

Verein für
Association pour le
Associazione per il



medizinische Qualitätskontrolle
contrôle de qualité médical
controllo di qualità medico

Report

Differential Blood Smear H3

MQ 2026-1

Acknowledgements

The Zybio Z3 analyzer was provided by the company Polymed, the ABX Microsemi CRP analyzer by the company Axonlab and the XP-300 analyzer by the Firma Sysmex. MQ employees conducted the measurements.

The findings of the XN-20 and of the microscopic blood counts were generated by the Central Laboratory of Medical Diagnostic HAD of the University Hospital Zurich Hematology Clinic. The lab is ISO/IEC 17025 certified (STS 445). Prof. Dr. med. Stefan Balabanov is the responsible manager; Prof. MG Manz, M.D., the clinic director. www.haematologie.usz.ch

For information regarding all analyses offered by the University Hospital of Zurich, see: www.uzl.usz.ch

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1 Sample A

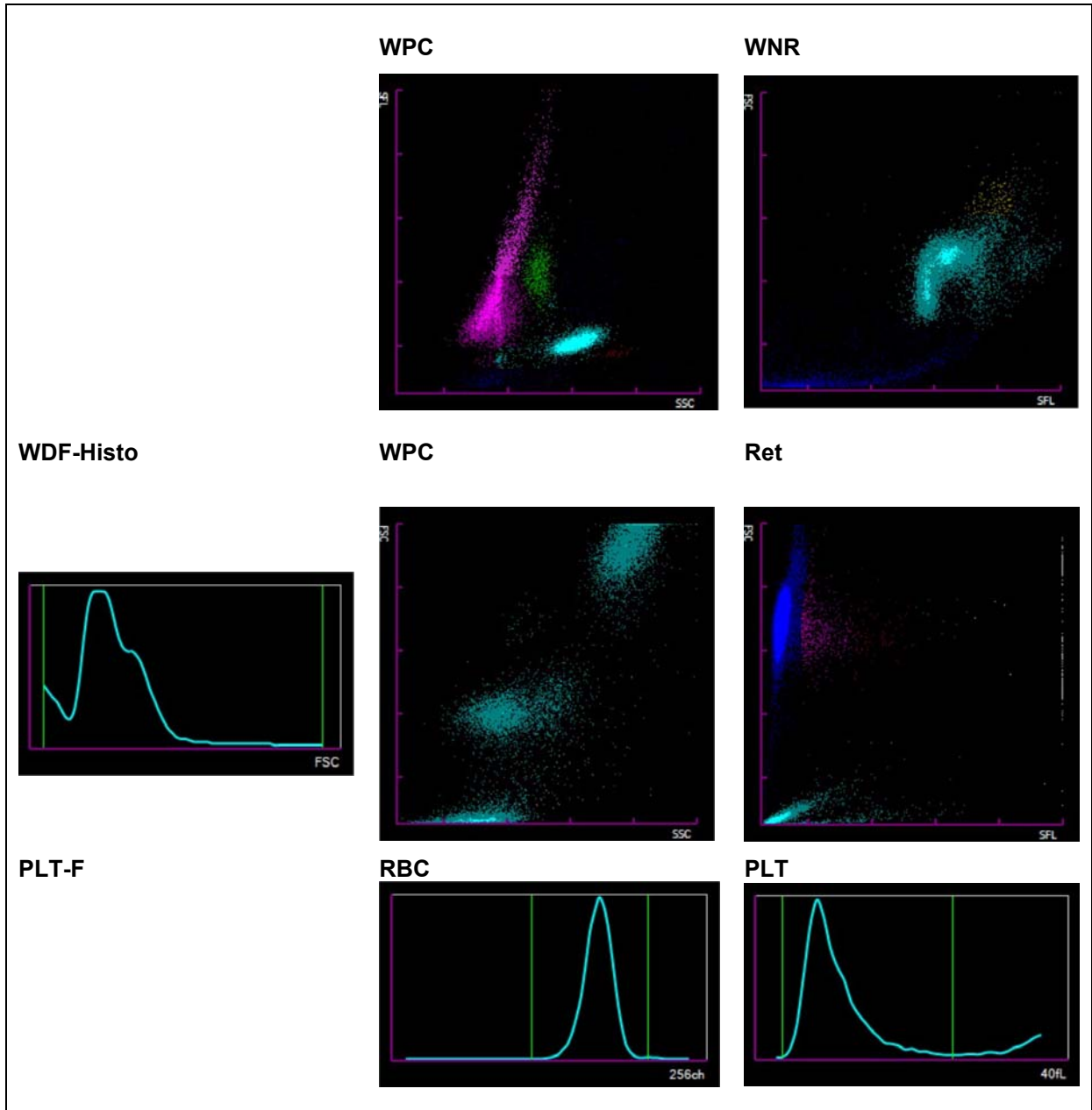
1.1 Sysmex XN-20



Findings MQ 2026-1 H3A
20 year old woman

Analysis	Result	Unit	Reference value
Blood Count			
<u>Hemoglobin</u>	135	g/l	117-153
<u>Hematocrit</u>	0.374	l/l	0.35-0.46
Erythrocytes	4.52	T/l	3.9-5.2
MCV	82.7	fl	80-100
MCH	29.9	pg	26-34
MCHC	* 361	g/l	310-360
Mikrocytes	12.7	%	11.0-14.8
<u>Thrombocytes</u>	289	G/l	143-400
<u>Leucocytes</u>	* 13.94	G/l	3.0-9.6
Leucocyte Differentiation			
Neutrophils	5.19	G/l	1.40 – 8.00
Monocytes	0.76	G/l	0.16 – 0.95
Eosinophils	0.04	G/l	0.00 – 0.70
Basophils	* 0.19	G/l	0.00-0.15
Lymphocytes	* 7.69	G/l	1.50 - 4.00
