

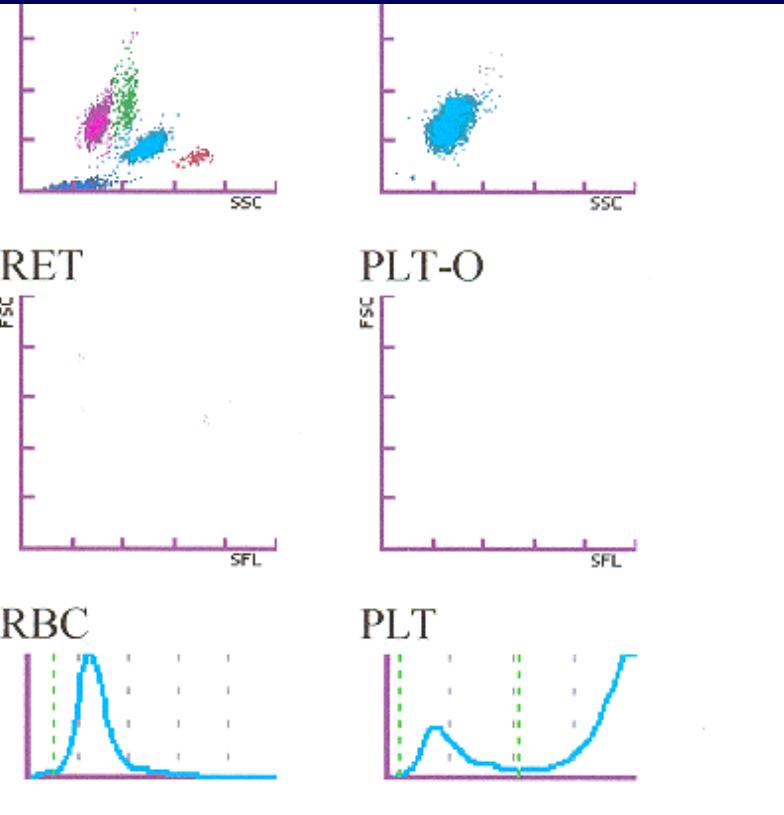


Hematological investigations

Monika Csóka, MD, PhD
Dániel Erdélyi MD, PhD
Judit Müller MD, PhD

CBC

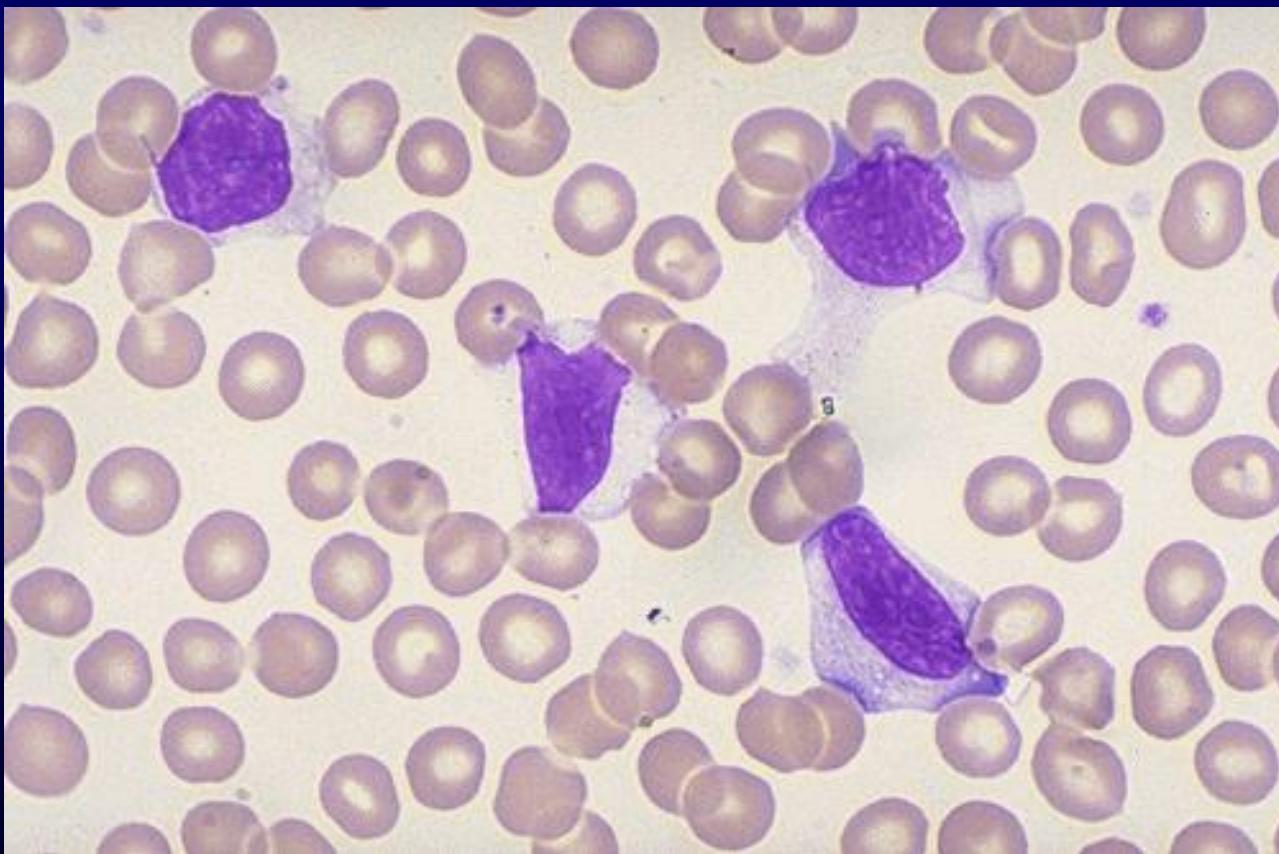
WBC	5.66	[$10^9/L$]		
RBC	5.02	[$10^{12}/L$]		
HGB	87	[g/L]		
HCT	30.7	[%]		
MCV	61.2	- [fL]		
MCH	17.3	- [pg]		
MCHC	283	[g/L]		
PLT	339	[$10^9/L$]		
RDW-SD	45.1	[fL]		
RDW-CV	21.4	+ [%]		
PDW	12.1	[fL]		
MPV	9.2	[fL]		
P-LCR	20.4	[%]		
PCT	0.31	[%]		
NEUT	3.35	[$10^9/L$]	59.2	[%]
LYMPH	1.59	[$10^9/L$]	28.1	[%]
MONO	0.55	[$10^9/L$]	9.7	[%]
EO	0.16	[$10^9/L$]	2.8	[%]
BASO	0.01	[$10^9/L$]	0.2	[%]
RET		[%]		[$10^{12}/L$]
IRF		[%]		



