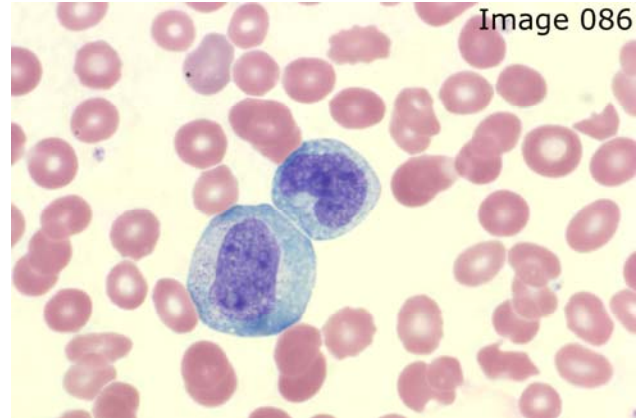


# NEW YORK STATE CYTOHEMATOLOGY PROFICIENCY TESTING PROGRAM

## Glass Slide Critique ~ November 2011

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

<b>Slide 086</b>	<i>Diagnosis: CMML</i>	
<i>Available data:</i>  92 year-old male	WBC	22.2 x 10 <sup>9</sup> /L
	RBC	3.06 x 10 <sup>12</sup> /L
	Hemoglobin	10.5 g/dL
	Hematocrit	32.6 %
	MCV	106.5 fL
	Platelet count	140 x 10 <sup>9</sup> /L



Slide 086 is from a 92 year-old male with Chronic Myelomonocytic Leukemia (CMML). CMML is the least frequent of the myelodysplastic syndromes. The syndromes are classified based on morphology and include, refractory anemia (RA), refractory anemia with ringed sideroblasts (RARS), refractory anemia with excess blasts (RAEB), refractory anemia with excess blasts in transformation (RAEB-T) and CMML.

The significant findings in this case were the increased numbers of monocytes and monoblasts (Image 086). The participant median for monocyte was 53 and the participant range for monoblast was 0 to 25. Other findings that might be expected in a case of CMML were reported by participants and included myelocytes and metamyelocytes. Few laboratories reported the presence of lymphoblasts and lymphoma/Sézary cells and appropriately received an “Unacceptable”.

Macrocytosis and giant platelets were also reported as significant findings.

**Slide: 086**

Cell Classification or Finding	Expected Range	Participant Median	Participant Range
Blast cell not classified	0 - 3	0	0 - 6
Myeloblast/Promyelocyte	0 - 0	0	0 - 1
Lymphoblast/Prolymphocyte	0 - 0	0	0 - 0
Monoblast/Promonocyte	0 - 20	0	0 - 25
Erythroblast	0 - 0	0	0 - 0
*[Myelo+Mono+Blasts,not classif.]	0 - 15	0	0 - 32
Lymphoma/Sezary cell	0 - 0	0	0 - 0
Hairy cell	0 - 0	0	0 - 0
Myelocyte	0 - 2	0	0 - 3
Metamyelocyte	0 - 2	0	0 - 3
Band neutrophil	0 - 10	3	0 - 11
Segmented neutrophil	20 - 43	31	19 - 45
*[Total neutrophils]	25 - 47	35	24 - 49
Eosinophil	0 - 1	0	0 - 1
Basophil	0 - 0	0	0 - 1
Lymphocyte	1 - 18	7	1 - 20
Atypical lymphocyte	0 - 5	0	0 - 6
Monocyte	40 - 65	53	3 - 66
Plasma cell	0 - 0	0	0 - 0
NRBC / 100 WBC	0 - 1	0	0 - 1

