

Common Hematological Antigens

Cluster Designation	Function	Cell Distribution	Disease Association
CD1	<ul style="list-style-type: none"> T-cell presentation 	<ul style="list-style-type: none"> Immature T-cell antigen found on early cortical thymocytes that is lost as the T-cell matures 	<ul style="list-style-type: none"> T-cell lymphoblastic lymphoma T-cell ALL Langerhans cell histiocytosis
CD2	<ul style="list-style-type: none"> Intracellular adhesion as the ligand for CD58 	<ul style="list-style-type: none"> All normal mature T-cells Most NK cells Initially identified as a receptor for sheep RBCs and used to identify T-cells by rosetting 	<ul style="list-style-type: none"> T-cell neoplasms
CD3	<ul style="list-style-type: none"> Antigen binding and signal transduction complex Linked to the T-cell receptor 	<ul style="list-style-type: none"> All functional T-cells Absent on normal NK cells 	<ul style="list-style-type: none"> Mature T-cell neoplasms Immature T-cell neoplasms may have cytoplasmic CD3, without cell surface CD3
TCR - $\alpha\beta$	<ul style="list-style-type: none"> T-cell receptor antigen recognition heterodimer 	<ul style="list-style-type: none"> Most mature, circulating T-cells (95-99%) 	<ul style="list-style-type: none"> Most T-cell neoplasms that express CD3
TCR - $\gamma\delta$	<ul style="list-style-type: none"> T-cell receptor antigen recognition heterodimer 	<ul style="list-style-type: none"> Some thymocytes A few mature circulating T-cells (1-5%) 	<ul style="list-style-type: none"> Rare mature T-cell neoplasms NOS Hepatosplenic T-cell lymphomas
CD4	<ul style="list-style-type: none"> Major Histocompatibility Class II - restricted antigen recognition HIV receptor 	<ul style="list-style-type: none"> Helper T-cells Weakly expressed on monocytes 	<ul style="list-style-type: none"> Some mature T-cell neoplasms, including most cases of T-cell CLL/prolymphocytic leukemia, peripheral T-cell lymphoma, adult T-cell leukemia/lymphoma Sézary syndrome/mycosis fungoides
CD5	<ul style="list-style-type: none"> T-cell proliferation Ligand for CD72 	<ul style="list-style-type: none"> All normal, mature T-cells Most thymocytes Minor B-cell subset 	<ul style="list-style-type: none"> B-cell CLL Nodal small lymphocytic lymphoma Mantle cell lymphoma May be absent in peripheral T-cell lymphoma and plasmacytoid lymphoma Most T-cell neoplasms
CD7	<ul style="list-style-type: none"> T and NK cell activation 	<ul style="list-style-type: none"> Early T-cell antigen that persists on most mature T-cells 	<ul style="list-style-type: none"> Lymphoblastic lymphoma T-cell ALL May be absent in peripheral T-cell lymphoma, adult T-cell leukemia/lymphoma, and mycosis fungoides Some AML
CD8	<ul style="list-style-type: none"> Major Histocompatibility Complex Class I -- restricted antigen recognition 	<ul style="list-style-type: none"> T-suppressor/cytotoxic cells Some NK cells 	<ul style="list-style-type: none"> Some mature T-cell neoplasms Large granular lymphocytic leukemia
CD9	<ul style="list-style-type: none"> Signal Transduction 	<ul style="list-style-type: none"> Platelets and megakaryocytes Monocytes 	<ul style="list-style-type: none"> B-cell ALL Some AML Some CLL
CD10	<ul style="list-style-type: none"> Hydrolyzes biologically active peptides 	<ul style="list-style-type: none"> Early B- and T-cells Mature granulocytes 	<ul style="list-style-type: none"> Precursor B-cell ALL; some T-cell ALL Follicular lymphoma Burkitt lymphoma Angioimmunoblastic T-cell lymphoma
CD11a	<ul style="list-style-type: none"> Cell-cell and cell-matrix adhesion CD11a/CD18 (aka LFA-1) is the receptor for CD54 (ICAM-1) 	<ul style="list-style-type: none"> All leukocytes 	<ul style="list-style-type: none"> May be absent in B-cell neoplasms including: <ul style="list-style-type: none"> Burkitt's lymphoma Hairy cell leukemia
CD11b	<ul style="list-style-type: none"> Cell-cell and cell-matrix adhesion C3bi receptor "CR3" 	<ul style="list-style-type: none"> Myeloid cells NK-cells 	<ul style="list-style-type: none"> Some AML
CD11c	<ul style="list-style-type: none"> Cell-cell and cell-matrix adhesion Fibrinogen binding "CR4" 	<ul style="list-style-type: none"> Monocytes Granulocytes 	<ul style="list-style-type: none"> Hairy cell leukemia Marginal zone lymphoma Some other B-cell neoplasms Some AML