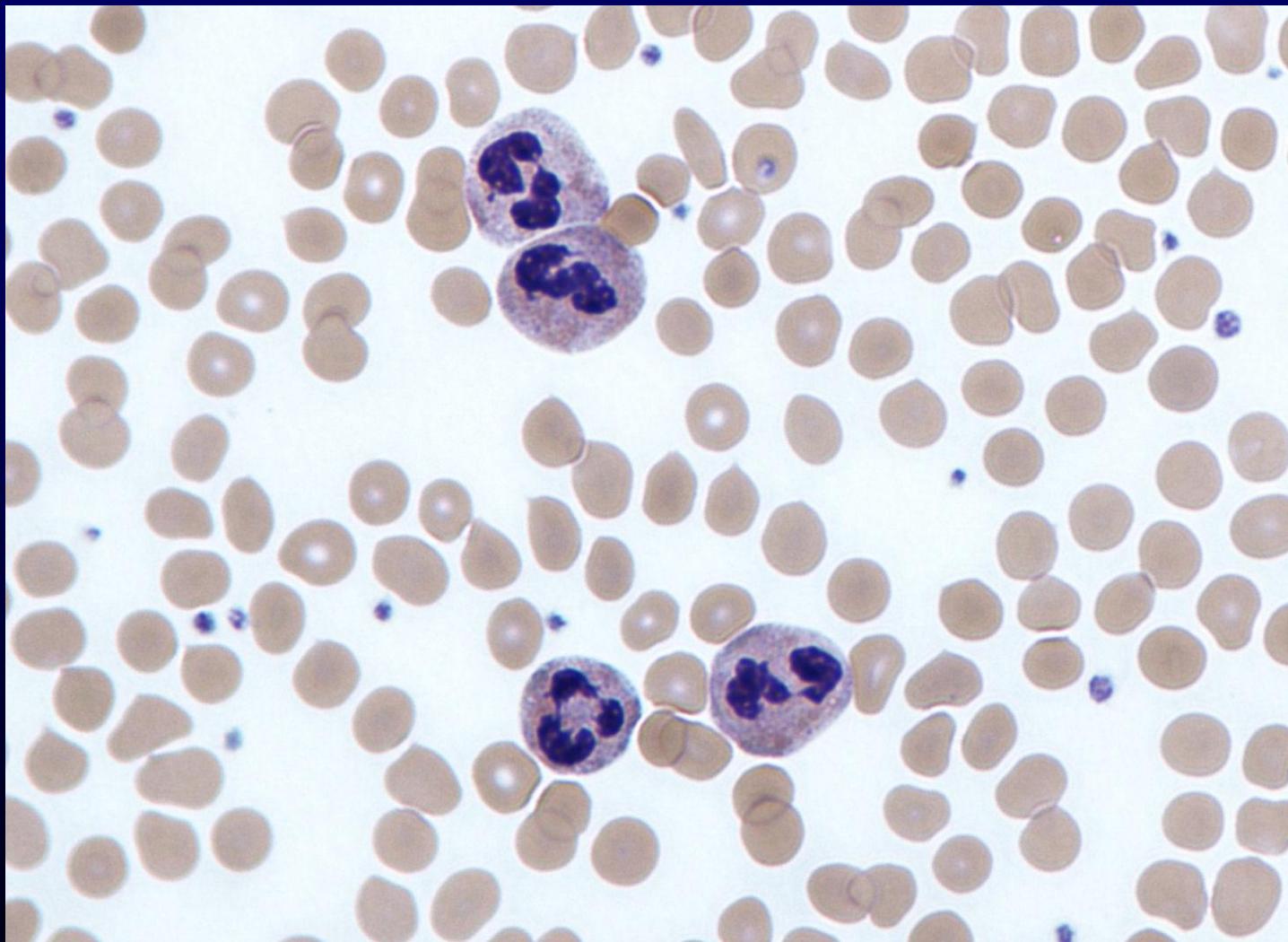
WBC



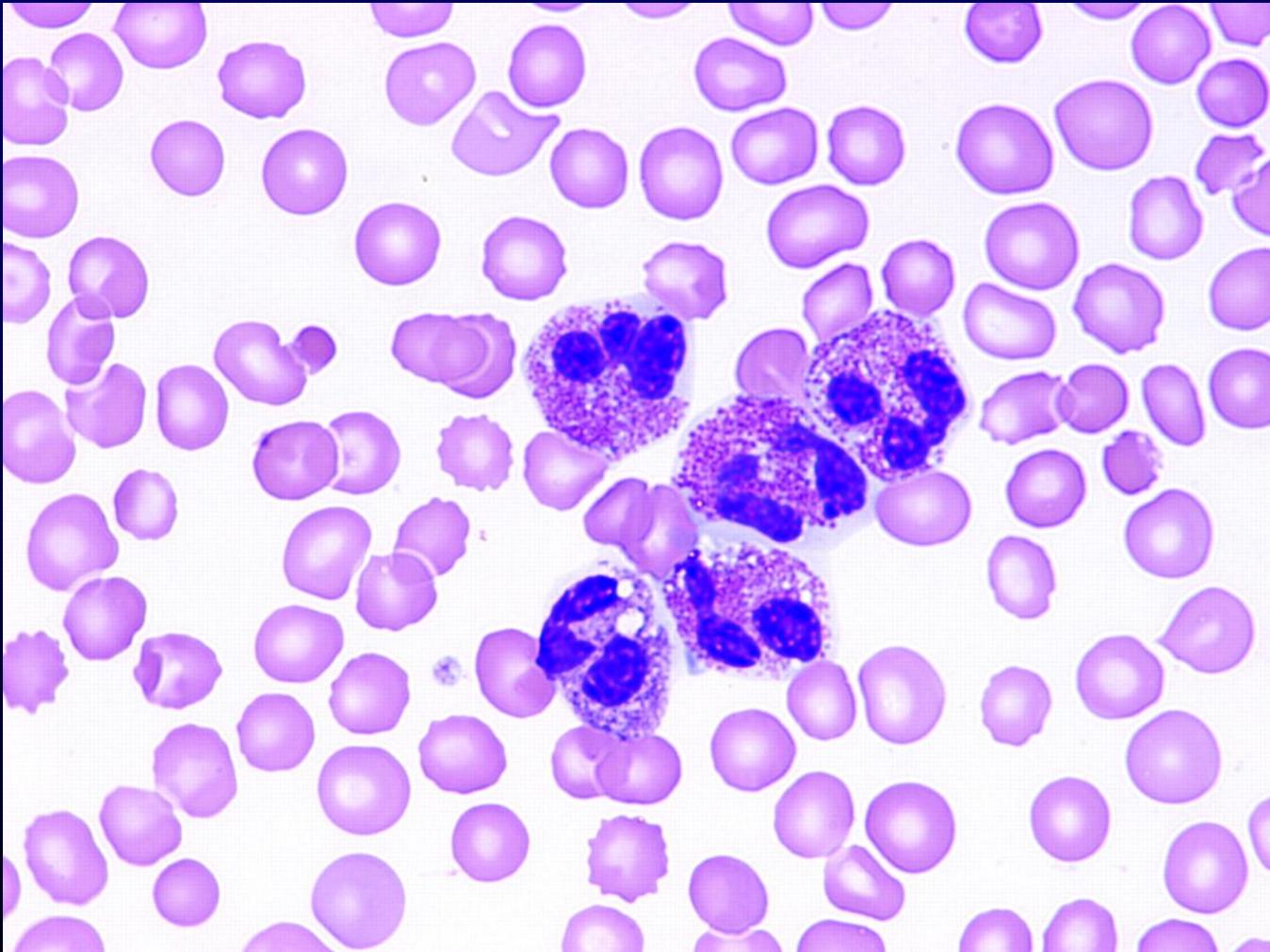
Viral infection

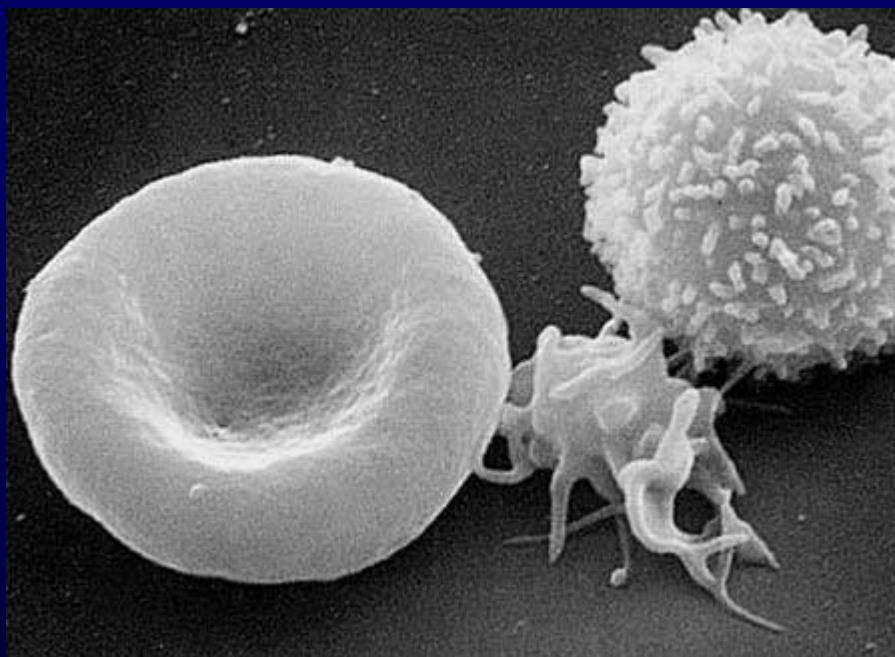


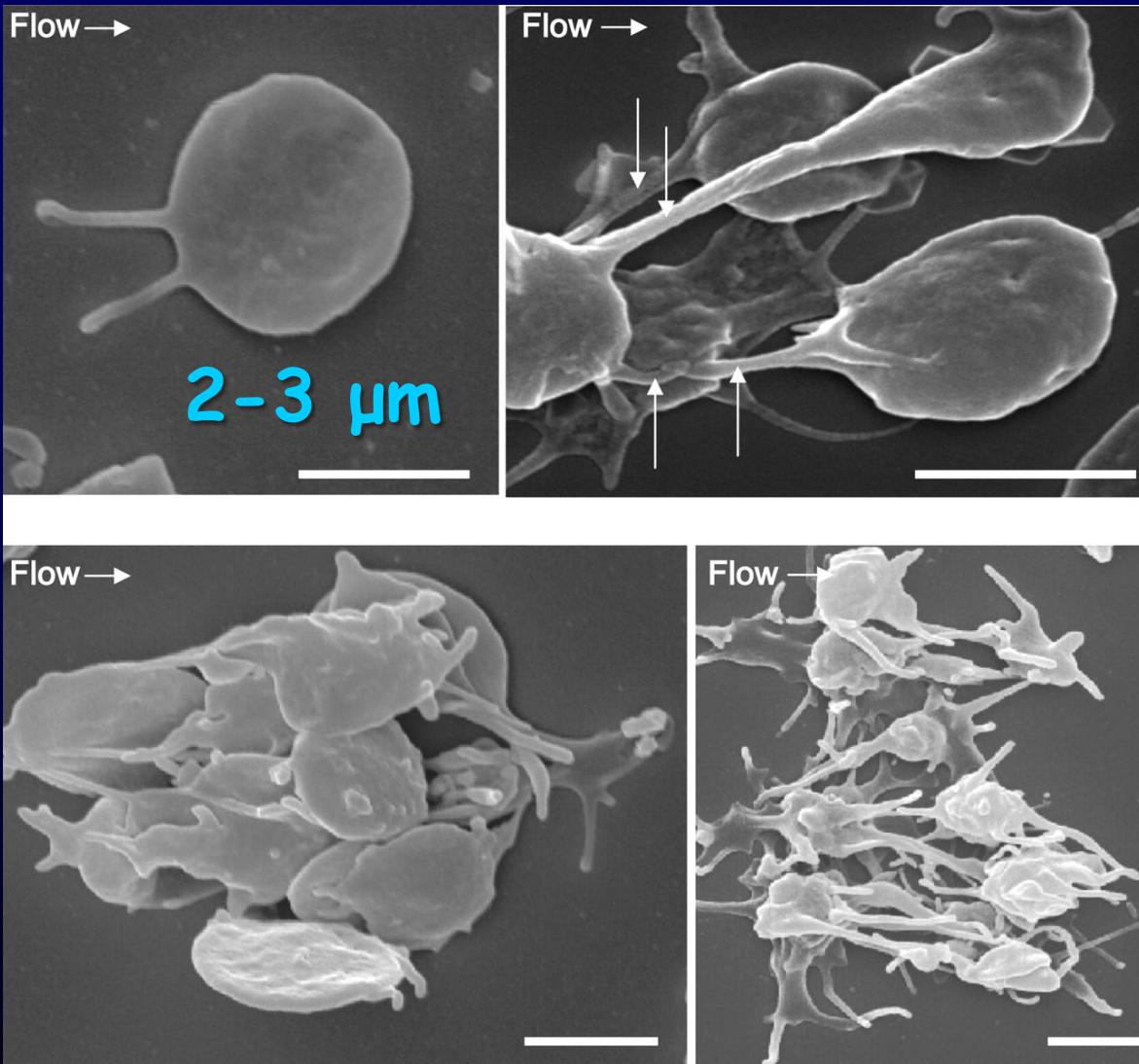
Bacteriral infection



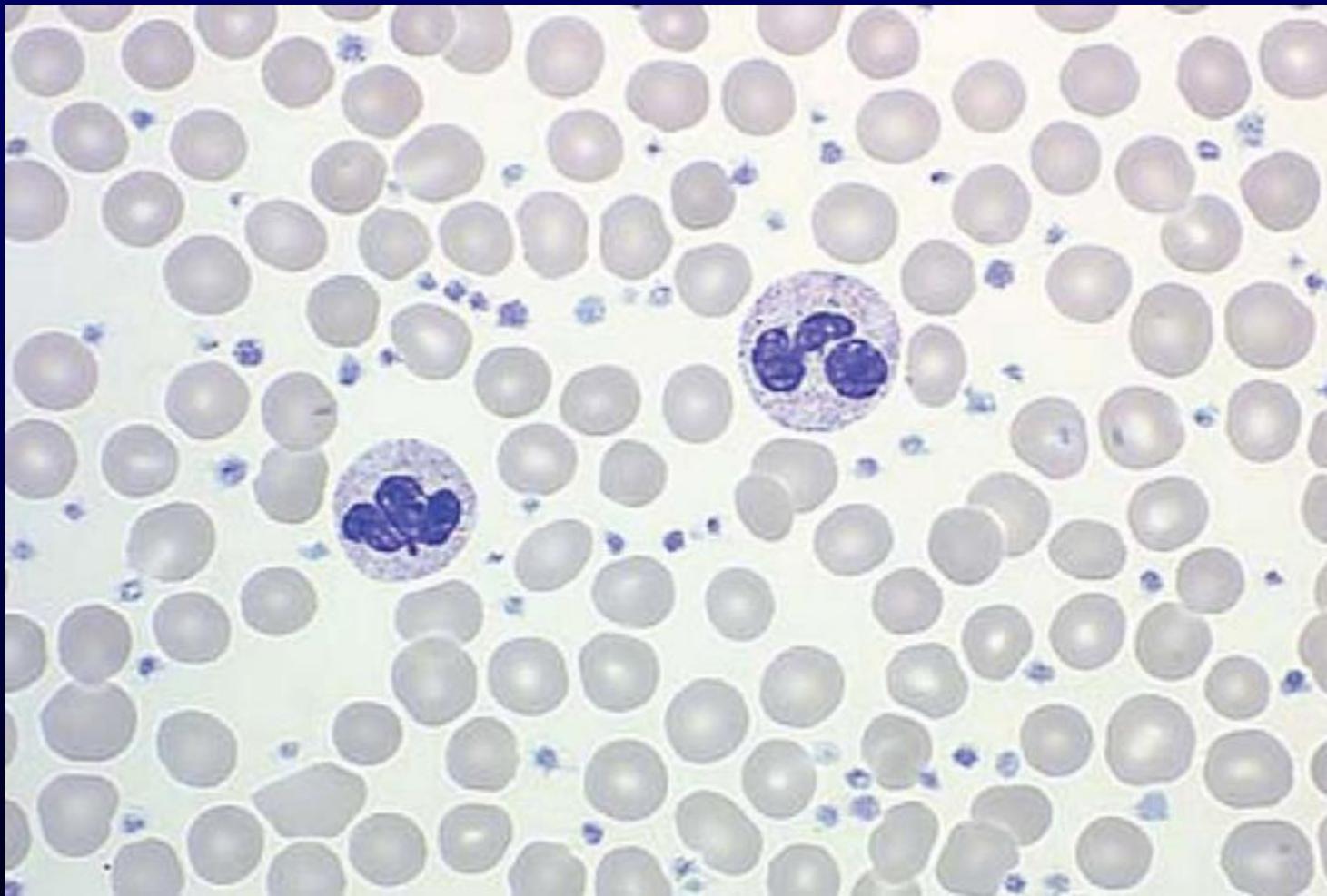
Eosinophilia



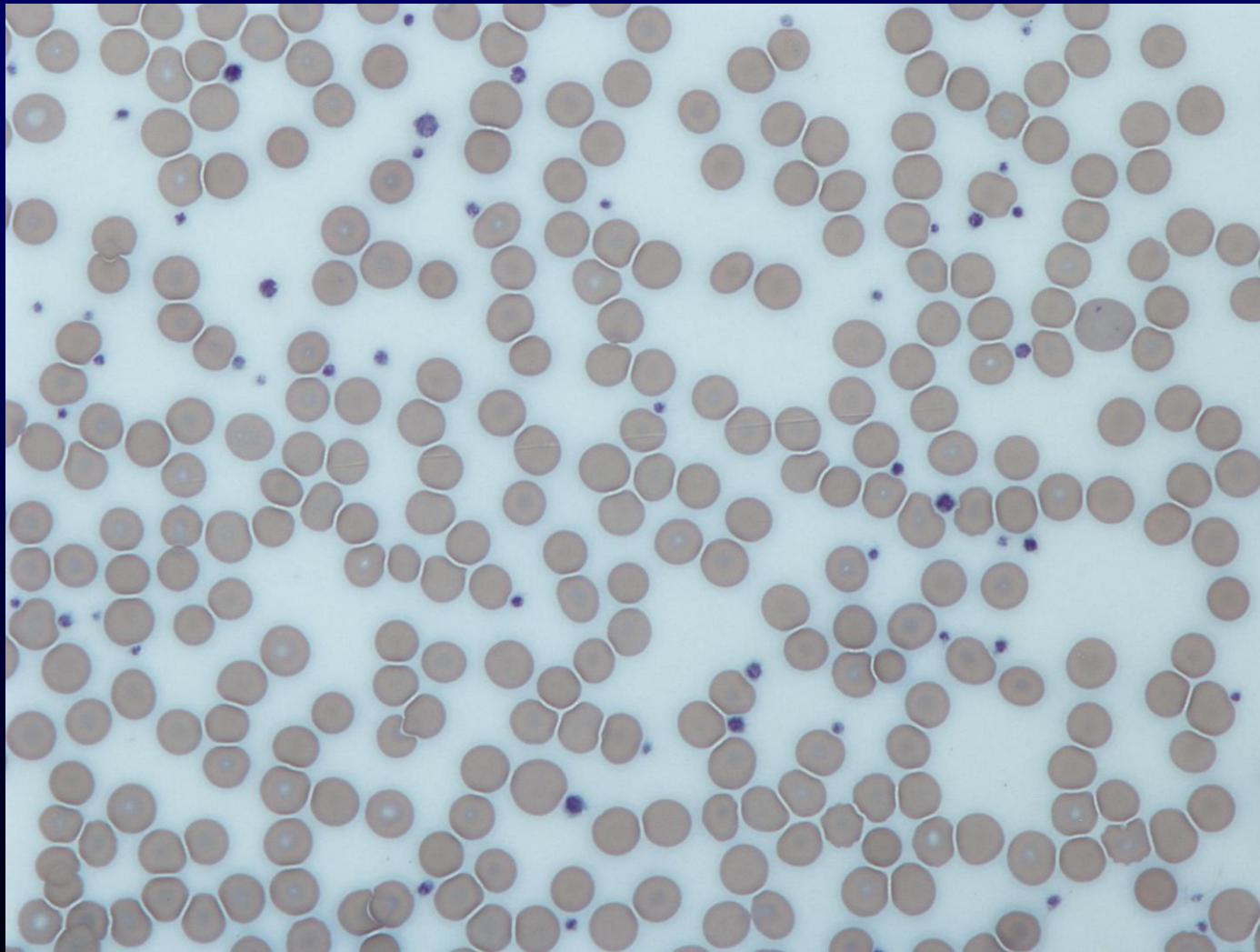




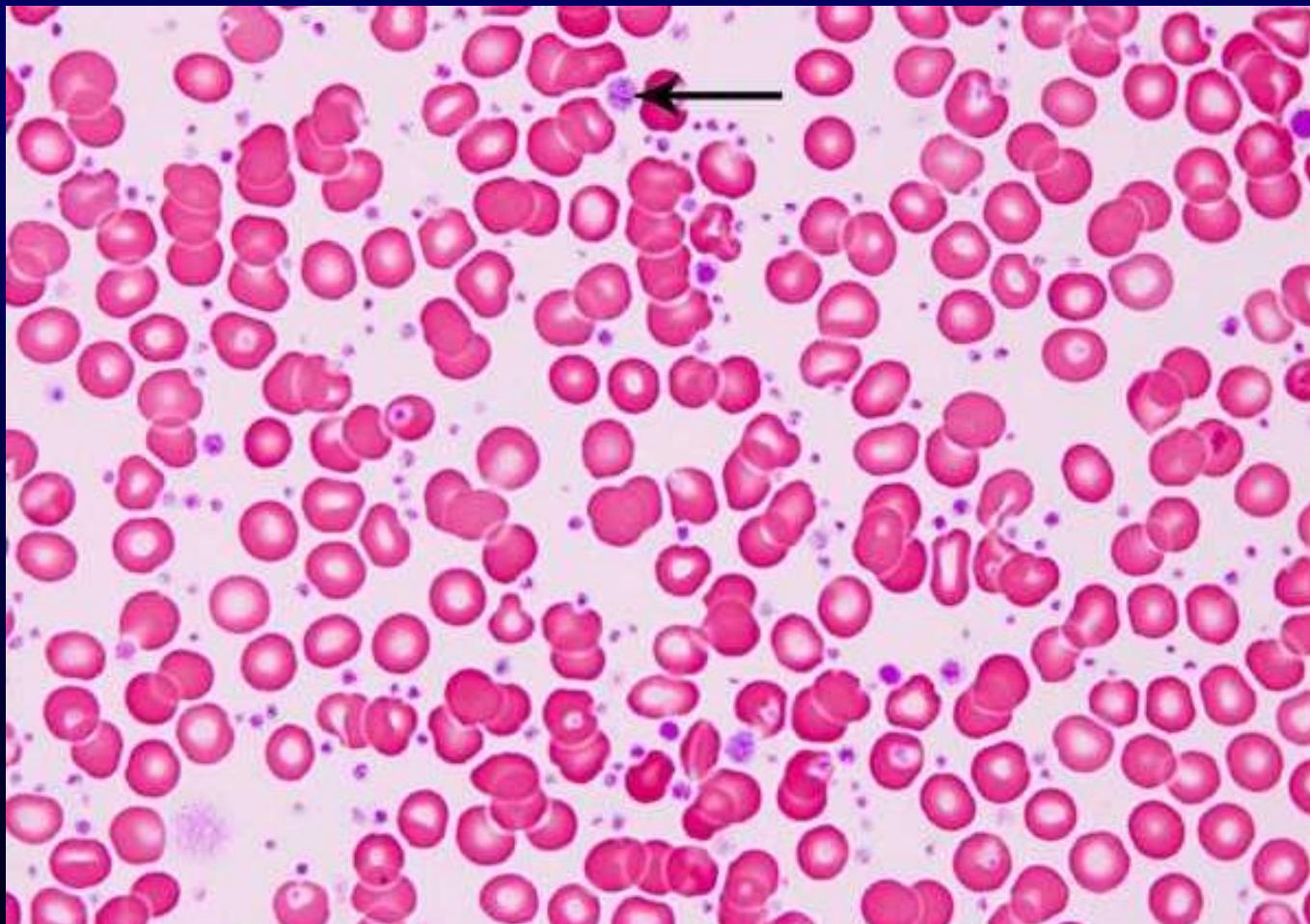
Thrombocytes



