

REPORT OF THE 4th Flow Cross Match Exchange JUNE 3, 2015

Cells	19-20
Serum	21-24

Flow Cytometric Crossmatch

For the 4th Flow Cross Match Exchange, 2 cells (cell nos. 19 - 20) and 4 sera (serum nos. 21 - 24) were examined. Flow crossmatch results are

summarized on Table 1 and individual laboratory results, along with reported DSA, are listed in Tables 2 - 9.

Cell 19. The phenotype for this sample from a Chinese donor is A2-B51 B60-Cw7-Cw15/DR8-DR14-DR52-DQ4-DQ5-DPw2-DPw5. The flow T-cell crossmatch for this sample was reported as negative against serum 21 and positive against sera 23 and 24. One lab reported the crossmatch against serum 24 as negative instead of positive. The T-cell crossmatch results against serum 22 were mixed, as 7 labs reported the T-cell crossmatch as positive and 5 reported it as negative.

The flow B-cell crossmatch for this sample was reported as negative against serum 21 and positive against serum 22 and 23. One lab reported the crossmatch against serum 23 as negative instead of positive. Mixed results were observed for this sample against serum 24, as 6 labs reported the B-cell crossmatch as positive and 7 reported it as negative.

Cell 20. The phenotype for this sample from a Japanese donor is A24-A26-B51-B62-Cw14-Cw15/DR9-DR14-DR53-DQ7-DQ9-DPw2-DPw5. The flow T-cell crossmatch for this sample was reported as negative against serum 21 and positive against serum 23 and 24, without any discrepancies. However, against serum 22, the T-cell crossmatch results were mixed, as 7 labs reported the T-cell crossmatch as positive and 5 reported it as negative.

The flow B-cell cell crossmatch for this sample was reported as negative against serum 21, without any discrepancies. The crossmatches against sera 22 - 24, however, were reported with a number (n=5) of discrepancies. One lab reported the B-cell crossmatch against serum 22 as negative instead of positive, and 2 labs reported the crossmatch against serum 23 and serum 24 as negative, instead of positive.

Table 1. Summary of Flow crossmatch results for Cell #019-#020 vs. Serum #021-#024

Cell no.	Serum no.	#Labs	T-cell Results	B-cell Results
19	21	13	Negative(13)	Negative(13)
19	22	13	Positive(7) Negative(5) NT(1)	Positive(13)
19	23	13	Positive(13)	Positive(12) <i>Negative(1)</i>
19	24	13	Positive(11) <i>Negative(1)</i> NT(1)	Positive(6) Negative(7)

Cell no.	Serum no.	#Labs	T-cell Results	B-cell Results
20	21	13	Negative(12) NT(1)	Negative(12) NT(1)
20	22	13	Positive(7) Negative(5) NT(1)	Positive(11) <i>Negative(1)</i> NT(1)
20	23	13	Positive(12) NT(1)	Positive(10) <i>Negative(2)</i> NT(1)
20	24	13	Positive(11) NT(2)	Positive(10) <i>Negative(2)</i> NT(1)

Antibody Identification

Class I and class II Luminex single antigen results for serum samples 21 - 24 are summarized on Tables 10 - 13 and individual laboratory results

for Luminex and Flow PRA are listed in Tables 14 - 21.

Serum 21 was found to be negative for class I and class II antibodies.

For **serum 22**, class I and class II DSA were detected against cell 19 and cell 20 by Luminex. Anti-Cw15 reactivity against cell 19 and cell 20 was reported with a median MFI value of 4985. Anti-A26 (544) and -A24 (397) reactivity was also reported against cell 20 by 2 labs. Anti-DQ4 (17426) and -DQ5 (16925) reactivity was reported against cell 19, and reactivity to DQ7 (9978) and DQ9 (11567) was reported against cell 20.

Serum 23 was found to be positive for class I DSA against cell 19 and cell 20 by Luminex and Flow PRA. Positivity to B51 was reported against both cells 19 and 20 with a medium MFI value of 17806. In addition, anti-

B60 (624) reactivity was reported by 4 labs against cell 19, and reactivity to A24 (6500) was detected against cell 20. Additional weak reactivity to A26 (675) against cell 20 was also reported by several labs. No class II DSA were reported against either cell 19 or cell 20 by all but 1 lab.

For **serum 24**, class I DSA against cell 19 and cell 20 were detected by Luminex and Flow PRA. Reactivity to B51 and Cw15 was reported against each cell with median MFI values of 7952 and 1679, respectively. In addition, strong reactivity to B62 (19591) was reported against cell 20, and anti-B60 (1592) reactivity was reported against cell 19. There were no class II DSA reported against either cell 19 or cell 20 for this sample.

Conclusion:

For the **T-cell flow crossmatch**, complete agreement was achieved for 5 out of 8 crossmatches. Two of the crossmatches were reported as negative, and 3 were reported as positive. No class I DSA were detected against cell 19 and cell 20 for the negative crossmatches, as serum 22 was reported to be non reactive. Among the 3 positive crossmatches, Luminex reported class I DSA (B51 and B62) with high MFI values of 17806 ± 15126 and 19591 ± 1763 , respectively. For cell 19 and cell 20 against serum 22, 7 labs reported the T-cell crossmatch as positive and 6 reported it as negative. The variability in the results may be due to the presence of DSA at the C-locus. Moderate anti-Cw15 (4985 ± 1775) reactivity against cell 19 and cell 20 was detected by 8 out of 10 labs, suggesting the sensitivity of the T-cell flow crossmatch may vary when the DSA strength at the C-locus is low to moderate.

