080	89	87	Positive	A31 (6191)	Positive	No class II DSA	Unacceptable	Patient demonstrates Class I reactivity
8083	89	83	Positive	A31 (5127)	Positive	No class II DSA	Unacceptable	A31 which is expressed on B cells
8096	89		Positive	Cw4 (3359) A2 (12099) B44 (1917) A31 (1440) B35 (2995)	Positive	DR15 (3828) DR51 (4175) DQ5 (3719)	Unacceptable	
8103	89	7	Negative		Negative	No class II DSA	Acceptable	
8107	89	92	Positive	A31 (4938)	Borderline	No class II DSA	Unacceptable	Weak B cell Positive
8109	89	92	Positive	A31 (7326)	Positive	No class II DSA	Unacceptable	
8111	89	25	Positive	A31 (3000)	Borderline	No class II DSA	Unacceptable	

Table 25. Individual Virtual crossmatch results for Serum #89 vs Donor #V3

Donor #V3: A*26:01-A*30:01-B*38:01-B*49:01-C*07:01:01G-C*12:03/DRB1*04:02-DRB1*04:05-DRB4*01:01:01G-DQA1*03:01-DQA1*03:01:01G-DQB1*03:02-DPB1*01:01-DPB1*04:01

Center	Patient	CPRA	Virtual T Cell Prediction	Class I DSA (MFI)	Virtual B-cell prediction	Class II DSA (MFI)	Risk Assessment	Comments
54	89	87	Positive	A26 (5075) A30 (4943)	Negative	No class II DSA	Unacceptable	
206	89	69	Positive	A26 (5032) A30 (4568)	Positive	No class II DSA	Unacceptable	
230	89	73	Positive	A26 (4377) A30 (3632)	Positive	No class II DSA	Unacceptable	
774	89	5	Positive	A26 (3584) A30 (2256)	Positive	No class II DSA	Unacceptable	
792	89	87	Positive	A26 (4631) A30 (3972)	Positive	No class II DSA	Unacceptable	
1160	89	81	Positive	A26 (3807) A30 (3336)	Positive	No class II DSA	Unacceptable	
1461	89		Positive	A26 (1445) A30 (926)	Negative	No class II DSA	Unacceptable	
2400	89	83	Positive	A26 (6040) A30 (4769)	Positive	No class II DSA	Unacceptable	positive based on Class I reactivity.
3224	89	93	Positive	A26 (6305) A30 (5082)	Borderline	No class II DSA	Unacceptable	Real XM is needed.
3753	89	92	Positive	A26 (4982) A30 (4630)	Positive	DR53 (1246)	Unacceptable	
3966	89	71	Positive	A26 (2895) A30 (3033)	Negative	No class II DSA	Unacceptable	No Class II DSA
4079	89		Positive	A26 (1098) A30 (774)	Positive	No class II DSA	Unacceptable	
4661	89	92	Positive	A26 (3893) A30 (2748)	Positive	No class II DSA	Unacceptable	Epitope 94T1. No class II DSA
4985	89	25	Positive	A26 (8584)	Positive	DR53 (2038)	Unacceptable	
8001	89	92	Positive	A26 (3898) A30 (3119)	Positive	DR53 (893)	Unacceptable	C*07:01 not in LSAB panel
8029	89	23	Positive	A26 (2592) A30 (1945)	Borderline	DR53 (778)	Unacceptable	
8035	89	59	Borderline	A26 (4680) A30 (3740)	Borderline	DR53 (1393)	POTENTIAL POSITIVE	In cases like these we would recommend a real cross match because the strength of the reaction will depend on the density of the antigens on a specific donor. Our B cell Positivity is based on both Class I and II DSA.
8050	89	77	Positive	A26 (4599) A30 (3675)	Positive	DR53 (1206)	Unacceptable	
8079	89	100	Positive	A26 (3400) A30 (3900)	Negative	No class II DSA	Unacceptable	
8080	89	87	Positive	A26 (6984) A30 (5658)	Positive	No class II DSA	Unacceptable	Patient demonstrates Class I reactivity
8083	89	83	Positive	A26 (6057) A30 (4578)	Positive	No class II DSA	Unacceptable	A26 and A30 which are expressed on B cells
8096	89		Positive	B49 (1458) A26 (3023) A30 (2470) B38 (3053)	Positive	DR53 (4265)	Unacceptable	
8103	89	8	Positive	A26 (1230)	Negative	No class II DSA	Unacceptable	
8107	89	92	Positive	A26 (5699) A30 (4347)	Positive	DR53 (1019)	Unacceptable	Cummulative Class I approximately 10,000 mfi
8109	89	92	Positive	A26 (7834) A30 (6552)	Positive	No class II DSA	Unacceptable	
8111	89	25	Positive	A26 (3400) A30 (1800)	Borderline	DR53 (1400)	Unacceptable	