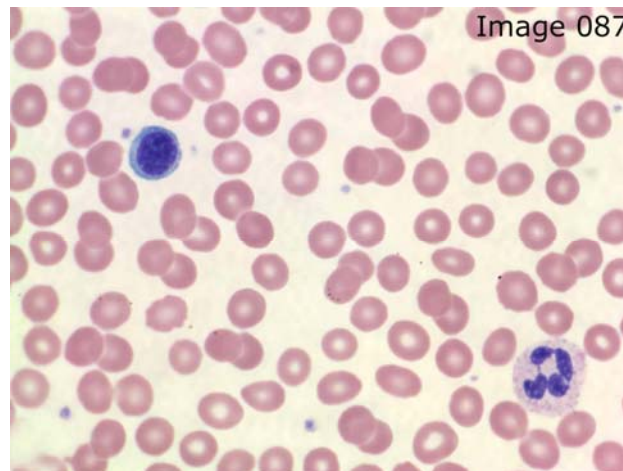
Cell Classification or Finding	Expected Result	Participant Results			
Anisocytosis	Slight	None ( 11%)	Slight ( 67%)	Moderate ( 22%)	Marked ( 0%)
Poikilocytosis	Slight	None ( 47%)	Slight ( 48%)	Moderate ( 4%)	Marked ( 0%)
Macrocytosis	Slight	None ( 8%)	Slight ( 49%)	Moderate ( 41%)	Marked ( 2%)
Microcytosis	None	None ( 93%)	Slight ( 7%)	Moderate ( 0%)	Marked ( 0%)
Hypochromia	None	None ( 77%)	Slight ( 22%)	Moderate ( 1%)	Marked ( 0%)
Polychromasia	Slight	None ( 41%)	Slight ( 57%)	Moderate ( 1%)	Marked ( 0%)
Reduced number of platelets	Absent	Absent( 89%)		Present( 11%)	
Increased number of platelets	Absent	Absent( 95%)		Present( 5%)	
Phagocytosis of platelet(s)	Absent	Absent(100%)		Present( 0%)	
Bizarre or irregular platelets	Absent	Absent( 98%)		Present( 2%)	
Clumped platelets	Absent	Absent( 95%)		Present( 5%)	
Giant platelets	Present	Absent( 32%)		Present( 68%)	
Platelet satellitosis	Absent	Absent(100%)		Present( 0%)	
Auer rods	Absent	Absent(100%)		Present( 0%)	
Dohle bodies	Absent	Absent(100%)		Present( 0%)	
Hypersegmentation	Absent	Absent( 99%)		Present( 1%)	
Pelger Huet anomaly	Absent	Absent( 99%)		Present( 1%)	
Smudge / Basket cells	Absent	Absent( 96%)		Present( 4%)	
Toxic granulation	Absent	Absent( 99%)		Present( 1%)	
Acanthocytes	Absent	Absent( 95%)		Present( 5%)	
Basophilic stippling	Absent	Absent( 88%)		Present( 12%)	
Blister cells (pre keratocytes)	Absent	Absent(100%)		Present( 0%)	
Cabot rings	Absent	Absent(100%)		Present( 0%)	
Echinocytes (crenated/burr cells)	Absent	Absent( 70%)		Present( 30%)	
Elliptocytes (ovalocytes)	Absent	Absent( 63%)		Present( 37%)	
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( 97%)		Present( 3%)	
Schistocytes	Absent	Absent( 84%)		Present( 16%)	
Schuffner's granules	Absent	Absent(100%)		Present( 0%)	
Sickle cells (drepanocytes)	Absent	Absent(100%)		Present( 0%)	
Spherocytes	Absent	Absent( 96%)		Present( 4%)	
Stomatocytes	Absent	Absent(100%)		Present( 0%)	
Target cells (codocytes)	Absent	Absent( 99%)		Present( 1%)	
Tear drop cells (dacrocytes)	Absent	Absent( 89%)		Present( 11%)	
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

## Glass Slide Critique ~ November 2011

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<b>Slide 087</b>	<i>Diagnosis:</i> None	
<i>Available data:</i>  47 year-old female	WBC	$6.7 \times 10^9 /L$
	RBC	$4.44 \times 10^{12} /L$
	Hemoglobin	13.4 g/dL
	Hematocrit	39.0 %
	MCV	87.8 fL
	Platelet count	$273 \times 10^9 /L$



Slide 087 is from an asymptomatic 47 year-old female. Image 087 shows normocytic and normochromic red blood cells with an unremarkable lymphocyte (upper left quadrant) and an unremarkable segmented neutrophil (lower right quadrant).

Twenty-four (7%) of participants reported an increase in the number of platelets. The platelet count in this case was 273,000. Those who reported an increased platelet count were asked to review the case.