IG abs.	* 0.07	G/l	0.00 – 0.03
IG %	0.5	%	0.0 – 0.5
NRBC abs.	0.00	G/l	
NRBC	0.0	/100 Lc	

Findings HAD MQ 2026-1 H3A



1.2 Differential Blood Smear

Findings HAD 2026-1 H3A

20 year old woman

Analysis	Result	Unit	Reference value
Neutrophile gesamt	6.13	G/l	1.40-8.00
Monocytes	0.42	G/l	0.16-0.95
Eosinophils	* 0.00	G/l	0.00-0.70
Basophils	0.14	G/l	0.00-0.15
Lymphocytes	6.69	G/l	1.50-4.00
White precursors	0.56	G/l	
Blasts	0.00	G/l	
Neutrophils total	0.00	%	40.0-74.0
Neutrophils Band	44.0	%	0.0-20.0
Neutrophils Segmented	3.0	%	30.0-50.0
Monocytes	41.0	%	3.4-9.0
Eosinophils	* 3.0	%	0.0-7.0
Basophils	0.0	%	0.0-1.5
Lymphocytes	1.0	%	19.0-48.0
Plasmacells	* 48.0	%	0-0.5
Blasts	* 4.0	%	0
Promyelocytes	0.0	%	0
Myelocytes	0.0	%	0
Metamyelocytes	0.0	%	0
Others / smudge cells	0.0	%	0

Commentary

Absolute lymphocytosis; lymphocytes are atypical, likely showing marked reactive changes, and many exhibit pronounced reactive changes. Upon examination, a few radially segmented forms are visible. 4.0% plasma cells are visible, often in altered forms. Many neutrophils with reduced cytoplasmic granulation and marked nuclear pyknosis. Red blood cell count normochromic, slightly anisocytic with few microcytes. Mild poikilocytosis with few echinocytes. Mild anisocytosis of the thrombocytes.

A. Sopran

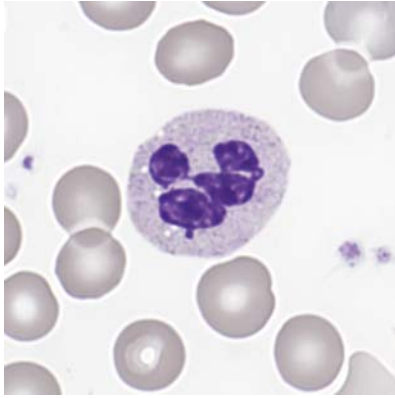


Abb 1. Neutrophiler (Seg)

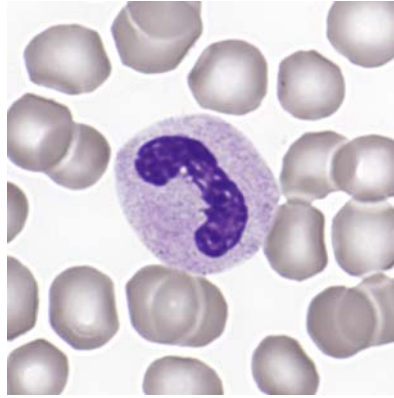


Abb 2. Neutrophiler (Stab)

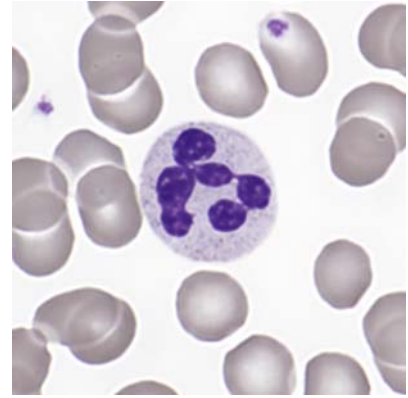


Abb 3. Neutrophiler (Hyperseg)