For the **B-cell flow crossmatch**, 2 negative and 1 positive crossmatch were reported in complete agreement. No class II DSA were reported against either cell 19 or cell 20 for the negative crossmatches. For the positive crossmatch, (cell 19 against serum 22), class II DSA with high MFI values were reported by Luminex. For cell 19 against serum 24, 6 labs reported the crossmatch as positive and 7 reported it as negative. No class II DSA were assigned, however class I DSA (B51) against cell 19 was detected and reported with a MFI value of 7952 ± 2152 . This may suggest that in the absence of class II DSA, B-cell flow crossmatch outcome may be variable when class I DSA strength is low to moderate. Among the remaining crossmatches, a number of discrepancies (n=6) were reported, in which 2 labs accounted for the discrepancies observed.

NEXT MAILING DATE: September 2, 2015

Arlene Locke, David Gjertson, Qiheng Zhang, and Elaine F. Reed

Table 2. Individual Flow crossmatch results and DSA reported for Cell #019 vs. Serum #021

Center	Investigator	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
4345	Blasczyk , Rainer	21					NEG						NEG				NO
3224	Chen , Dong-Fen	21	70				NEG	no DSA	140				NEG	no DSA	243	215	YES
792	Gandhi , Manish	21	52	-13			NEG	no DSA	106	-21			NEG	no DSA	210	264	YES
615	Holdsworth , Rho	21	40	-35.9			NEG	no DSA	40	2.7			NEG	no DSA	468.66	421.81	YES
859	Kamoun , Malek	21	1.5		1.1	247	NEG	no DSA	1.5		0.52	-3782	NEG	no DSA			YES
206	McAlack-Hanau ,	21	2.98	8.06	0.95		NEG	no DSA	4.94	10.05	0.84		NEG	no DSA	8.47	11.9	YES
4661	Nishimura , Kenji	21	15	6.1			NEG	no DSA	20	11.8			NEG	no DSA	10.5	16.6	YES
3966	Permpikul , Vejba	21	40	0	-	-	NEG		100	0	-	-	NEG		109	385	NO
2400	Phelan , Donna L	21	40	-17			NEG	no DSA	80	-6			NEG	no DSA	214	395	NO
3753	Reed , Elaine F.	21	50	0			NEG	no DSA	120	0			NEG	no DSA	219	215	YES
3625	Rees , Tracey	21	40	0			NEG	no DSA	40	0			NEG	no DSA	147	377	NO
3798	Reinsmoen , Nan	21	70	-18		1135	NEG	no DSA	130	-80		812	NEG	no DSA	216	245	YES
1160	Rosen-Bronson ,	21	90	<0			NEG	no DSA	90	<0			NEG	no DSA	280	267	YES

Table 3. Individual Flow crossmatch results and DSA reported for Cell #019 vs. Serum #022

Center	Investigator	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
4345	Blasczyk , Rainer	22					NEG						POS				NO
3224	Chen , Dong-Fen	22	70				NEG	Cw15(5169)	140	365			POS	DQ4(18406), DQ5(17383)	243	215	YES
792	Gandhi , Manish	22	52	143			POS	Cw15(3562)	106	460			POS	DQ4(7320), DQ5(7233)	210	264	YES
615	Holdsworth , Rho	22	40				NT		40	333.6			POS		468.66	421.81	YES
859	Kamoun , Malek	22	1.5		1.2	734	NEG	Cw15(4800)	1.5		32.4	352783	POS	DQ4(21700), DQ5(20800)			YES
206	McAlack-Hanau ,	22	2.98	54.85	6.48		POS	no DSA	4.94	567.5	47.69		POS	DQ4(13325), DQ5(12554)	8.47	11.9	YES
4661	Nishimura , Kenji	22	15	38.9			POS	no DSA	20	392.4			POS	DQ4(19633), DQ5(19453)	10.5	16.6	YES
3966	Permpikul , Vejba	22	40	103	-	-	POS		100	159	-	-	POS		109	385	NO
2400	Phelan , Donna L	22	40	189			POS	Cw15(5964)	80	294			POS	DQ4(16443), DQ5(15201)	214	395	NO
3753	Reed , Elaine F.	22	50	14			NEG	Cw15(6305)	120	498			POS	DQ4(19464), DQ5(21523)	219	215	YES
3625	Rees , Tracey	22	40	164			POS	Cw15(4340)	40	326			POS	DQ4(10296), DQ5(10695)	147	377	NO
3798	Reinsmoen , Nan	22	70	19.5		1659	NEG	Cw15(5713)	130	502		296849	POS	DQ4(14000), DQ5(13000)	216	245	YES
1160	Rosen-Bronson ,	22	90	196			POS	no DSA	90	457			POS	DQ4(23862), DQ5(23568)	280	267	YES

Table 4. Individual Flow crossmatch results and DSA reported for Cell #019 vs. Serum #023

Center	Investigator	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
4345	Blasczyk , Rainer	23					POS						NEG				NO
3224	Chen , Dong-Fen	23	70	288			POS	B51(19699), B60(1140)	140	268			POS	no DSA	243	215	YES
792	Gandhi , Manish	23	52	364			POS	B51(16576), B60(741)	106	339			POS	DQ4(398), DR4(402)	210	264	YES
615	Holdsworth , Rho	23	40	139.9			POS	B51, B60	40	147.5			POS		468.66	421.81	YES
859	Kamoun , Malek	23	1.5		18.36	108833	POS	B51(21100)	1.5		13.53	127881	POS	no DSA			YES
206	McAlack-Hanau ,	23	2.98	297	35.06		POS	B51(17265)	4.94	241	20.25		POS	no DSA	8.47	11.9	YES
4661	Nishimura , Kenji	23	15	93.9			POS	B51(15126), B60(333)	20	143.3			POS	no DSA	10.5	16.6	YES
3966	Permpikul , Vejba	23	40	221	-	-	POS		100	122	-	-	POS		109	385	NO
2400	Phelan , Donna L	23	40	242			POS	B51(20514)	80	179			POS	no DSA	214	395	NO
3753	Reed , Elaine F.	23	50	358			POS	B51(16693)	120	339			POS	no DSA	219	215	YES
3625	Rees , Tracey	23	40	334			POS	B51(18347), B60(506)	40	190			POS	no DSA	147	377	NO
3798	Reinsmoen , Nan	23	70	374		60199	POS	B51(17000)	130	324		49159	POS	no DSA	216	245	YES
1160	Rosen-Bronson ,	23	90	313			POS	B51(22022), Bw4(22022)	90	350			POS	no DSA	280	267	YES

