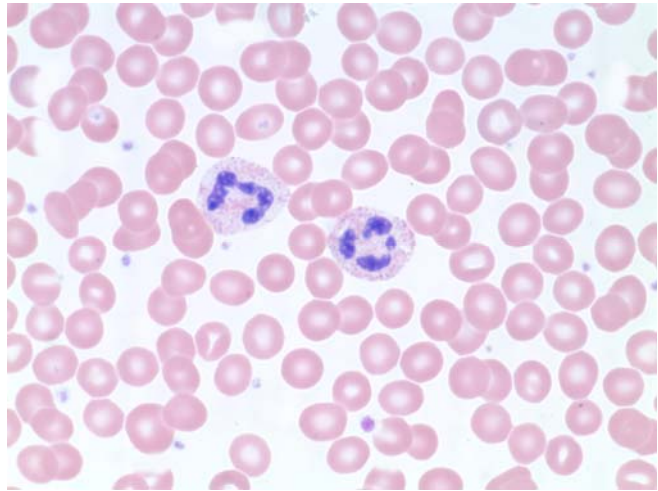


NEW YORK STATE CYTOHEMATOLOGY PROFICIENCY TESTING PROGRAM
Glass Slide - November 2013

Results from this proficiency test event are available at:
<http://www.wadsworth.org/chemheme>

Slide 001	<i>Diagnosis: None</i>	
Available data: 59 year-old female	WBC	8.2 x 10 ⁹ /L
	RBC	4.67 x 10 ¹² /L
	Hemoglobin	14.1 g/dL
	Hematocrit	42.3 %
	MCV	90.7 fL
	MCH	30.3 pg
	MCHC	33.3 g/dL
	RDW	13.9 %
	Platelet count	465 K/ μ L



Slide 001 was obtained from a 59 year-old asymptomatic female. The complete blood count results were within normal range and there were no significant peripheral blood smear findings as observed in the image above. The platelet count in this case was slightly above the generally accepted normal reference interval of 150 – 450 K/ μ L making assessment of increased platelets difficult as reflected by participant response; fifty-nine percent (210) of participants reported platelets increased as “absent” and forty-one percent of participants (147) reported platelets increased as “present”.

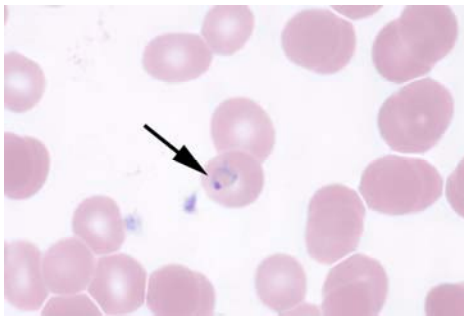
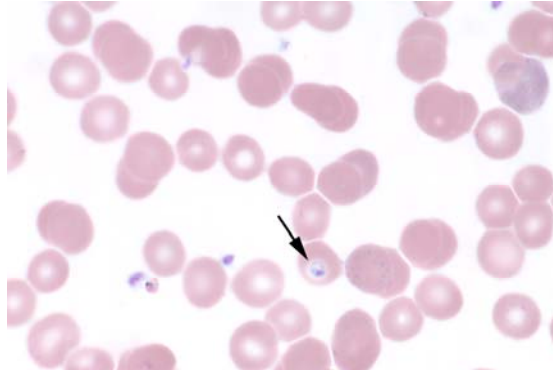
Slide: 001

Cell Classification or Finding	Expected Range	Participant Median	Participant Range
Blast cell not classified	0 - 0	0	0 - 0
Myeloblast/Promyelocyte	0 - 0	0	0 - 0
Lymphoblast/Prolymphocyte	0 - 0	0	0 - 0
Monoblast/Promonocyte	0 - 0	0	0 - 0
Erythroblast	0 - 0	0	0 - 0
Lymphoma/Sezary cell	0 - 0	0	0 - 0
Hairy cell	0 - 0	0	0 - 0
Myelocyte	0 - 1	0	0 - 1
Metamyelocyte	0 - 1	0	0 - 1
Band neutrophil	0 - 4	1	0 - 4
Segmented neutrophil	56 - 73	65	55 - 73
*[Total neutrophils]	57 - 74	66	56 - 75
Eosinophil	0 - 4	2	0 - 4
Basophil	0 - 2	0	0 - 2
Lymphocyte	12 - 30	21	11 - 30
Atypical lymphocyte	0 - 12	3	0 - 12
Monocyte	2 - 11	7	2 - 11
Plasma cell	0 - 0	0	0 - 0
NRBC / 100 WBC	0 - 0	0	0 - 0