**Slide: 087**

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 - 5	0	0 - 6
Segmented neutrophil	44 - 64	54	43 - 65
*[Total neutrophils]	46 - 64	56	45 - 65
Eosinophil	0 - 6	3	0 - 6
Basophil	0 - 1	0	0 - 1
Lymphocyte	25 - 42	34	24 - 43
Atypical lymphocyte	0 - 6	0	0 - 6
Monocyte	0 - 10	6	0 - 10
Plasma cell	0 - 0	0	0 - 0
NRBC / 100 WBC	0 - 0	0	0 - 0

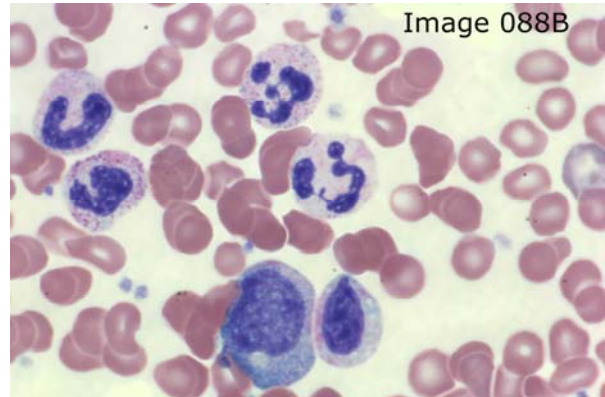
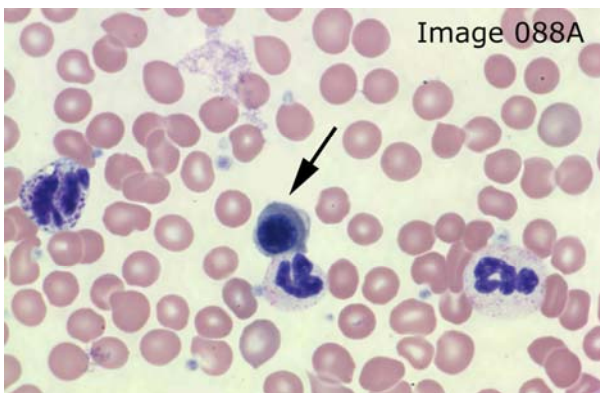
Cell Classification or Finding	Expected Result	Participant Results
Anisocytosis	None	None ( 87%) Slight ( 13%) Moderate ( 0%) Marked ( 0%)
Poikilocytosis	None	None ( 95%) Slight ( 5%) Moderate ( 0%) Marked ( 0%)
Macrocytosis	None	None ( 99%) Slight ( 1%) Moderate ( 0%) Marked ( 0%)
Microcytosis	None	None ( 97%) Slight ( 3%) Moderate ( 0%) Marked ( 0%)
Hypochromia	None	None ( 90%) Slight ( 9%) Moderate ( 2%) Marked ( 0%)
Polychromasia	None	None ( 98%) Slight ( 2%) Moderate ( 0%) Marked ( 0%)
Reduced number of platelets	Absent	Absent( 99%) Present( 1%)
Increased number of platelets	Absent	Absent( 93%) Present( 7%)
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( 85%) Present( 15%)
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%)
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( 99%) Present( 1%)
Blister cells (pre keratocytes)	Absent	Absent(100%) Present( 0%)
Cabot rings	Absent	Absent(100%) Present( 0%)
Echinocytes (crenated/burr cells)	Absent	Absent(100%) Present( 0%)
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(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(100%) Present( 0%)
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

## Glass Slide Critique ~ November 2011

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<http://www.wadsworth.org/chemheme>

<b>Slide 088</b>	<i>Diagnosis: CML</i>	
<i>Available data:</i>	WBC	$80.3 \times 10^9 /L$
	RBC	$4.82 \times 10^{12} /L$
83 year-old male	Hemoglobin	12.8 g/dL
	Hematocrit	40.9 %
	MCV	84.9 fL
	Platelet count	$347 \times 10^9 /L$



Slide 088 is from an 83 year-old male with Chronic Myelogenous Leukemia (CML). “CML is an acquired neoplastic clonal disorder originating in the hematopoietic stem cell compartment. Almost 95% of CML patients have the Ph chromosome, which appears in 90 to 100% of metaphases in the marrow of untreated patients.” Jandle, J.H. Blood: Textbook of Hematology 2<sup>nd</sup>. Ed. Boston: Little, Brown and Company, 1996, p.903.