Table 5. Individual Flow crossmatch results and DSA reported for Cell #019 vs. Serum #024

Center	Investigator	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
4345	Blasczyk , Rainer	24					NEG						NEG				NO
3224	Chen , Dong-Fen	24	70	95			POS	B51(9538), Cw15(2431), B60(1297)	140	80			POS	no DSA	243	215	YES
792	Gandhi , Manish	24	52	155			POS	B51(7630), Cw15(1448), B60(1592)	106	140			POS	no DSA	210	264	YES
615	Holdsworth , Rho	24	40				NT	B51, B60	40	78.5			POS		468.66	421.81	YES
859	Kamoun , Malek	24	1.5		2.95	10218	POS	B51(7800), Cw15(1400)	1.5		3.13	18920	POS				YES
206	McAlack-Hanau ,	24	2.98	32.05	3.78		POS	B51(7935)	4.94	31.65	2.66		NEG	no DSA	8.47	11.9	YES
4661	Nishimura , Kenji	24	15	22.5			POS	B51(1688), Cw15(293), B60(526)	20	24.6			POS	no DSA	10.5	16.6	YES
3966	Permpikul , Vejba	24	40	53	-	-	POS		100	7	-	-	NEG		109	385	NO
2400	Phelan , Donna L	24	40	84			POS	B51(8972), Cw15(2152). B60(2426)	80	56			NEG	no DSA	214	395	NO
3753	Reed , Elaine F.	24	50	114			POS	B51(7036), Cw15(2405). B60(1262)	120	79			NEG	no DSA	219	215	YES
3625	Rees , Tracey	24	40	91			POS	B51(7969), Cw15(1909), B60(1853)	40	23			NEG	no DSA	147	377	NO
3798	Reinsmoen , Nan	24	70	164		7172	POS	B51(8000)	130	100		5031	NEG	no DSA	216	245	YES
1160	Rosen-Bronson ,	24	90	131			POS	B51(9829), B60(1768)	90	202			POS	no DSA	280	267	YES

Table 6. Individual Flow crossmatch results and DSA reported for Cell #020 vs. Serum #021

Center	Investigator	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
4345	Blasczyk , Rainer	21					NEG						NEG				NO
3224	Chen , Dong-Fen	21	70				NEG	no DSA	140				NEG	no DSA	243	239	YES
792	Gandhi , Manish	21	52	-6			NEG	no DSA	106	-14			NEG	no DSA	213	222	YES
615	Holdsworth , Rho	21	40	-25.8			NEG	no DSA	40	9.2			NEG		461.63	417.82	YES
859	Kamoun , Malek	21	1.5		1	49	NEG	no DSA	1.5		0.64	-2647	NEG	no DSA			YES
206	McAlack-Hanau ,	21	2.98	8.7	0.86		NEG	no DSA	4.94	10.45	0.8		NEG	no DSA	10.15	13.1	YES
4661	Nishimura , Kenji	21	15	5.36			NEG	no DSA	20	6.2			NEG		10.3	16.5	YES
3966	Permpikul , Vejba	21	40	5	-	-	NEG		100	0	-	-	NEG		113	398	NO
2400	Phelan , Donna L	21					NT	no DSA					NT	no DSA			NO
3753	Reed , Elaine F.	21	50	0			NEG	no DSA	120	0			NEG	no DSA	221	211	YES
3625	Rees , Tracey	21	40	0			NEG	no DSA	40	0			NEG	no DSA	141	289	NO
3798	Reinsmoen , Nan	21	70	-14		1164	NEG	no DSA	130	-65		917	NEG	no DSA	215	242	YES
1160	Rosen-Bronson ,	21	90	< 0			NEG	no DSA	90	< 0			NEG	no DSA	290	292	YES

Table 7. Individual Flow crossmatch results and DSA reported for Cell #020 vs. Serum #022

Center	Investigator	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
4345	Blasczyk , Rainer	22					NEG						POS				NO
3224	Chen , Dong-Fen	22	70				NEG	Cw15(5169)	140	411			POS	DQ7(9887)	243	239	YES
792	Gandhi , Manish	22	52	176			POS	Cw15(3562), A26(544), A24(364)	106	504			POS	DQ7(5103), DQ9(4700), DR9(794)	213	222	YES
615	Holdsworth , Rho	22	40	92.4			POS		40	340.9			POS		461.63	417.82	YES
859	Kamoun , Malek	22	1.5		1.1	484	NEG	Cw15(4800)	1.5		53.7	618162	POS	DQ7(19700)			YES
206	McAlack-Hanau ,	22	2.98	59.4	5.85		POS	no DSA	4.94	935.5	71.41		POS	DQ7(5776)	10.15	13.1	YES
4661	Nishimura , Kenji	22	15	42.9			POS	no DSA	20	333.8			POS	DQ7(19457), DQ9(18434)	10.3	16.5	YES
3966	Permpikul , Vejba	22	40	100	-	-	POS		100	70	-	-	NEG		113	398	NO
2400	Phelan , Donna L	22						Cw15(5964)					NT	DQ7(5604)			NO
3753	Reed , Elaine F.	22	50	8			NEG	Cw15(6305)	120	509			POS	DQ7(14513)	221	211	YES
3625	Rees , Tracey	22	40	156			POS	Cw15(4340), A26(887)	40	404			POS	DQ7(10069)	141	289	NO
3798	Reinsmoen , Nan	22	70	18		1618	NEG	Cw15(5713)	130	520		345566	POS	DQ7(6000)	215	242	YES
1160	Rosen-Bronson ,	22	90	194			POS	no DSA	90	437			POS	DQ7(23950)	290	292	YES