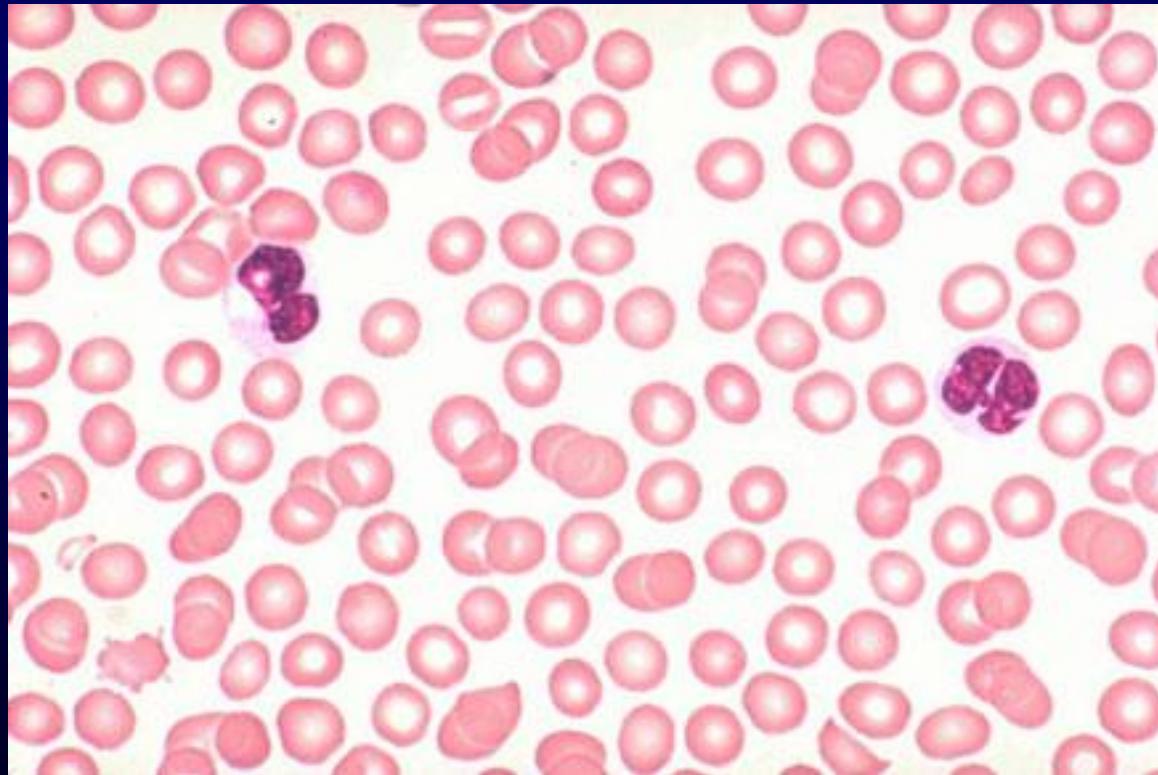
Thrombocytes



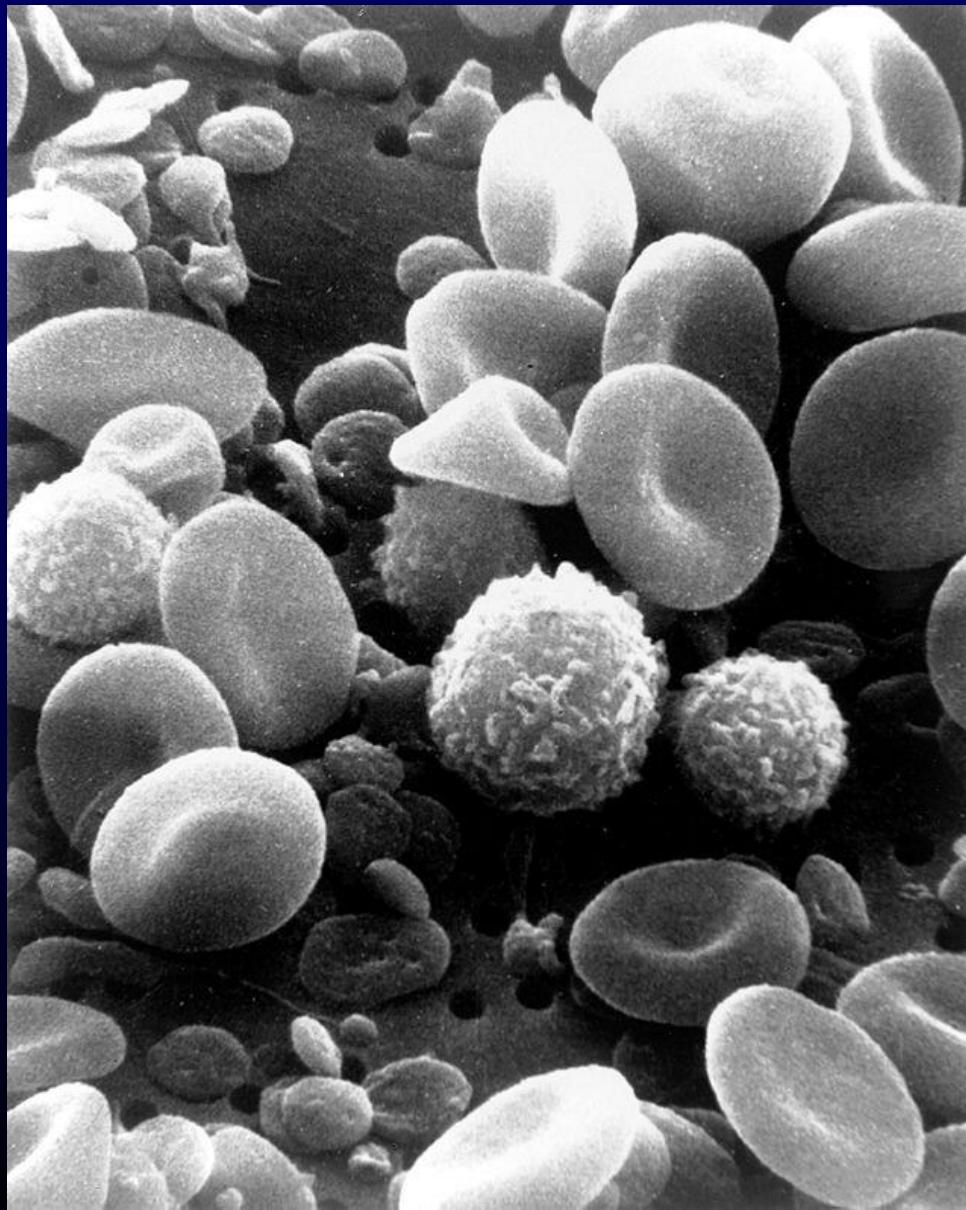
Thrombocytosis



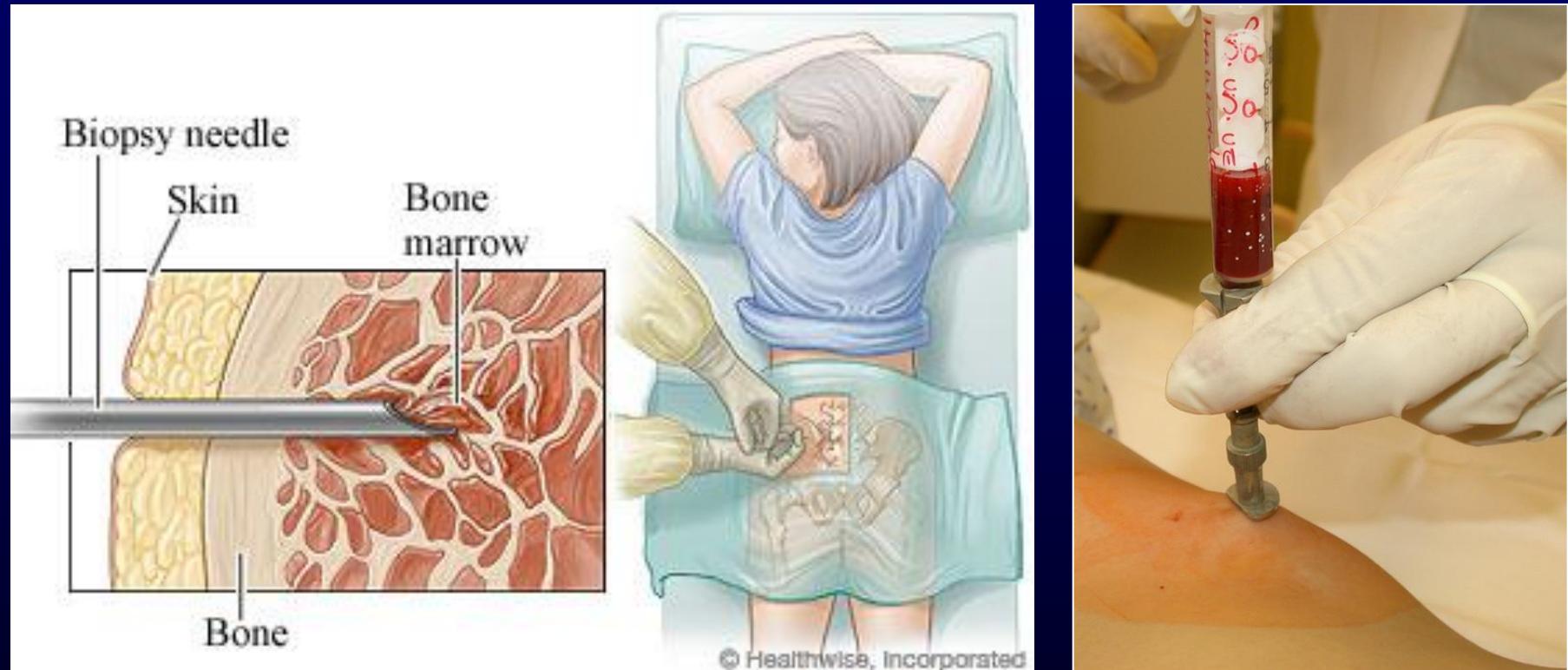
Thrombocyopenia



Bone marrow

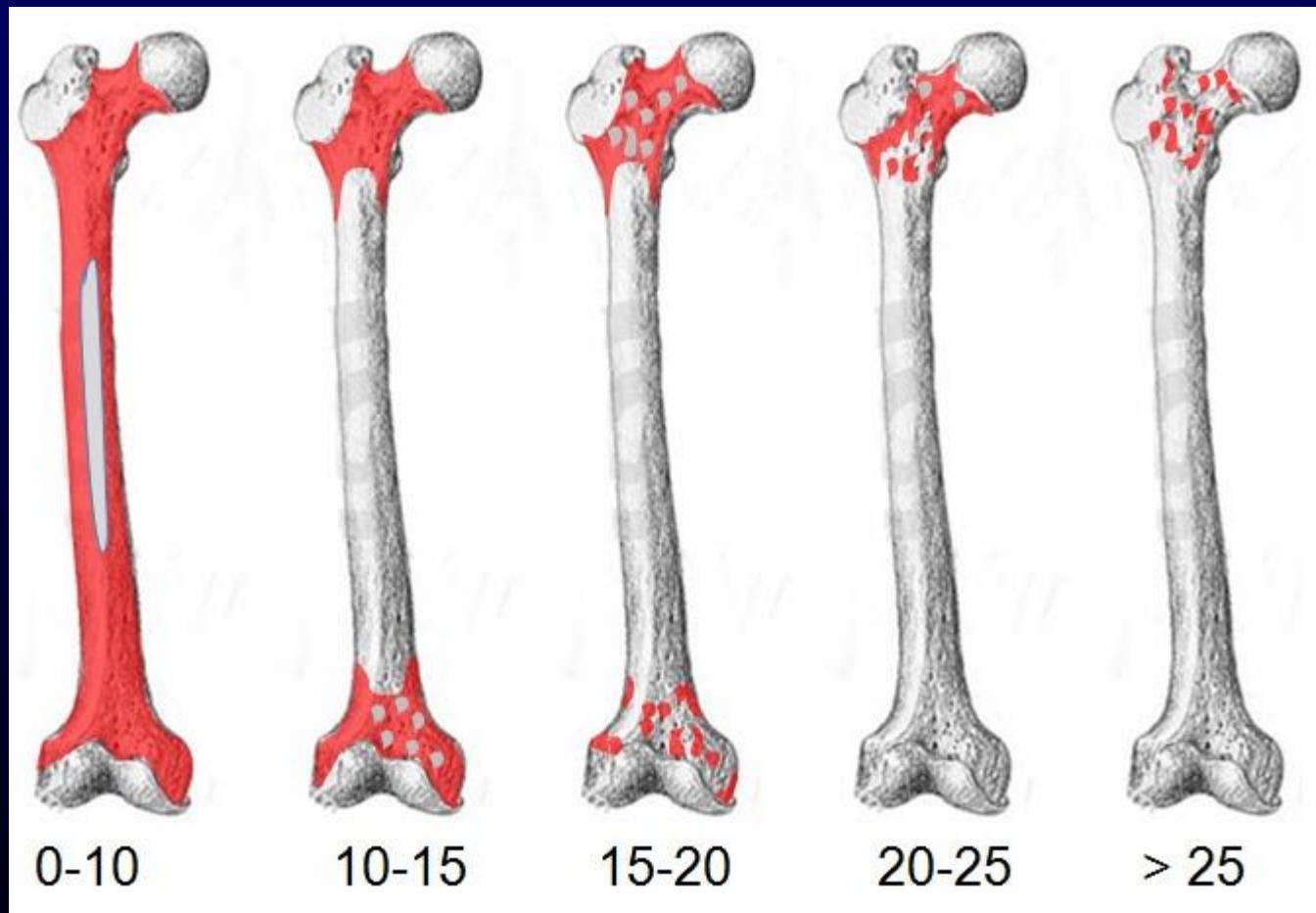


Bone marrow

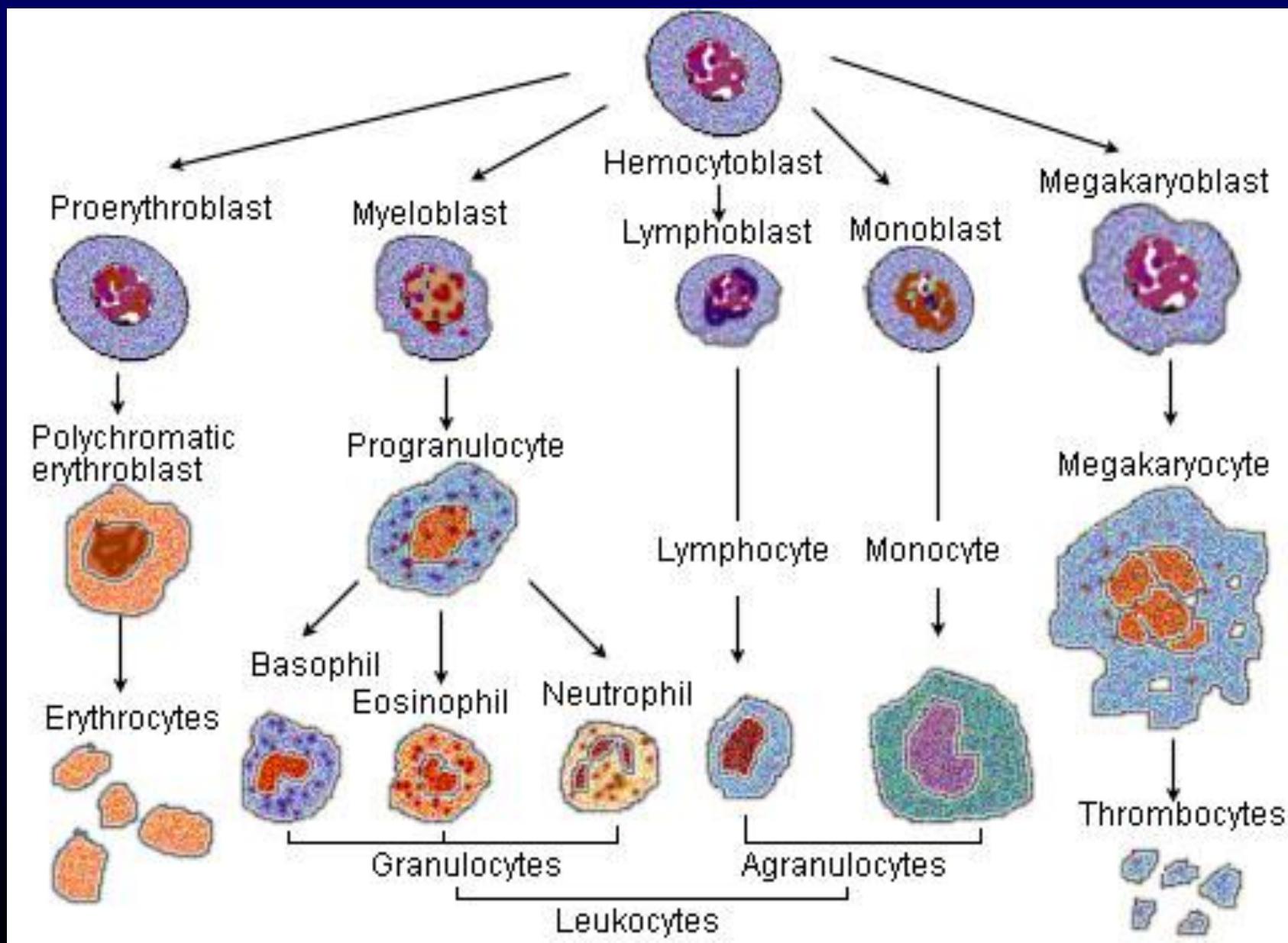




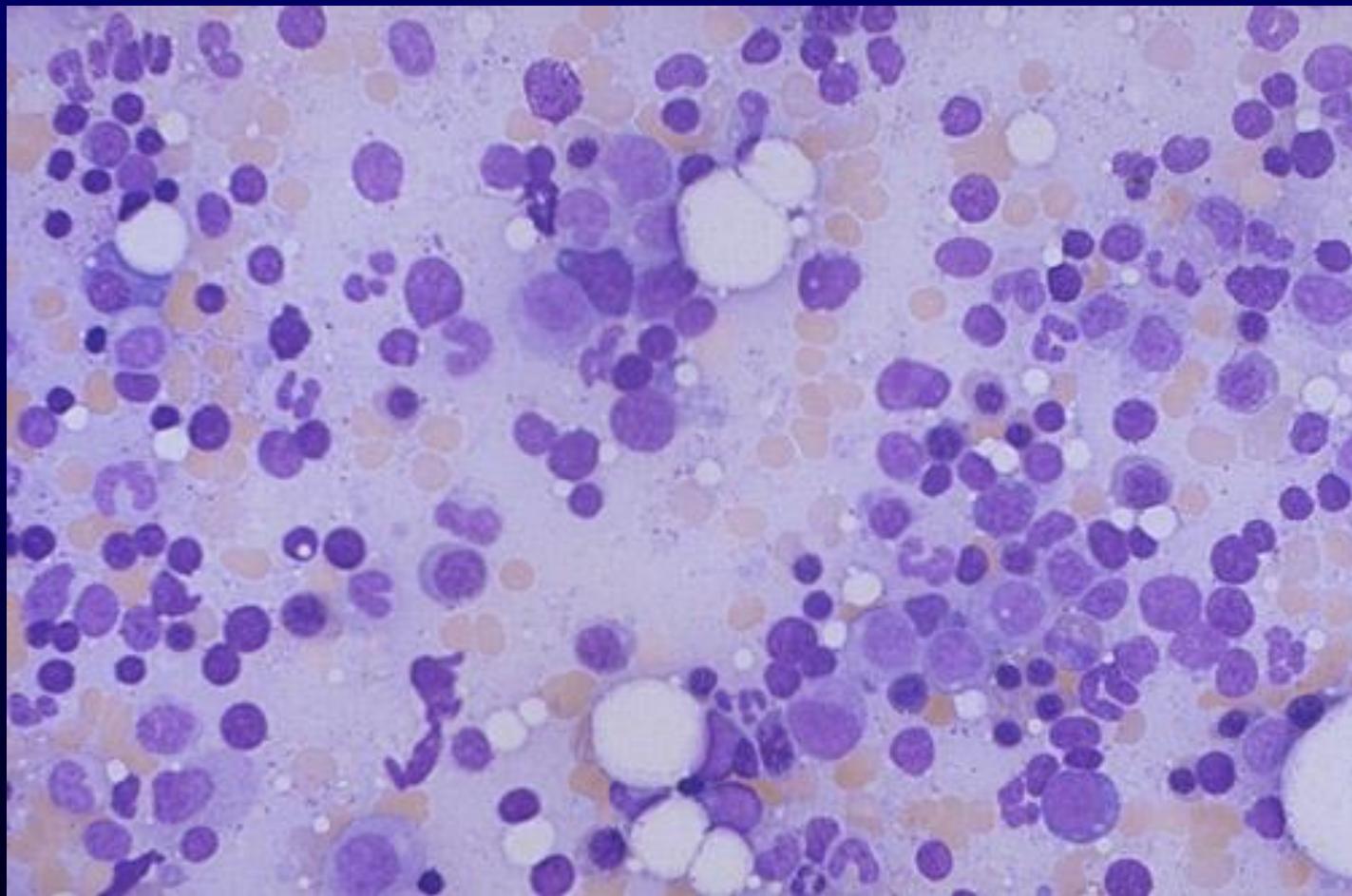
Evolution of red and yellow marrow by the age