In CML there is a left shift in granulocytic maturation and often all stages of myeloid maturation are observed on the peripheral blood smear. Segmented neutrophils and band forms dominate (Image 088B) followed in decreasing order by metamyelocytes, myelocytes, promyelocytes, and myeloblasts. Additionally, the very active bone marrow may release cells before they have reached full maturity. The presence of nucleated red blood cells, shown by the arrow in Image 088A was not an unexpected finding. The participant range for nucleated red blood cell count was 0 to 3.

**Slide: 088**

Cell Classification or Finding	Expected Range	Participant Median	Participant Range
Blast cell not classified	0 - 4	0	0 - 5
Myeloblast/Promyelocyte	0 - 6	1	0 - 6
Lymphoblast/Prolymphocyte	0 - 0	0	0 - 0
Monoblast/Promonocyte	0 - 0	0	0 - 0
Erythroblast	0 - 0	0	0 - 0
*[Myleblasts+Blasts not classified]	0 - 8	2	0 - 8
Lymphoma/Sezary cell	0 - 0	0	0 - 0
Hairy cell	0 - 0	0	0 - 0
Myelocyte	1 - 19	10	0 - 20
Metamyelocyte	0 - 14	7	0 - 15
Band neutrophil	7 - 30	20	7 - 39
Segmented neutrophil	34 - 64	49	31 - 66
*[Total neutrophils]	57 - 79	69	53 - 80
Eosinophil	0 - 2	1	0 - 2
Basophil	0 - 3	1	0 - 4
Lymphocyte	1 - 13	6	1 - 16
Atypical lymphocyte	0 - 3	0	0 - 4
Monocyte	0 - 7	3	0 - 7
Plasma cell	0 - 0	0	0 - 0
NRBC / 100 WBC	0 - 3	1	0 - 3

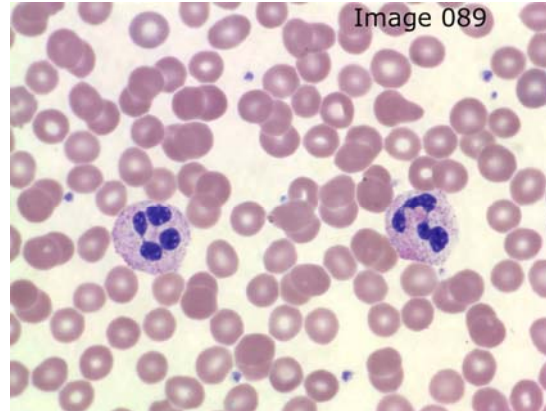
Cell Classification or Finding	Expected Result	Participant Results			
Anisocytosis	Slight	None ( 14%)	Slight ( 72%)	Moderate ( 15%)	Marked ( 0%)
Poikilocytosis	None	None ( 74%)	Slight ( 24%)	Moderate ( 2%)	Marked ( 0%)
Macrocytosis	None	None ( 79%)	Slight ( 17%)	Moderate ( 4%)	Marked ( 0%)
Microcytosis	None	None ( 73%)	Slight ( 23%)	Moderate ( 3%)	Marked ( 0%)
Hypochromia	None	None ( 76%)	Slight ( 22%)	Moderate ( 2%)	Marked ( 0%)
Polychromasia	Slight	None ( 7%)	Slight ( 76%)	Moderate ( 16%)	Marked ( 1%)
Reduced number of platelets	Absent	Absent( 99%)		Present( 1%)	
Increased number of platelets	Absent	Absent( 73%)		Present( 27%)	
Phagocytosis of platelet(s)	Absent	Absent(100%)		Present( 0%)	
Bizarre or irregular platelets	Absent	Absent( 97%)		Present( 3%)	
Clumped platelets	Absent	Absent( 89%)		Present( 11%)	
Giant platelets	Absent	Absent( 61%)		Present( 39%)	
Platelet satellitosis	Absent	Absent(100%)		Present( 0%)	
Auer rods	Absent	Absent(100%)		Present( 0%)	
Dohle bodies	Absent	Absent( 99%)		Present( 1%)	
Hypersegmentation	Absent	Absent( 99%)		Present( 1%)	
Pelger Huet anomaly	Absent	Absent( 99%)		Present( 1%)	
Smudge / Basket cells	Absent	Absent( 66%)		Present( 34%)	
Toxic granulation	Absent	Absent( 93%)		Present( 7%)	
Acanthocytes	Absent	Absent(100%)		Present( 0%)	
Basophilic stippling	Absent	Absent( 98%)		Present( 2%)	
Blister cells (pre keratocytes)	Absent	Absent(100%)		Present( 0%)	
Cabot rings	Absent	Absent(100%)		Present( 0%)	
Echinocytes (crenated/burr cells)	Absent	Absent( 99%)		Present( 1%)	
Elliptocytes (ovalocytes)	Absent	Absent( 97%)		Present( 3%)	
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( 99%)		Present( 1%)	
Schistocytes	Absent	Absent( 98%)		Present( 2%)	
Schuffner's granules	Absent	Absent(100%)		Present( 0%)	
Sickle cells (drepanocytes)	Absent	Absent(100%)		Present( 0%)	
Spherocytes	Absent	Absent( 96%)		Present( 4%)	
Stomatocytes	Absent	Absent(100%)		Present( 0%)	
Target cells (codocytes)	Absent	Absent( 99%)		Present( 1%)	
Tear drop cells (dacryocytes)	Absent	Absent( 88%)		Present( 12%)	
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