Table 26. Individual Virtual crossmatch results for Serum #89 vs Donor #V4

Donor #V4: A*24:02-A*26:03-B*51:01-B*15:01-C*14:02-C*15:02:01G/DRB1*09:01:02G-DRB1*14:03-DRB4*01:01:01G-DRB3*01:01-DQA1*03:01:01G-DQA1*05:01:01G-DQB1*03:01-DQB1*03:03-DPB1*02:01-DPB1*05:01:01G

Center	Patient	CPRA	Virtual T Cell Prediction	Class I DSA (MFI)	Virtual B-cell prediction	Class II DSA (MFI)	Risk Assessment	Comments
54	89	87	Positive	A26 (5075)	Positive	DR9 (1952)	Unacceptable	
206	89	69	Positive	A26 (5032)	Positive	DR9 (3356)	Unacceptable	
230	89	73	Positive	A26 (4377)	Positive	DR9 (2240)	Unacceptable	
774	89	3	Positive	A26 (3584)	Positive	DR9 (2376)	Unacceptable	
792	89	87	Positive	A26 (4631)	Positive	DR9 (2685)	Unacceptable	
1160	89	81	Positive	A26 (3807)	Positive	DR9 (1578)	Unacceptable	A*26:03 is not covered by SAB and LSPRA.
1461	89		Positive	A26 (1445)	Positive	DR9 (764)	Unacceptable	DRB1*14:03 is not covered by SAB and LSPRA.
2400	89	83	Positive	A26 (6040)	Positive	DR9 (2608)	Unacceptable	
3224	89	93	Positive	A26 (6305)	Positive	DR9 (14014) DR52 (6738) DR53 (17059) DPw5 (19656)	Unacceptable	
3753	89	92	Positive	A26 (4982)	Positive	DR9 (2944) DR53 (1246)	Unacceptable	
3966	89	71	Positive	A26 (2895)	Positive	DR9 (2209)	Unacceptable	A26:03 is not in SAB panel
4079	89		Positive	A26 (1098)	Positive	DR9 (833)	Unacceptable	
4661	89	92	Positive	A26 (3893)	Positive	DR9 (1910)	Unacceptable	Epitope 94TI. Epitope 78V2
4985	89	25	Positive	A26 (8584)	Positive	DR9 (4099) DR53 (2038)	Unacceptable	
8001	89	92	Negative		Borderline	DR9 (2443) DR53 (893) DQA1*05 (782)	Unacceptable	A*26:03 not in LSAB panel
8029	89	23	Negative		Positive	DR9 (2641)	Acceptable	Intermediate immunological risk due to class II antibodies.
8035	89	59	Negative		Borderline	DR9 (3015) DR53 (1393) DQA1*05 (1232)	POTENTIAL POSITIVE	No bead for A*26:03 allele, but A*26:01 detected (4680). Our B cell Borderline Pos is based on both Class I (possible) and II DSA.
8050	89	77	Positive	A26 (4599)	Positive	DR9 (3165) DR53 (1206)	Unacceptable	
8079	89	100	Negative		Positive	DR9 (2400)	Unacceptable	This donor possesses the A*26:03 antigen, which is not represented on our single antigen panel. Although we detected A*26:01 antibody for this patient, we would recommend a physical crossmatch to determine this antibody-antigen interaction.
8080	89	87	Borderline	A26 (4443)	Positive	DR9 (3019)	Unacceptable	Patient demonstrates Class I reactivity
8083	89	83	NT		NT	DR9 (3707)	Unacceptable	Needs physical crossmatch as A*26:03 antibody cannot be detected. Needs physical crossmatch as A*26:03 antibody cannot be detected.
8096	89		Positive	A24 (11666) B62 (1334) B51 (2269) A26 (3023) Cw14 (3359) Cw15 (2157)	Positive	DR9 (1281) DR52 (4187) DR53 (4265) DQ7 (3221) DQ9 (3828)	Unacceptable	
8103	89	8	Positive	A26 (1230)	Positive	DR9 (944)	Unacceptable	