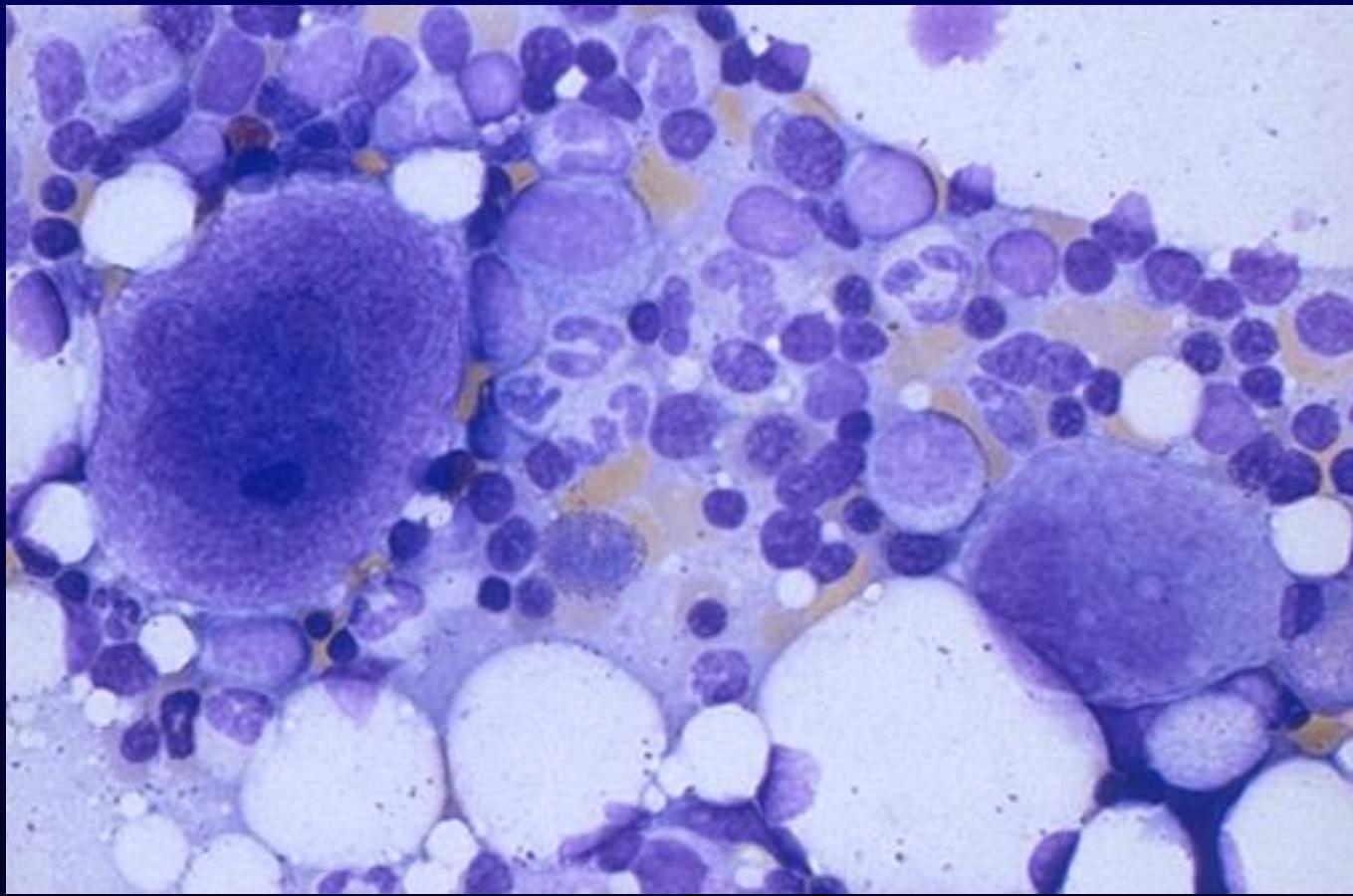
Bone Marrow



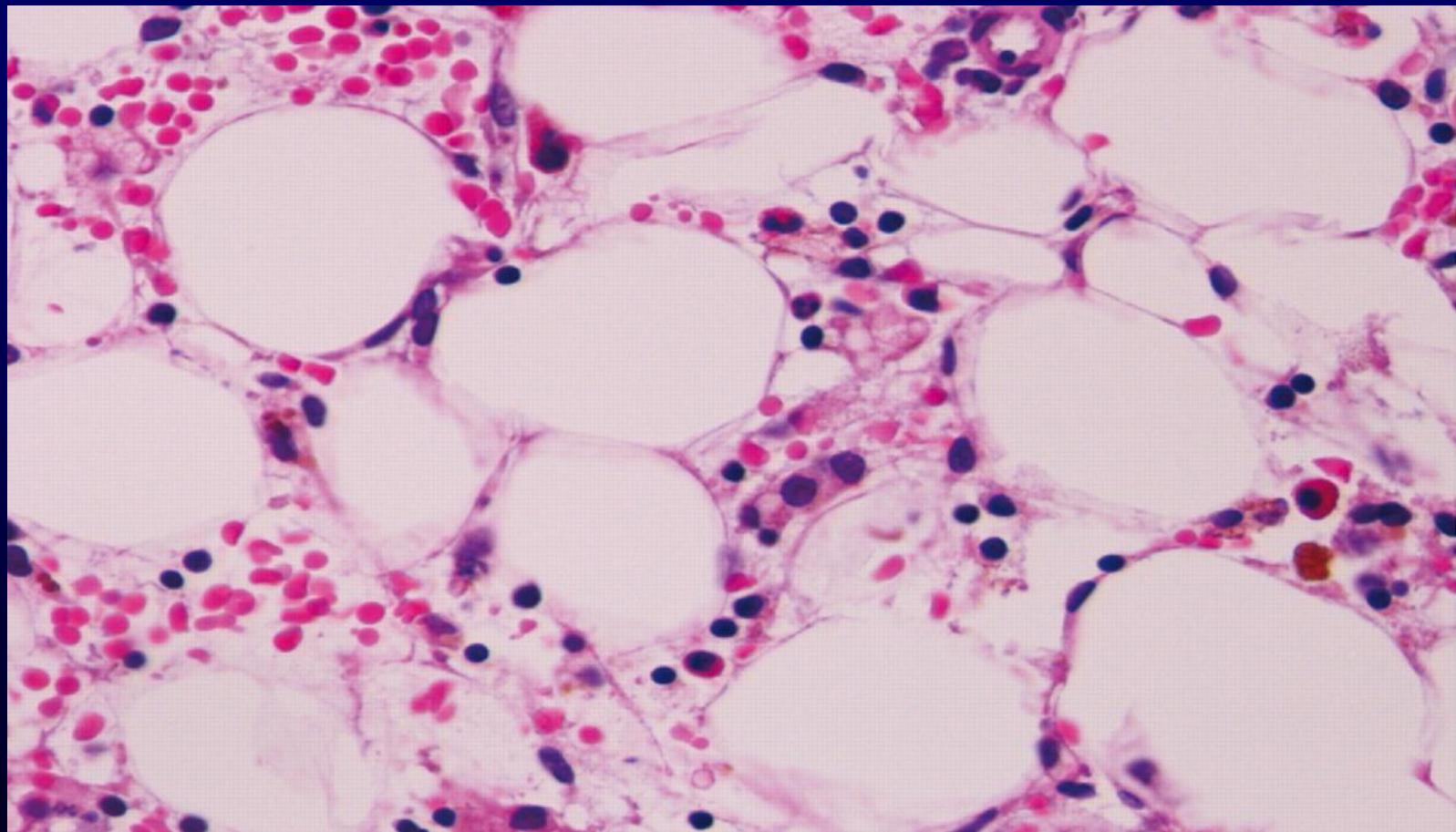
Normal bone marrow



Normal bone marrow

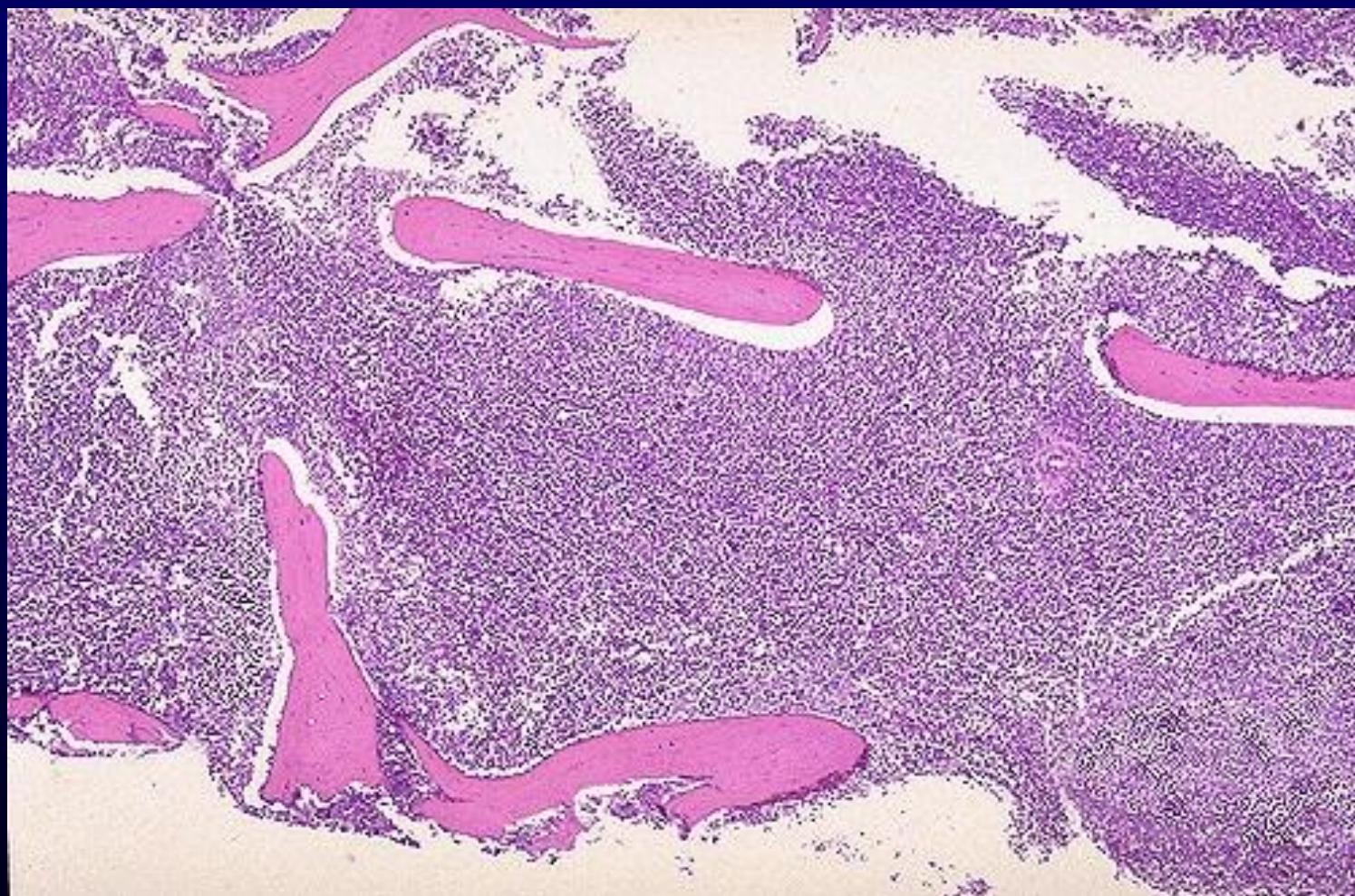


Inappropriate BM function

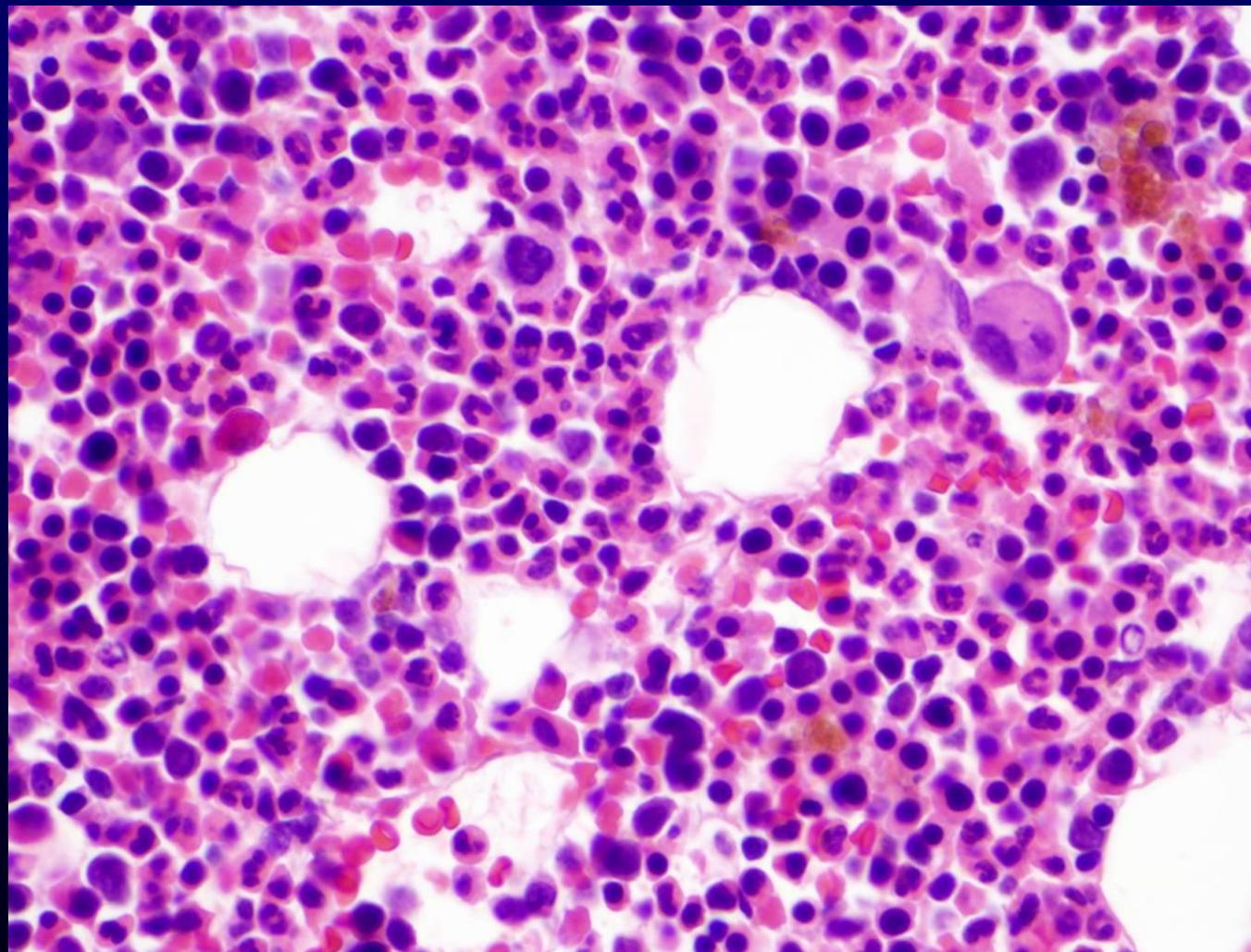


aplastic anemia

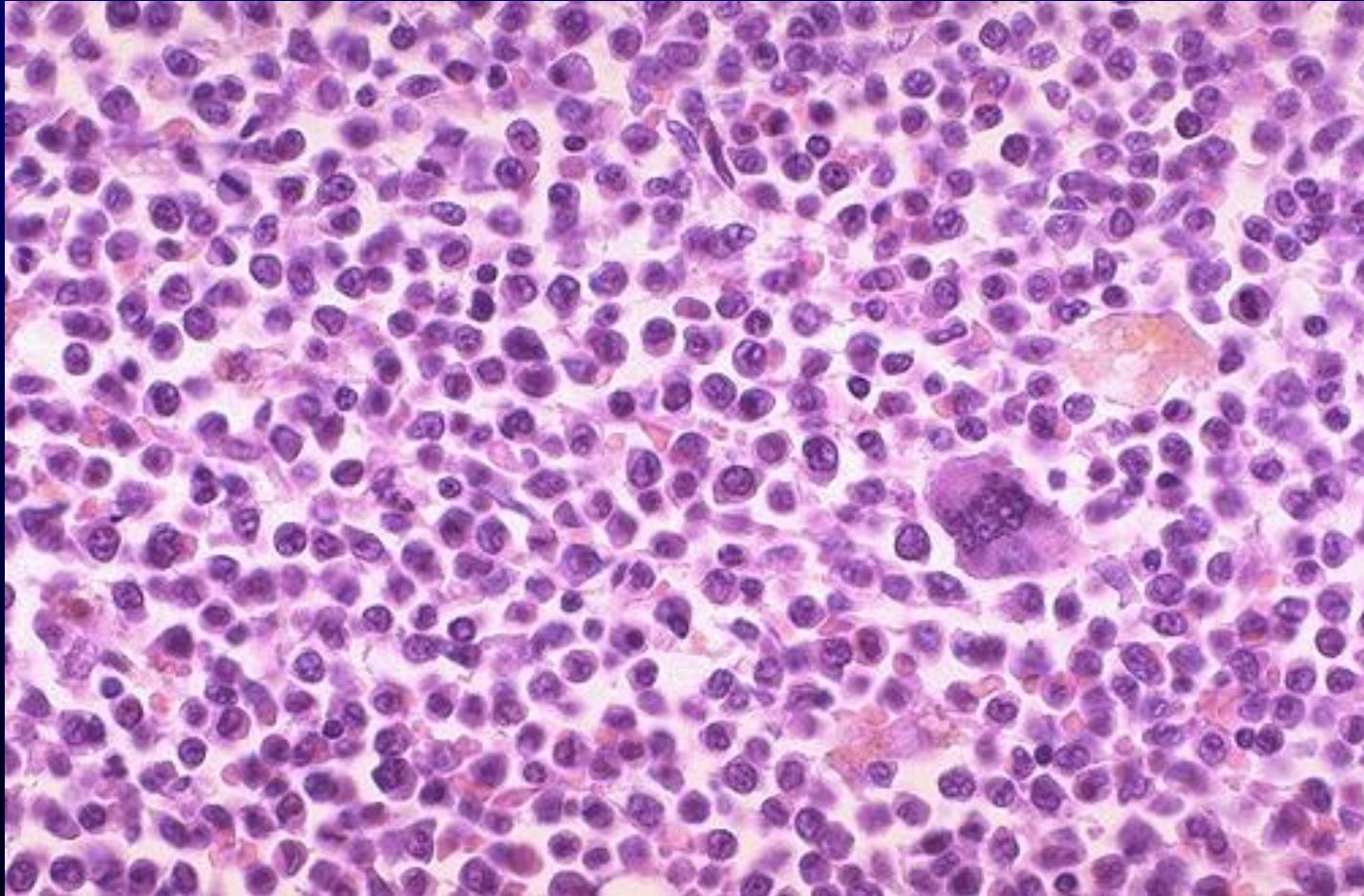
Hypercellular bone marrow



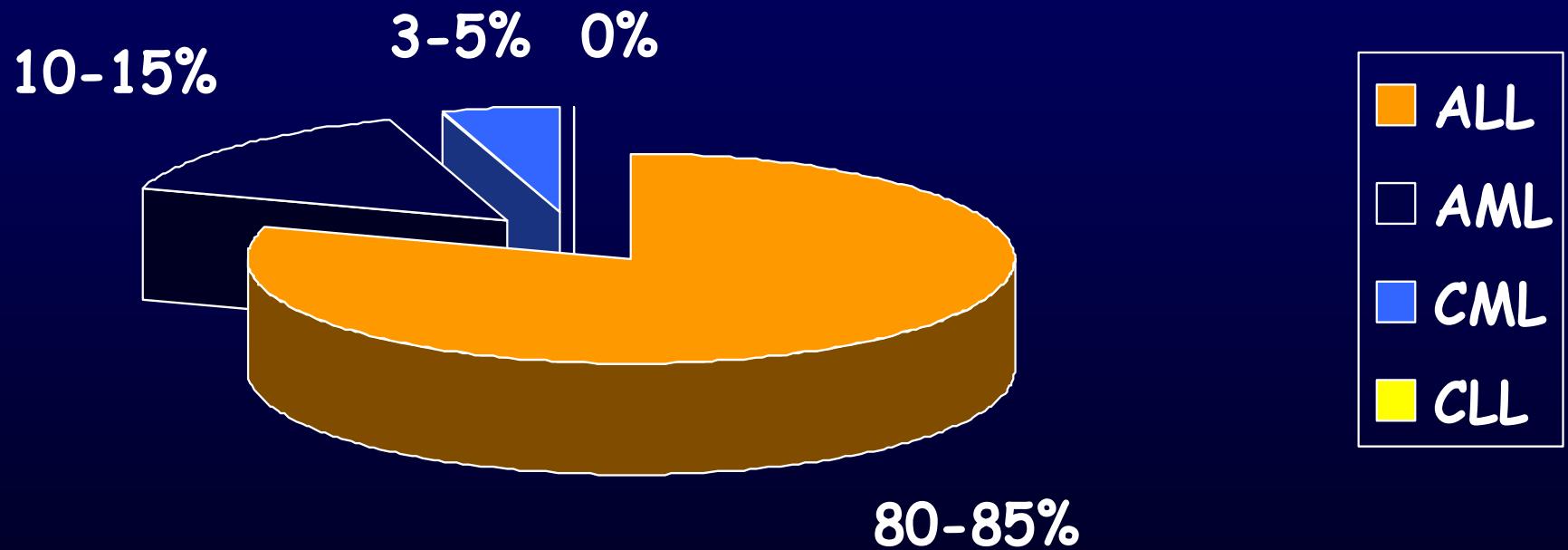
Hypercellular bone marrow



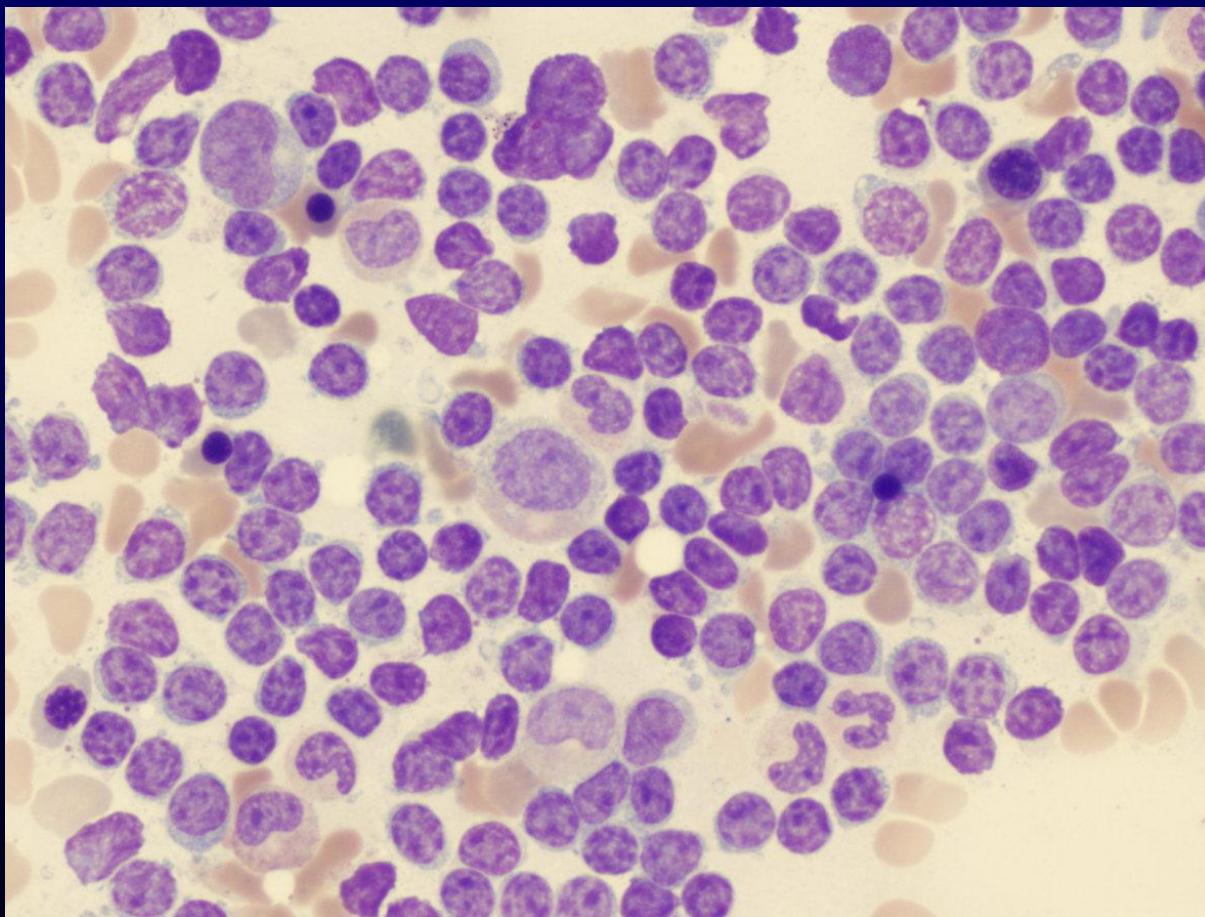
Hypercellular bone marrow



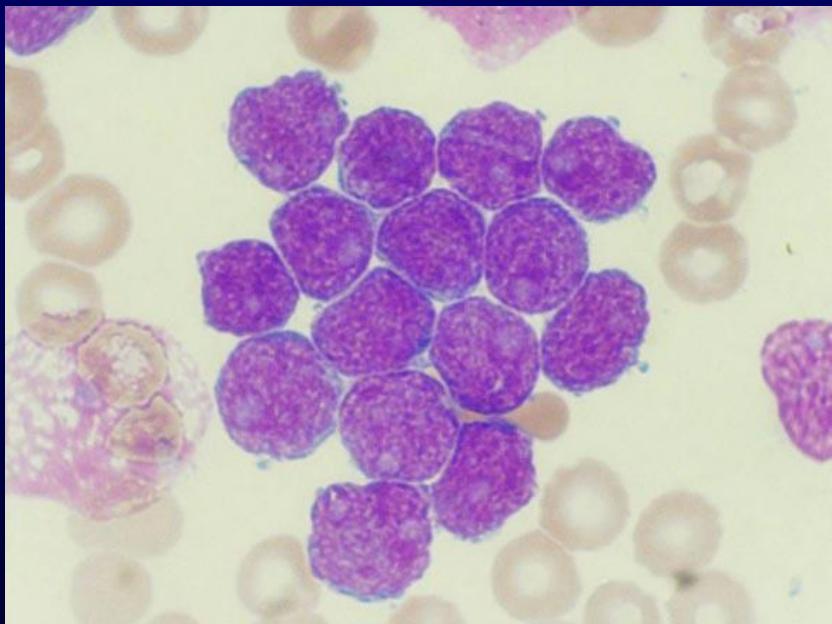
Leukemias in children



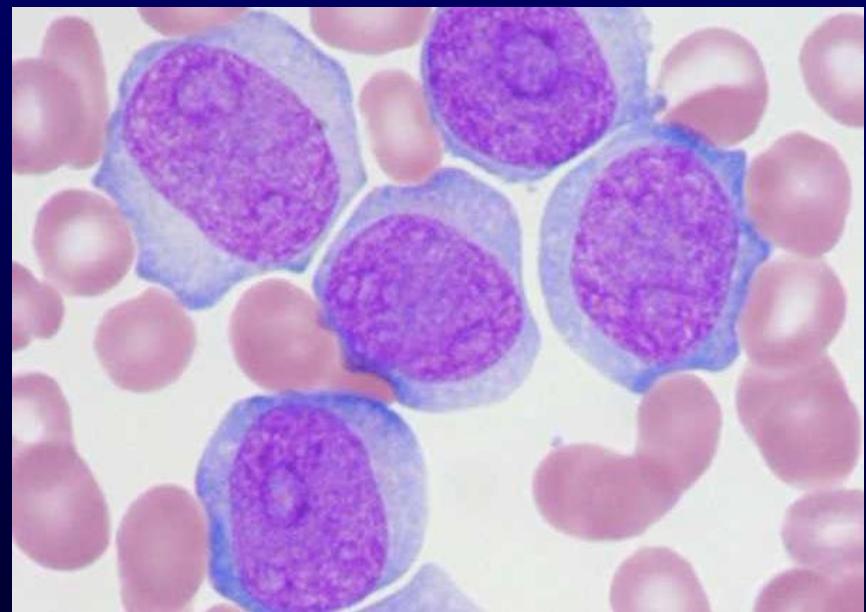
ALL - morphology



ALL - morphology