CD13	<ul style="list-style-type: none"> Hydrolyzes biologically active peptides Receptor for coronavirus 	<ul style="list-style-type: none"> Myeloid cells 	<ul style="list-style-type: none"> AML
CD14	<ul style="list-style-type: none"> Lipopolysaccharide-binding protein May clear gram-negative bacteria 	<ul style="list-style-type: none"> Monocytes 	<ul style="list-style-type: none"> Some AML CMML

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CD15	<ul style="list-style-type: none"> Neutrophil adhesion and phagocytosis 	<ul style="list-style-type: none"> Neutrophils Eosinophils Monocytes 	<ul style="list-style-type: none"> Some AML Reed-Sternberg cells
CD16	<ul style="list-style-type: none"> Low affinity receptor for aggregated IgG NK signal transduction and macrophage phagocytosis 	<ul style="list-style-type: none"> NK-cells Neutrophils Monocytes 	<ul style="list-style-type: none"> Large granular lymphocytic leukemia Absent on neutrophils in PNH
CD18	<ul style="list-style-type: none"> Cell-cell and cell-matrix adhesion Forms heterodimer with CD11a, CD11b, or CD11c 	<ul style="list-style-type: none"> All leukocytes 	<ul style="list-style-type: none"> Some B-cell neoplasms Absent in leukocyte adhesion deficiency (LAD)
CD19	<ul style="list-style-type: none"> B-cell activation/proliferation Associates with CD21 for signal transduction in B-cells 	<ul style="list-style-type: none"> All B-cells Expressed at the time of Ig heavy chain gene rearrangement and present until terminal differentiation into a plasma cell 	<ul style="list-style-type: none"> B-cell ALL Mature B-cell neoplasms Usually absent in plasma cell neoplasms
CD20	<ul style="list-style-type: none"> B-cell activation/proliferation 	<ul style="list-style-type: none"> Mature B-cells Expressed at the time of Ig light chain gene rearrangement 	<ul style="list-style-type: none"> B-cell ALL (weak expression) Most mature B-cell neoplasms Usually absent in plasma cell neoplasms
CD21	<ul style="list-style-type: none"> Receptor for C3d and EBV B-cell activation/proliferation 	<ul style="list-style-type: none"> Mature B-cells 	<ul style="list-style-type: none"> Some mature B-cell neoplasms, including: B-cell CLL Follicular lymphoma
CD22	<ul style="list-style-type: none"> Mediates adhesion to: Monocytes Erythrocytes T-cells (through CD45RO) B-cells (through CD75) 	<ul style="list-style-type: none"> Mature B-cells 	<ul style="list-style-type: none"> Some B-cell ALL Most mature B-cell neoplasms
CD23	<ul style="list-style-type: none"> Low affinity receptor for IgE Mediates cytotoxicity and phagocytosis by macrophages and eosinophils 	<ul style="list-style-type: none"> Mature B-cells 	<ul style="list-style-type: none"> B-cell CLL Nodal small lymphocytic lymphoma Usually absent in mantle cell lymphoma
CD24	<ul style="list-style-type: none"> B-cell proliferation/differentiation 	<ul style="list-style-type: none"> B-cells 	<ul style="list-style-type: none"> Most B-cell ALL Most mature B-cell neoplasms Acute monocytoid leukemias
CD25	<ul style="list-style-type: none"> Low affinity IL-2 receptor As a complex with CD122, forms the high affinity IL2 receptor Induces activation and proliferation of T-cells 	<ul style="list-style-type: none"> Activated T-cells, B-cells, NK-cells Monocytes 	<ul style="list-style-type: none"> Adult T-cell leukemia/lymphoma Hairy cell leukemia Some T and B-cell lymphomas, including large cell anaplastic lymphomas Reed-Sternberg cells
CD26	<ul style="list-style-type: none"> Cell surface protease involved in T-cell activation 	<ul style="list-style-type: none"> Activated T-cells 	<ul style="list-style-type: none"> Usually absent in Sézary syndrome
CD29	<ul style="list-style-type: none"> Cell-cell and cell-matrix adhesion as a heterodimer with CD49 	<ul style="list-style-type: none"> Most leukocytes More highly expressed on memory cells than naive cells 	
CD30	<ul style="list-style-type: none"> T-cell activation 	<ul style="list-style-type: none"> Activated B- and T-cells 	<ul style="list-style-type: none"> Reed-Sternberg cells Large cell anaplastic lymphoma
CD33		<ul style="list-style-type: none"> Granulocyte and monocyte precursors, except stem cells Mature monocytes Weak staining on mature granulocytes 	<ul style="list-style-type: none"> AML
CD34	<ul style="list-style-type: none"> Possible role in stromal adhesion 	<ul style="list-style-type: none"> Immature hematopoietic cells 	<ul style="list-style-type: none"> Many acute leukemias Not lineage specific