Table 8. Individual Flow crossmatch results and DSA reported for Cell #020 vs. Serum #023

Center	Investigator	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
4345	Blasczyk , Rainer	23					POS						NEG				NO
3224	Chen , Dong-Fen	23	70	341			POS	B51(19699), A24(10272), A26(1309)	140	342			POS	no DSA	243	239	YES
792	Gandhi , Manish	23	52	413			POS	B51(16576), A24(5466), A26(835)	106	394			POS	DQ7(2687), DQ9(2060), DR53(493), DR4(402)	213	222	YES
615	Holdsworth , Rho	23	40	172.4			POS	B51, A24, A26	40	222.9			POS		461.63	417.82	YES
859	Kamoun , Malek	23	1.5		22.72	163697	POS	B51(21100), A24(6500)	1.5		23.57	240575	POS	no DSA			YES
206	McAlack-Hanau ,	23	2.98	329.5	32.46		POS	B51(17265), A24 (8006)	4.94	1050	80.15		POS	no DSA	10.15	13.1	YES
4661	Nishimura , Kenji	23	15	118.6			POS	B51(15126), A24(4559)	20	157.5			POS	no DSA	10.3	16.5	YES
3966	Permpikul , Vejba	23	40	207	-	-	POS		100	68	-	-	NEG		113	398	NO
2400	Phelan , Donna L	23					NT	B51(20514), A24(7936)					NT	no DSA			NO
3753	Reed , Elaine F.	23	50	400			POS	B51(16693), A24(5934)	120	391			POS	no DSA	221	211	YES
3625	Rees , Tracey	23	40	381			POS	B51(18347), A24(4490), A26(514)	40	290			POS	no DSA	141	289	NO
3798	Reinsmoen , Nan	23	70	419		94488	POS	B51(17000), A24(6500)	130	400		102464	POS	no DSA	215	242	YES
1160	Rosen-Bronson ,	23	90	368			POS	A24(7923), Bw4(22022), B51(22022)	90	360			POS	no DSA	290	292	YES

Table 9. Individual Flow crossmatch results and DSA reported for Cell #020 vs. Serum #024

Center	Investigator	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
4345	Blasczyk , Rainer	24					POS						NEG				NO
3224	Chen , Dong-Fen	24	70	339			POS	B62(19304), B51(9538), Cw15(2431)	140	330			POS	no DSA	243	239	YES
792	Gandhi , Manish	24	52	312			POS	B62(15917), B51(7630), Cw15(1448)	106	294			POS	no DSA	213	222	YES
615	Holdsworth , Rho	24	40	231.2			POS	B62, B51	40	309			POS		461.63	417.82	YES
859	Kamoun , Malek	24	1.5		36.25	279929	POS	B62(19700), B51(7800), Cw15(1400)	1.5		37.35	405458	POS	no DSA			YES
206	McAlack-Hanau ,	24	2.98	281	27.68		POS	B62(19866), B51(7935)	4.94	1050	80.15		POS	no DSA	10.15	13.1	YES
4661	Nishimura , Kenji	24	15	104.6			POS	B62(17559), B51(1688)	20	125.8			POS	no DSA	10.3	16.5	YES
3966	Permpikul , Vejba	24	40	-	-	-	NT		100	67	-	-	NEG		113	398	NO
2400	Phelan , Donna L	24					NT	B62(22083), B51(8972), Cw15(2152)					NT	no DSA			NO
3753	Reed , Elaine F.	24	50	359			POS	B62(19481), B51(7036), Cw15(2405)	120	351			POS	no DSA	221	211	YES
3625	Rees , Tracey	24	40	361			POS	B62(17076), B51(7969), Cw15(1909)	40	260			POS	no DSA	141	289	NO
3798	Reinsmoen , Nan	24	70	430		105093	POS	B62(20809), B51(8000)	130	394		95935	POS	no DSA	215	242	YES
1160	Rosen-Bronson ,	24	90	375			POS	B62(20388), B51(9829)	90	353			POS	no DSA	290	292	YES

Table 10 . Summary of Single Antigen results for Serum #021

Class I							
*** Serum 21 ***							
10 typing Labs							
Antigen	No.Labs	Consensus	MFI				
			Median	Mean	Std Dev	Min	Max
Negative							

Class II							
*** Serum 21 ***							
10 typing Labs							
Antigen	No.Labs	Consensus	MFI				
			Median	Mean	Std Dev	Min	Max
Negative							

DSA present

Red = DSA against cell #019 only

Blue = DSA against cell #020 only

Green = DSA against cell #019 and #020

Table 11 . Summary of Single Antigen results Serum #022

Class I							
*** Serum 22 ***							
10 typing Labs							
Antigen	No.Labs	Consensus	MFI				
			Median	Mean	Std Dev	Min	Max
Cw15	8	80%	4985	4530	1775	391	6305
A30	7	70%	2164	2281	581	1516	2984
A31	7	70%	2595	2683	837	1552	3649
Cw17	7	70%	5586	4972	1217	3248	6500
Cw18	7	70%	3700	3942	622	3110	4994
Cw6	7	70%	3136	3414	688	2451	4582
Cw5	6	60%	1742	1897	452	1324	2576
A26	3	30%	544	563	256	260	887
A1	2	20%	760	759	431	329	1190
A23	2	20%	594	594	3	591	597
A24	2	20%	397	396	33	364	429
A25	2	20%	632	631	39	593	670
A29	2	20%	518	518	40	478	558
A36	2	20%	1470	1469	907	563	2376
B8	2	20%	865	864	86	779	950
Cw2	2	20%	606	606	180	426	786
A32	1	10%	449	449	0	449	449
B57	1	10%	385	385	0	385	385
B58	1	10%	329	329	0	329	329
B67	1	10%	458	458	0	458	458
Cw12	1	10%	571	571	0	571	571