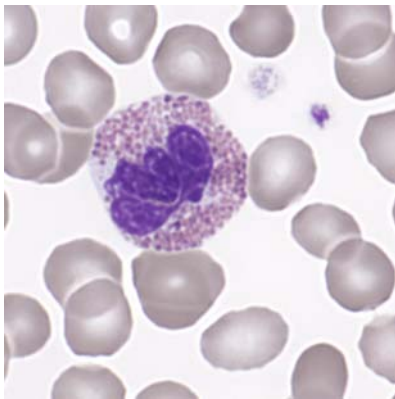


Abb 4 Eosinophiler

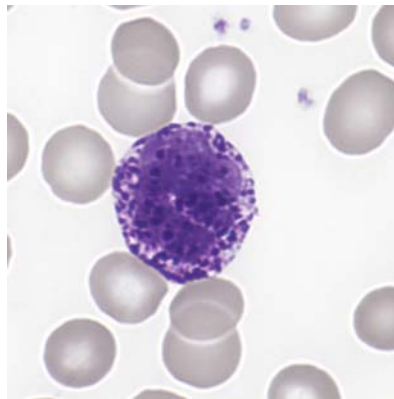


Abb 5. Basophiler

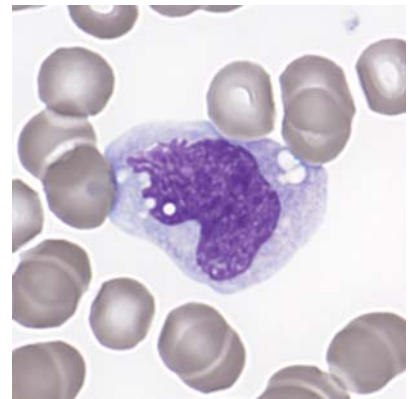


Abb 6. Monozyt

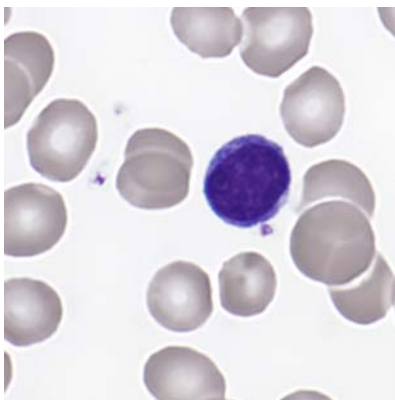


Abb 7. Lymphozyt

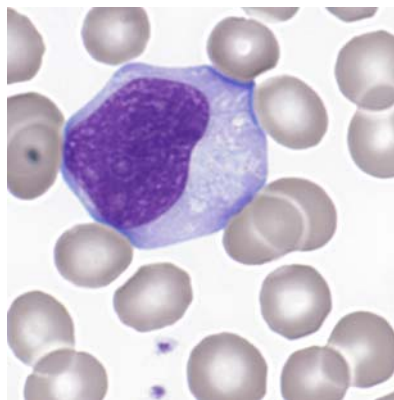


Abb 8. Lymphozyt, reaktiv

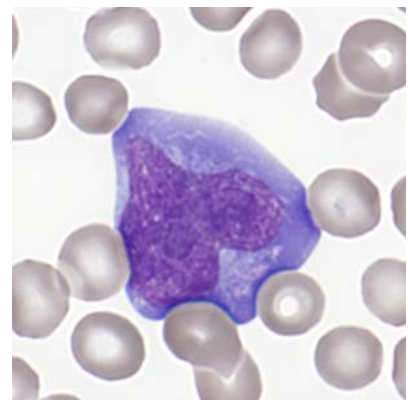


Abb 9. Lymphozyt, reaktiv

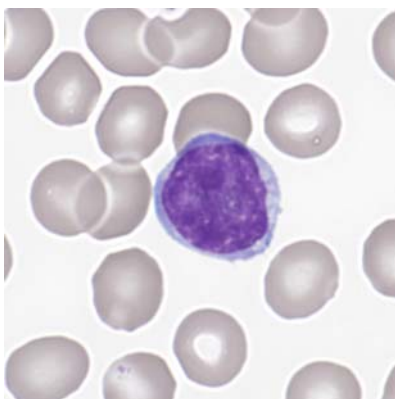


Abb 10. Lymphozyt, reaktiv

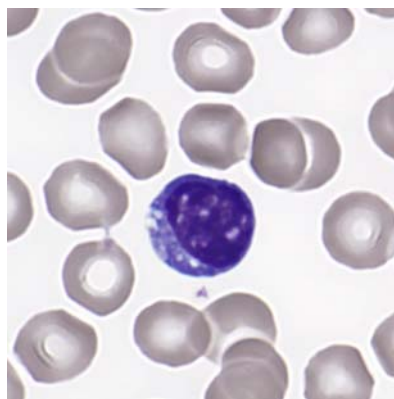


Abb 11. Plasmazelle

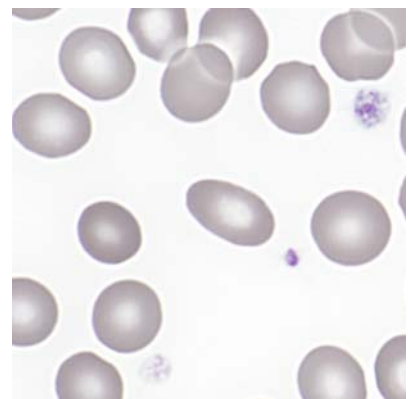


Abb 12. Erythrozyten

1.3 Summary of participant results

Leukocyte Differenzial H3-A

	0	1-4	5-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	>79
<i>Neutrophils Band</i>	19	41*	83	29	3						
<i>Neutrophils Segmented.</i>	13			3	17	99	39*	4		1	
<i>Eosinophils</i>	120*	37	2								
<i>Basophile</i>	116	44*	4								
<i>Monocytes</i>	18	62*	72	19		3					
<i>Lymphocytes</i>	13			4	4	14	63*	74	2		
<i>Plasmacells</i>	148	4*	2								
<i>Blasts</i>	146*	7	1								
<i>Promyelocytes</i>	151*	1									
<i>Myelocytes</i>	148*	3	2								
<i>Metamyelozyten</i>	149*	2	1								
<i>Erythrocytes Nucleated</i>	146*	4	1								1
<i>Unknown</i>	146*		3	1		2					
<i>Smudge cells</i>	135*	7	6	9	1						

Evaluation H3-A

	light	medium	strong		light	medium	strong
<i>Hypersegmentation</i>	7			<i>Hypochromic Ec</i>	7	2	
<i>Pelger-Hüet Anomaly</i>	1			<i>Polychromatic Ec</i>	9		
<i>Coarse Granulation</i>	18	1		<i>Anisocytes</i>	92*	7	2
<i>Basophilic Strippling</i>	4	1		<i>Mikrocytes</i>	46*	6	
<i>Vacuoles</i>	20	4		<i>Makrocytes</i>	12		
<i>Reaktive Lymphocytes</i>	17	71*	75	<i>Megalocytes</i>			
<i>Atypical Lymphocytes</i>	8	2	4	<i>Poikilocytosis</i>	52*		
<i>Others</i>	3			<i>Ovalocytes</i>	38	1	