Cell Classification or Finding	Expected Result	Participant Results		
Anisocytosis	None	None (87%)	Slight (11%)	Moderate (0%) MarKed (2%)
Poikilocytosis	None	None (95%)	Slight (3%)	Moderate (0%) MarKed (2%)
Macrocytosis	None	None (94%)	Slight (4%)	Moderate (0%) MarKed (1%)
Microcytosis	None	None (97%)	Slight (2%)	Moderate (0%) MarKed (1%)
Hypochromia	None	None (97%)	Slight (3%)	Moderate (0%) MarKed (0%)
Polychromasia	None	None (99%)	Slight (1%)	Moderate (0%) MarKed (0%)
Reduced number of platelets	Absent	Absent(100%) Present(0%)		
Increased number of platelets	Absent	Absent(59%) Present(41%)		
Phagocytosis of platelet(s)	Absent	Absent(100%) Present(0%)		
Bizarre or irregular platelets	Absent	Absent(99%) Present(1%)		
Clumped platelets	Absent	Absent(99%) Present(1%)		
Giant platelets	Absent	Absent(87%) Present(13%)		
Platelet satellitosis	Absent	Absent(100%) Present(0%)		
Auer rods	Absent	Absent(100%) Present(0%)		
Dohle bodies	Absent	Absent(100%) Present(0%)		
Hypersegmentation	Absent	Absent(97%) Present(3%)		
Pelger Huet anomaly	Absent	Absent(100%) Present(0%)		
Smudge / Basket cells	Absent	Absent(99%) Present(1%)		
Toxic granulation	Absent	Absent(99%) Present(1%)		
Acanthocytes	Absent	Absent(100%) Present(0%)		
Basophilic stippling	Absent	Absent(100%) Present(0%)		
Blister cells (pre keratocytes)	Absent	Absent(100%) Present(0%)		
Cabot rings	Absent	Absent(100%) Present(0%)		
Echinocytes (crenated/burr cel)	Absent	Absent(100%) Present(0%)		
Elliptocytes (ovalocytes)	Absent	Absent(98%) Present(2%)		
Howell-Jolly bodies	Absent	Absent(99%) Present(1%)		
Pappenheimer bodies	Absent	Absent(100%) Present(0%)		
Red cell agglutinates	Absent	Absent(99%) Present(1%)		
Rouleaux	Absent	Absent(100%) Present(0%)		
Schistocytes	Absent	Absent(100%) Present(0%)		
Schuffner's granules	Absent	Absent(100%) Present(0%)		
Sickle cells (drepanocytes)	Absent	Absent(100%) Present(0%)		
Spherocytes	Absent	Absent(99%) Present(1%)		
Stomatocytes	Absent	Absent(98%) Present(2%)		
Target cells (codocytes)	Absent	Absent(100%) Present(0%)		
Tear drop cells (dacrocytes)	Absent	Absent(100%) Present(0%)		
Bacteria	Absent	Absent(100%) Present(0%)		
Fungi/yeast	Absent	Absent(100%) Present(0%)		
Malaria/Babesiosis	Absent	Absent(100%) Present(0%)		
Stain precipitate	Absent	Absent(98%) Present(2%)		
Phagocytosis of red cell(s)	Absent	Absent(100%) Present(0%)		

NEW YORK STATE CYTOHEMATOLOGY PROFICIENCY TESTING PROGRAM
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Slide 002	<i>Diagnosis:</i> Babesiosis	
Available data: 62 year-old male	WBC	2.8 x 10 ⁹ /L
	RBC	2.98 x 10 ¹² /L
	Hemoglobin	8.8 g/dL
	Hematocrit	26.7 %
	MCV	89.6 fL
	MCH	29.5 pg
	MCHC	33.0 g/dL
	RDW	14.1 %
Platelet count	146 K/ μ L	



Slide 002 was obtained from a 62 year-old male diagnosed with Babesiosis. Babesiosis (piroplasmosis) is an acute hemolytic disorder caused by small protozoa, most commonly *Babesia microti*. The microorganism is transmitted by the bite of the *Ixodes scapularis* tick that infest deer or mice. It is most common in the Northeast and upper Midwest regions of the United States and peaks during the warm climate months. Many individuals infected with the parasite exhibit no symptoms or mild flu-like symptoms such as fever, chills, body aches and fatigue. Babesiosis can be more severe and even life-threatening for those individuals who do not have a spleen, have a weak immune system, liver or kidney disease, or the elderly.