## Glass Slide Critique ~ November 2011

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

<b>Slide 089</b>	<i>Diagnosis: Cardiomyopathy</i>	
<i>Available data:</i> 57 year-old male	WBC	$6.1 \times 10^9 /L$
	RBC	$4.38 \times 10^{12} /L$
	Hemoglobin	14.3 g/dL
	Hematocrit	40.5 %
	MCV	92.4 fL
	Platelet count	$205 \times 10^9 /L$



Slide 089 is from a 57 year-old male with cardiomyopathy. Cardiomyopathy is a disease that weakens and enlarges the heart muscle making it difficult for the heart to efficiently deliver blood. Causes of cardiomyopathy include coronary artery disease and valvular heart disease.

The hematological findings in this case of Cardiomyopathy were unremarkable as shown in Image 089.

**Slide: 089**

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 - 3
Segmented neutrophil	46 - 65	56	45 - 66
*[Total neutrophils]	47 - 65	56	46 - 66
Eosinophil	2 - 11	7	2 - 11
Basophil	0 - 2	1	0 - 3
Lymphocyte	19 - 35	27	18 - 35
Atypical lymphocyte	0 - 5	0	0 - 6
Monocyte	2 - 11	7	2 - 12
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 ( 84%) Slight ( 16%) Moderate ( 0%) Marked ( 0%)
Poikilocytosis	None	None ( 97%) Slight ( 3%) Moderate ( 0%) Marked ( 0%)
Macrocytosis	None	None ( 91%) Slight ( 8%) Moderate ( 1%) Marked ( 0%)
Microcytosis	None	None ( 99%) Slight ( 1%) Moderate ( 0%) Marked ( 0%)
Hypochromia	None	None ( 90%) Slight ( 8%) Moderate ( 2%) Marked ( 0%)
Polychromasia	None	None ( 96%) Slight ( 4%) 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(100%) Present( 0%)
Giant platelets	Absent	Absent( 90%) Present( 10%)
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( 99%) Present( 1%)
Smudge / Basket cells	Absent	Absent( 98%) Present( 2%)
Toxic granulation	Absent	Absent( 99%) Present( 1%)
Acanthocytes	Absent	Absent(100%) Present( 0%)
Basophilic stippling	Absent	Absent( 95%) Present( 5%)
Blister cells (pre keratocytes)	Absent	Absent(100%) Present( 0%)
Cabot rings	Absent	Absent(100%) Present( 0%)
Echinocytes (crenated/burr cells)	Absent	Absent(100%) Present( 0%)
Elliptocytes (ovalocytes)	Absent	Absent( 98%) Present( 2%)
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(100%) Present( 0%)
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%)