Class II							
*** Serum 22 ***							
10 typing Labs							
Antigen	No.Labs	Consensus	MFI				
			Median	Mean	Std Dev	Min	Max
DQ4	10	100%	17425	16444	4925	7320	23862
DQ5	10	100%	16292	16141	5010	7233	23568
DQ7	10	100%	9978	12033	6649	5103	24224
DQ2	9	90%	9615	12542	5960	7035	24137
DQ6	9	90%	14011	15567	4895	8053	23846
DQ9	2	20%	11567	11567	6867	4700	18434
DR53	2	20%	1216	1216	957	259	2173
DR9	2	20%	492	491	303	189	794
DP13	1	10%	769	769	-	769	769
DP14	1	10%	1309	1309	-	1309	1309
DP18	1	10%	2055	2055	-	2055	2055
DP9	1	10%	418	418	-	418	418
DPw2	1	10%	160	160	-	160	160
DPw5	1	10%	217	217	-	217	217
DQ8	1	10%	4320	4320	-	4320	4320
DR1	1	10%	1206	1206	-	1206	1206
DR103	1	10%	698	698	-	698	698
DR12	1	10%	679	679	-	679	679
DR14	1	10%	233	233	-	233	233
DR1403	1	10%	233	233	-	233	233
DR16	1	10%	526	526	-	526	526
DR17	1	10%	734	734	-	734	734
DR4	1	10%	387	387	-	387	387
DR52	1	10%	312	312	-	312	312
DR8	1	10%	327	327	-	327	327

DSA present

Red = DSA against cell #019 only

Blue = DSA against cell #020 only

Green = DSA against cell #019 and #020

Table 12 . Summary of Single Antigen results Serum #023

Class I							
*** Serum 23 ***							
10 typing Labs							
Antigen	No.Labs	Consensus	MFI				
			Median	Mean	Std Dev	Min	Max
A24	10	100%	6500	6758	1706	4490	10272
B51	10	100%	17806	18434	2163	15126	22022
A23	9	90%	7977	8014	1810	5127	11872
A25	9	90%	7355	7463	1661	4647	10536
A3	9	90%	13880	13134	2423	8191	15703
A31	9	90%	3178	3042	919	1500	4477
A32	9	90%	9057	8896	1994	5666	12779
A33	9	90%	15830	15531	2457	10935	18700
A34	9	90%	8284	8662	1759	6110	11703
A68	9	90%	2800	3184	858	1652	4437
A69	9	90%	4000	4476	1161	2592	6128
B13	9	90%	4000	4194	1120	2430	6462
B18	9	90%	20573	21219	1992	17276	24746
B27	9	90%	3900	4069	1086	2358	6378
B35	9	90%	8577	8768	1204	7365	11296
B37	9	90%	4160	4246	895	2746	5853
B38	9	90%	6900	7035	1513	4620	10146
B44	9	90%	4056	4479	1304	3102	7647
B47	9	90%	3472	3459	864	1995	5035
B49	9	90%	8384	8222	1787	4901	11681
B52	9	90%	16251	15910	1985	12593	19583
B53	9	90%	11603	11926	1728	9504	14722
B54	9	90%	6414	6627	925	5538	8403
B57	9	90%	8700	8854	1904	5853	13014
B58	9	90%	8557	8431	1806	5301	12126
B59	9	90%	7568	7595	1663	4611	10838
B63	9	90%	6200	6306	1390	4081	9127
B64	9	90%	16348	16485	1750	13314	19995
B65	9	90%	17300	16961	1672	13697	19962
B71	9	90%	5075	4974	975	3300	6567
B73	9	90%	13500	13376	1648	10569	15926
B75	9	90%	8670	8452	954	7060	10304
B77	9	90%	9065	9187	1513	6949	11697
B8	9	90%	7809	8109	1333	6538	10769
B39	8	80%	3641	3721	624	2900	4594
B78	7	70%	19700	19274	2100	15110	22433
Cw4	5	50%	1217	1356	452	808	2040
A26	4	40%	675	715	409	205	1309
B60	4	40%	624	680	302	333	1140

Class II							
*** Serum 23 ***							
10 typing Labs							
Antigen	No.Labs	Consensus	MFI				
			Median	Mean	Std Dev	Min	Max
DR15	9	90%	9544	8558	2117	4772	11553
DR16	9	90%	7400	6975	1790	3880	9561
DQ7	2	20%	1383	1382	1305	78	2687
DQ9	2	20%	1070	1070	990	80	2060
DR53	2	20%	279	279	214	65	493
DQ4	2	20%	239	239	159	80	398
DPw2	1	10%	133	133	-	133	133
DPw5	1	10%	50	50	-	50	50
DQ5	1	10%	79	79	-	79	79
DQ8	1	10%	2164	2164	-	2164	2164
DR14	1	10%	56	56	-	56	56
DR1403	1	10%	56	56	-	56	56
DR4	1	10%	402	402	-	402	402
DR52	1	10%	65	65	-	65	65
DR8	1	10%	61	61	-	61	61
DR9	1	10%	93	93	-	93	93