It is recognized in this case of Babesiosis that the microorganism was not prevalent in every high power field. However, the low white blood cell count necessitated the examination of many fields to obtain a 100 cell differential count and, therefore, the parasite should have been recognized. The arrowed images show the ring forms of *Babesia* present in this case. In Babesiosis, parasites may also be seen outside the red blood cell as was observed in this case. It can difficult to differentiate ring forms *Babesia* from those of malaria. Confirmatory testing is performed by serologic and molecular methods. Most asymptomatic individuals do not require treatment, those more seriously ill are usually treated for 7-10 days with atovaquone and azithromycin or clindamycin and quinine (<http://www.cdc.gov/parasites/babesiosis/>).

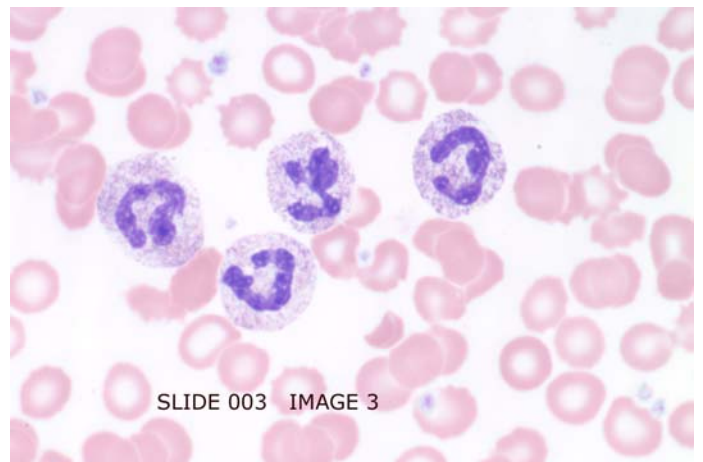
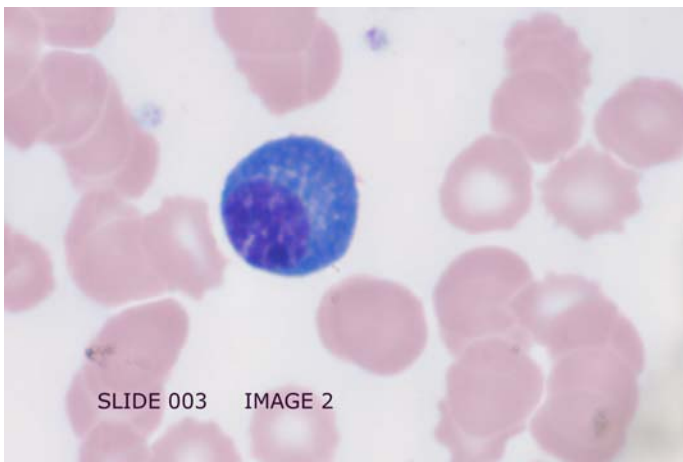
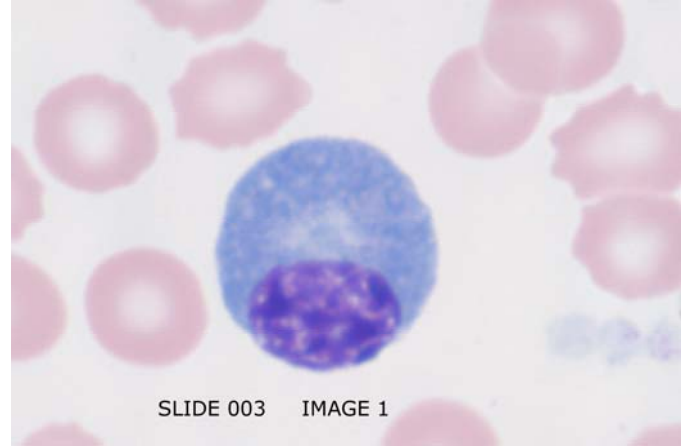
Slide: 002

Cell Classification or Finding	Expected Range	Participant Median	Participant Range
Blast cell not classified	0 - 0	0	0 - 0
Myeloblast/Promyelocyte	0 - 0	0	0 - 0
Lymphoblast/Prolymphocyte	0 - 0	0	0 - 0
Monoblast/Promonocyte	0 - 0	0	0 - 0
*[Blasts, all types]	0 - 0	0	0 - 0
Erythroblast	0 - 0	0	0 - 0
Lymphoma/Sezary cell	0 - 0	0	0 - 0
Hairy cell	0 - 0	0	0 - 0
Myelocyte	0 - 1	0	0 - 1
Metamyelocyte	0 - 1	0	0 - 1
Band neutrophil	0 - 14	3	0 - 14
Segmented neutrophil	30 - 52	41	29 - 53
*[Total neutrophils]	36 - 55	46	34 - 57
Eosinophil	0 - 2	1	0 - 2
Basophil	0 - 1	0	0 - 2
Lymphocyte	24 - 50	36	21 - 52
Atypical lymphocyte	0 - 10	2	0 - 10
Monocyte	5 - 24	14	4 - 25
Plasma cell	0 - 0	0	0 - 0
NRBC / 100 WBC	0 - 1	0	0 - 1