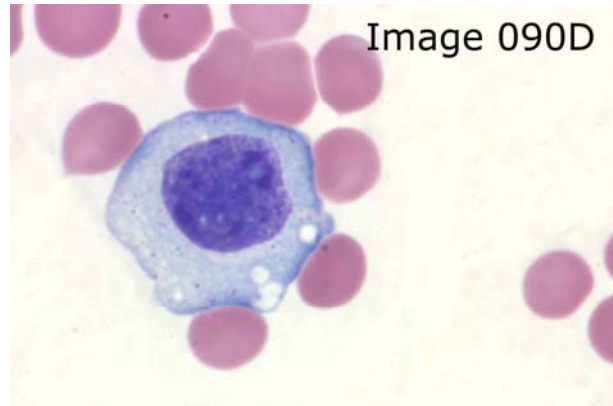
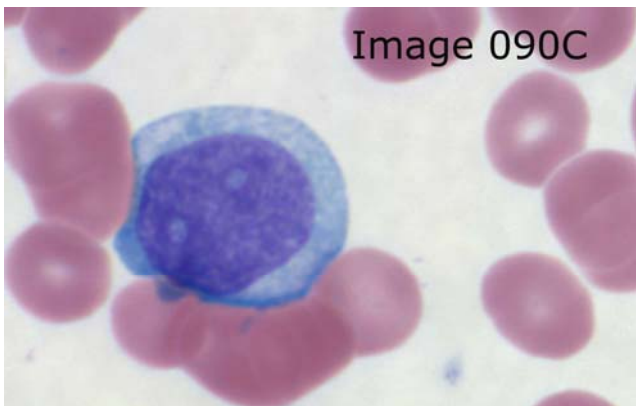
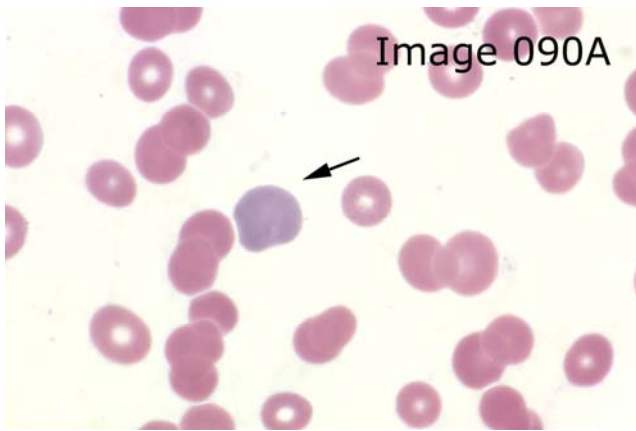


# NEW YORK STATE CYTOHEMATOLOGY PROFICIENCY TESTING PROGRAM

## Glass Slide Critique ~ November 2011

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

<b>Slide 090</b>	<i>Diagnosis: Anemia</i>	
Available data:  72 year-old male	WBC	$4.5 \times 10^9 /L$
	RBC	$2.52 \times 10^{12} /L$
	Hemoglobin	8.6 g/dL
	Hematocrit	25.8 %
	MCV	102.4 fL
	Platelet count	$96 \times 10^9 /L$



Slide 090 is from a 72 year-old male with a history of Diabetes Mellitus Type II, Anemia, Thrombocytopenia, Thrombophlebitis and Alcoholism.

Excessive alcohol consumption has toxic affects on the bone marrow adversely affecting normal production and function of various blood cells. Decreased red blood cell production and impaired red blood cell metabolism can lead to the complication of anemia, commonly sideroblastic anemia. Characteristic findings of anemia were present in this case and included polychromasia (arrowed cell in Image 090A) reported by 171 participants and basophilic stippling (arrowed cell in Image 090B) reported by 121 participants.

Forty-eight percent of participants reported 1 to 10 blast cells in a 100 white blood cell count. Identification of the blast cell lineage is not clear and therefore all types of blast cells were acceptable responses. Lymphoma/Sézary, hairy and plasma cells were unacceptable responses and participants are expected to review the case.