DSA present

Red = DSA against cell #019 only

Blue = DSA against cell #020 only

Green = DSA against cell #019 and #020

Table 13 . Summary of Single Antigen results Serum #024

Class I							
*** Serum 24 ***							
10 typing Labs							
Antigen	No.Labs	Consensus	MFI				
			Median	Mean	Std Dev	Min	Max
B62	10	100%	19591	19218	1763	15917	22083
B51	10	100%	7952	7639	2152	1688	9829
B13	9	90%	10637	10736	1204	8748	12865
B35	9	90%	9911	9737	1297	7855	11776
B45	9	90%	3747	3607	673	2600	4818
B46	9	90%	9592	9221	1340	7344	11377
B49	9	90%	12597	12553	1589	10008	15543
B50	9	90%	11608	11301	1336	9086	13071
B52	9	90%	9222	9080	1129	7367	11005
B53	9	90%	8458	8574	1256	6900	10769
B55	9	90%	3904	3807	672	2800	5201
B56	9	90%	10907	10668	1211	8476	12583
B57	9	90%	17547	16850	1881	13852	20172
B58	9	90%	4773	4841	719	3800	6074
B63	9	90%	15738	15673	1719	12348	18377
B71	9	90%	11682	11746	1331	9756	13931
B72	9	90%	12281	12151	1456	9863	14320
B75	9	90%	17068	17272	1347	15343	19196
B76	9	90%	18546	17998	1886	14568	21183
B77	9	90%	17583	17182	1842	14327	20523
B37	8	80%	2497	2571	730	1500	3697
B38	8	80%	2390	2450	544	1600	3534
B41	8	80%	2402	2532	581	1600	3548
B44	8	80%	3011	2939	602	2100	3835
B67	8	80%	2675	2645	498	1800	3491
Cw15	8	80%	1679	1664	669	293	2431
Cw17	8	80%	2759	2743	811	1448	4086
B18	7	70%	1742	1932	597	1000	2992
B42	7	70%	1690	1720	385	1100	2491
B48	7	70%	2247	2085	560	1100	2723
B59	7	70%	1572	1565	333	1100	2188
B60	7	70%	1592	1532	548	526	2426
B78	7	70%	4155	4005	786	2800	5314
B27	6	60%	1702	1694	260	1320	2145
B61	6	60%	1786	1762	298	1294	2256
Cw18	6	60%	1346	1540	363	1253	2244
Cw5	6	60%	1434	1477	409	1034	2153
Cw6	6	60%	1347	1444	343	1102	2053
B39	5	50%	1375	1531	346	1202	2105

Class II							
*** Serum 24 ***							
10 typing Labs							
Antigen	No.Labs	Consensus	MFI				
			Median	Mean	Std Dev	Min	Max
DR18	2	20%	1947	1947	824	1123	2771

DSA present

Red = DSA against cell #019 only

Blue = DSA against cell #020 only

Green = DSA against cell #019 and #020

Table 14a. Individual laboratory results for Serum #021 - class I by Luminex

Investigator	Cw14	A2	Cw7	B62	A24	B60	B51	Cw15	A26	Other	Vendor
Chen, Dong-Feng	no specificities assigned										One Lambda
Gandhi, Manish	NEG										One Lambda
Kamoun, Malek	no specificities assigned										One Lambda
McAlack-Hanau,	no specificities assigned										One Lambda
Nishimura, Kenji	127	119	115	100	90	95	76	74	71		Lifecodes
Phelan, Donna L.	no specificities assigned										One Lambda
Reed, Elaine F.	NEG										One Lambda
Rees, Tracey	no specificities assigned										One Lambda
Reinsmoen, Nanc	no specificities assigned										One Lambda
Rosen-Bronson, S	no specificities assigned										One Lambda
Avg	127	40	115	100	90	95	76	74	71		
Std Dev	-	-	-	-	-	-	-	-	-		
MFI %CV	-	-	-	-	-	-	-	-	-		

Table 14b. Individual laboratory results for Serum #021 - class I by Flow PRA

Investigator	Vendor
Holdsworth, Rhon	One Lambda

Table 15a. Individual laboratory results for Serum #022 - class I by Luminex

Investigator	Cw15	A30	A31	Cw17	Cw18	Cw6	Cw5	A26	A1	A23	A24	A25	A29	A36	B8	Cw2	A2	A32	B51	B57	Other	Vendor
Chen, Dong-Feng	5169	2164	2595	4224	3475	2973	1574															One Lambda
Gandhi, Manish	3562	1961	2199	3248	3110	2451	1324	544	329	597	364	670	478	563	779	426		449		385	B67,B58	One Lambda
Kamoun, Malek	4800	1600	1700	6500	3700	3000	1700															One Lambda
McAlack-Hanau,	no specificities assigned																					One Lambda
Nishimura, Kenji	391							260			429						225		208		B60,B62,CW7,CW14	Lifecodes
Phelan, Donna L.	5964	2890	3526	5756	4994	4582	2425															One Lambda
Reed, Elaine F.	6305	1516	1552	6052	4218	3604	2576															One Lambda
Rees, Tracey	4340	2984	3649	3442	3535	3136	1783	887	1190	591		593	558	2376	950	786					CW12	One Lambda
Reinsmoen, Nanc	5713	2857	3564	5586	4567	4152																One Lambda
Rosen-Bronson, S	no specificities assigned																					One Lambda
Avg	4531	2282	2684	4972.6	3942.7	3414	1897	564	759.5	594	397	632	518	1470	865	606	225	449	208	385		
Std Dev	1775	580.9	837.3	1216.9	621.98	688.2	451.7	256	430.5	3	32.5	38.5	40	906.5	85.5	180	-	-	-	-		
MFI %CV	39%	25%	31%	24%	16%	20%	24%	45%	57%	1%	8%	6%	8%	62%	10%	30%	-	-	-	-		

Table 15b. Individual laboratory results for Serum #022 - class I by Flow PRA

Investigator																						Other	
Holdsworth, Rhon	NT																						One Lambda

