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**From:** Surekha Gangakhedkar  
**Sent:** Wed 5/1/2013 4:26:40 PM  
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**Subject:** RE: system build 4/30 CBC results and report  
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A concern also exists with the blood volumes collected in the nanotainer. The EDTA volume from the first draw for ML5b run (which had the heparin clotted) measured to be 65 uL even with the nanotainer appearing like the appropriate/larger volume. Last week we saw that a 70 uL volume of sample also caused errors with the multiplex protocol due to air bubbles due to insufficient sample/suboptimal pipette height .

Is there a way we can test/confirm the final volume collected in the nanotainer for a set of BCDs and Optimize for collections without air bubbles ?

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**From:**Chinmay Pangarkar  
**Sent:** Tuesday, April 30, 2013 9:37 PM  
**To:** Elizabeth Holmes; Daniel Young; Paul Patel; Surekha Gangakhedkar; Samartha Anekal  
**Cc:** Cytometry; Ameet Juriani; Yiching Siwinski; Michael Chen; Michael Craig  
**Subject:** system build 4/30 CBC results and report

Hi everyone:

Please find below the reports for today's runs on mini, mono and 4s. The minilab and monolab runs used the omniplex protocol while the 4s was CBC only. Briefly, all WBC and RBC recoveries are within 15% and platelet recoveries within 25%. There were multiple issues during these runs which are summarized below:

1. minilab5b run:

- Heparin nanotainer had a big bubble underneath the plug of blood. Further, upon examination with a pipette, Nishit realized that the blood was clotted almost completely. Another fingerstick was taken.
- cartridge lid opening failed, in spite of the fact that that same cartridge had been QC'ed a few minutes prior to the run. However, this may be an artefactual issue that arises due to reuse of the lids. We should monitor if this issue occurs when we move to new lids.
- rounds vessels were picked up by blood tips during the run. This happened thrice at different instances and protocol had to be restarted each time. We have blacklisted that particular cartridge and cartridges will be visually examined.
- the zbot on minilab5b is not a GMP design and has a few minor issues which have caused stalling and failure on a few occasions. When this happened today, Sean saw that a piece of tape holds cables in place and it was interfering with the wall by just a few mm; but enough to cause stalling of the z motor. this has now been fixed.

2. monolab28a run:

- Yiching personalized the blade earlier today. The hardware manager used to upload this personalization to the cloud did not appear to process the personalization xml appropriately. Due to time pressure, it was decided to manually enter this data in the xml file. I will connect with Neeraja and Sandeep to make sure this process is worked out. In any case, the personalization worked very well.
- The monolab went through all the CBC steps properly, but the UI crashed midway. this has never happened before. The root cause is not yet known, but the logs have been sent to Michael Craig. I will follow up with him tomorrow.
- Ameet was able to re-run the omniplex later on. We think we can repeat the omniplex successfully on 28a tomorrow.

3. mobilelab5 aka 4s run:

- there was a strange problem with the cytometer. When the blade is put inside the shell, the objective gets too close to the stage and the sample goes out of range. when it is taken out, the sample is out of range in the other direction. Due to this, the protocol had to be run on the open blade.
- the use of violet laser at the end of imaging sequence appears to have solved the "distortion" problem. however, the

effect of plate operations such as gantry movement, centrifuge and bp/vessel pickup on the stability of cells has not been tested yet. We will be testing it tomorrow.

Hematocrit measurements could not be made in any of these runs due to personalization issues, but they have now been resolved.

Analyte	mobilelab5	CLIA	Units	Range	mobilelab5 % recovery
WBC Count	6.2	6.38	x 10 <sup>9</sup> /L	3.2-10.6	96
RBC Count	4.27	4.4	x 10 <sup>12</sup> /L	4.69-6.07	97
Hematocrit		40.2	%	37.7 -53.7	0
Platelet Count	300	270	x 10 <sup>9</sup> /L	177-406	111
Neutrophil Count	2.91	2.90	x 10 <sup>9</sup> /L	1.3-7.0	
Lymphocyte Count	2.51	2.48	x 10 <sup>9</sup> /L	0.8-3.1	
Monocyte Count	0.494	0.708	x 10 <sup>9</sup> /L	0.2-0.7	
Eosinophil Count	0.177	0.211	x 10 <sup>9</sup> /L	0-0.4	
Basophil Count	0.037	0.086	x 10 <sup>9</sup> /L	0-0.1	
Neutrophil, %	47.30	45.40	%	44-76	
Lymphocyte, %	40.84	38.90	%	15-43	
Monocyte, %	8.03	11.10	%	4-8.9	
Eosinophil, %	2.87	3.30	%	0-6	
Basophil, %	0.61	1.35	%	0-2	

Analyte	minilab5b	monolab28a	CLIA	Units	Range	minilab5b % recovery	monolab28a % recovery
WBC Count	6.7	6.0	6.3	x 10 <sup>9</sup> /L	3.2-10.6	107	95
RBC Count	5.03	4.03	4.88	x 10 <sup>12</sup> /L	4.69-6.07	103	83
Hematocrit			46.4	%	37.7 -53.7		
Platelet Count	208	221	273	x 10 <sup>9</sup> /L	177-406	76	81
Lymphocyte							

Count					
<b>Monocyte Count</b>	0.471	0.402	0.486	x 10 <sup>9</sup> /L	0.2-0.7
<b>Eosinophil Count</b>	0.119	0.099	0.097	x 10 <sup>9</sup> /L	0-0.4
<b>Basophil Count</b>	0.051	0.041	0.102	x 10 <sup>9</sup> /L	0-0.1
<b>Neutrophil, %</b>	58.75	60.73	59.00	%	44-76
<b>Lymphocyte, %</b>	30.04	29.21	30.10	%	15-43
<b>Monocyte, %</b>	6.98	6.73	7.71	%	4-8.9
<b>Eosinophil, %</b>	1.76	1.65	1.54	%	0-6
<b>Basophil, %</b>	0.76	0.68	1.62	%	0-2

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