



**PROFICIENCY TESTING SERVICE**  
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**PARTICIPANT STATISTICS**

**IMMUNOHEMATOLOGY**

**SECOND QUADRIMESTER 2011**

**ABO Group**

Method	Specimen 1			Specimen 2			Specimen 3			Specimen 4			Specimen 5					
	A	B	O	AB	A1B	A2	O	A	A1B	O	A	A1	A2	O	A	A1	A1B	O
Biotest Tube			14	13	1					14	13		1		11	1	1	
Gamma Tube			28	28						28	28				28			
Immucor Tube			100	94	4	1				100	95	2	3		93	6		1
Medion Tube			2	2						1	1	1			1	1		
Ortho Gel			105	104	1					105	100	1	1		103	2		
Ortho Tube			60	58	2			1	1	58	58		1	1	59	1		
Other Tube			6	6						6	6				6			
<b>Total Population</b>	<b>0</b>	<b>0</b>	<b>327</b>	<b>317</b>	<b>8</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>324</b>	<b>313</b>	<b>4</b>	<b>6</b>	<b>1</b>	<b>313</b>	<b>11</b>	<b>1</b>	<b>1</b>
<b>Flagging</b>	<b>*****</b>	<b>*****</b>				<b>*****</b>	<b>*****</b>	<b>*****</b>	<b>*****</b>					<b>*****</b>			<b>*****</b>	<b>*****</b>

**D (Rho) Typing**

Method	Specimen 1			Specimen 2			Specimen 3			Specimen 4			Specimen 5			
	POS	Neg, weak D (Du) not performed	NEG	POS	Neg, weak D (Du) not performed	NEG	POS	Neg, weak D (Du) not performed	NEG	POS	Weak D (Du)-Positive	Neg, weak D (Du) not performed	NEG	POS	Neg, weak D (Du) not performed	NEG
Biotest Tube	16			16			16			1		2	13	15		
Eldon Biologicals	9	1		9	1		9	1				7	3	9	1	
Gamma Slide	10			10			10					1	9	10		
Gamma Tube	35			35			35			1	9	25	35			
Immucor Slide	13			13			13				1	12	12		1	
Immucor Tube	103			102			103				18	85	103			
Ortho Gel	105			104		1	105				53	50	103		1	
Ortho Slide	48			47		1	47				32	16	47	1		
Ortho Tube	65			65			64	1	1		19	45	65			
Other Slide	5			5			5				4	1	5			
Other Tube	10			10			10				4	6	10			
<b>Total Population</b>	<b>430</b>	<b>1</b>	<b>0</b>	<b>426</b>	<b>2</b>	<b>2</b>	<b>428</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>153</b>	<b>273</b>	<b>423</b>	<b>3</b>	<b>3</b>
<b>Flagging</b>		<b>*****</b>	<b>*****</b>		<b>*****</b>	<b>*****</b>		<b>*****</b>	<b>*****</b>	<b>*****</b>	<b>*****</b>			<b>*****</b>	<b>*****</b>	



## Second Quadrimester 2011

### Specimen 3 (Antibody Detection/ Identification and Compatibility Testing)

Specimen #3 had a positive antibody screen test; however, 32 of the 306 participants reported no antibody detected in the sample. Failure to detect the antibody was not isolated to one particular testing methodology. The majority of participants used gel agglutination technology and the antibody was detected by all participants using this methodology. There were a higher number of negative antibody screens on the sample by participants using various tube techniques. Using a LISS tube technique, antibody reactivity was 1+ to 2+. The antibody present in this sample was an **anti-Jk<sup>a</sup>**; all other antibody specificities were excluded. Since this antibody can show “dosage” (refer to discussion below), it is important that the cells used for antibody detection have a homozygous expression of the antigen to prevent missing weakly reactive Kidd antibodies. The RBC specimen used for compatibility testing was Jk(a+); therefore, the expected result of compatibility testing performed at the AHG phase of testing was *Not Compatible*. If participants performed an immediate-spin crossmatch only, the crossmatch would be *Compatible* since anti-Jk<sup>a</sup> reacts optimally at the antiglobulin phase.

#### Anti-Jk<sup>a</sup>

Anti-Jk<sup>a</sup> is directed against an antigen of the Kidd blood group system. The antibody is named after Mrs. Kidd, the patient in whom it was first detected. One of Mrs. Kidd's children was affected by hemolytic disease of the newborn due to her antibody; the antibody was subsequently called “Jk” after the initials of her infant. Anti-Jk<sup>b</sup> was discovered a few years later.

Anti-Jk<sup>a</sup> is a clinically significant IgG antibody generally detected by the antiglobulin test. It often binds complement as well. The Kidd antigens are weakly immunogenic compared with other antigens and are most often found in conjunction with other alloantibodies. In addition to causing mild hemolytic disease of the fetus and newborn (HDFN), anti-Jk<sup>a</sup> (and anti-Jk<sup>b</sup>) are notorious for causing acute and delayed hemolytic transfusion reactions, some of which can be very severe. This is due to the antibody's ability to “drop out of sight”; in other words, the titer of the antibody can decrease with time so that it becomes undetectable during routine antibody screen testing. Once a seemingly compatible (but Jk<sup>a</sup> positive) RBC is transfused, an anamnestic response occurs, the antibody abruptly increases in titer, and attaches to the transfused antigen-positive RBCs, resulting in their destruction.

Anti-Jk<sup>a</sup> is a much more common antibody than anti-Jk<sup>b</sup>. However, both of these antibodies can show “dosage”. In other words, a weak example of anti-Jk<sup>a</sup> may not react with red cells that are heterozygous for the Jk<sup>a</sup> antigen (contain only one “dose” of the antigen) whereas it may show reactivity with red cells that are homozygous for the Jk<sup>a</sup> antigen (contain two “doses” of the antigen). Therefore, reagent red cells containing a homozygous expression of Jk<sup>a</sup> and Jk<sup>b</sup> should always be used for performing antibody screening tests. In addition, care must be taken in choosing units for transfusion in patients having a weakly reactive anti-Jk<sup>a</sup> since the crossmatch may appear compatible if the unit is heterozygous rather than homozygous for the Jk<sup>a</sup> antigen.