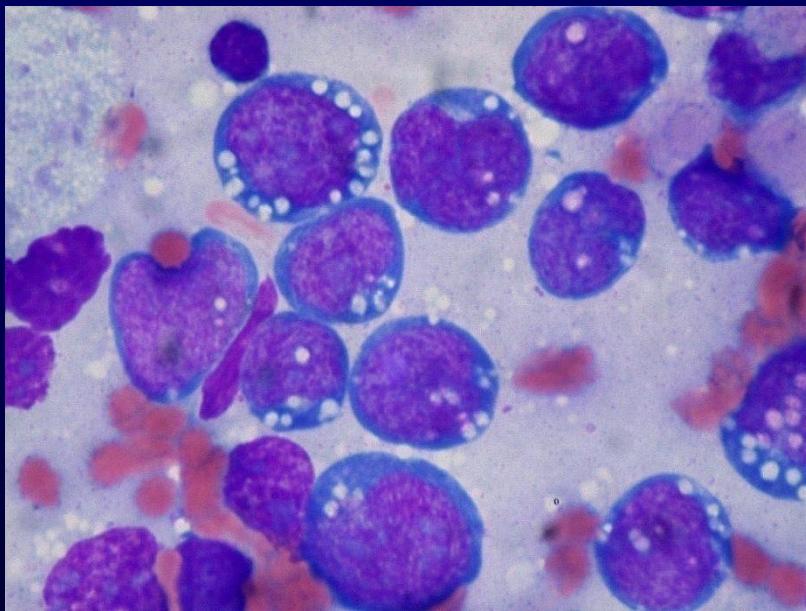


L1



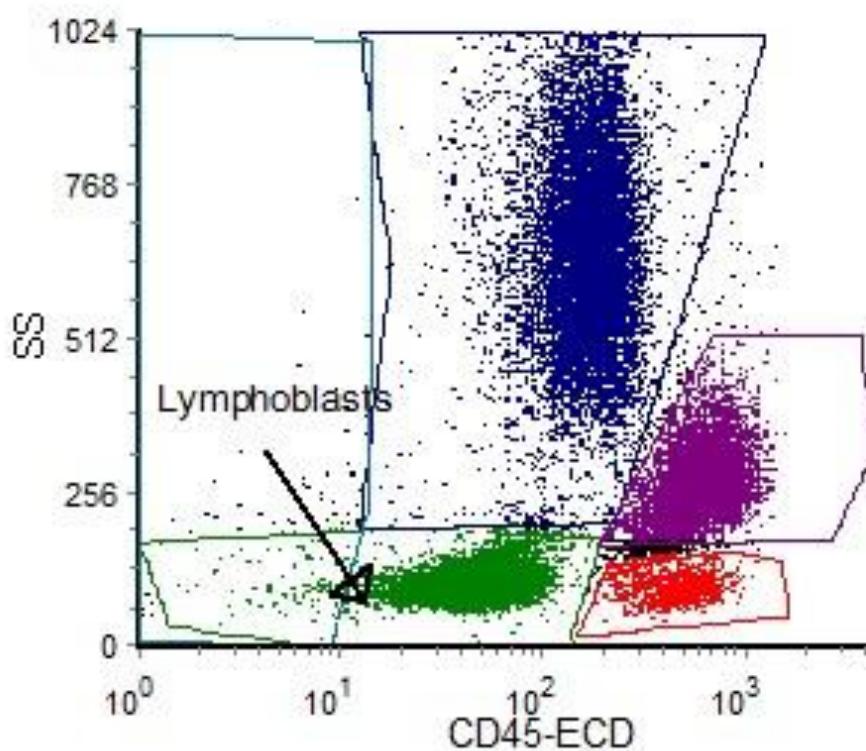
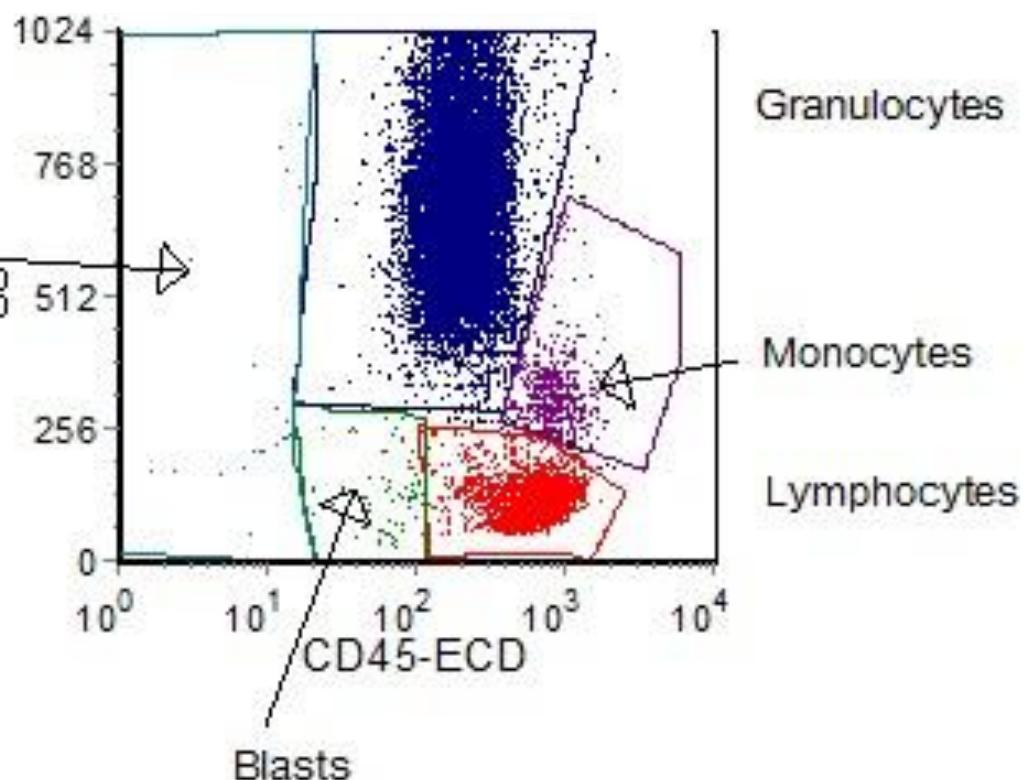
L2

ALL - morphology

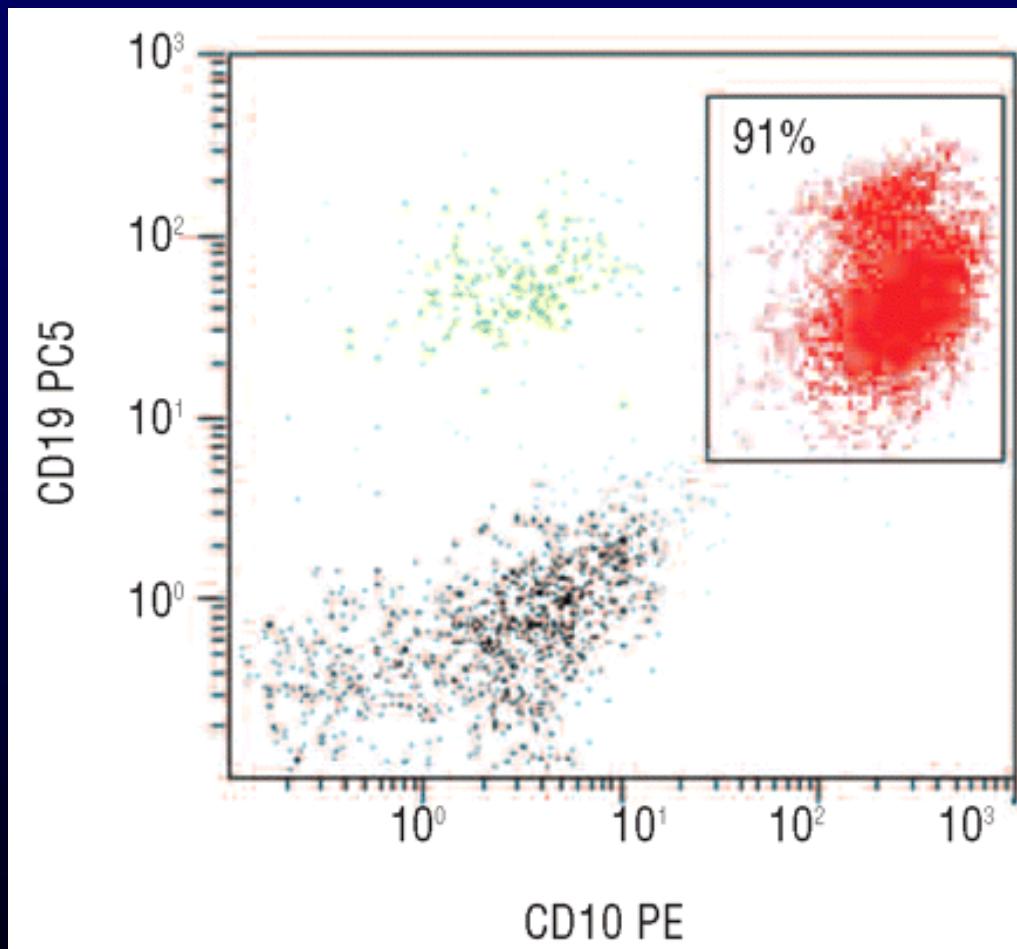


L3

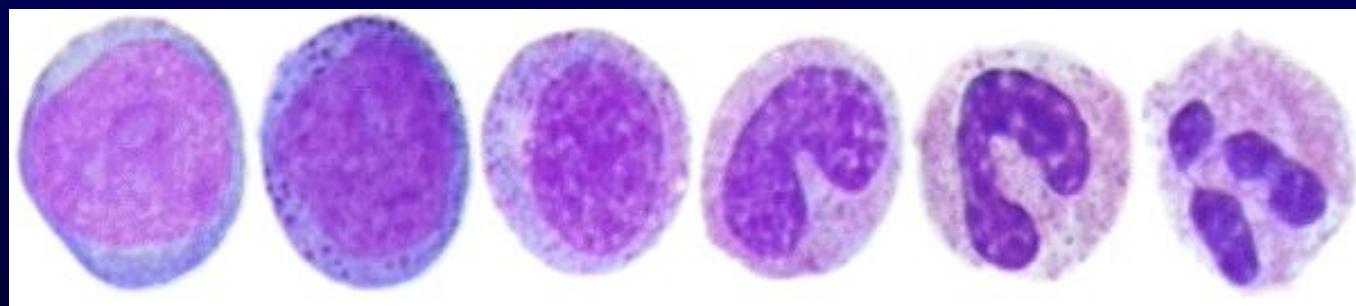
ALL - immunology



ALL - immunology



AML



AML - morphology „FAB”

M0: minimálisan differenciált mieloblasztos

M1: mieloblasztos granulocita érés nélkül

M2: mieloblasztos granulocita éréssel

M3: promielocitás

M4: mielomonocitás

M4eo: mielomonocitás csv-i eozinofíliával

M5: monoblasztos v. monocitás

M6: eritroid

M7: megakarioblasztos

AML - morphology „FAB”

