

SUMMARY STATISTICS

EQA round: DIF3/22 - Peripheral Blood Morphology Evaluation

Deadline (EQA round closed): 16.09.2022

Key:	ELG ... expert laboratories group	> ... possible result (found by ELG, but consensus not reached)
	AV, >>> ... assigned value type CVE (consensus of ELG)	
	RAR ... range of acceptable results	
	RoM ... robust average of all results	

	Sample A			Sample B		
	AV	RAR	RoM	AV	RAR	RoM
WBC - differential count						
Blasts	0,045	0,021 - 0,084	0,037	0,002	0,000 - 0,018	0,010
Promyelocytes	0	0,000 - 0,018	0,000	0	0,000 - 0,018	0,001
Neutrophil myelocytes	0	0,000 - 0,018	0,001	0,013	0,003 - 0,043	0,013
Neutrophil metamyelocytes	0,003	0,000 - 0,028	0,001	0,015	0,003 - 0,043	0,012
Neutrophil bars	0,008	0,001 - 0,036	0,008	0,022	0,005 - 0,050	0,030
Segmented neutrophil granulocytes	0,748	0,684 - 0,808	0,747	0,186	0,134 - 0,246	0,201
Eosinophils - immature forms	0	0,000 - 0,018	0,000	0	0,000 - 0,018	0,000
Eosinophil segmented granulocytes	0,008	0,000 - 0,036	0,008	0,001	0,000 - 0,018	0,002
Basophilic granulocytes	0,013	0,003 - 0,043	0,013	0,001	0,000 - 0,018	0,001
Monocytes	0,033	0,014 - 0,071	0,032	0,023	0,008 - 0,057	0,020
Lymphocytes	0,145	0,099 - 0,202	0,150	0,426	0,230 - 0,620	0,482
Plasma cells	0	0,000 - 0,018	0,000	0,294	0,140 - 0,480	0,190
Erythroblasts (number)	1,000	0,000 - 4,000	1,048	1,000	0,000 - 4,000	1,498

Sample A

Sample B

WBC - morphology

1	No changes	0,8 %	1	No changes	0,8 %
2	Hypergranulation/toxic granulation	1,7 %	6	Hypergranulation/toxic granulation	5,1 %
2	Giant bands and metamyelocytes	1,7 %	1	Giant bands and metamyelocytes	0,8 %
>>> 59	Agranulation	50 %	1	Agranulation	0,8 %
>>> 117	Neutrophil hypersegmentation	99 %	1	Neutrophil hypersegmentation	0,8 %
1	Auer rods	0,8 %	3	Hyposegmentation / asegmentation / pelgeroid	2,5 %
> 5	Döhle bodies	4,2 %	2	Atypical/reactive/pathological monocytes/promono.	1,7 %
1	Atypical/reactive/pathological monocytes/promono.	0,8 %	>>> 113	Denuded nuclei/cells, nuclear shadows / smudge cells	96 %
9	Denuded nuclei/cells, nuclear shadows / smudge cells	7,6 %	1	Cytoplasmic fragments	0,8 %
> 9	Vacuolisation	7,6 %	> 32	Vacuolisation	27 %
7	LGL/big lymphocytes	5,9 %	9	LGL/big lymphocytes	7,6 %
4	Lymphocytes - reactive forms	3,4 %	6	Lymphocytes - reactive forms	5,1 %
9	Lymphocytes - atypical forms (except "hairy")	7,6 %	8	"Hairy" lymphocytes	6,8 %
1	Abnormal/leukemic promyelocytes	0,8 %	>>> 96	Lymphocytes - atypical forms (except "hairy")	81 %

WBC - relative changes of count

1	Normal count	0,8 %	>>> 114	Neutropenia	97 %
>>> 109	Neutrophilia	92 %	>>> 98	Lymphocytosis	83 %
>>> 107	Lymphocytopenia	91 %	3	Lymphocytopenia	2,5 %
> 40	Basophilia	34 %	1	Monocytosis	0,8 %
1	Monocytosis	0,8 %	> 31	Monocytopenia	26 %
4	Monocytopenia	3,4 %	>>> 84	Left shift	71 %
> 34	Left shift	29 %			