				<i>Target Cells</i>	4	1	
				<i>Akanthocytes</i>	17	3	
<i>Anisocytosis</i>	86*	10	1	<i>Echinocytes</i>	24*	3	
<i>Megakaryocyte Nucleaus</i>	5			<i>Sickle Cells</i>	1		
<i>Granulation</i>	15	4		<i>Fragmentocytes</i>	9	1	
<i>Others</i>	1			<i>Spherocytes</i>	6		
				<i>Stomatocytes</i>	4		
				<i>Basophilic Strippling</i>	3		
				<i>Howell-Jolly Bodies</i>	2		
				<i>Pappenheim Bodies</i>	1		
				<i>Others</i>	6		

The blood from sample H3A came from a patient suffering from acute EBF tonsillitis. The lymphocytes showed reactive changes.

1.4 Qualab Codes

Summary of the participant codes
(Bold printed: expected codes)

Code	Text	Number
5	Atypical lymphocytes, reactive	159
31	Pathologic findings, not referred to expert	116
30	Pathologic findings, refer to expert	56
16	Poikilocytosis	23
12	Microcytes	20
8	Lc Others	18
27	Ec Others	12
17	Ovalocytes	11
6	Atypical lymphocytes, neoplastic	8
11	Tc Others	7
9	Giant platelet	7
4	Toxic signs of neutrophils	6
22	Erythrocytes normal	4
20	Fragmentocytes	4
2	Left shift	4
13	Macrocytes	3
29	Inconspicuous findings, no further clarifications	3
25	Basophilic strippling	2
10	Platelet aggregates	2
26	Erythrocytes normal	2
1	Hypersegmentation	2
14	Hypochromic Ec	2
15	Polychromatic Ec	2
18	Stomatocytes	2
28	Erythrocytes normal	1
3	Pelger-Huet Anomaly	1
19	Target Cells	1
23	Erythrocytes normal	1
21	Spherocytes	1

2 Sample B

2.1 ABX Microsemi CRP



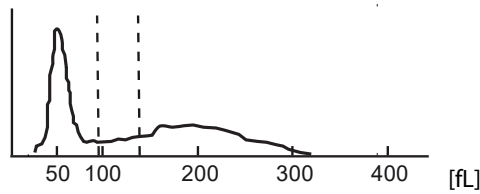
Findings MQ 2026-1 H3B

18 year old woman

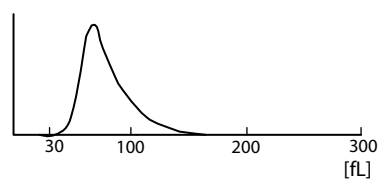
WBC :	5.1	10 ³ /μL	MCV :	95.6	μm ³
RBC :	4.09	10 ⁶ /μL	MCH :	31.9	pg
HGB :	13.0	g/dL	MCHC:	33.3	g/dL
HCT :	39.2	%	RDW :	11.4	%
PLT :	230	10 ³ /μL	MPV :	6.9	μm ³
PCT :	0.159	%	PDW :	13.6	%
WBC Flags					