M0: Undifferentiated myeloblastic

M1: Myeloblastic without maturation

M2: Myeloblastic with maturation

M3: Promyelocytic

M4: Myelomonocytic

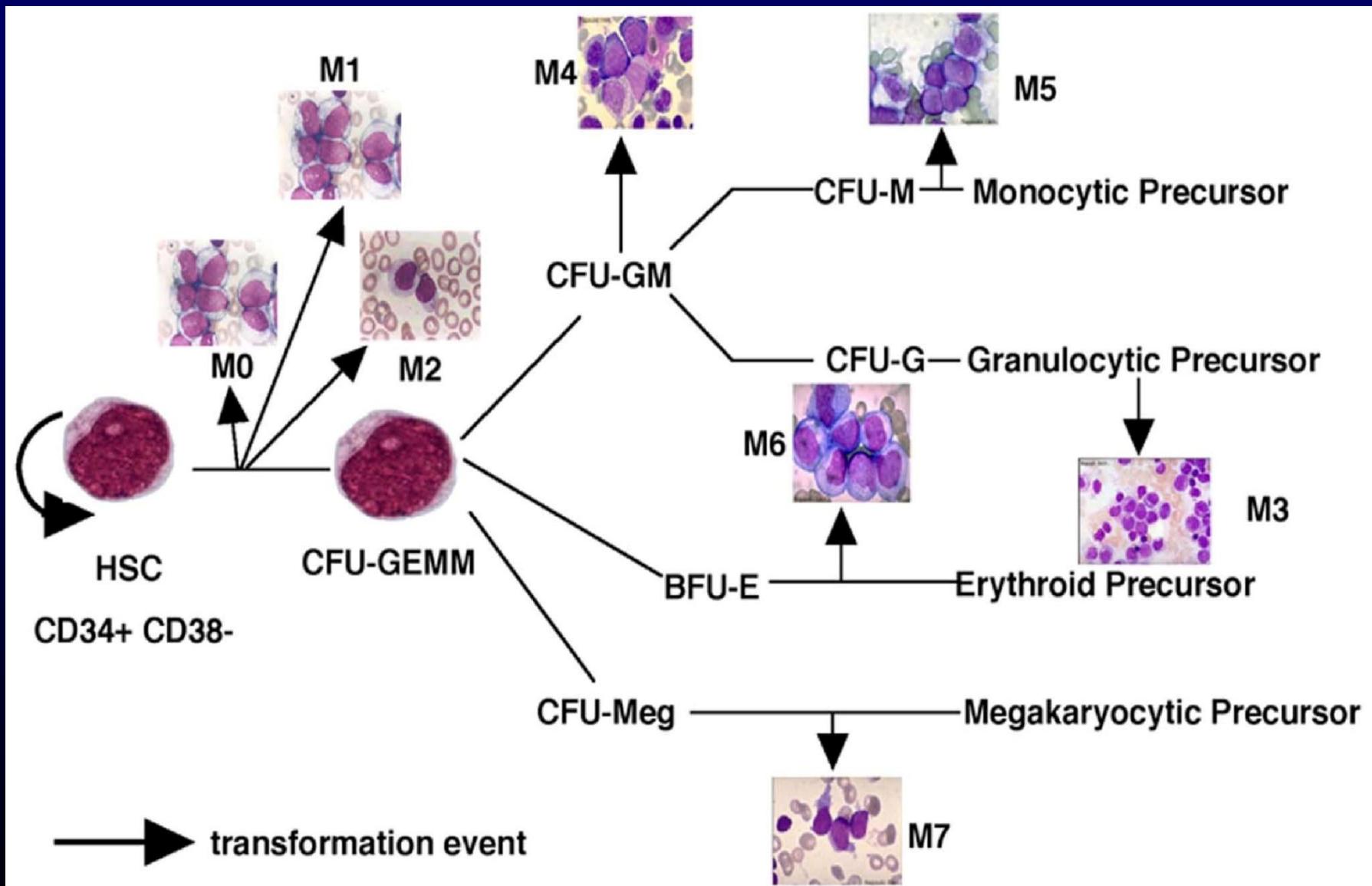
M4eo: Myelomonocytic with eosinophilia

M5: Monocytic

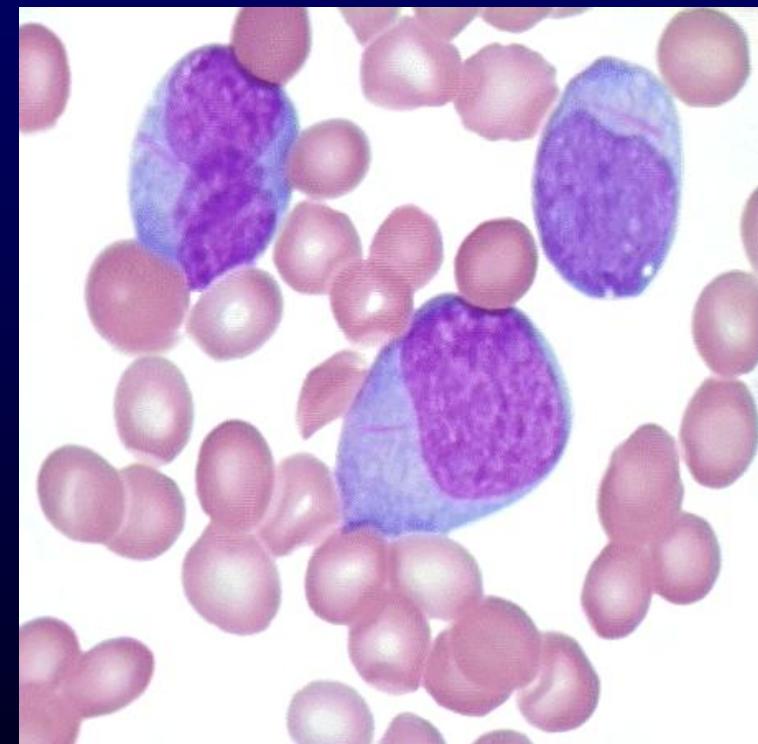
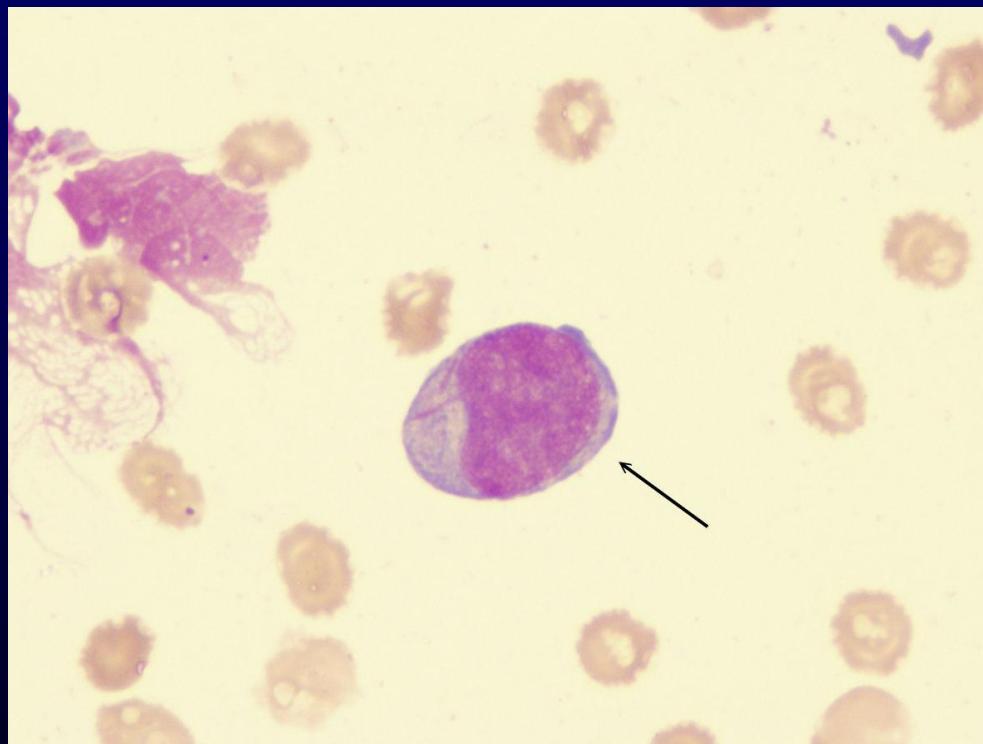
M6: Erythroid

M7: Megakaryoblastic

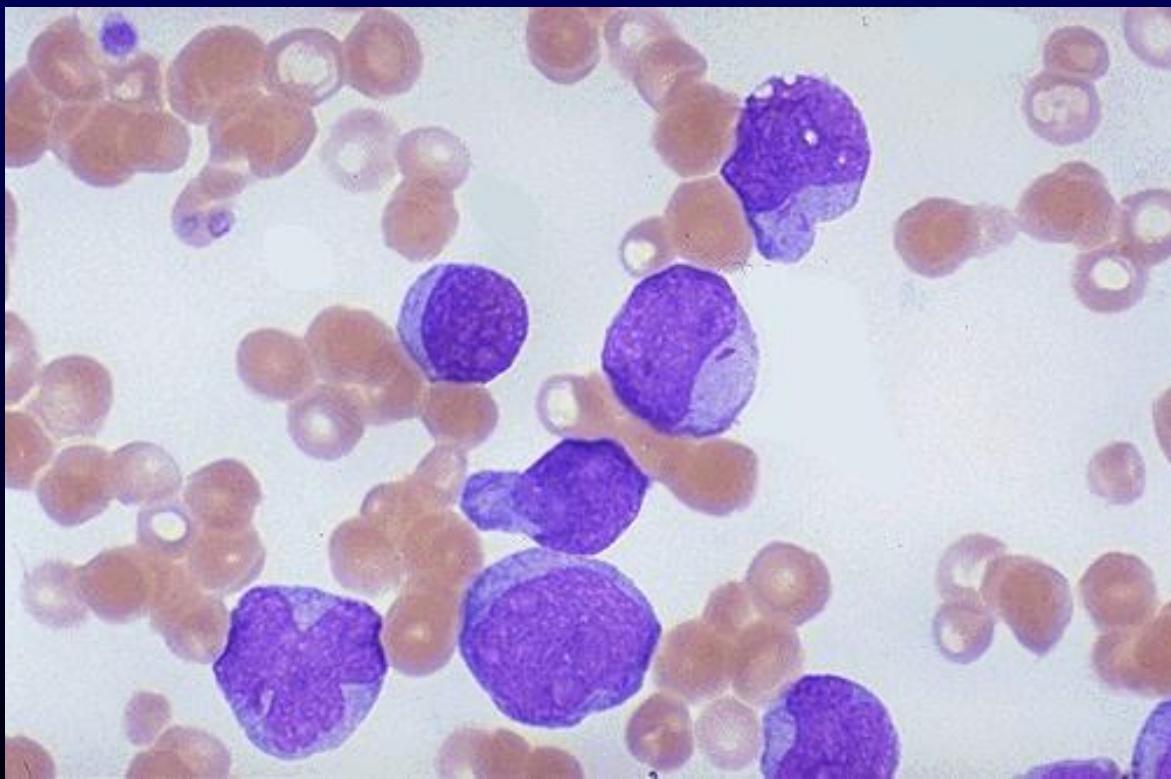
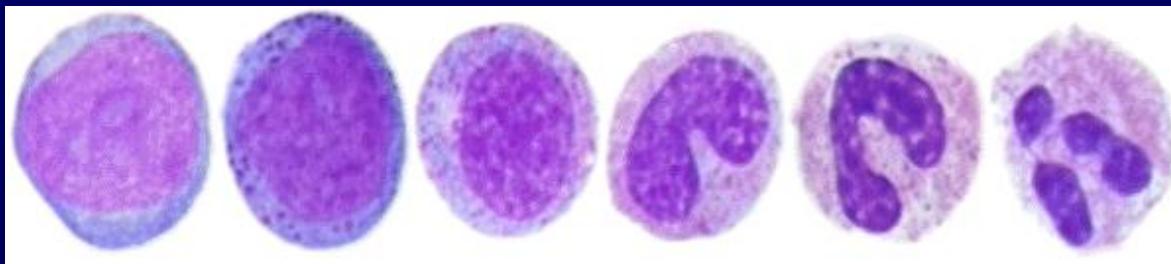
AML



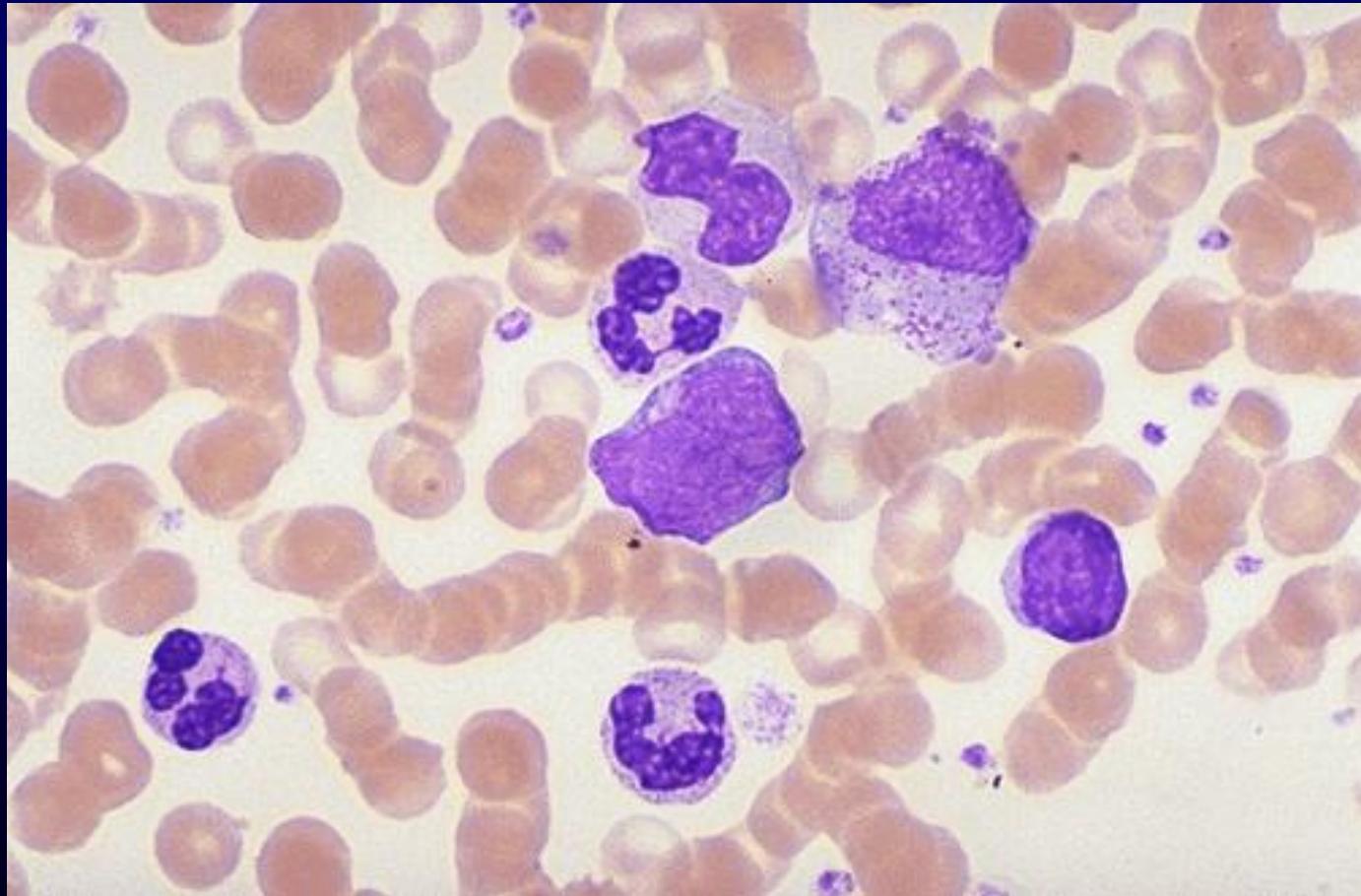
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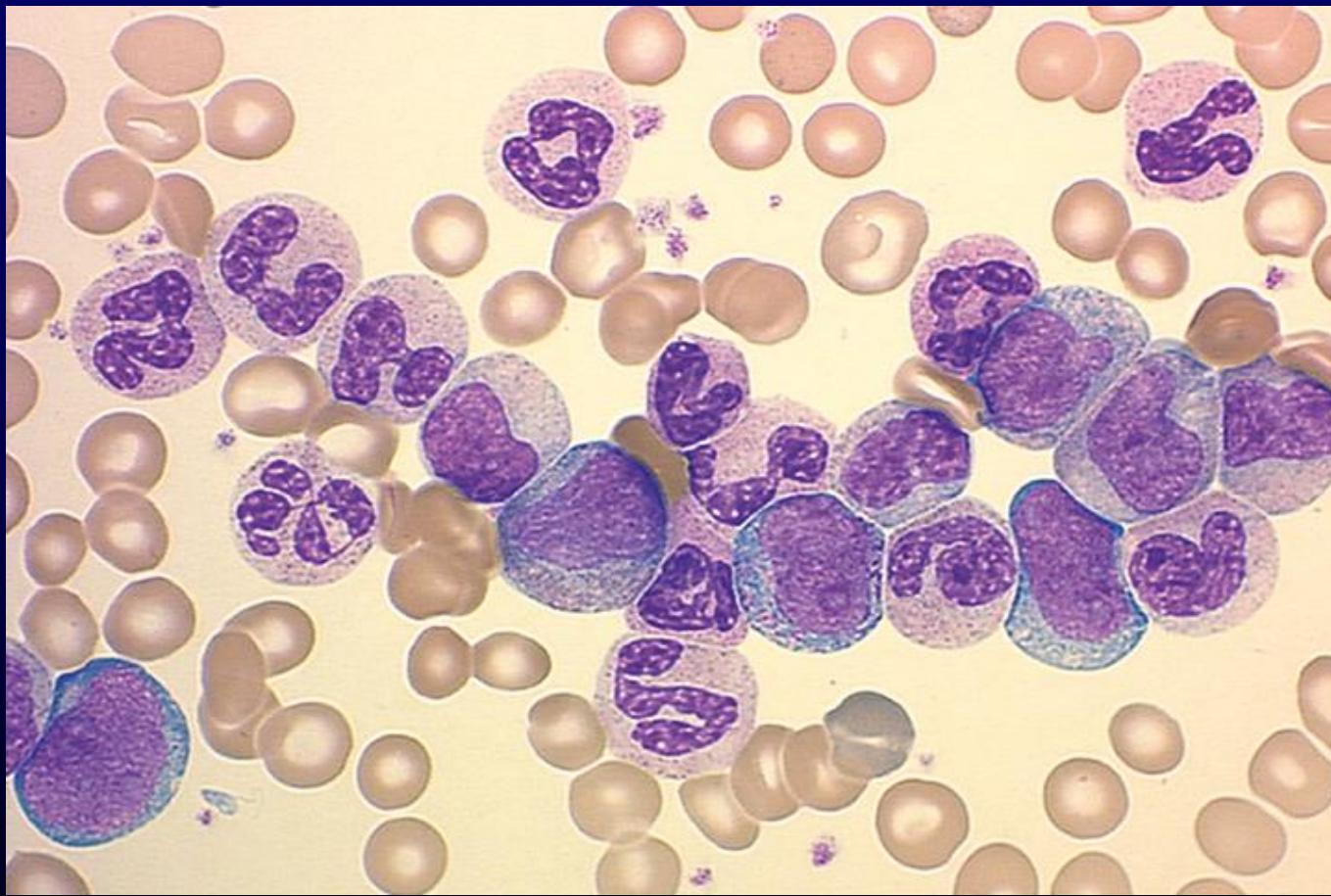
AML