Table 26. Individual Virtual crossmatch results for Serum #89 vs Donor #V4

Donor #V4: A*24:02-A*26:03-B*51:01-B*15:01-C*14:02-C*15:02:01G/DRB1*09:01:02G-DRB1*14:03-DRB4*01:01:01G-DRB3*01:01-DQA1*03:01:01G-DQA1*05:01:01G-DQB1*03:01-DQB1*03:03-DPB1*02:01-DPB1*05:01:01G

Center	Patient	CPRA	Virtual T Cell Prediction	Class I DSA (MFI)	Virtual B-cell prediction	Class II DSA (MFI)	Risk Assessment	Comments
8107	89	92	-		-	DR9 (3092) DR53 (1019)	-	Unable to predict due to lack of information. Reactivity to A*26:01 (5699) however, A*26:03 is not on panel.
8109	89	92	Positive	A26 (7834)	Positive	DR9 (4134)	Unacceptable	
8111	89	25	Positive	A26 (3400)	Positive	DR9 (3000) DR53 (1400)	Unacceptable	A*26:01 specificity identified; A*26:03 not in SAG panel

Table 27. Individual Virtual crossmatch results for Serum #90 vs Donor #V1

Donor #V1 HLA A*02:06-A*32:01-B*14:01-B*52:01-C*04:01:01G-C*08:02/DRB1*04:04-DRB1*07:01-DRB4*01:01:01G-DQA1*02:01-DQA1*03:01:01G-DQB1*02:02-DQB1*03:02-DPB1*03:01-DPB1*04:02