CD38	<ul style="list-style-type: none"> Leukocyte activation 	<ul style="list-style-type: none"> Early T- and B-cells Activated T- and B-cells Plasma cells 	<ul style="list-style-type: none"> Plasmacytic neoplasms Peripheral T-cell lymphomas Some B-cell lymphomas
CD41	<ul style="list-style-type: none"> Mediates platelet adhesion and aggregation as a heterodimer with CD61 	<ul style="list-style-type: none"> Platelets and megakaryocytes 	<ul style="list-style-type: none"> AML M7 Absent in Glanzmann's thrombasthenia
CD42b	<ul style="list-style-type: none"> Platelet adhesion to von Willebrand factor on subendothelial surface Receptor for thrombin 	<ul style="list-style-type: none"> Platelets and megakaryocytes 	<ul style="list-style-type: none"> AML M7 Reduced in Bernard-Soulier syndrome
CD45	<ul style="list-style-type: none"> Signal transduction 	<ul style="list-style-type: none"> All leukocytes Absent on erythrocytes 	<ul style="list-style-type: none"> Usually reduced/absent in: ALL

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			<ul style="list-style-type: none"> • AML • Lymphoblastic lymphoma • Large cell anaplastic lymphoma • Immunoblastic lymphoma • Plasma cell proliferations
CD45RA	<ul style="list-style-type: none"> • Signal transduction 	<ul style="list-style-type: none"> • Naive helper T-cells • B-cells • Granulocytes 	<ul style="list-style-type: none"> • Some T-cell lymphomas • Some mature B-cell lymphomas
CD45RO	<ul style="list-style-type: none"> • Signal transduction 	<ul style="list-style-type: none"> • Memory helper T-cells • Activated T-cells • Granulocytes • Monocytes 	<ul style="list-style-type: none"> • T-cell lymphomas
CD55	<ul style="list-style-type: none"> • Protects cells from autologous complement lysis • Accelerates decay of C3 and C5 	<ul style="list-style-type: none"> • All leukocytes • RBCs 	<ul style="list-style-type: none"> • PNH caused by stem cell clones with decreased CD55 on RBCs
CD56	<ul style="list-style-type: none"> • Neural cell adhesion molecule that mediates NK:target cell adhesion 	<ul style="list-style-type: none"> • NK-cells 	<ul style="list-style-type: none"> • Large granular lymphocytic leukemia • Hematodermic neoplasms
CD57		<ul style="list-style-type: none"> • NK-cells • Some T and B-cells • Some monocytes 	<ul style="list-style-type: none"> • Large granular lymphocytic leukemia
CD59	<ul style="list-style-type: none"> • Restricts complement activity by blocking the membrane attack complex (C5-C9) 	<ul style="list-style-type: none"> • All leukocytes • RBCs 	<ul style="list-style-type: none"> • PNH caused by stem cell clones with decreased CD59 on RBCs
CD61	<ul style="list-style-type: none"> • Mediates platelet aggregation and adhesion to extracellular matrix 	<ul style="list-style-type: none"> • Platelets • Megakaryocytes 	<ul style="list-style-type: none"> • AML M7
CD69	<ul style="list-style-type: none"> • Early activation antigen 	<ul style="list-style-type: none"> • Activated T, B, and NK cells • Platelets 	
CD71	<ul style="list-style-type: none"> • Receptor for transferrin 	<ul style="list-style-type: none"> • All activated leukocytes 	<ul style="list-style-type: none"> • Acute leukemias • Intermediate and high grade lymphomas • Reed-Sternberg cells
CD103		<ul style="list-style-type: none"> • Activated T-cells 	<ul style="list-style-type: none"> • Hairy cell leukemia • Some splenic lymphomas
CD117	<ul style="list-style-type: none"> • Receptor for stem cell factor 	<ul style="list-style-type: none"> • Hematopoietic progenitor cells 	<ul style="list-style-type: none"> • AML • Rare ALL
HLA-DR	<ul style="list-style-type: none"> • Major Histocompatibility Class II antigen 	<ul style="list-style-type: none"> • B-cells • Activated T-cells • Monocytes 	<ul style="list-style-type: none"> • B-cell leukemias/lymphomas • Most AML (except M3) • Reed-Sternberg cells • Peripheral T-cell lymphoma
FMC-7		<ul style="list-style-type: none"> • Some B-cells 	<ul style="list-style-type: none"> • Mantle cell lymphoma • Hairy cell leukemia • Splenic lymphoma
Glycophorin	<ul style="list-style-type: none"> • Structural RBC protein 	<ul style="list-style-type: none"> • RBC 	<ul style="list-style-type: none"> • AML M6
TdT	<ul style="list-style-type: none"> • DNA polymerase 	<ul style="list-style-type: none"> • B-lymphoblasts • T-lymphoblasts 	<ul style="list-style-type: none"> • Lymphoblastic lymphoma • B-cell ALL • T-cell ALL