RBC - morphology

1	No changes	0,8 %	2	Normocytosis	1,7 %
1	Microcytosis	0,8 %	2	Macrocytosis	1,7 %
>>> 98	Macrocytosis	83 %	>>> 109	Anisocytosis	92 %
>>> 115	Anisocytosis	97 %	1	Poikilocytosis	0,8 %
> 49	Poikilocytosis	42 %	5	Eliptocytes, ovalocytes	4,2 %
>>> 85	Eliptocytes, ovalocytes	72 %	10	Spherocytes	8,5 %
> 20	Spherocytes	17 %	8	Dacryocytes	6,8 %
3	Stomatocytes	2,5 %	1	Acanthocytes	0,8 %
1	Drepanocytes	0,8 %	1	Target cells	0,8 %
>>> 102	Dacryocytes	86 %	2	Schistocytes (and other fragmentocytes)	1,7 %
1	Echinocytes	0,8 %	> 31	Polychromasia	26 %

Sample A

Sample B

RBC - morphology

1	Target cells	0,8 %	3	Hypochromia	2,5 %
>>> 58	Schistocytes (and other fragmentocytes)	49 %	4	Basophilic stippling	3,4 %
>>> 85	Polychromasia	72 %	4	Howell-Jolly bodies	3,4 %
4	Hypochromia	3,4 %	>>> 110	Rouleaux formation	93 %
7	Basophilic stippling	5,9 %	2	RBC agglutination	1,7 %
8	Howell-Jolly bodies	6,8 %			
6	Rouleaux formation	5,1 %			

Platelets - morphology

31	No changes	26 %	>>> 76	No changes	64 %
>>> 77	Large platelets	65 %	16	Large platelets	14 %
5	Small platelets	4,2 %	16	Small platelets	14 %
2	Platelet aggregates	1,7 %	8	Platelet aggregates	6,8 %
> 16	Platelets hypogranulation	14 %	4	Platelets hypogranulation	3,4 %
7	Megakaryocytic nucleus fragments	5,9 %	1	Megakaryocytic nucleus fragments	0,8 %

Clinical recommendation - smear

>>> 115	Blood smear is pathological	97 %	>>> 118	Blood smear is pathological	100 %
3	Blood smear within physiological limits or with reactive changes	2,5 %			

Clinical recommendation - examination

>>> 116	An examination by the specialist/haematologist is recommended	98 %	>>> 118	An examination by the specialist/haematologist is recommended	100 %
2	An examination by the specialist/haematologist is not necessary	1,7 %			

Diagnosis - anaemia

1	Exact determination impossible	0,8 %	6	Normocytosis	5,1 %
1	Normocytosis	0,8 %	1	Hypochromia	0,8 %
11	Macrocytosis	9,3 %			

Diagnosis - acute leukaemia

2	Without closer determination	1,7 %	4	Without closer determination	3,4 %
4	AML (acute myeloid leukemia)	3,4 %	1	ALL (acute lymphoblastic leukemia)	0,8 %

Diagnosis - myelodysplastic syndrome

3	Myelodysplastic syndrome	2,5 %			
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Diagnosis - chronic myeloproliferative disease

> 19	Exact determination impossible	16 %	2	Exact determination impossible	1,7 %
14	Polycythemia vera	12 %			
>>> 89	Myelofibrosis	75 %			

Diagnosis - mature lymphocytic cells neoplasms

			25	Exact determination impossible	21 %
			2	HCL (hairy cell leukaemia)	1,7 %
			1	PLL (prolymphocytic leukaemia)	0,8 %
			>>> 91	Plasma cell leukaemia	77 %

Diagnosis - other

3	Other reactive changes	2,5 %	3	Other disease	2,5 %
1	Other disease	0,8 %			

Smear quality

99	Acceptable	84 %	100	Acceptable	85 %
19	Not acceptable (give a reason)	16 %	18	Not acceptable (give a reason)	15 %

Staining

93	Acceptable	79 %	93	Acceptable	79 %
25	Not acceptable (give a reason)	21 %	25	Not acceptable (give a reason)	21 %

Evaluation of the results - scoring system

DIF3/22

Sample A

Sample B

Maximal achievable score: 117

Successful participants (success 60 % and more): 111 (it is 94 %)

Minimal success in this round: 43,6 %

Maximal success in this round: 100,0 %

Maximal achievable score: 99

Successful participants (success 60 % and more): 114 (it is 97 %)

Minimal success in this round: 43,4 %

Maximal success in this round: 100,0 %

Number of participants: 118

in both samples: 109 (it is 92 %)

Number of the participants that succeeded:

in one sample: 7 (it is 6 %)

in no sample: 2 (it is 2 %)