Center	Patient	% CPRA	Virtual T Cell Prediction	Class I DSA (MFI)	Virtual B-cell prediction	Class II DSA (MFI)	Risk Assessment	Comments
54	90	90	Positive	A30 (4430)	Positive	DR53 (13641) DPw1 (16160) DPw4 (1136)	Unacceptable	
206	90	55	Negative	no class I DSA	Positive	DR7 (19874) DR53 (19799)	Unacceptable	
230	90	73	Negative	no class I DSA	Positive	DR7 (17452) DR53 (16414)	Unacceptable	
774	90	50	Negative	no class I DSA	Positive	DR7 (20000) DR53 (14452)	Unacceptable	No HLA Class I DSA. DP3 specificity not included in cpra, mfi 17220
792	90	96	Negative	no class I DSA	Positive	DR7 (16743) DR53 (16476) DPw3 (16743)	Unacceptable	
1160	90	81	Negative	no class I DSA	Positive	DR7 (17792) DPw3 (15022)	Unacceptable	Risk Assessment is Unacceptable because of Class II DSA. Antibody against self antigen DRB4*01:01 is detected. This antibody is most likely not real.
1461	90		Negative	no class I DSA	Positive	DR7 (12097) DR53 (5690) DPw3 (769)	Unacceptable	
2400	90	96	Negative	no class I DSA	Positive	DR7 (20647) DR53 (16267) DPw3 (8936)	Unacceptable	Based on Class II reactivity. Strongly B Cell Positive.
3224	90	96	Negative	no class I DSA	Positive	DR7 (21588) DR53 (17059) DPw3 (20454)	Unacceptable	
3753	90	95	Negative	no class I DSA	Positive	DR7 (18728) DPw3 (7737)	Unacceptable	Patient displays self-reactive antibodies to DR53 (MFI=15921). The patient displays antibodies against HLA-DPA1 antigens. We recommend DPA1 typing of the donor to determine if these antibodies are donor-specific.
3966	90	93	Negative	no class I DSA	Positive	DR7 (18228) DR53 (15420) DPw3 (7431)	Unacceptable	Class II DSA
4079	90		Negative	no class I DSA	Positive	DR7 (11153) DR53 (5487) DQ7 (684)	Unacceptable	
4661	90	98	Negative	no class I DSA	Positive	DR7 (15414) DR53 (10309) DPw3 (1833)	Acceptable	Epitope 178L,57V
4985	90	24	Negative	no class I DSA	Positive	DR7 (23330) DR53 (21153) DPw3 (10058)	Unacceptable	
8001	90	98	Negative	no class I DSA	Positive	DR7 (19703) DPw3 (18509)	Unacceptable	C*08:02 not in LSAB panel
8029	90	21	Negative	no class I DSA	Positive	DR7 (18025) DPw3 (2521)	High Risk	High risk due to Class II DSA > 12000MFI. Possibility of refractory humoral rejection and poor transplant prognosis.
8035	90	93	Negative	no class I DSA	Positive	DR7 (21522) DR53 (17412) DPw3 (8418)	Acceptable	As per our program, this is unacceptable--However, some programs may have other options as desensitization--if they can make sure the DSAs are not Complement binding.
8050	90	83	Negative	no class I DSA	Positive	DR7 (21827) DR53 (18707) DPw3 (9040)	Unacceptable	DPA1 typing not available to determine if DPA1 are DSA
8079	90	100	Negative	no class I DSA	Positive	DR7 (15400) DR53 (14000)	Unacceptable	

Table 27. Individual Virtual crossmatch results for Serum #90 vs Donor #V1

Donor #V1 HLA A*02:06-A*32:01-B*14:01-B*52:01-C*04:01:01G-C*08:02/DRB1*04:04-DRB1*07:01-DRB4*01:01:01G-DQA1*02:01-DQA1*03:01:01G-DQB1*02:02-DQB1*03:02-DPB1*03:01-DPB1*04:02

Center	Patient	% CPRA	Virtual T Cell Prediction	Class I DSA (MFI)	Virtual B-cell prediction	Class II DSA (MFI)	Risk Assessment	Comments
8080	90	99	Negative	no class I DSA	Positive	DR7 (18694) DR53 (18020) DPw3 (4073)	Unacceptable	B cell Prediction Positive. DR7 more commonly associated with DRB4*01:03 than DRB4*01:01. Both called possible DSA, but DR53 allele with highest MFI (DRB4*01:03) used to assign MFI value.
8083	90	96	Negative	no class I DSA	Positive	DR7 (19588) DR53 (16859) DPw3 (18974)	Unacceptable	Due to Class II antibody
8096	90		Positive	Cw4 (3376) A2 (8580) A32 (1354) Cw8 (10000)	Positive	DR4 (7675) DR7 (14124) DR53 (10539) DQ2 (14763) DQ3 (5857) DPw3 (16734) DPw4 (14763)	Unacceptable	
8103	90	27	Negative	no class I DSA	Positive	DR7 (11788)	Unacceptable	
8107	90	97	Negative	no class I DSA	Positive	DR7 (18270) DR53 (15600) DPw3 (8507)	Unacceptable	
8109	90	100	Negative	no class I DSA	Positive	DR7 (24914) DR53 (25034) DPw3 (24255)	Unacceptable	
8111	90	50	Negative	no class I DSA	Positive	DR7 (22000) DPw3 (8184)	Unacceptable	DP3 variability due to DPA1 which is not known (mean is used). Apparent auto-reactivity to DRB4*01:01