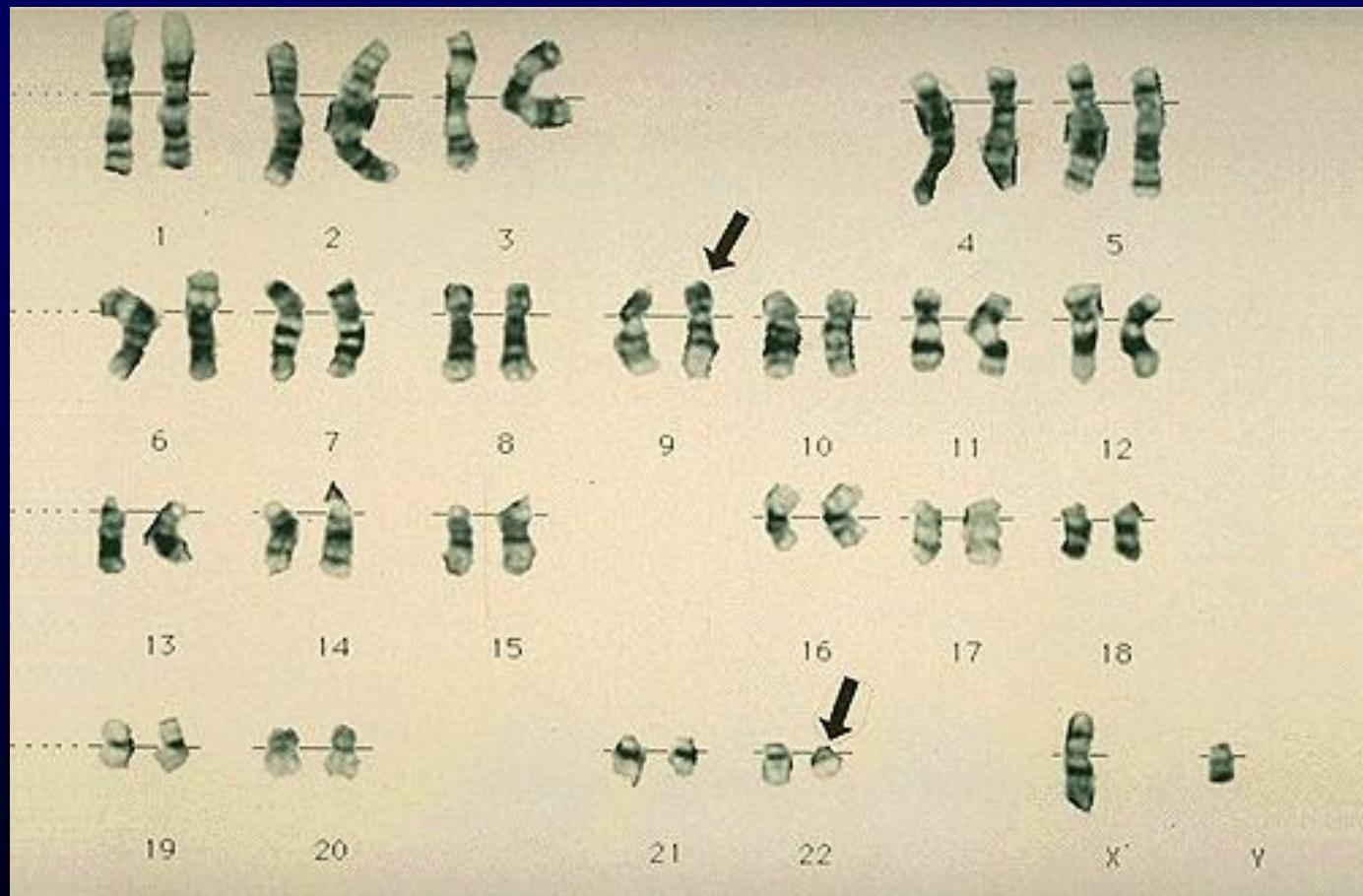
CML



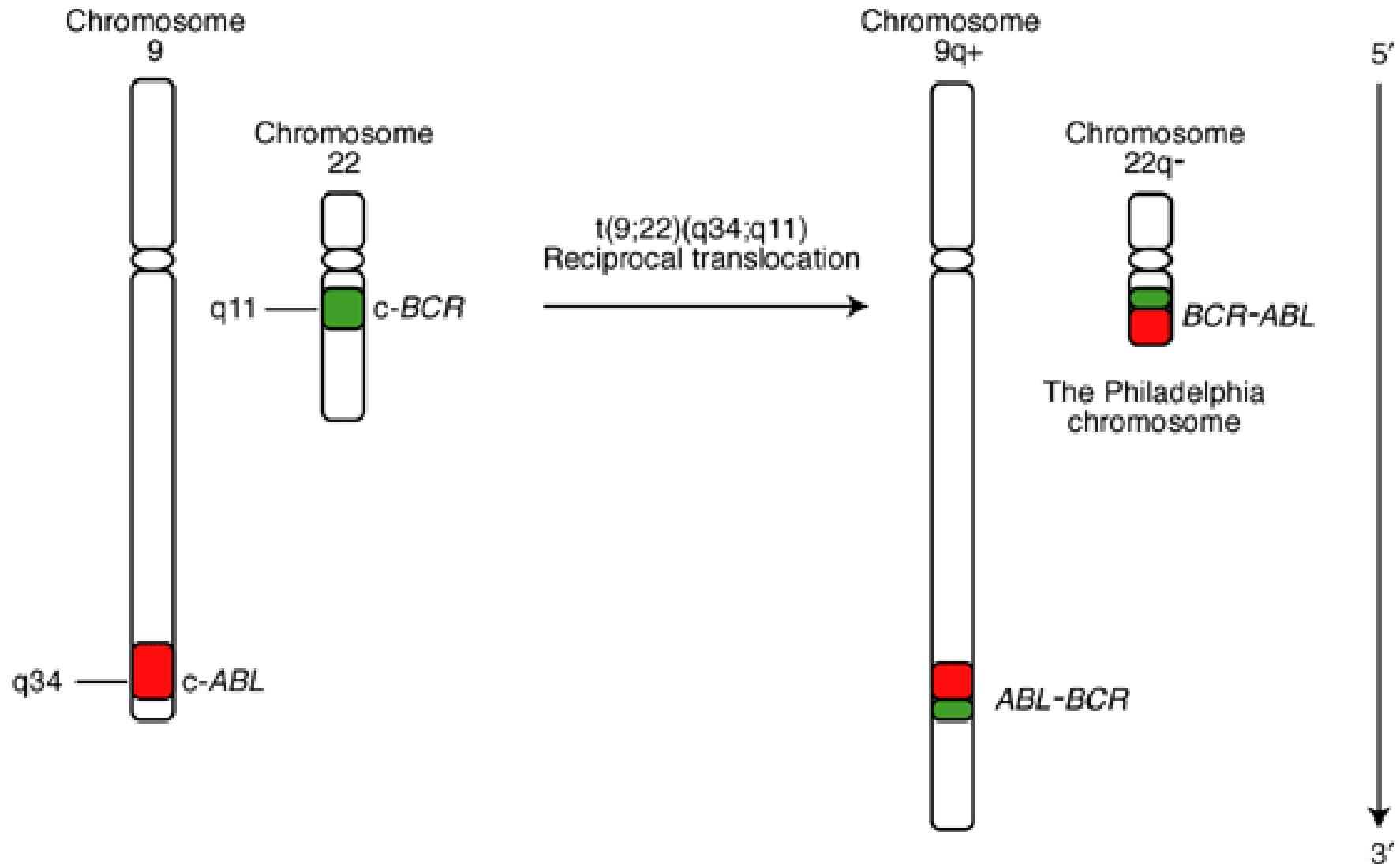
CML



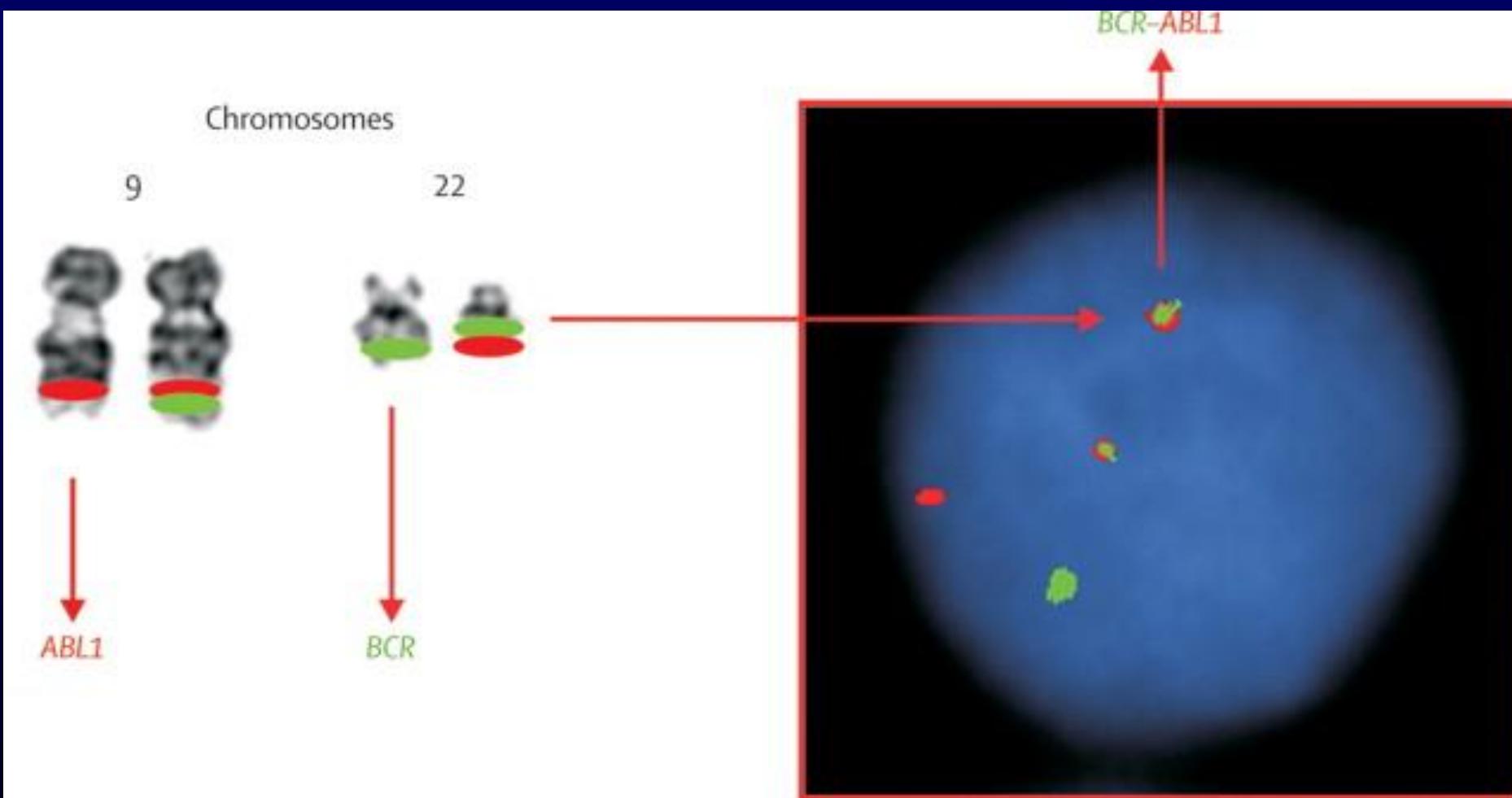
karyotyping



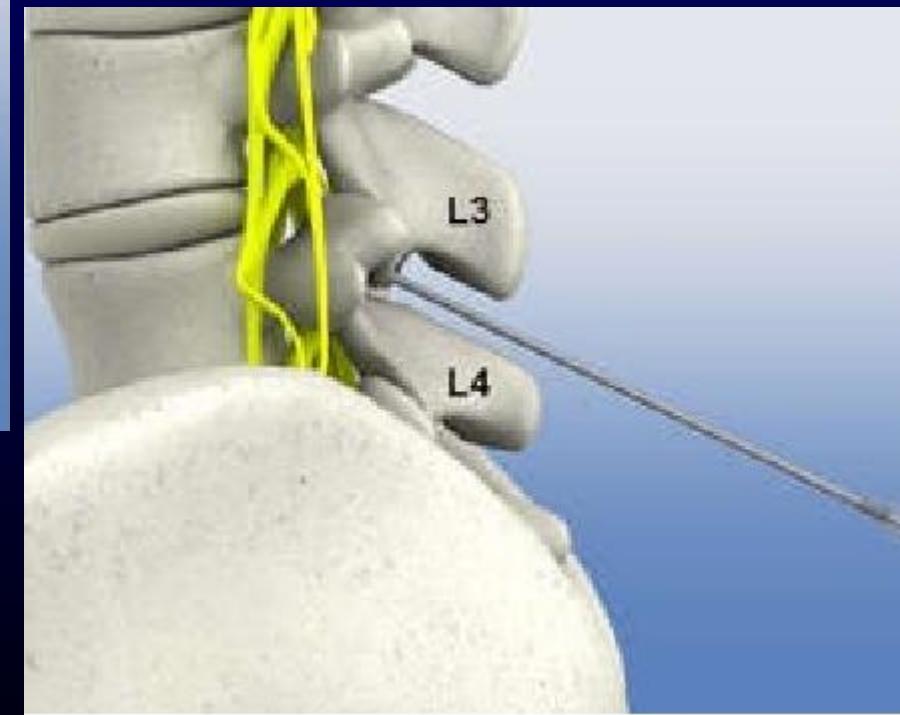
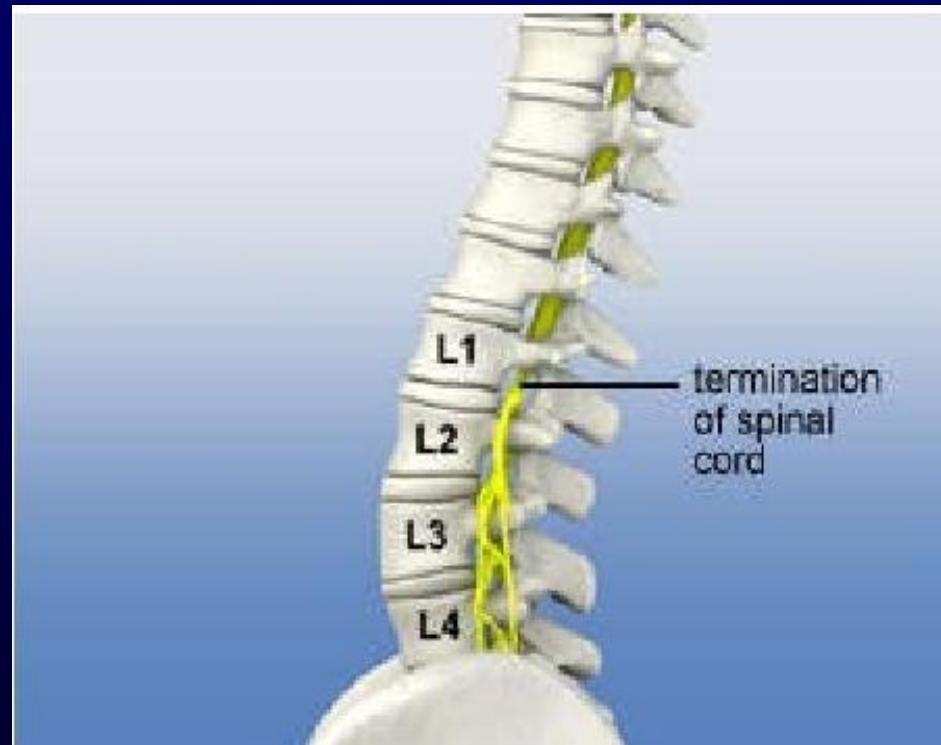
Genetics