Cell Classification or Finding	Expected Result	Participant Results			
Anisocytosis	Slight	None (42%)	Slight (50%)	Moderate (6%)	MarKed (1%)
Poikilocytosis	None	None (91%)	Slight (7%)	Moderate (0%)	MarKed (2%)
Macrocytosis	None	None (83%)	Slight (15%)	Moderate (0%)	MarKed (1%)
Microcytosis	None	None (78%)	Slight (20%)	Moderate (1%)	MarKed (1%)
Hypochromia	None	None (60%)	Slight (30%)	Moderate (10%)	MarKed (0%)
Polychromasia	Slight	None (34%)	Slight (63%)	Moderate (2%)	MarKed (0%)
Reduced number of platelets	Absent	Absent(90%)		Present(10%)	
Increased number of platelets	Absent	Absent(99%)		Present(1%)	
Phagocytosis of platelet(s)	Absent	Absent(100%)		Present(0%)	
Bizarre or irregular platelets	Absent	Absent(99%)		Present(1%)	
Clumped platelets	Absent	Absent(99%)		Present(1%)	
Giant platelets	Absent	Absent(81%)		Present(19%)	
Platelet satellitosis	Absent	Absent(100%)		Present(0%)	
Auer rods	Absent	Absent(100%)		Present(0%)	
Dohle bodies	Absent	Absent(100%)		Present(0%)	
Hypersegmentation	Absent	Absent(100%)		Present(0%)	
Pelger Huet anomaly	Absent	Absent(98%)		Present(2%)	
Smudge / Basket cells	Absent	Absent(98%)		Present(2%)	
Toxic granulation	Absent	Absent(100%)		Present(0%)	
Acanthocytes	Absent	Absent(100%)		Present(0%)	
Basophilic stippling	Present	Absent(44%)		Present(56%)	
Blister cells (pre keratocytes)	Absent	Absent(100%)		Present(0%)	
Cabot rings	Absent	Absent(100%)		Present(0%)	
Echinocytes (crenated/burr cel	Absent	Absent(100%)		Present(0%)	
Elliptocytes (ovalocytes)	Absent	Absent(96%)		Present(4%)	
Howell-Jolly bodies	Absent	Absent(99%)		Present(1%)	
Pappenheimer bodies	Absent	Absent(100%)		Present(0%)	
Red cell agglutinates	Absent	Absent(100%)		Present(0%)	
Rouleaux	Absent	Absent(88%)		Present(12%)	
Schistocytes	Absent	Absent(100%)		Present(0%)	
Schuffner's granules	Absent	Absent(100%)		Present(0%)	
Sickle cells (drepanocytes)	Absent	Absent(100%)		Present(0%)	
Spherocytes	Absent	Absent(93%)		Present(7%)	
Stomatocytes	Absent	Absent(99%)		Present(1%)	
Target cells (codocytes)	Absent	Absent(100%)		Present(0%)	
Tear drop cells (dacrocytes)	Absent	Absent(99%)		Present(1%)	
Bacteria	Absent	Absent(100%)		Present(0%)	
Fungi/yeast	Absent	Absent(100%)		Present(0%)	
Malaria/Babesiosis	Present	Absent(76%)		Present(24%)	
Stain precipitate	Absent	Absent(99%)		Present(1%)	
Phagocytosis of red cell(s)	Absent	Absent(100%)		Present(0%)	

**NEW YORK STATE CYTOHEMATOLOGY PROFICIENCY TESTING PROGRAM
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Slide 003	<i>Diagnosis:</i> Unexplained leukocytosis	
<i>Available data:</i> 84 year-old male	WBC	63.2 x 10 ⁹ /L
	RBC	3.75 x 10 ¹² /L
	Hemoglobin	10.7 g/dL
	Hematocrit	30.7 %
	MCV	81.9 fL
	MCH	28.5 pg
	MCHC	34.9 g/dL
	RDW	17.7 %
	Platelet count	221 K/ μ L



Slide 003 was obtained from an 84 year-old male with a preliminary diagnosis of unexplained leukocytosis. Common causes for an elevated white blood cell count include infection, disease of the bone marrow, immune system disorder or drug reaction. White blood cell findings reported by participants included plasma cells, blast cells, myelocytes, metamyelocytes and band neutrophils. Images one and two are examples of the plasma cells present in this case. The expected range for both plasma cells and blast cells in this case is 0-2, participants who reported the presence of five or more are required to review the smear.

