

Genetic conditions predisposing to AML

Condition	Gene	Chromosomal Locus	Primary Leukemia Type	Estimated Penetrance of Leukemia, %*	Age of Leukemia Onset, Range (median), Years	Other Cancers	Other Features	References
Familial AML with <i>CEBPA</i> mutation	<i>CEBPA</i> (N-terminal)	19q13.1	AML	Approximately 90	1-46 (24.5)	N/A	N/A	Tawana ¹⁴
	<i>CEBPA</i> (C-terminal)			Approximately 50	3-62 (29)			Pathak ¹⁵
Familial platelet disorder with associated myeloid malignancy	<i>RUNX1</i>	21q22.12	MDS/AML	Approximately 45	6-76 (33)	T-ALL	Thrombocytopenia, platelet function abnormalities	Churpek ¹⁶ , Godley ¹⁷
Emberger syndrome, MonoMac syndrome	<i>GATA2</i>	3q21.3	MDS/AML	Approximately 90	9-78 (approximately 30)	CMML	Thrombocytopenia, immunodeficiency, lymphedema, deafness, hypertelorism, hydrocele, other congenital anomalies	Spinner ¹⁸ , Dickinson ¹⁹
Thrombocytopenia 5	<i>ETV6</i>	12p13.2	ALL/AML/ MDS	Approximately 33	2-70 (9)	AML, possibly solid tumors	MDS, thrombocytopenia, variable platelet function abnormalities	Feurstein ²⁰
Familial MDS/AML with mutated <i>DDX41</i>	<i>DDX41</i>	5q35.3	MDS/AML	Approximately 80	41-88 (65)	CML, lymphomas	N/A	Polprasert ¹² , Lewisohn ²¹ , Cheah ²²
ANKRD26-related thrombocytopenia	<i>ANKRD26</i>	10p12.1	MDS/AML	Approximately 8	30-70	CML	Thrombocytopenia, variable platelet function abnormalities	Noris ¹⁰ , Noris ²³
MIRAGE syndrome	<i>SAMD9</i>	7q21.2	MDS/AML	Unknown	Unknown	N/A	Infection, IUGR, adrenal insufficiency, external genital abnormalities, enteropathy, cytopenias	Narumi ²⁴ , Buonocore ²⁵
Ataxia-pancytopenia syndrome	<i>SAMD9L</i>	7q21.2	MDS/AML	Approximately 30	1.5-56 (5)	N/A	Thrombocytopenia, monosomy 7, neurologic dysfunction, infection	Pastor ²⁶ , Davidsson ²⁷

Abbreviations: ALL, acute lymphoblastic leukemia; AML, acute myelogenous leukemia; CML, chronic myelogenous leukemia; CMML, chronic myelomonocytic leukemia; IUGR, intrauterine growth restriction; MDS, myelodysplastic syndrome; MIRAGE, myelodysplasia, infection, restriction of growth, adrenal hypoplasia, genital phenotypes and enteropathy; N/A, not applicable; T-ALL, T-cell acute lymphoblastic leukemia.

*Penetrance is estimated on the basis of the limited number of pedigrees reported in the literature and, therefore, may overestimate actual penetrance, because of reporting biases.