Table 28. Individual Virtual crossmatch results for Serum #90 vs Donor #V2

Donor #V2 HLA A*02:01-A*31:01-B*35:01:01G-B*44:02:01G-C*04:01:01G-C*05:01/DRB1*01:01-DRB1*15:01-DRB5*01:01-DQA1*01:01:01G-DQA1*01:02:01G-DQB1*05:01-DQB1*06:02-DPB1*02:01-DPB1*05:01:01G

Center	Patient	% CPRA	Virtual T Cell Prediction	Class I DSA (MFI)	Virtual B-cell prediction	Class II DSA (MFI)	Risk Assessment	Comments
54	90	99	Negative	B44 (1095)	Positive	DPw5 (15011)	Acceptable	
206	90	55	Negative	no class I DSA	Positive	DPw5 (18915)	Unacceptable	
230	90	73	Negative	no class I DSA	Positive	DPw5 (15376)	Unacceptable	
774	90	0	Negative	no class I DSA	Positive		Unacceptable	No HLA Class I DSA. DP5 specificity not included in cpri, mfi 16766.
792	90	96	Negative	no class I DSA	Positive	DPw5 (15385)	Unacceptable	No Class I DSA
1160	90	81	Negative	no class I DSA	Positive	DPw5 (14562)	Unacceptable	Risk Assessment is Unacceptable because of Class II DSA
1461	90		Negative	no class I DSA	Positive	DPw5 (10067)	Unacceptable	
2400	90	96	Negative	B44 (1508)	Positive	DPw5 (18470)	Unacceptable	Based on Class II reactivity
3224	90	96	Negative	B44 (1584)	Positive	DPw5 (19656)	Unacceptable	Real XM is needed.
3753	90	95	Negative	no class I DSA	Positive	DPw5 (16325)	Unacceptable	
3966	90	93	Negative	no class I DSA	Positive	DPw5 (16091)	Unacceptable	No Class I DSA
4079	90		Negative	no class I DSA	Positive	DPw5 (9660)	Unacceptable	
4661	90	98	Positive	B44 (2228)	Positive	DPw5 (15322)	Unacceptable	Epitope 162GLS. Epitope 178L
4985	90	24	Negative	no class I DSA	Positive	DPw5 (20218)	Unacceptable	
8001	90	98	Borderline	B44 (754)	Positive	DPw5 (17935)	Unacceptable	
8029	90	21	Borderline	B44 (756)	Positive	DPw5 (3325)	Unacceptable	
8035	90	93	Negative	B44 (1399) Cw5 (851)	Positive	DPw5 (17482)	Acceptable	As per our program, this is unacceptable--However, some programs may have other options as desensitization--if they can make sure the DSAs are not Complement binding.
8050	90	83	Negative	B44 (1255) Cw5 (1140)	Positive	DPw5 (18937)	Unacceptable	DPA1 typing not available to determine if DPA1 are DSA.
8079	90	100	Negative	no class I DSA	Positive	DPw5 (12900)	Unacceptable	
8080	90	99	Negative	B44 (1706)	Positive	DPw5 (17520)	Unacceptable	B cell Prediction Positive
8083	90	96	Negative	no class I DSA	Positive	DPw5 (18010)	Unacceptable	Due to Class II antibody
8096	90		Positive	Cw4 (3376) A2 (8580) B35 (2121) Cw5 (2484)	Positive	DR1 (13222) DR15 (14354) DR51 (8846) DQ5 (16734) DPw2 (14763) DPw5 (8351) DQ6 (14354)	Unacceptable	
8103	90	27	Negative	no class I DSA	Positive	DPw5 (10316)	Unacceptable	
8107	90	97	Negative	B44 (1357)	Borderline	DPw5 (16672)	Acceptable	Mild risk Weak B cell Positive. Weak B cell Positive
8109	90	100	Borderline	B44 (1925)	Positive	DPw5 (24274)	Unacceptable	
8111	90	50	Negative	B44 (800)	Positive	DPw5 (17500)	Unacceptable	