Additional findings reported by participants included toxic granulation and echinocytes, both findings shown in Image 3. Eighty-six percent (306) of participants reported the presence of toxic granulation and seventy-four percent (263) of participants reported echinocytes present. Participants who did not report the presence of echinocytes or toxic granulation are expected to review the smear.

Giant platelets were reported present in this case by approximately half (55%) of participants suggesting differing protocol among laboratories for classification of large and giant platelets. Participants were asked to provide their laboratory protocol for reporting platelets on the November 2012 Cytohematology Proficiency Test, the participant summary is included with this report.

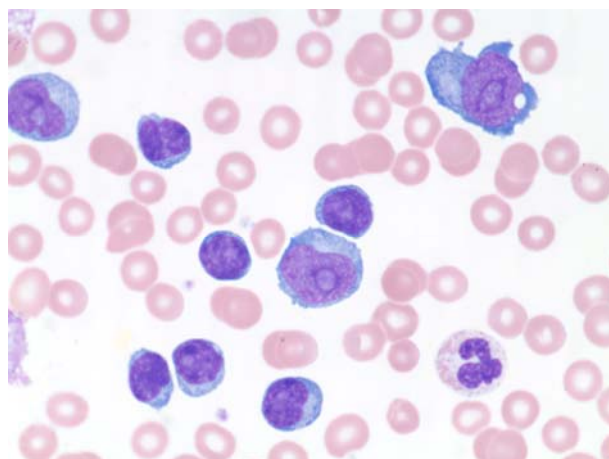
Slide: 003

Cell Classification or Finding	Expected Range	Participant Median	Participant Range
Blast cell not classified	0 - 2	0	0 - 0
Myeloblast/Promyelocyte	0 - 2	0	0 - 2
Lymphoblast/Prolymphocyte	0 - 2	0	0 - 0
Monoblast/Promonocyte	0 - 2	0	0 - 0
*[Blasts, all types]	0 - 2	0	0 - 2
Erythroblast	0 - 0	0	0 - 0
Lymphoma/Sezary cell	0 - 0	0	0 - 0
Hairy cell	0 - 0	0	0 - 0
Myelocyte	0 - 5	2	0 - 5
Metamyelocyte	0 - 4	2	0 - 5
Band neutrophil	0 - 26	6	0 - 27
Segmented neutrophil	58 - 90	80	51 - 90
*[Total neutrophils]	78 - 94	88	76 - 94
Eosinophil	0 - 1	0	0 - 1
Basophil	0 - 0	0	0 - 0
Lymphocyte	0 - 5	2	0 - 5
Atypical lymphocyte	0 - 2	0	0 - 2
Monocyte	0 - 9	5	0 - 9
Plasma cell	0 - 2	0	0 - 2
NRBC / 100 WBC	0 - 2	0	0 - 2

Cell Classification or Finding	Expected Result	Participant Results	
Anisocytosis	Slight	None (12%) Slight (57%)	Moderate (29%) MarKed (2%)
Poikilocytosis	Slight	None (29%) Slight (46%)	Moderate (23%) MarKed (3%)
Macrocytosis	None	None (57%) Slight (34%)	Moderate (7%) MarKed (2%)
Microcytosis	None	None (78%) Slight (20%)	Moderate (1%) MarKed (1%)
Hypochromia	None	None (46%) Slight (40%)	Moderate (13%) MarKed (0%)
Polychromasia	Slight	None (12%) Slight (75%)	Moderate (12%) MarKed (0%)
Reduced number of platelets	Absent	Absent(83%)	Present(17%)
Increased number of platelets	Absent	Absent(99%)	Present(1%)
Phagocytosis of platelet(s)	Absent	Absent(100%)	Present(0%)
Bizarre or irregular platelets	Absent	Absent(99%)	Present(1%)
Clumped platelets	Absent	Absent(99%)	Present(1%)
Giant platelets	Present	Absent(45%)	Present(55%)
Platelet satellitosis	Absent	Absent(100%)	Present(0%)
Auer rods	Absent	Absent(99%)	Present(1%)
Dohle bodies	Absent	Absent(99%)	Present(1%)
Hypersegmentation	Absent	Absent(97%)	Present(3%)
Pelger Huet anomaly	Absent	Absent(100%)	Present(0%)
Smudge / Basket cells	Absent	Absent(91%)	Present(9%)
Toxic granulation	Present	Absent(14%)	Present(86%)
Acanthocytes	Absent	Absent(78%)	Present(22%)
Basophilic stippling	Absent	Absent(97%)	Present(3%)
Blister cells (pre keratocytes)	Absent	Absent(100%)	Present(0%)
Cabot rings	Absent	Absent(100%)	Present(0%)
Echinocytes (crenated/burr cel	Present	Absent(26%)	Present(74%)
Elliptocytes (ovalocytes)	Absent	Absent(61%)	Present(39%)
Howell-Jolly bodies	Absent	Absent(98%)	Present(2%)
Pappenheimer bodies	Absent	Absent(100%)	Present(0%)
Red cell agglutinates	Absent	Absent(100%)	Present(0%)
Rouleaux	Absent	Absent(96%)	Present(4%)
Schistocytes	Absent	Absent(66%)	Present(34%)
Schuffner's granules	Absent	Absent(100%)	Present(0%)
Sickle cells (drepanocytes)	Absent	Absent(99%)	Present(1%)
Spherocytes	Absent	Absent(94%)	Present(6%)
Stomatocytes	Absent	Absent(100%)	Present(0%)
Target cells (codocytes)	Absent	Absent(88%)	Present(12%)
Tear drop cells (dacrocytes)	Absent	Absent(95%)	Present(5%)
Bacteria	Absent	Absent(100%)	Present(0%)
Fungi/yeast	Absent	Absent(100%)	Present(0%)
Malaria/Babesiosis	Absent	Absent(100%)	Present(0%)
Stain precipitate	Absent	Absent(99%)	Present(1%)
Phagocytosis of red cell(s)	Absent	Absent(100%)	Present(0%)

