Riverbend Regional Medical Center

FLOW CYTOMETRY LABORATORY
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CLIA 14D9999999

CLINICAL FLOW CYTOMETRY — LEUKEMIA / LYMPHOMA IMMUNOPHENOTYPING

PATIENT	SPECIMEN	REPORTING
DOE, JONATHAN R.	FC-26-003942	Resulted 2026-04-23
MRN MRN-4471902	Bone marrow aspirate	Ordering: A. Patel, MD
DOB 1967-09-14 58 y / Male	Collected 2026-04-22	Status: FINAL
	Received 2026-04-22 17:40	Priority: STAT

CLINICAL HISTORY / INDICATION

58-year-old man with three weeks of progressive fatigue, dyspnea on exertion, gingival bleeding, and scattered lower-extremity ecchymoses. CBC on admission: WBC 38.4 x10^9/L, hemoglobin 7.9 g/dL, platelets 31 x10^9/L. Peripheral smear with 41% circulating blasts, some with folded nuclei and abundant cytoplasm. No prior hematologic history, no prior chemotherapy or radiation. Bone marrow performed to evaluate for acute leukemia.

SPECIMEN ADEQUACY & METHOD

Viable nucleated cells isolated from bone marrow aspirate; viability 94% by 7-AAD. Eight-color panel acquired on a 3-laser cytometer (≥100,000 events per tube). Lysis/no-wash technique. Analysis by sequential gating (CD45 vs side scatter) with blast gate defined by CD45-dim/intermediate, low side scatter events.

POPULATION SUMMARY (% of total nucleated cells)

Population	% TNC	Gating notes
Myeloid blasts (CD45-dim, low SSC, CD34+/CD117+)	**22%**	Discrete abnormal population
Maturing monocytes (CD14+/CD64+/CD11b+)	19%	Expanded; left-shifted
Promonocytes / immature monocytic (CD64+, CD14-dim/var, HLA-DR+)	11%	Counted with monocytic series
Maturing granulocytes	28%	Decreased, left-shifted
Erythroid precursors (CD71+/CD235a+)	9%	Decreased
Mature lymphocytes (T/B/NK)	8%	Polytypic, no aberrancy
Other / unclassified	3%	--

BLAST GATE IMMUNOPHENOTYPE

Marker	Result
CD34	Positive (subset, ~60%)
CD117	Positive
HLA-DR	Positive (bright)
CD13	Positive
CD33	Positive (bright)
CD38	Positive
MPO (cyto)	Positive, dim subset

Marker	Result
CD64	Positive
CD4	Positive (dim)
CD11b	Partial / variable
CD14	Negative on blasts
CD56	Positive (partial, aberrant)
CD7	Positive (aberrant, subset)
CD2 / CD19 / cyCD3	Negative

MONOCYTIC POPULATION IMMUNOPHENOTYPE

Marker	Result
CD14	Positive (maturing fraction)
CD64	Positive (bright, uniform)
CD11b	Positive
CD11c	Positive
CD36	Positive

Marker	Result
HLA-DR	Positive
CD4	Positive (dim)
CD13 / CD33	Positive
CD34	Negative
CD56	Partial (subset)

INTERPRETATION

Flow cytometry demonstrates an abnormal myeloid blast population comprising approximately 22% of total nucleated cells, expressing CD34, CD117, HLA-DR, CD13, CD33, and dim cytoplasmic MPO, with aberrant CD56 and partial CD7. In addition, there is a markedly expanded and left-shifted monocytic compartment (maturing monocytes plus promonocytes together approximately 30% of total nucleated cells) with bright uniform CD64, CD14 on the maturing fraction, CD11b, CD11c, CD36, HLA-DR, and dim CD4.

The combined findings are diagnostic of **acute myeloid leukemia with monocytic differentiation**. The immunophenotype establishes the monocytic lineage that was only favored on morphology. Note that the flow blast estimate (22%) differs modestly from the manual aspirate differential; flow gating and manual counts are expected to differ and either value supports the diagnosis in this context. Aberrant CD56/CD7 expression is noted and may be useful for measurable residual disease tracking. Correlation with cytogenetic and molecular studies is required for final classification and is recommended.

Electronically verified by Priya N. Raghavan, MD, Director of Flow Cytometry, 2026-04-23 14:08. Flow cytometry is a component study within a combined diagnostic workup; final lineage and classification require integration with morphology, cytogenetics, and molecular results. Method: laboratory-developed test, performance characteristics established by Riverbend Regional Medical Center.