DIFF:					
%LYM:	41.7	%	#LYM:	2.1	10 ³ /μL
%MON:	9.0	%	#MON:	0.5	10 ³ /μL
%GRA:	49.3	%	#GRA:	2.5	10 ³ /μL

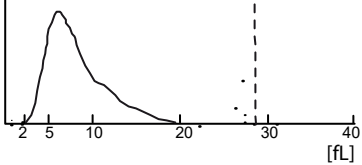
WBC



RBC



PLT



2.2 Sysmex XP300



Findings MQ 2026-1 H3B 18 year old woman

WBC	4.9	$\times 10^3/\mu\text{L}$	WBC
RBC	4.04	$\times 10^6/\mu\text{L}$	
HGB	12.8	g/dL	
HCT	36.1	%	
MCV	89.4	fL	
MCH	31.7	pg	
MCHC	35.5	g/dL	
PLT	229	$\times 10^3/\mu\text{L}$	RBC
LYM%	37.3	%	
MXD%	12.5	%	
NEUT%	50.2	%	
LYM#	1.8	$\times 10^3/\mu\text{L}$	
MXD#	0.6	$\times 10^3/\mu\text{L}$	PLT
NEUT#	2.5	$\times 10^3/\mu\text{L}$	
RDW_SD	40.3	fL	
RDW_CV	12.0	%	
PDW	11.2	fL	
MPV	8.9	fL	
P_LCR	17.8	%	
PCT	0.2	%	

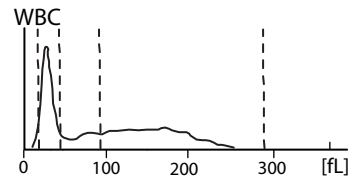
2.3 Zybio Z3 CRP



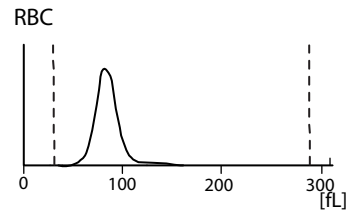
Findings MQ 2026-1 H3B

18 year old woman

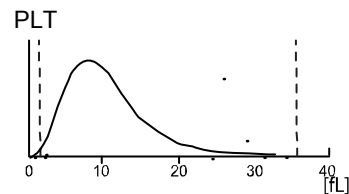
WBC	4.80	10 ³ /μl	3.50-9.50
Lym#	1.73	10 ³ /μl	1.10-3.20
Mid#	0.40	10 ³ /μl	0.10-3.20
Gran#	2.67	10 ³ /μl	1.80-6.30
Lym%	36.1	%	20.0-50.0
Mid%	8.3	%	3.0-15.0
Gran%	2.67	%	40.0-75.0



RBC	4.18	10 ⁶ /μl	3.80-5.80
HGB	12.8	g/dl	11.5-17.5
HCT	37.4	%	35.0-50.0
MCV	89.4	fl	82.0-100.0
MCH	30.6	pg	27.0-34.0
MCHC	34.2	↑ g/dl	31.6-35.4



RDW-CV	12.8	%	11.5-16.0
RDW-SD	38.5	fL	35.0-56.0
PLT	194	↓? 10 ³ /μl	125-350
MPV	9.6	? fl	6.5-12.0
PDW	16.1	? fL	9.0-17.0
PCT	0.187	↓ %	0.108-0.282
P-LCC	43	↓? 10 ³ /μl	30-90
P-LCR	22.2	? %	11.0-45.0