Table 29. Individual Virtual crossmatch results for Serum #90 vs Donor #V3

Donor #V3: A*26:01-A*30:01-B*38:01-B*49:01-C*07:01:01G-C*12:03/DRB1*04:02-DRB1*04:05-DRB4*01:01:01G-DQA1*03:01-DQA1*03:01:01G-DQB1*03:02-DPB1*01:01-DPB1*04:01

Center	Patient	% CPRA	Virtual T Cell Prediction	Class I DSA (MFI)	Virtual B-cell prediction	Class II DSA (MFI)	Risk Assessment	Comments
54	90	99	Positive	A30 (4430)	Positive	DR53 (13641) DPw1 (16160) DP401 (1136)	Unacceptable	
206	90	55	Positive	A30 (5961)	Positive	DR53 (19799)	Unacceptable	
230	90	73	Negative		Positive	DPw1 (16470)	Unacceptable	
774	90	50	Negative	A30 (3651)	Positive	DR53 (14452)	Unacceptable	DP1 specificity not included in cpra, mfi 18398
792	90	96	Positive	A30 (5525)	Positive	DR53 (13430) DPw1 (16310)	Unacceptable	
1160	90	81	Negative		Positive	DPw1 (15705)	Unacceptable	Antibody against self antigen A*30:01 is detected. This antibody is most likely not real. Risk assessment is Unacceptable due to Class II DSA. Antibody against self antigen DRB4*01:01 is detected. This antibody is most likely not real.
1461	90		Positive	A30 (1065)	Positive	DR53 (5690) DPw1 (9482) DPw4 (8655)	Unacceptable	
2400	90	96	Positive	A30 (7072)	Positive	DR53 (16267) DPw1 (12548)	Unacceptable	
3224	90	96	Positive	A30 (6809)	Positive	DR53 (17059) DPw1 (20059) DP401 (1900)	Unacceptable	
3753	90	95	Positive		Positive	DPw1 (10633)	Unacceptable	Patient displays self-reactive antibodies to A30 (MFI=4017) and DR53 (MFI=15921). The patient displays antibodies against HLA-DPA1 antigens. We recommend DPA1 typing of the donor to determine if these antibodies are donor-specific.
3966	90	93	Positive	A30 (2053)	Positive	DR53 (15420) DPw1 (10742)	Unacceptable	
4079	90		Negative		Positive	DR53 (5487) DPw1 (8657) DP401 (8407)	Unacceptable	
4661	90	98	Negative	A30 (6037)	Positive	DPw1 (14690) DPw4 (10309)	Acceptable	Class I identical. Epitope 178L
4985	90	24	Positive	A30 (7568)	Positive	DR53 (21153) DPw1 (14362) DPw4 (2715)	Unacceptable	
8001	90	98	Positive	A30 (4318)	Positive	DPw1 (18882) DPw4 (1049)	Unacceptable	C*07:01 not in LSAB panel
8029	90	21	Negative		Positive	DPw1 (3719)	Acceptable	
8035	90	93	Negative	A30 (3636)	Positive	DR53 (17412) DPw1 (11744) DP401 (1443)	POTENTIAL POSITIVE	In cases like these we would recommend a real cross match because the strength of the reaction will depend on the density of the antigens on a specific donor. Our B cell Positivity is based on both Class I and II DSA.
8050	90	83	Borderline	A30 (3655)	Positive	DR53 (18707) DPw1 (12552) DP401 (1418)	Unacceptable	DPA1 DSA not determined
8079	90	100	Positive	A30 (3700)	Positive	DR53 (14000) DPw1 (13400)	Unacceptable	
8080	90	99	Positive	A30 (7339)	Positive	DR53 (15859) DPw1 (17963)	Unacceptable	Patient demonstrates autoreactivity against A*30:01. Patient demonstrates autoreactivity to DR53 (DRB4*01:01), used to assign MFI value for possible DSA.
8083	90	96	Positive	A30 (5327)	Positive	DR53 (16859) DPw1 (18993)	Unacceptable	Also A30 which is expressed on B cells
8096	90		Positive	B49 (6972) A26 (2606) A30 (3545) B38 (700) Cw7 (6972)	Positive	DR4 (7675) DR53 (10539) DQ3 (5857) DPw1 (6	Unacceptable	