Table 16a. Individual laboratory results for Serum #023 - class I by Luminex

Investigator	A24	B51	A23	A25	A3	A31	A32	A33	A34	A68	A69	B13	B18	B27	B35	B37	B38	B44	B47	B49	Other	Vendor
Chen, Dong-Feng	10272	19699	11872	10536	15703	4065	12779	17591	11703	4437	5937	6462	20346	6378	9404	5853	10146	7647	5035	11681	CW4,B60,B61>	One Lambda
Gandhi, Manish	5466	16576	6038	5690	10362	2886	6243	14866	8260	2671	3733	2982	17276	2942	7365	3216	5224	3358	2548	6291	CW4,A11,B60>	One Lambda
Kamoun, Malek	6500	21100	7800	6500	14000	1500	8500	18700	9000	2800	4000	4000	21500	3700	7500	4000	6900	4500	3200	8000	CW4,B78,B52>	One Lambda
McAlack-Hanau,	8006	17265	9098	8298	15477	3178	10431	13102	7764	3668	5259	4038	20500	4335	8642	4160	7096	4056	3484	9180	B78,B52,B53>	One Lambda
Nishimura, Kenji	4559	15126																			A2,B60,B62>	Lifecodes
Phelan, Donna L.	7936	20514	8424	8910	15559	4477	9560	16089	8284	4271	6128	5123	24746	4884	11296	5244	8232	4914	4501	8950	B78,B52,B53>	One Lambda
Reed, Elaine F.	5934	16693	7217	7109	13099	2035	9057	10935	6110	2578	3588	3832	20573	3765	7959	3984	6888	3763	3212	8384	B78,B52,B53>	One Lambda
Rees, Tracey	4490	18347	5127	4647	8191	2259	5666	15830	6392	1652	2592	2430	20368	2358	8149	2746	4620	3102	1995	4901	CW4,B60,B61>	One Lambda
Reinsmoen, Nanc	6500	17000	7977	7355	13880	3630	8568	14000	10861	3790	5400	4000	22889	3900	10028	4657	6700	3700	3472	7827	B78,B52,B53>	One Lambda
Rosen-Bronson, S	7923	22022	8580	8129	11939	3354	9267	18666	9592	2797	3648	4881	22775	4361	8577	4360	7513	5271	3687	8790	CW4,B78,B52>	One Lambda
Avg	6758.6	18434	8014.8	7463.8	13134	3043	8896.8	15531	8662.9	3185	4476	4194	21219	4069	8768.9	4247	7035.4	4479	3459	8222.7		
Std Dev	1706.2	2162.5	1809.5	1660.5	2422.6	919	1993.7	2456.8	1758.8	858	1161	1120	1991.6	1086	1204.1	895	1513.2	1304	864	1786.5		
MFI %CV	25%	12%	23%	22%	18%	30%	22%	16%	20%	27%	26%	27%	9%	27%	14%	21%	22%	29%	25%	22%		

Table 16b. Individual laboratory results for Serum #023 - class I by Flow PRA

Investigator	A24	B51	A23	A25	A3	A31	A32	A33	A34	A68	A69	B13	B18	B27	B35	B37	B38	B44	B47	B49	Other	Vendor
Holdsworth, Rhon	468	455	515	511	557	376	535	569	297	208	225	356	569	384	328	268	295	405	236	473	A2,B60,B61>	One Lambda

Table 17a. Individual laboratory results for Serum #024 - class I by Luminex

Investigator	B51	B62	B13	B35	B45	B46	B49	B50	B52	B53	B55	B56	B57	B58	B63	B71	B72	B75	B76	B77	Other	Vendor
Chen, Dong-Feng	9538	19304	10857	10300	3760	9971	12092	11660	9360	8661	3904	11098	17547	4692	15738	11682	12299	18557	18582	17583	CW6,B60>	One Lambda
Gandhi, Manish	7630	15917	8748	7855	2951	7344	10008	9086	7367	7138	3109	8476	13852	4052	12348	9756	9863	15343	14568	14327	CW4,CW6>	One Lambda
Kamoun, Malek	7800	19700	9800	7900	2600	7800	12000	10500	7800	6900	2800	10000	15000	3800	15000	10500	11000	18000	17900	16000	CW6,B48>	One Lambda
McAlack-Hanau,	7935	19866	11723	10385	4130	9694	13514	12445	9809	9382	3980	11501	18141	5410	16690	12670	13384	17068	18802	18037	B78	One Lambda
Nishimura, Kenji	1688	17559																			A24,A2>	Lifecodes
Phelan, Donna L.	8972	22083	12865	11776	4818	11377	15543	13071	11005	10769	5201	12583	20172	6074	18377	13931	14320	18724	21183	20523	B60,B61>	One Lambda
Reed, Elaine F.	7036	19481	9968	9531	3265	8748	12597	11608	8978	8100	3381	10907	16305	4773	15219	11558	12281	15605	17953	17173	CW6,B60>	One Lambda
Rees, Tracey	7969	17076	10032	8736	2993	7681	10566	9303	7966	7568	3539	9096	14897	4204	13898	10331	10236	15957	15274	14656	CW4,CW6>	One Lambda
Reinsmoen, Nanc	8000	20809	12000	11240	4206	10784	13923	12664	10221	10190	4342	11593	18000	5658	17334	13402	13760	17000	19181	18716	B48,B78>	One Lambda
Rosen-Bronson, S	9829	20388	10637	9911	3747	9592	12739	11377	9222	8458	4007	10762	17744	4910	16461	11891	12217	19196	18546	17629	CW6,B60>	One Lambda
Avg	7640	19218	10737	9737	3608	9221	12554	11302	9081	8574	3807	10668	16851	4841	15674	11747	12151	17272	17999	17183		
Std Dev	2152	1763	1204	1297	673.3	1340	1589	1336	1129	1256	671.9	1211	1881	719.2	1719	1331	1456	1347	1886	1842		
MFI %CV	28%	9%	11%	13%	19%	15%	13%	12%	12%	15%	18%	11%	11%	15%	11%	11%	12%	8%	10%	11%		