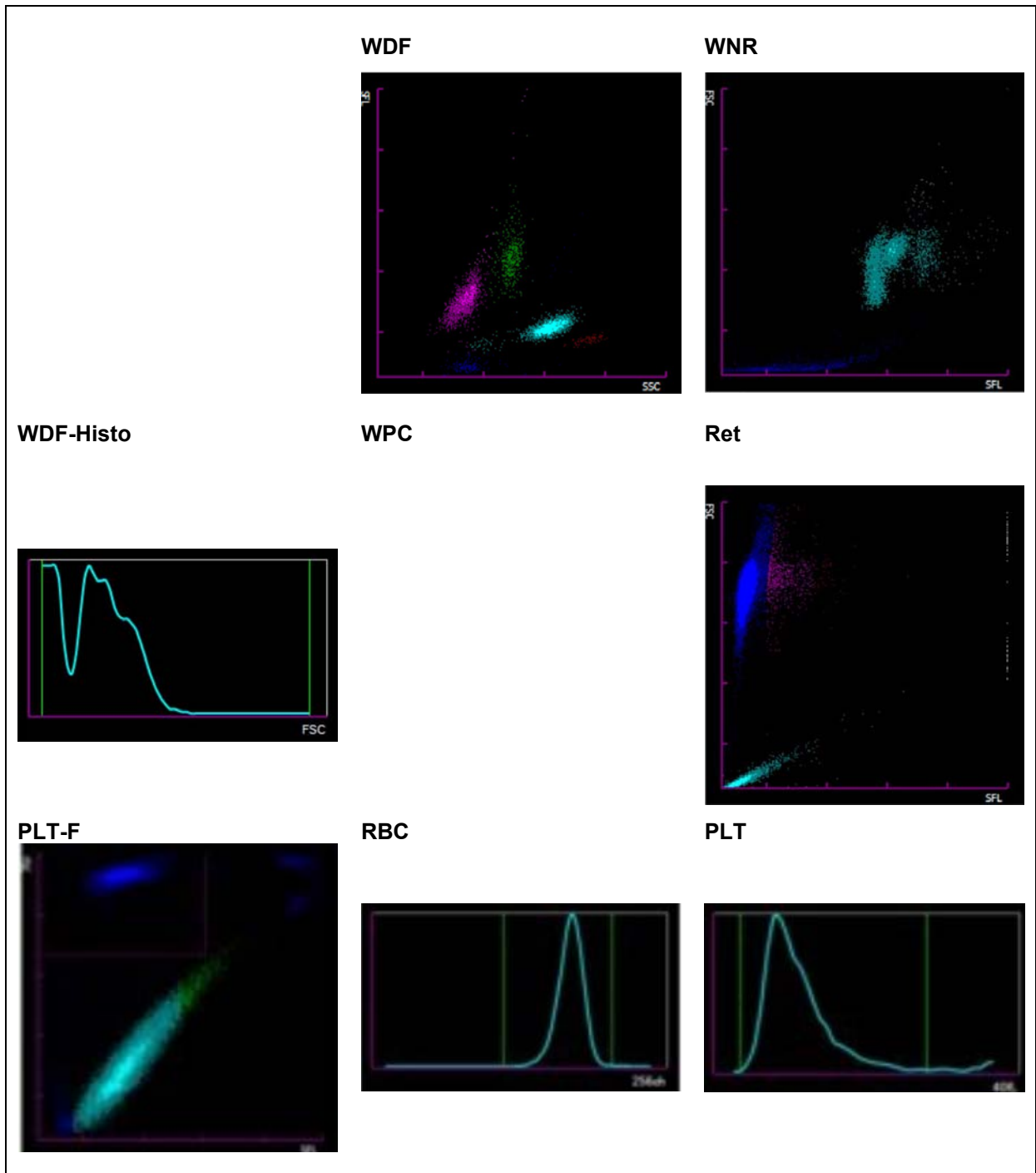
2.4 Sysmex XN-20



Findings MQ 2026-1 H3B 18 year old woman

Analysis	Result	Unit	Reference value
Blood Count			
Hemoglobin	131	g/l	117-153
Hematocrit	0.375	l/l	0.35-0.46
Erythrocytes	4.15	T/l	3.9-5.2
MCV	90.4	fl	80-100
MCH	31.6	pg	26-34
MCHC	349	g/l	310-360
Thrombocytes	224	G/l	143-400
Leucocytes	5.15	G/l	3.0-9.6
Leucocyte Differentiation			
Neutrophils	2.71	G/l	1.40-8.00
Monocytes	0.49	G/l	0.16-0.95
Eosinophils	0.07	G/l	0.00-0.70
Basophils	0.03	G/l	0.00-0.15
Lymphocytes	1.84	G/l	1.50-4.00
IG abs.	0.00	G/l	0.00-0.03
IG %	0.00	%	0.0-0.5
NRBC abs.	0.00	G/l	
NRBC	0.00	/100 Lc	

Findings HAD MQ 2025-4 H3B



2.5 Differential Blood Smear

Findings MQ 2026-1 H3B

18 year old woman

Analysis	Result	Unit	Reference value
Leucocytes Differentiation			
Neutrophile gesamt	2.91	G/l	1.40-8.00
Monozyten	0.28	G/l	0.16-0.95
Eosinophile	0.13	G/l	0.00-0.70
Basophile	0.03	G/l	0.00-0.15
Lymphozyten	1.8	G/l	1.50-4.00
Erythroblasten	0.0	/100 Lc	
Neutrophile gesamt	56.5	%	40.0-74.0
Neutrophile Stabker.	5.5	%	0.0-20.0
Neutrophile Segmentk.	* 51	%	30.0-50.0
Monozyten	5.5	%	3.4-9.0
Eosinophile	2.5	%	0.0-7.0
Basophile	0.5	%	0.0-1.5
Lymphozyten	35.0	%	19.0-48.0
Plasmazellen	0.0	%	0-0.5
Blasten	0.0	%	0
Promyelozyten	0.0	%	0
Myelozyten	0.0	%	0
Metamyelozyten	0.0	%	0
Andere / Länderte Zellen	0.0	%	0

Commentary

Red blood cell count: normochromic, normocytic. Mild poikilocytosis with a few acanthocytes. Neutrophils with fine cytoplasmic granulation. A few atypical lymphocytes, likely showing mild reactive changes. Platelets morphologically unremarkable.

