



## Low PLT count, a side-effect of chemotherapy

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Chemotherapy-induced thrombocytopenia (CIT) is a common complication in cancer patient undergoing treatment. As platelets (PLTs) help the blood to clot, a low count (thrombocytopenia) may cause excessive bleeding in case of wounding.



# Complications of thrombocytopenia

According to literature, a normal reference interval for PLTs in adults is about  $160\text{--}390 \times 10^9/\text{L}$  (1). Kuter and colleagues at Harvard Medical School, Boston, MA, USA have defined CIT as a platelet count below  $100 \times 10^9/\text{L}$ , divided into the following grades (2):

- Grade 1:  $75 \times 10^9/\text{L}$  to  $< 100 \times 10^9/\text{L}$
- Grade 2:  $50 \times 10^9/\text{L}$  to  $< 75 \times 10^9/\text{L}$
- Grade 3:  $25 \times 10^9/\text{L}$  to  $< 50 \times 10^9/\text{L}$
- Grade 4: less than  $25 \times 10^9/\text{L}$

PLT counts below  $50 \times 10^9/\text{L}$  can complicate surgical procedures, whereas spontaneous bleeding may occur at a PLT count below  $10 \times 10^9/\text{L}$  (2). To predict the bleeding risk, cancer patients receiving chemotherapy is therefore often regularly checked for PLT count.

## PLT extended count

To accurately determine PLT count in the critically low range, Medonic™ M32 hematology analyzer features PLT extended count. When enabled, the counting time is extended three times, counting three times as many platelets for a more reliable reporting of the PLT parameter value.

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Disclaimer: Automated hematology analyzers from Boule Diagnostics are intended for *in vitro* diagnostic use under laboratory conditions. Boule products do not make diagnoses on patients. Boule intends its diagnostic products (systems, software, and hardware) to be used to collect data reflecting the patient's hematological status. This data, in conjunction with other diagnostic information and the evaluation of the patient's condition, can be used by a trained clinician to establish a patient's diagnosis and to define clinical treatment.

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Sample Result		Parameter values		Scales	Graphs
Seq No	347	WBE DE	10.2	3.5	10.5
Date	2018-11-28 14:32	LYM	1.4 14.4 % ▼	0.9	2.9
Profile	Blood	MID	0.6 6.2 %	0.3	0.9
Method	Open Tube	GRA	8.2 ▲ 79.4 %	1.2	8.0
Operator		HGA	11.2 ▼	11.5	16.5
Sample ID 1	30261084	MCH	31.5	25.0	35.0
		MCHC	35.7	31.0	38.0
		RBC	3.57 ▼	3.90	5.72
		MCV	88.0	81.2	98.3
		HCT	31.4 ▼	35.0	55.0
		RDW	13.5 % 62.7	11.8 %	15.6 %
		PLT*	24 ▼	150	450
		MPV		6.5	11.0
		PDW%		0.1 %	99.9 %
		PCT		0.01	9.99
		P-LCR		0.1 %	99.9 %

If PLT extended counting time is enabled and a low PLT is detected during analysis, the extended counting time will be displayed on the counting phase screen, and then indicated by an asterisk (\*) adjacent to the PLT parameter on the result screen and in printouts and exported PDFs.

## References

1. Mayo Clinic Laboratories. Rochester Interpretive Handbook (2021).
2. Kuter, D.J. Treatment of chemotherapy-induced thrombocytopenia in patients with non-hematologic malignancies. *Haematologica* **107**, 1243–1263 (2022).



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