Table 17b. Individual laboratory results for Serum #024 - class I by Flow PRA

Investigator	B62	B51	B13	B35	B45	B46	B49	B50	B52	B53	B55	B56	B57	B58	B63	B71	B72	B75	B76	B77	Other	Vendor
Holdsworth, Rhon	647	282	469	438	396	508	499	535	447	327	418	527	585	351	543	514	543	571	584	558	A24,A2>	One Lambda

Table 18a. Individual laboratory results for Serum #021 - class II by Luminex

Investigator	DPW2	DPW5	DQ4	DQ5	DQ7	DQ9	DR14	DR1403	DR52	DR8	DR9	Other	Vendor
Chen, Dong-Feng	no specificites assigned												One Lambda
Gandhi, Manish	NEG												One Lambda
Kamoun, Malek	no specificites assigned												One Lambda
McAlack-Hanau,	no specificites assigned												One Lambda
Nishimura, Kenji	37	107	116	96	86	100	112	112	89	64	113		Lifecodes
Phelan, Donna L.	no specificites assigned												One Lambda
Reed, Elaine F.	NEG												One Lambda
Rees, Tracey	no specificites assigned												One Lambda
Reinsmoen, Nanc	no specificites assigned												One Lambda
Rosen-Bronson, S	no specificites assigned												One Lambda
Avg	37	107	116	96	86	100	112	112	89	64	113		
Std Dev	-	-	-	-	-	-	-	-	-	-	-		
MFI %CV	-	-	-	-	-	-	-	-	-	-	-		

Table 18b. Individual laboratory results for Serum #021- class II by Flow PRA

Investigator												Other	Vendor
Holdsworth, Rhon	NEG												One Lambda

Table 19a. Individual laboratory results for Serum #022 - class II by Luminex

Investigator	DQ4	DQ5	DQ7	DQ2	DQ6	DQ9	DR53	DR9	Other	Vendor
Chen, Dong-Feng	18406	17383	9887	16547	17156					One Lambda
Gandhi, Manish	7320	7233	5103	7035	8053	4700	2173	794	DR1,DR103,DR4,DR12 >	One Lambda
Kamoun, Malek	21700	20800	19700	20600	20100					One Lambda
McAlack-Hanau,	13325	12554	5776	7663	11581					One Lambda
Nishimura, Kenji	19633	19453	19457			18434	259	189	DR8,DR14,DR1403,DR52 >	Lifecodes
Phelan, Donna L.	16443	15201	5604	8198	14011					One Lambda
Reed, Elaine F.	19464	21523	14513	11088	20517					One Lambda
Rees, Tracey	10296	10695	10069	9615	10842					One Lambda
Reinsmoen, Nanc	14000	13000	6000	8000	14000					One Lambda
Rosen-Bronson, S	23862	23568	24224	24137	23846					One Lambda
Avg	16445	16141	12033	12543	15567	11567	1216	492		
Std Dev	4924.8	5009.7	6648.6	5960.3	4895.2	6867	957	303		
MFI %CV	30%	31%	55%	48%	31%	59%	79%	62%		

Table 19b. Individual laboratory results for Serum #022 - class II by Flow PRA

Investigator									Other	Vendor
Holdsworth, Rhon	class II positive									One Lambda

Table 20a. Individual laboratory results for Serum #023 - class II by Luminex

Investigator	DR15	DR16	DQ4	DQ7	DQ9	DR53	DPW2	DPW5	DQ5	DQ8	DR14	DR1403	DR4	DR52	DR8	DR9	Other	Vendor
Chen, Dong-Feng	9733	7515																One Lambda
Gandhi, Manish	4772	4366	398	2687	2060	493				2164			402					One Lambda
Kamoun, Malek	9600	7400																One Lambda
McAlack-Hanau,	9544	7715																One Lambda
Nishimura, Kenji			80	78	80	65	133	50	79		56	56		65	61	93		Lifecodes
Phelan, Donna L.	11553	9561																One Lambda
Reed, Elaine F.	8687	7161																One Lambda
Rees, Tracey	5230	3880																One Lambda
Reinsmoen, Nanc	10000	9000																One Lambda
Rosen-Bronson, S	7904	6185																One Lambda
Avg	8558.1	6976	239	1383	1070	279	133	50	79	2164	56	56	402	65	61	93		
Std Dev	2117.2	1790	159	1305	990	214	-	-	-	-	-	-	-	-	-	-		
MFI %CV	25%	26%	67%	94%	93%	77%	-	-	-	-	-	-	-	-	-	-		

Table 20b. Individual laboratory results for Serum #023 - class II by Flow PRA

Investigator																		Vendor
Holdsworth, Rhon	NT																Other	One Lambda

Table 21a. Individual laboratory results for Serum #024 - class II by Luminex

Investigator	DR18	DPW2	DPW5	DQ4	DQ5	DQ7	DQ9	DR14	DR1403	DR52	DR53	DR8	DR9	Other	Vendor
Chen, Dong-Feng	no specificities assigned														
Gandhi, Manish	1123														One Lambda
Kamoun, Malek	no specificities assigned														
McAlack-Hanau,	no specificities assigned														
Nishimura, Kenji		179	269	295	215	283	230	199	199	207	305	290	157		Lifecodes
Phelan, Donna L.	no specificities assigned														
Reed, Elaine F.	NEG														One Lambda
Rees, Tracey	2771														One Lambda
Reinsmoen, Nanc	no specificities assigned														
Rosen-Bronson, S	no specificities assigned														
Avg	1947	179	269	295	215	283	230	199	199	207	305	290	157		
Std Dev	824	-	-	-	-	-	-	-	-	-	-	-	-		
MFI %CV	42%	-	-	-	-	-	-	-	-	-	-	-	-		

Table 21b. Individual laboratory results for Serum #024 - class II by Flow PRA

Investigator														Other	Vendor
Holdsworth, Rhon	NT														One Lambda