**NEW YORK STATE CYTOHEMATOLOGY PROFICIENCY TESTING PROGRAM
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Slide 004	<i>Diagnosis:</i> High grade lymphoid malignancy/Acute leukemia	
<i>Available data:</i> 55 year-old male	WBC	199.5 x 10 ⁹ /L
	RBC	2.68 x 10 ¹² /L
	Hemoglobin	8.3 g/dL
	Hematocrit	26.1 %
	MCV	97.4 fL
	MCH	31.0 pg
	MCHC	31.8 g/dL
	RDW	18.9 %
Platelet count	52 K/ μ L	



Slide 004 was obtained from a 55 year-old male. The elevated white blood cell count and the presence of blast cells, as shown in the image, support the preliminary diagnosis of high grade lymphoid malignancy/acute leukemia. The cells in the image appear as a differentiation sequence in the lymphocyte lineage from large blasts with distinct nucleoli and no granules to smaller lymphocytes with no nucleoli. The combination blast, not classified and lymphoblast was used for evaluation, the median count for the combination was 63. Participants that reported less than 25 or greater than 91 for the combination are expected to review the smear as are those participants that classified the blasts as myeloblasts and/or monoblasts. All review should be documented. Thirty laboratories (8%) reported lymphoma cells, participants that reported greater than twenty percent lymphoma cells are expected to review the smear. Other findings in the case included smudge/basket cells and reduced number of platelets and were easily identified by the majority of participants.

