

Pathology	Marker	Translocation	Notes
<b>Paroxysmal Nocturnal Hematuria (PNH)</b>	Absence of CD55 (DAF) & CD59 (MAC-IP)		Dx: Sucrose or FLAER test
<b>Acute Leukemia</b>	Neoplastic proliferation of blasts (Myelo- or Lympho-)		
<b>Acute Lymphoblastic Leukemia (ALL)</b> <small>Neoplastic accumulation of lymphoblasts</small>	(+) TdT (DNA polymerase), PAS		Associated w/ Down syndrome <i>after</i> age 5
<b>B-ALL</b>	CD10, CD19, CD20	t(12;21) - Good prognosis; Common in children t(9;22) - Bad prognosis; Common in adults	
<b>T-ALL</b>	CD2-CD8 (do <i>not</i> express CD10)		Teenagers w/ a mediastinal <b>T</b> hymic mass
<b>Acute Myeloid Leukemia (AML)</b> <small>Neoplastic accumulation of immature myeloid cells</small>	(+) MPO*, Sudan Black, Esterase Auer Rods → ↑ DIC risk	t(15;17) > t(8;21)	<i>RARA</i> - <i>PML</i> chimeric gene Responds to all- <i>trans</i> retinoic acid (ATRA)
<b>Chronic Leukemia</b>	Neoplastic proliferation of mature circulating lymphocytes		
<b>Chronic Lymphocytic Leukemia (CLL)</b> <small>Neoplastic proliferation of naïve B cells</small>	CD5, CD19, CD20, CD23, CD43		Most common leukemia; transformation to DLBCL ↑ lymphocytes & Smudge Cells Hypogammaglobulinemia, AI hemolytic anemia
<b>Small Lymphocytic Lymphoma (SLL)</b>			
<b>Hairy Cell Leukemia</b> <small>Neoplastic proliferation of mature B cells</small>	CD11c, CD20, CD25, CD103 <b>TRAP</b> + (tartrate-resistant acid phosphatase)		Cells " <b>TRAP</b> ped" in red pulp (→ splenomegaly) and in bone marrow (Fibrosis → "dry tap")
<b>Myeloproliferative Disorders (MPD)</b>	Neoplastic proliferation of mature cells of myeloid lineage		
<b>Chronic Myeloid Leukemia (CML)</b> <small>Neoplastic proliferation of mature myeloid cells (granulocytes)</small>	Negative LAP Stain (leukocyte alkaline phosphatase)	Good prognosis: t(9;22)	<i>BCR-ABL</i> fusion → ↑ tyrosine kinase activity Basophils are characteristically increased
<b>Lymphoma</b>	Neoplastic proliferation of lymphoid cells that forms a mass		
<b>Follicular Lymphoma (FL)</b>	CD10, CD19, CD20	t(14;18)	<i>BCL-2</i> overexpression → inhibits apoptosis Transformation to DLBCL
<b>Mantle Cell Lymphoma (MCL)</b>	CD5, CD20	t(11;14)	cyclin-D1 overexpression → G1/S progression
<b>Marginal Zone Lymphoma (MZL)</b>	CD20	t(11;18)	MALToma = MZL in mucosal sites Chronic <i>H. pylori</i> gastritis → ↑ risk of MALToma
<b>Burkitt Lymphoma (BL)</b>	CD10, CD19, CD20, Surface Ig	t(8;14) > t(8;22), t(2;8)	<i>c-MYC</i> activation Associated w/ EBV
<b>Hodgkin Lymphoma (HL)</b> <small>Reed-Sternberg (RS) cell neoplastic proliferation</small>	CD15, CD30		RS cells secrete IL-5 → Eosinophilia Nodular sclerosis type most common

#### Diseases Caused by EBV - "HI BOND"

- **H**odgkin lymphoma
- **I**nfectious mononucleosis
- **B**urkitt lymphoma
- **O**ral hairy leukoplakia
- **N**asopharyngeal carcinoma
- **D**LBCL (EBV associated in setting of AIDS & Elderly)

#### Infectious Mononucleosis

- T-cell hyperplasia in LN paracortex → generalized lymphadenopathy
- T-cell hyperplasia in Spleen white pulp PALS → splenomegaly
- ↑ WBCs w/ atypical lymphocytes (reactive CD8+ T-cells)

\*MPO = p-ANCA