Reactive/atypical lymphocytes were noted present by half of the participants; fifty-one percent reported 1 to 7 per 100 nucleated cells.

Slide: 090

Cell Classification or Finding	Expected Range	Participant Median	Participant Range
Blast cell not classified	0 - 5	0	0 - 5
Myeloblast/Promyelocyte	0 - 0	0	0 - 1
Lymphoblast/Prolymphocyte	0 - 0	0	0 - 4
Monoblast/Promonocyte	0 - 0	0	0 - 5
Erythroblast	0 - 0	0	0 - 0
*[Blasts, all types]	0 - 7	0	0 - 7
Lymphoma/Sezary cell	0 - 0	0	0 - 0
Hairy cell	0 - 0	0	0 - 0
Myelocyte	0 - 1	0	0 - 2
Metamyelocyte	0 - 0	0	0 - 0
Band neutrophil	0 - 12	3	0 - 14
Segmented neutrophil	48 - 69	61	47 - 70
*[Total neutrophils]	55 - 73	65	54 - 75
Eosinophil	0 - 3	1	0 - 4
Basophil	0 - 1	0	0 - 1
Lymphocyte	18 - 35	26	18 - 36
Atypical lymphocyte	0 - 7	1	0 - 7
Monocyte	0 - 9	4	0 - 9
Plasma cell	0 - 0	0	0 - 2
NRBC / 100 WBC	0 - 0	0	0 - 0

Cell Classification or Finding	Expected Result	Participant Results			
Anisocytosis	Slight	None ( 11%)	Slight ( 68%)	Moderate ( 20%)	Marked ( 0%)
Poikilocytosis	None	None ( 87%)	Slight ( 13%)	Moderate ( 0%)	Marked ( 0%)
Macrocytosis	Slight	None ( 26%)	Slight ( 57%)	Moderate ( 17%)	Marked ( 0%)
Microcytosis	None	None ( 77%)	Slight ( 19%)	Moderate ( 4%)	Marked ( 0%)
Hypochromia	None	None ( 77%)	Slight ( 20%)	Moderate ( 3%)	Marked ( 0%)
Polychromasia	None	None ( 53%)	Slight ( 46%)	Moderate ( 1%)	Marked ( 0%)
Reduced number of platelets	Present	Absent( 36%)		Present( 64%)	
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( 93%)		Present( 7%)	
Giant platelets	Absent	Absent( 85%)		Present( 15%)	
Platelet satellitosis	Absent	Absent(100%)		Present( 0%)	
Auer rods	Absent	Absent(100%)		Present( 0%)	
Dohle bodies	Absent	Absent( 90%)		Present( 10%)	
Hypersegmentation	Absent	Absent( 97%)		Present( 3%)	
Pelger Huet anomaly	Absent	Absent(100%)		Present( 0%)	
Smudge / Basket cells	Absent	Absent( 98%)		Present( 2%)	
Toxic granulation	Absent	Absent( 84%)		Present( 16%)	
Acanthocytes	Absent	Absent(100%)		Present( 0%)	
Basophilic stippling	Present	Absent( 67%)		Present( 33%)	
Blister cells (pre keratocytes)	Absent	Absent(100%)		Present( 0%)	
Cabot rings	Absent	Absent(100%)		Present( 0%)	
Echinocytes (crenated/burr cells)	Absent	Absent(100%)		Present( 0%)	
Elliptocytes (ovalocytes)	Absent	Absent( 96%)		Present( 4%)	
Howell-Jolly bodies	Absent	Absent(100%)		Present( 0%)	
Pappenheimer bodies	Absent	Absent(100%)		Present( 0%)	
Red cell agglutinates	Absent	Absent( 99%)		Present( 1%)	
Rouleaux	Present	Absent( 49%)		Present( 51%)	
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( 88%)		Present( 12%)	
Stomatocytes	Absent	Absent( 98%)		Present( 2%)	
Target cells (codocytes)	Absent	Absent(100%)		Present( 0%)	
Tear drop cells (dacrocytes)	Absent	Absent( 98%)		Present( 2%)	
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%)	