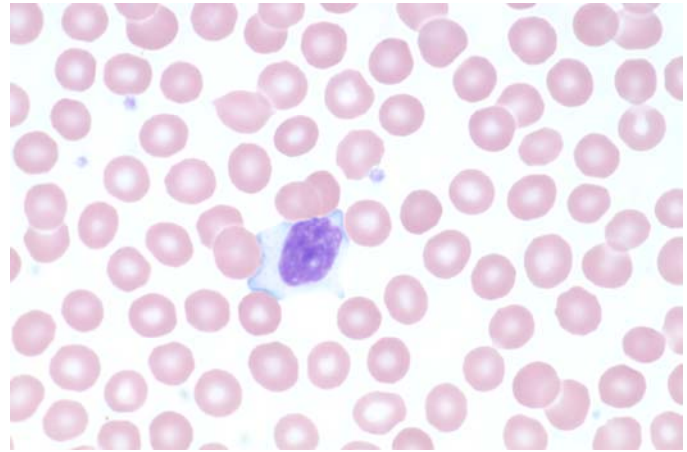
Slide: 004

Cell Classification or Finding	Expected Range	Participant Median	Participant Range
Blast cell not classified	43 - 83	26	0 - 91
Myeloblast/Promyelocyte	0 - 0	0	0 - 0
Lymphoblast/Prolymphocyte	43 - 83	0	0 - 85
Monoblast/Promonocyte	0 - 0	0	0 - 0
Erythroblast	0 - 0	0	0 - 0
Lymphoma/Sezary cell	0 - 19	0	0 - 82
*[Lymphoblasts+Blasts not clas	43 - 83	63	0 - 94
Hairy cell	0 - 0	0	0 - 0
Myelocyte	0 - 0	0	0 - 0
Metamyelocyte	0 - 0	0	0 - 0
Band neutrophil	0 - 1	0	0 - 1
Segmented neutrophil	0 - 6	3	0 - 6
*[Total neutrophils]	0 - 6	3	0 - 7
Eosinophil	0 - 1	0	0 - 1
Basophil	0 - 1	0	0 - 1
Lymphocyte	10 - 35	24	0 - 79
Atypical lymphocyte	0 - 8	0	0 - 48
Monocyte	0 - 5	0	0 - 5
Plasma cell	0 - 0	0	0 - 0
NRBC / 100 WBC	0 - 1	0	0 - 1

Cell Classification or Finding	Expected Result	Participant Results	
Anisocytosis	Slight	None (19%) Slight (51%)	Moderate (28%) MarKed (2%)
Poikilocytosis	None	None (89%) Slight (8%)	Moderate (1%) MarKed (2%)
Macrocytosis	None	None (53%) Slight (39%)	Moderate (6%) MarKed (1%)
Microcytosis	None	None (74%) Slight (23%)	Moderate (2%) MarKed (1%)
Hypochromia	None	None (48%) Slight (39%)	Moderate (13%) MarKed (1%)
Polychromasia	None	None (96%) Slight (4%)	Moderate (1%) MarKed (0%)
Reduced number of platelets	Present	Absent(6%)	Present(94%)
Increased number of platelets	Absent	Absent(100%)	Present(0%)
Phagocytosis of platelet(s)	Absent	Absent(100%)	Present(0%)
Bizarre or irregular platelets	Absent	Absent(99%)	Present(1%)
Clumped platelets	Absent	Absent(100%)	Present(0%)
Giant platelets	Absent	Absent(99%)	Present(1%)
Platelet satellitosis	Absent	Absent(100%)	Present(0%)
Auer rods	Absent	Absent(100%)	Present(0%)
Dohle bodies	Absent	Absent(100%)	Present(0%)
Hypersegmentation	Absent	Absent(100%)	Present(0%)
Pelger Huet anomaly	Absent	Absent(100%)	Present(0%)
Smudge / Basket cells	Present	Absent(6%)	Present(94%)
Toxic granulation	Absent	Absent(100%)	Present(0%)
Acanthocytes	Absent	Absent(100%)	Present(0%)
Basophilic stippling	Absent	Absent(96%)	Present(4%)
Blister cells (pre keratocytes)	Absent	Absent(100%)	Present(0%)
Cabot rings	Absent	Absent(100%)	Present(0%)
Echinocytes (crenated/burr cel	Absent	Absent(99%)	Present(1%)
Elliptocytes (ovalocytes)	Absent	Absent(97%)	Present(3%)
Howell-Jolly bodies	Absent	Absent(100%)	Present(0%)
Pappenheimer bodies	Absent	Absent(100%)	Present(0%)
Red cell agglutinates	Absent	Absent(100%)	Present(0%)
Rouleaux	Absent	Absent(99%)	Present(1%)
Schistocytes	Absent	Absent(99%)	Present(1%)
Schuffner's granules	Absent	Absent(100%)	Present(0%)
Sickle cells (drepanocytes)	Absent	Absent(100%)	Present(0%)
Spherocytes	Absent	Absent(93%)	Present(7%)
Stomatocytes	Absent	Absent(96%)	Present(4%)
Target cells (codocytes)	Absent	Absent(100%)	Present(0%)
Tear drop cells (dacrocytes)	Absent	Absent(100%)	Present(0%)
Bacteria	Absent	Absent(100%)	Present(0%)
Fungi/yeast	Absent	Absent(100%)	Present(0%)
Malaria/Babesiosis	Absent	Absent(100%)	Present(0%)
Stain precipitate	Absent	Absent(100%)	Present(0%)
Phagocytosis of red cell(s)	Absent	Absent(100%)	Present(0%)

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Slide 005	<i>Diagnosis: None</i>	
<i>Available data:</i> 35 year-old male	WBC	6.9 x 10 ⁹ /L
	RBC	5.07 x 10 ¹² /L
	Hemoglobin	15.6 g/dL
	Hematocrit	44.5 %
	MCV	87.8 fL
	MCH	30.8 pg
	MCHC	35.1 g/dL
	RDW	12.6 %
Platelet count	189 K/ μ L	



Slide 005 was obtained from a 35 year-old asymptomatic male, no significant findings were reported by the majority of participants. Few participants identified lymphoblast, Hairy cell or plasma cell and received an evaluation of unacceptable, the smear should be reviewed and findings documented. Reactive/atypical lymphocytes are present in this case as shown in the image. The expected range is 0-8, participants that reported more than 8% reactive/atypical lymphocytes are required to review the smear.