A. Sopran

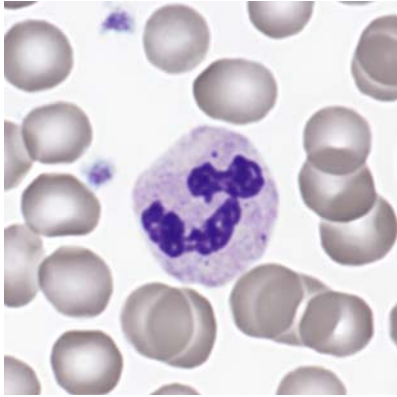


Abb 1. Neutrophile (Seg)

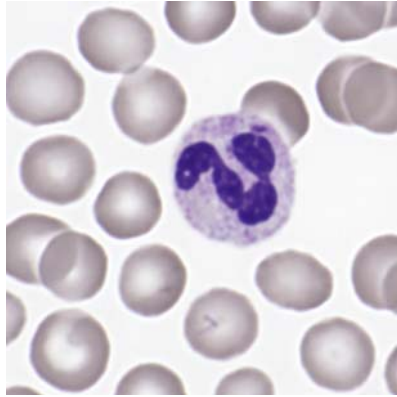


Abb 2. Neutrophile (Seg)

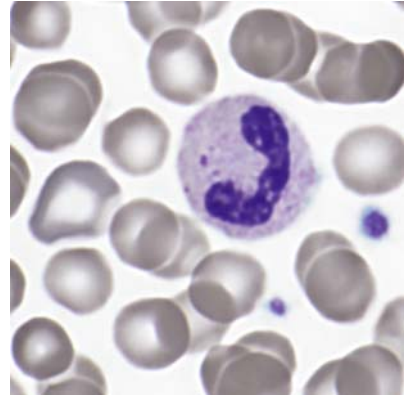


Abb 3. Neutrophile (Band)