Table 29. Individual Virtual crossmatch results for Serum #90 vs Donor #V3

Donor #V3: A*26:01-A*30:01-B*38:01-B*49:01-C*07:01:01G-C*12:03/DRB1*04:02-DRB1*04:05-DRB4*01:01:01G-DQA1*03:01-DQA1*03:01:01G-DQB1*03:02-DPB1*01:01-DPB1*04:01

Center	Patient	% CPRA	Virtual T Cell Prediction	Class I DSA (MFI)	Virtual B-cell prediction	Class II DSA (MFI)	Risk Assessment	Comments
8103	90	27	Negative		Positive	DR53 (6255) DPw1 (9626)	Unacceptable	
8107	90	97	Positive	A30 (6347)	Positive	DR53 (15600) DPw1 (11748)	Unacceptable	
8109	90	100	NT -		Positive	DPw1 (24613)	Unacceptable	Strong antibody to donor A30, but recip is also A30. Would question this ab on a real pt. Regardless, class II ab prohibits tx. Strong antibody to donor DR53, but recip is also DR53. Would question this ab on a real pt. However, DP ab would preclude tx.
8111	90	50	Negative		Positive	DPw1 (11500)	Unacceptable	Recipient and donor appear to match at Class I A,B,C. DP1 variability due to DPA1 (not available), mean used. Apparent auto-reactivity against DRB4*01:01

Table 30. Individual Virtual crossmatch results for Serum #90 vs Donor #V4

Donor #V4 HLA A*24:02-A*26:03-B*51:01-B*15:01-C*14:02-C*15:02:01G/DRB1*09:01:02G-DRB1*14:03-DRB4*01:01:01G-DRB3*01:01-DQA1*03:01:01G-DQA1*05:01:01G-DQB1*03:01-DQB1*03:03-DPB1*02:01-DPB1*05:01:01G

Center	Patient	% CPRA	Virtual T Cell Prediction	Class I DSA (MFI)	Virtual B-cell prediction	Class II DSA (MFI)	Risk Assessment	Comments
54	90	99	Positive	A24 (4728)	Positive	DR9 (10253) DR52 (5835) DR53 (17601) DPw5 (15011)	Unacceptable	
206	90	55	Positive	A24 (5635)	Positive	DR9 (11965) DR53 (19799) DPw5 (18915)	Unacceptable	
230	90	73	Positive	A24 (4548)	Positive	DR9 (7940) DR53 (14678)	Unacceptable	
774	90	90	Negative	A24 (2986)	Positive	DR9 (11822) DR52 (5806) DR53 (14452)	Unacceptable	DP5 specificity not included in cpra, mfi 16766
792	90	96	Positive	A24 (5340)	Positive	DR9 (9687) DR52 (4350) DR53 (13430) DPw5 (15385)	Unacceptable	
1160	90	81	Positive	A24 (4314)	Positive	DR9 (8900) DR52 (3428) DPw5 (14562)	Unacceptable	A*26:03 is not covered by SAB and LSPRA. DRB1*14:03 is not covered by SAB and LSPRA. Antibody against self antigen DRB4*01:01 is detected. This antibody is most likely not real.
1461	90		Positive	A24 (1366)	Positive	DR9 (4682) DR52 (1931) DR53 (5690) DPw5 (9410)	Unacceptable	
2400	90	96	Positive	A24 (7185)	Positive	DR9 (17776) DR52 (4992) DR53 (16267) DPw5 (18470)	Unacceptable	
3224	90	96	Positive	A24 (7137)	Positive	DR9 (14014) DPw5 (19656)	Unacceptable	
3753	90	95	Borderline	A24 (3375)	Positive	DR9 (9166) DR52 (4968) DPw5 (16325)	Unacceptable	Patient displays self-reactive antibodies to DR53 (MFI=15921). The patient displays donor specific antibodies against HLA-DRB3*01:01 (MFI=4968). The patient also displays possible donor specific antibodies against HLA-DPA1 antigens. HLA-DPA1 typing of the donor is unknown.
3966	90	93	Negative		Positive	DR9 (9281) DR52 (6149) DR53 (15420) DPw5 (16091)	Unacceptable	No Class I DSA
4079	90		Positive	A24 (1119)	Positive	DR9 (4296) DR52 (1328) DR53 (5487) DPw5 (9660)	Unacceptable	
4661	90	98	Positive	A24 (8201)	Positive	DR9 (8502) DR52 (3251) DR53 (10309) DPw5 (15322)	Unacceptable	Epitope 69AT. Epitope 178L.
4985	90	24	Positive	A24 (7358)	Positive	DR9 (12605) DR52 (8062) DR53 (21154) DPw5 (20219)	Unacceptable	
8001	90	98	Positive	A24 (4362)	Positive	DR9 (9729) DR52 (3765) DPw5 (17935)	Unacceptable	A*26:03 not in LSAB panel
8029	90	21	Positive	A24 (2669)	Positive	DR9 (12039) DR52 (3754) DPw5 (3325)	Unacceptable	
8035	90	93	Negative	A24 (2713)	Positive	DR9 (10552) DR52 (7449) DR53 (17412) DPw5 (17482)	Acceptable	DSA too weak to detect in crossmatch. Our B cell Positivity is based on both Class I and II DSA.