Slide: 005

Cell Classification or Finding	Expected Range	Participant Median	Participant Range
Blast cell not classified	0 - 0	0	0 - 0
Myeloblast/Promyelocyte	0 - 0	0	0 - 0
Lymphoblast/Prolymphocyte	0 - 0	0	0 - 0
Monoblast/Promonocyte	0 - 0	0	0 - 0
Erythroblast	0 - 0	0	0 - 0
Lymphoma/Sezary cell	0 - 0	0	0 - 0
Hairy cell	0 - 0	0	0 - 0
Myelocyte	0 - 0	0	0 - 0
Metamyelocyte	0 - 0	0	0 - 0
Band neutrophil	0 - 3	0	0 - 4
Segmented neutrophil	54 - 71	64	53 - 71
*[Total neutrophils]	56 - 72	65	55 - 72
Eosinophil	0 - 7	3	0 - 7
Basophil	0 - 2	0	0 - 2
Lymphocyte	14 - 30	22	13 - 32
Atypical lymphocyte	0 - 8	1	0 - 8
Monocyte	0 - 11	7	0 - 11
Plasma cell	0 - 0	0	0 - 0
NRBC / 100 WBC	0 - 0	0	0 - 0

Cell Classification or Finding	Expected Result	Participant Results	
Anisocytosis	None	None (88%) Slight (10%)	Moderate (0%) Marked (2%)
Poikilocytosis	None	None (96%) Slight (1%)	Moderate (0%) Marked (2%)
Macrocytosis	None	None (96%) Slight (3%)	Moderate (0%) Marked (1%)
Microcytosis	None	None (95%) Slight (4%)	Moderate (0%) Marked (1%)
Hypochromia	None	None (99%) Slight (1%)	Moderate (0%) Marked (0%)
Polychromasia	None	None (98%) Slight (2%)	Moderate (0%) Marked (0%)
Reduced number of platelets	Absent	Absent(97%)	Present(3%)
Increased number of platelets	Absent	Absent(99%)	Present(1%)
Phagocytosis of platelet(s)	Absent	Absent(100%)	Present(0%)
Bizarre or irregular platelets	Absent	Absent(100%)	Present(0%)
Clumped platelets	Absent	Absent(99%)	Present(1%)
Giant platelets	Absent	Absent(86%)	Present(14%)
Platelet satellitosis	Absent	Absent(100%)	Present(0%)
Auer rods	Absent	Absent(100%)	Present(0%)
Dohle bodies	Absent	Absent(100%)	Present(0%)
Hypersegmentation	Absent	Absent(98%)	Present(2%)
Peiger Huet anomaly	Absent	Absent(100%)	Present(0%)
Smudge / Basket cells	Absent	Absent(99%)	Present(1%)
Toxic granulation	Absent	Absent(99%)	Present(1%)
Acanthocytes	Absent	Absent(100%)	Present(0%)
Basophilic stippling	Absent	Absent(100%)	Present(0%)
Blister cells (pre keratocytes)	Absent	Absent(100%)	Present(0%)
Cabot rings	Absent	Absent(100%)	Present(0%)
Echinocytes (crenated/burr cel	Absent	Absent(100%)	Present(0%)
Elliptocytes (ovalocytes)	Absent	Absent(100%)	Present(0%)
Howell-Jolly bodies	Absent	Absent(100%)	Present(0%)
Pappenheimer bodies	Absent	Absent(100%)	Present(0%)
Red cell agglutinates	Absent	Absent(100%)	Present(0%)
Rouleaux	Absent	Absent(99%)	Present(1%)
Schistocytes	Absent	Absent(100%)	Present(0%)
Schuffner's granules	Absent	Absent(100%)	Present(0%)
Sickle cells (drepanocytes)	Absent	Absent(100%)	Present(0%)
Spherocytes	Absent	Absent(95%)	Present(5%)
Stomatocytes	Absent	Absent(100%)	Present(0%)
Target cells (codocytes)	Absent	Absent(100%)	Present(0%)
Tear drop cells (dacrocytes)	Absent	Absent(99%)	Present(1%)
Bacteria	Absent	Absent(100%)	Present(0%)
Fungi/yeast	Absent	Absent(100%)	Present(0%)
Malaria/Babesiosis	Absent	Absent(100%)	Present(0%)
Stain precipitate	Absent	Absent(99%)	Present(1%)
Phagocytosis of red cell(s)	Absent	Absent(100%)	Present(0%)