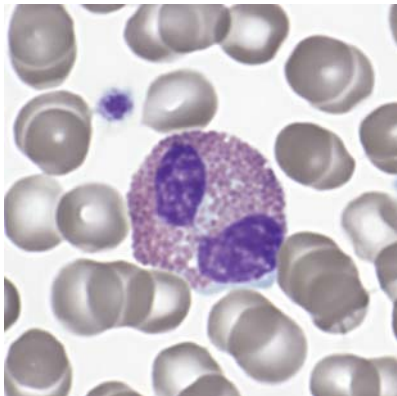


Abb 4. Eosinophile

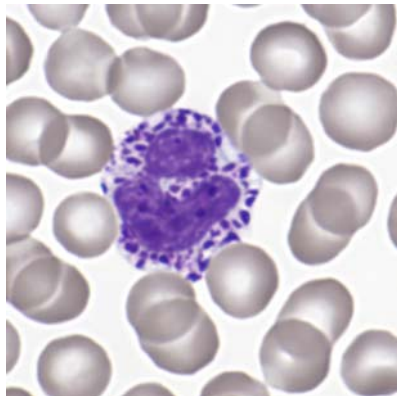


Abb 5. Basophile

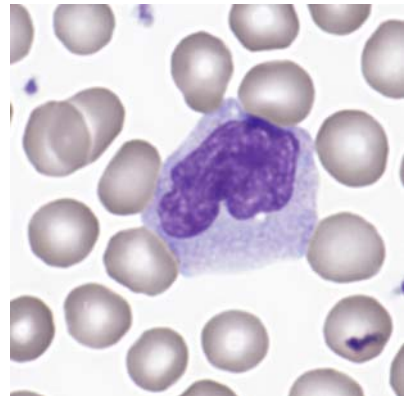


Abb 6. Monocyte

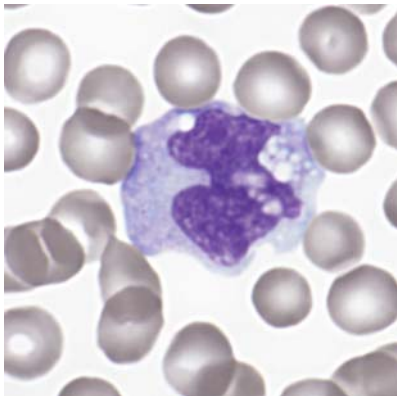


Abb 7. Monocyte

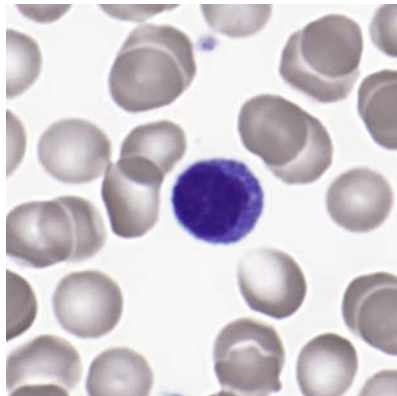


Abb 8. Lymphocyte

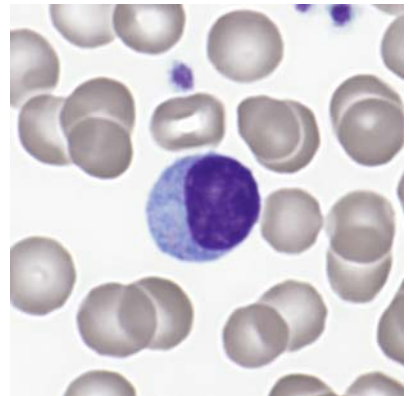


Abb 9. Lymphocyte

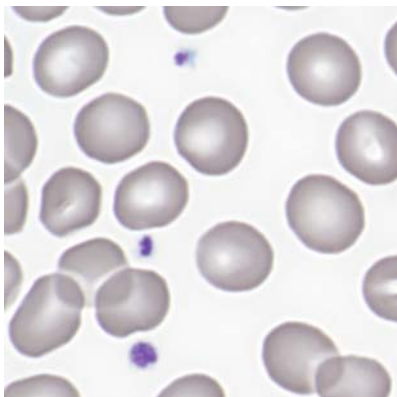


Abb 10. Ec/Platelets

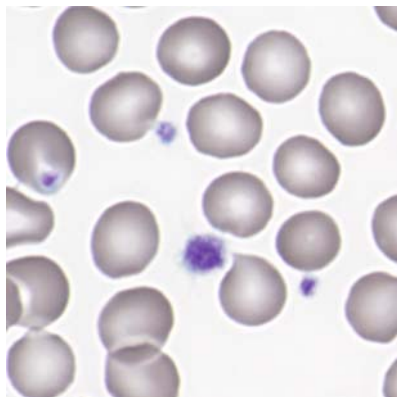


Abb 11. Ec/Platelets

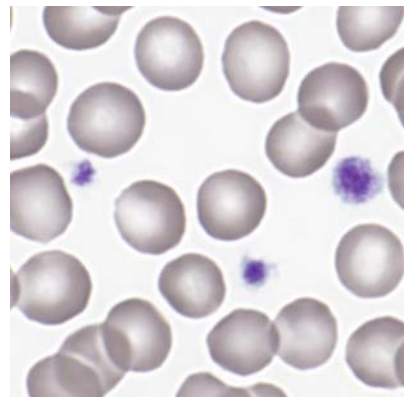


Abb 12. Ec/Platelets

2.6 Summary of participant results

Leukocyte Differential H3-B

	<1	1-4	5-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	>79
<i>Neutrophils Band</i>	15	50	67*	37	4	1	2				
<i>Neutrophils Segmented.</i>	14				5	17	101	40*			
<i>Eosinophils</i>	41	127*	4								
<i>Basophile</i>	71	90*	4								
<i>Monocytes</i>	14	30	125*	7							
<i>Lymphocytes</i>	13				5	97*	58	1			
<i>Plasmacells</i>	150*	1	1								
<i>Blasts</i>	152*			1							
<i>Promyelocytes</i>	151*	1									
<i>Myelocytes</i>	151*		1								
<i>Metamyelozyten</i>	150*	2									
<i>Erythrocytes Nucleated</i>	149*	3									
<i>Unknown</i>	150*	1		1							
<i>Smudge cells</i>	141*	8	6	3							

Evaluation H3-B

	light	medium	strong		light	medium	strong
<i>Hypersegmentation</i>	4	1		<i>Hypochromic Ec</i>	9	1	1
<i>Pelger-Hüet Anomaly</i>	1			<i>Polychromatic Ec</i>	3	1	
<i>Coarse Granulation</i>	25	2		<i>Anisocytes</i>	59*	5	
<i>Basophilic Stripling</i>	2		1	<i>Mikrocytes</i>	31	3	
<i>Vacuoles</i>	15	1		<i>Makrocytes</i>	6	2	
<i>Atypical Lymph, reactive</i>	38*	6	1	<i>Megalocytes</i>		1	
<i>Atypical Lymph, neoplastic</i>	1	1		<i>Poikilocytosis</i>	14	2	
<i>Others</i>		1		<i>Ovalocytes</i>	14		
				<i>Target Cells</i>	3	1	
				<i>Akanthocytes</i>	3		
<i>Anisocytosis</i>	51*	3	2	<i>Echinocytes</i>	4		
<i>Megakaryocyte Nucleaus</i>	3		1	<i>Sickle Cells</i>			
<i>Granulation</i>	11	2		<i>Fragmentocytes</i>	3		
<i>Others</i>	2			<i>Spherocytes</i>	1		
				<i>Stomatocytes</i>	9	2	1
				<i>Basophilic Stripling</i>	2		
				<i>Howell-Jolly Bodies</i>	4		
				<i>Pappenheim Bodies</i>	1	1	
				<i>Others</i>	1	1	

The blood from sample H3B came from a healthy female employee. The smear showed few atypical lymphocytes, which is why we did not want to classify the result as “pathological.” The QUALAB code was therefore not evaluated.

2.7 Qualab Codes

Summary of the participant codes
(Bold printed: expected codes)

Code	Text	Number
29	Inconspicuous findings, no further clarifications	156
5	Atypical lymphocytes, reactive	21
12	Microcytes	15
30	Pathologic findings, refer to expert	14
31	Pathologic findings, not referred to expert	10
9	Giant platelet	10
27	Ec Others	8
11	Tc Others	8
8	Lc Others	6
14	Hypochromic Ec	6
4	Toxic signs of neutrophils	6
18	Stomatocytes	6
16	Poikilocytosis	4
15	Polychromatic Ec	3
13	Macrocytes	2
2	Left shift	2
17	Ovalocytes	2
10	Platelet aggregates	1
20	Fragmentocytes	1
23	Erythrocytes normal	1
21	Spherocytes	1
24	Howell-Jolly Bodies	1
22	Erythrocytes normal	1
26	Erythrocytes normal	1
1	Hypersegmentation	1