Table 30. Individual Virtual crossmatch results for Serum #90 vs Donor #V4

Donor #V4 HLA A*24:02-A*26:03-B*51:01-B*15:01-C*14:02-C*15:02:01G/DRB1*09:01:02G-DRB1*14:03-DRB4*01:01:01G-DRB3*01:01-DQA1*03:01:01G-DQA1*05:01:01G-DQB1*03:01-DQB1*03:03-

Center	Patient	% CPRA	Virtual T Cell Prediction	Class I DSA (MFI)	Virtual B-cell prediction	Class II DSA (MFI)	Risk Assessment	Comments
8050	90	83	Negative	A24 (2400)	Positive	DR9 (12031) DR52 (5888) DR53 (18707) DPw5 (18937)	Unacceptable	A24 is allele specific A*24:02 (MFI=2400). DR52 is allele specific - DRB3*01:01 (MFI=5888). DPA1 DSA not determined.
8079	90	100	Positive	A24 (3200)	Positive	DR9 (7000) DR52 (3800) DR53 (14000) DPw5 (12900)	Unacceptable	
8080	90	99	Positive	A24 (7228) B62 (1706)	Positive	DR9 (12013) DR52 (6051) DR53 (18020) DPw5 (16906)	Unacceptable	DRB1*09:01 is more frequently associated with DRB4*01:03 (used to assign MFI value for possible DSA).
8083	90	96	Negative	no class I DSA	Positive	DR9 (12877) DR52 (6513) DR53 (16859) DPw5 (18180)	Unacceptable	Due to Class II antibody
8096	90		Positive	A24 (2177) B62 (2096) B51 (6416) A26 (2606) Cw14 (2177)	Positive	DR9 (10606) DR14 (5429) DR52 (16734) DR53 (10539) DQ7 (11851) DQ9 (11444) DPw2 (14763) DPw5 (8351)	Unacceptable	
8103	90	27	Positive	A24 (777) B15 (1130)	Positive	DR9 (4165) DR52 (1232) DR53 (6255) DPw5 (10316)	Unacceptable	Possible crossreacting B*15 antibody. Positive Class 1 crossmatch.
8107	90	97	Positive	A24 (6181)	Positive	DR9 (11810) DR52 (5522) DR53 (15600) DPw5 (16672)	Unacceptable	
8109	90	100	Positive	A24 (8677)	Positive	DR9 (16507) DR52 (8596) DR53 (21993) DPw5 (24274)	Unacceptable	
8111	90	50	Borderline	A24 (1200)	Positive	DR9 (9000) DR52 (4200) DPw5 (17500)	Unacceptable	Apparent auto-reactivity to DRB4*01:01