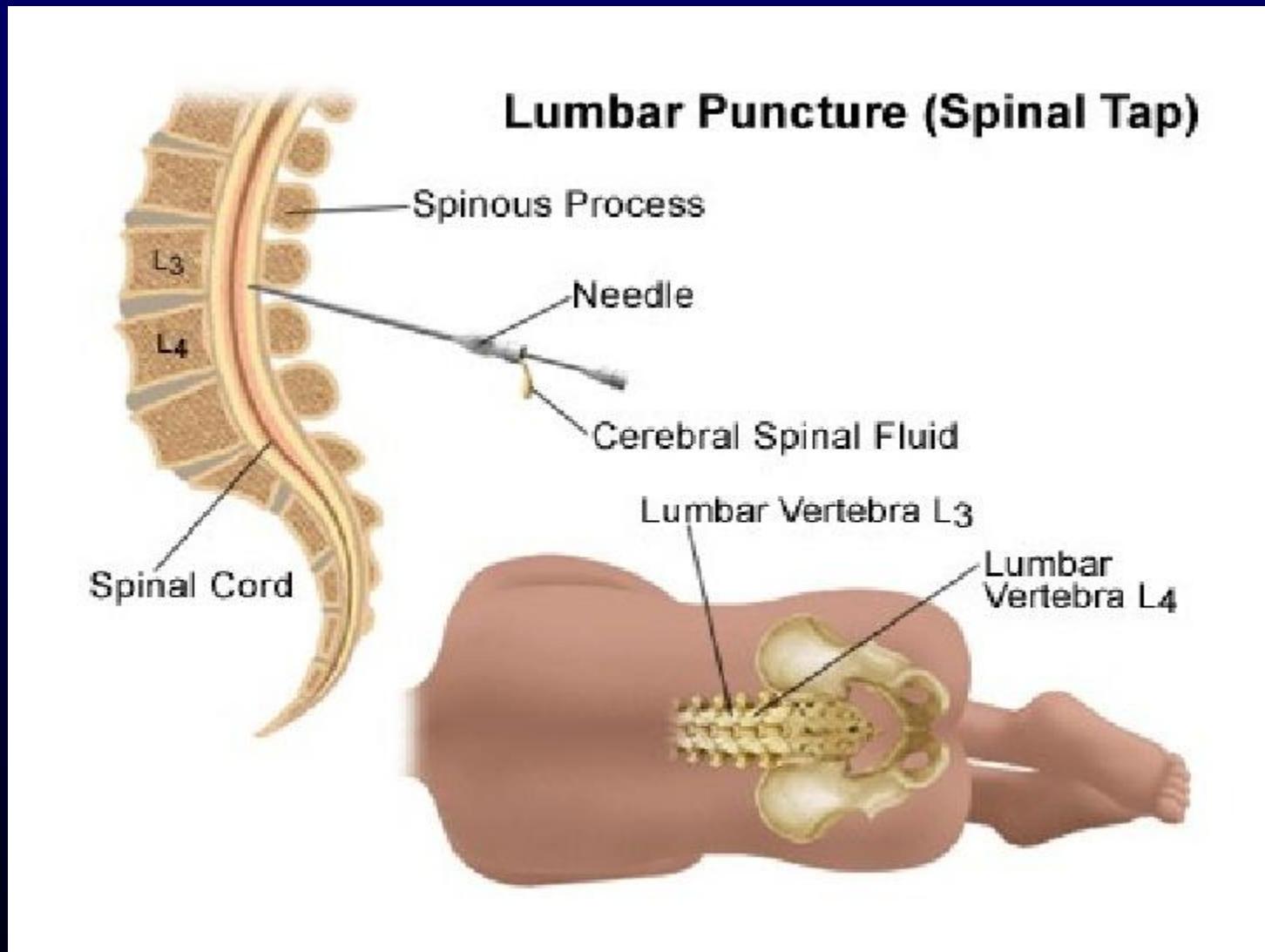
Genetics - FISH

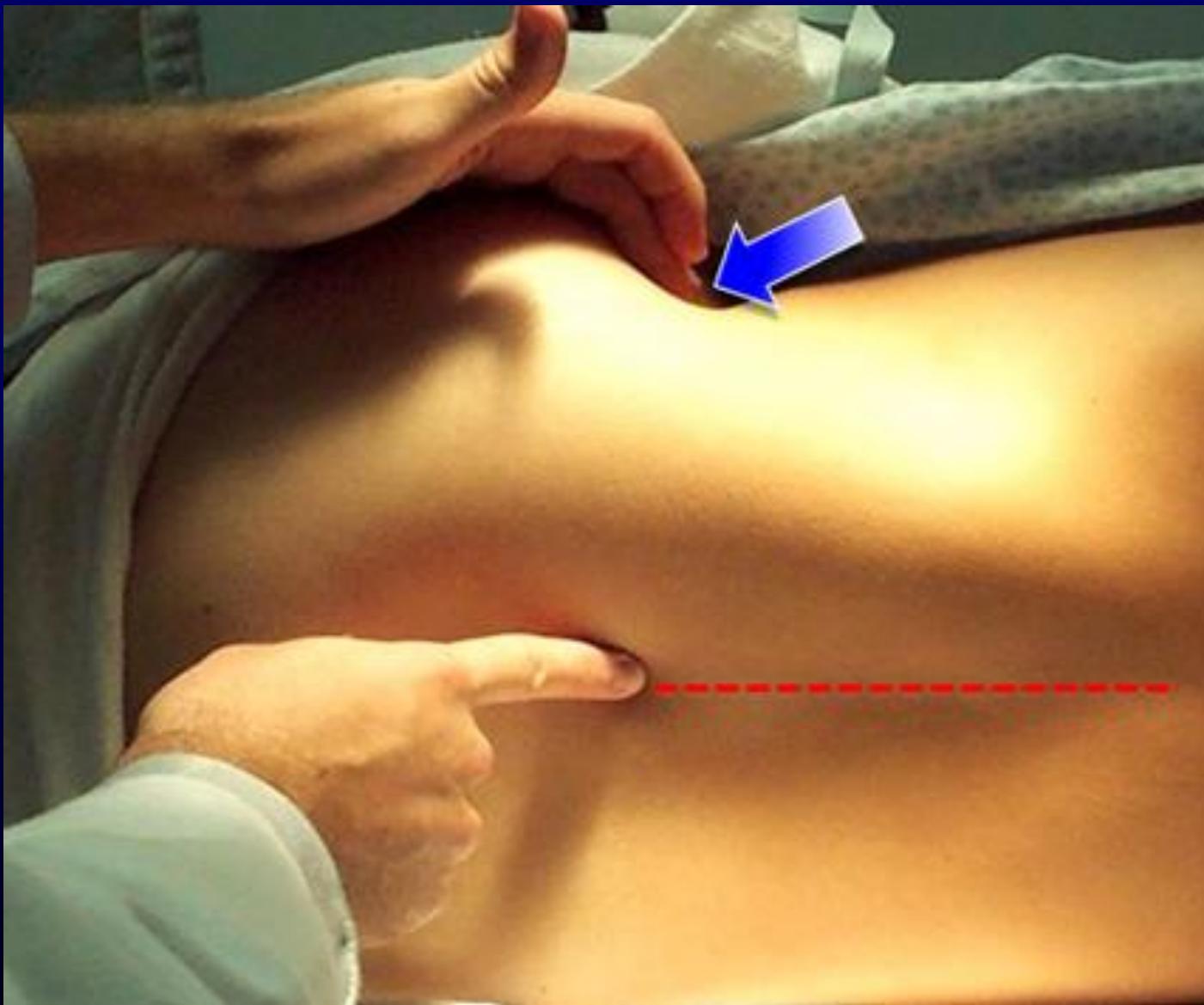


Lumbar puncture

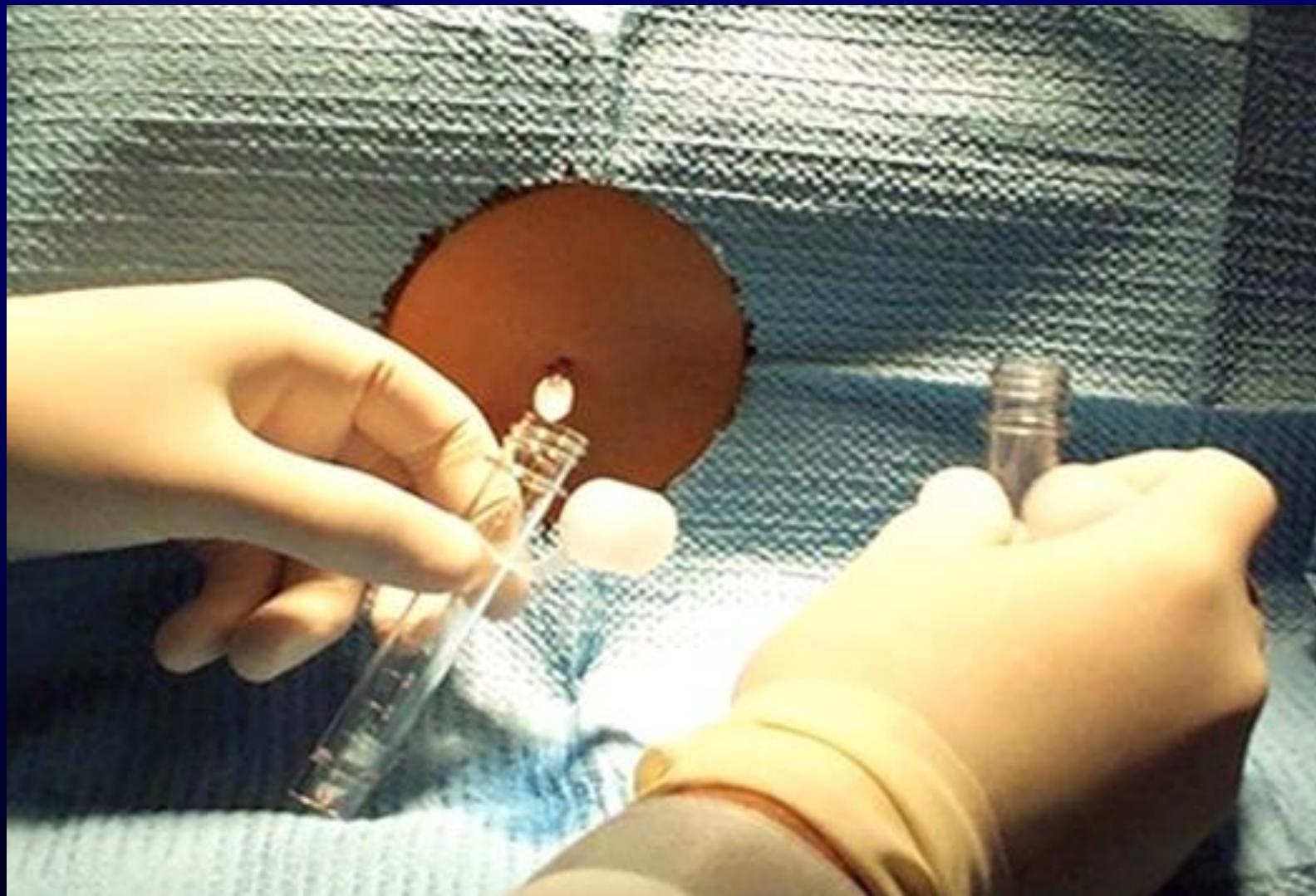


Lumbar puncture









Complications of LP

Dry tap (no fluid)

Infection

Bloody tap

Dysesthesia

Local hemorrhage

Post-LP headache

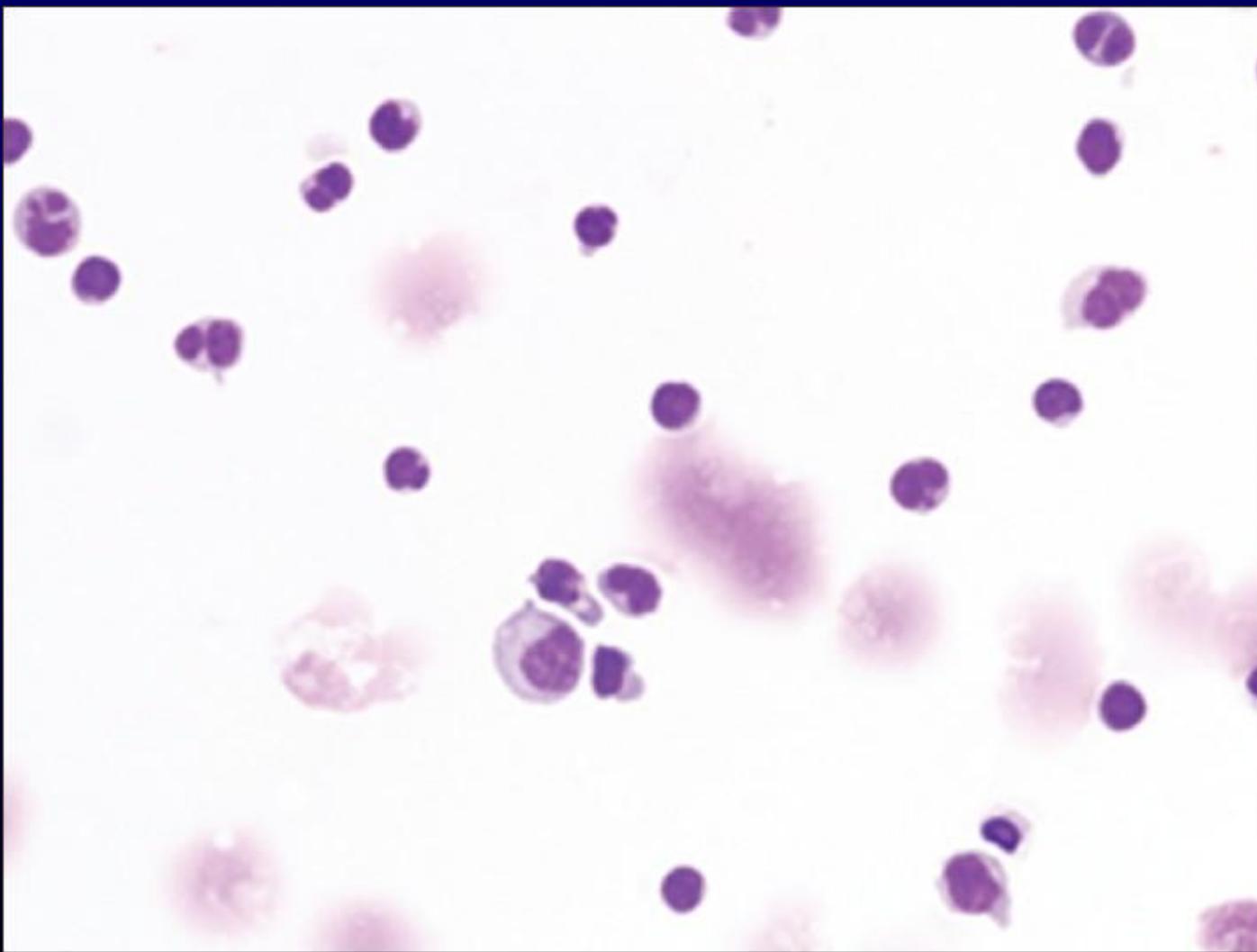
Post-LP cerebral herniation

Persistent spinal leak

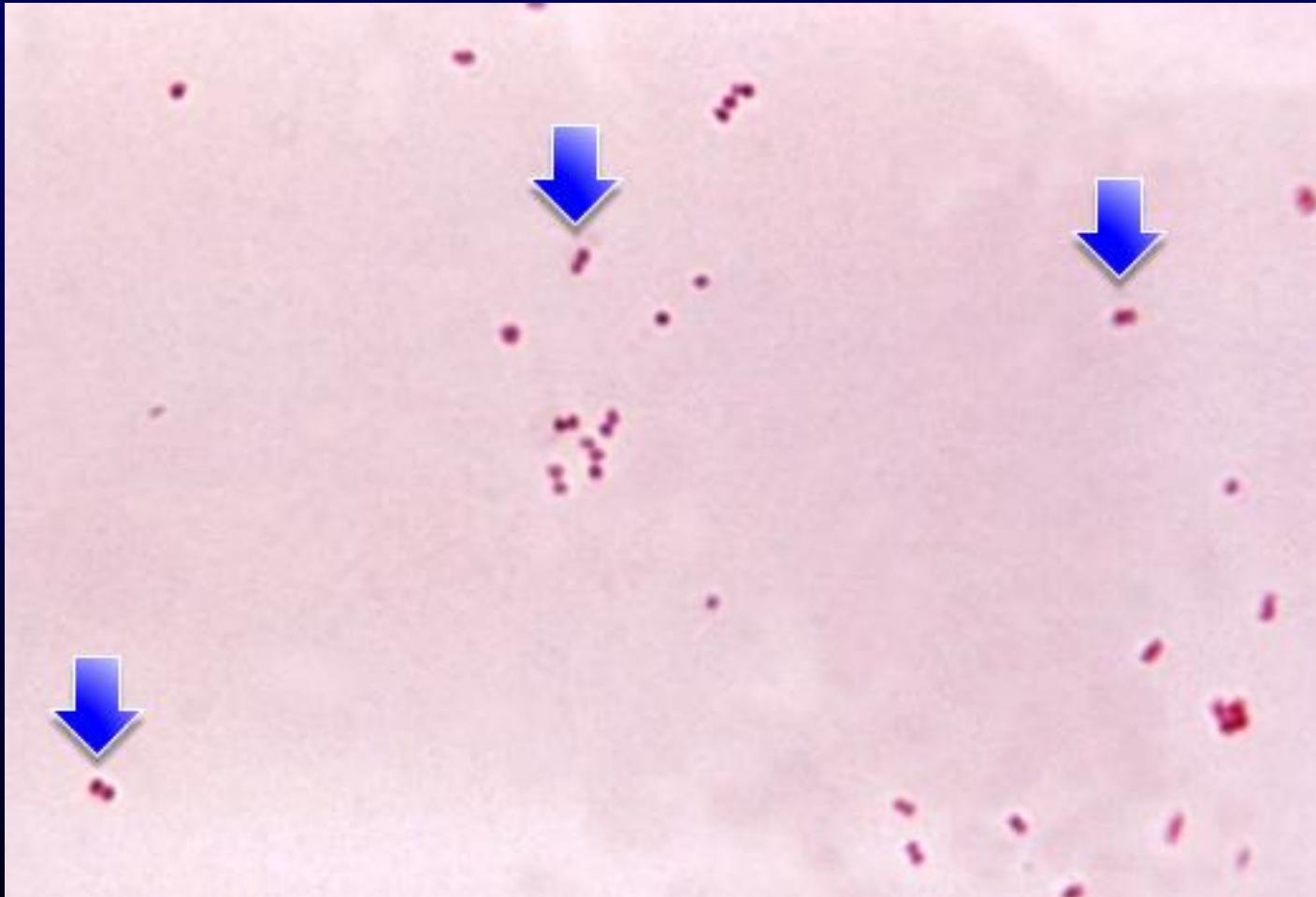
Composition of CSF

Substance	CSF	Plasma
Na+	147	150
K+	2.9	4.6
HCO ₃ -	25	24.8
PCO ₂	50	39.5
pH	7.33	7.4
Osmolality	289	289
Glucose	64	100

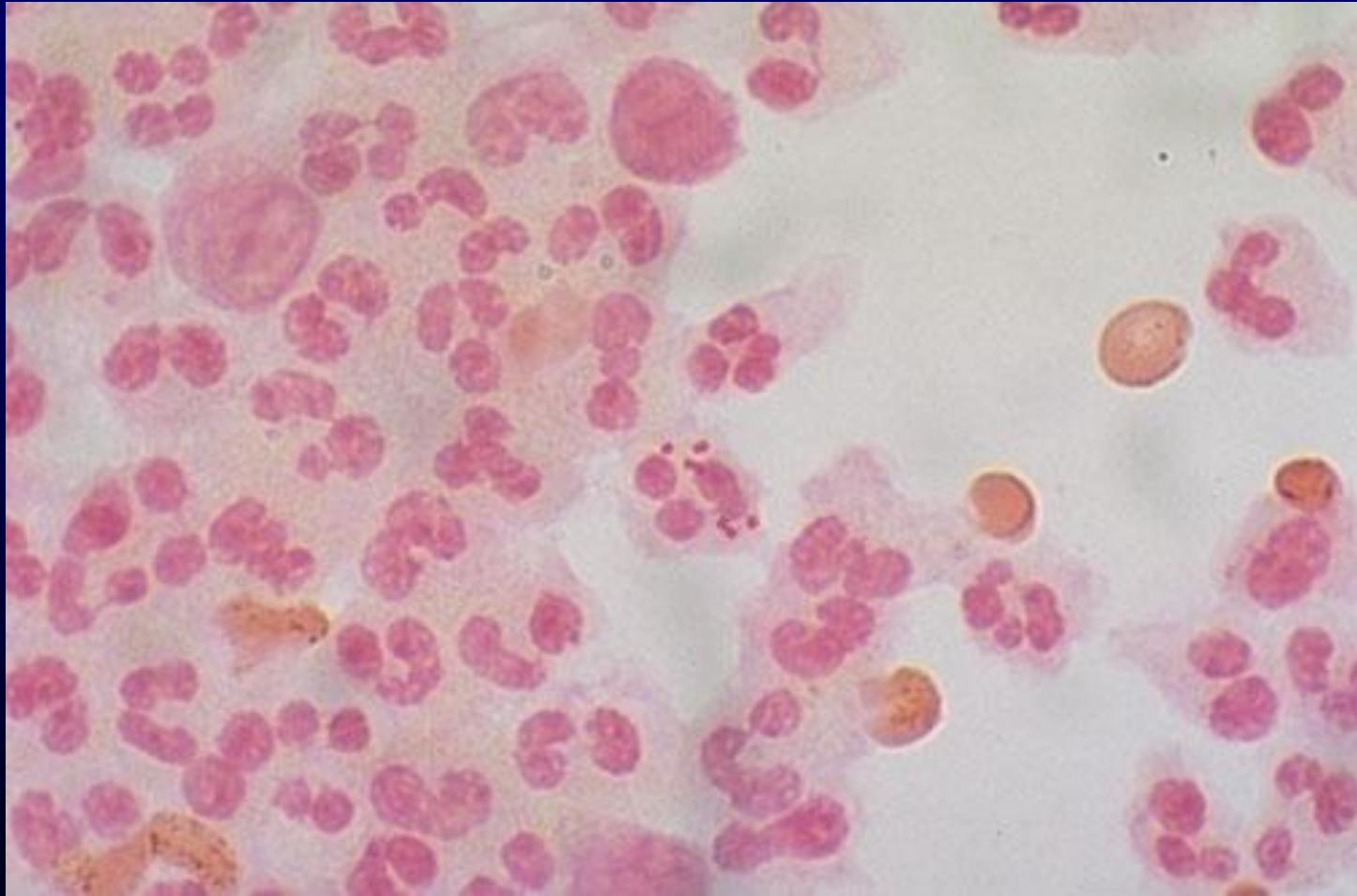
Viral meningitis



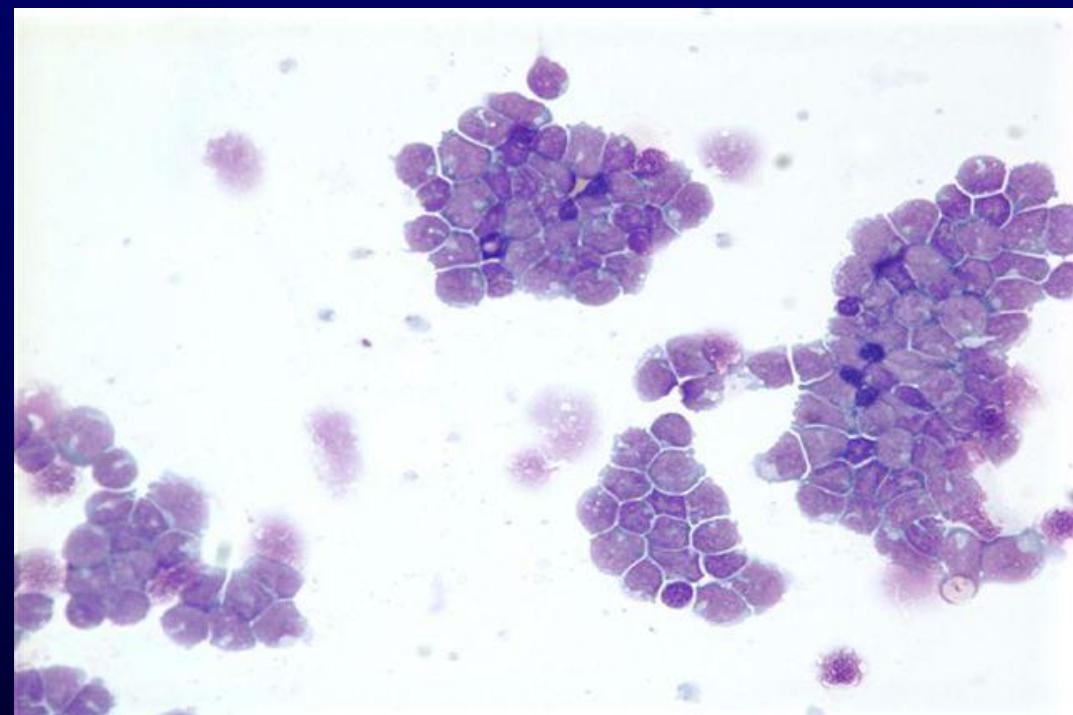
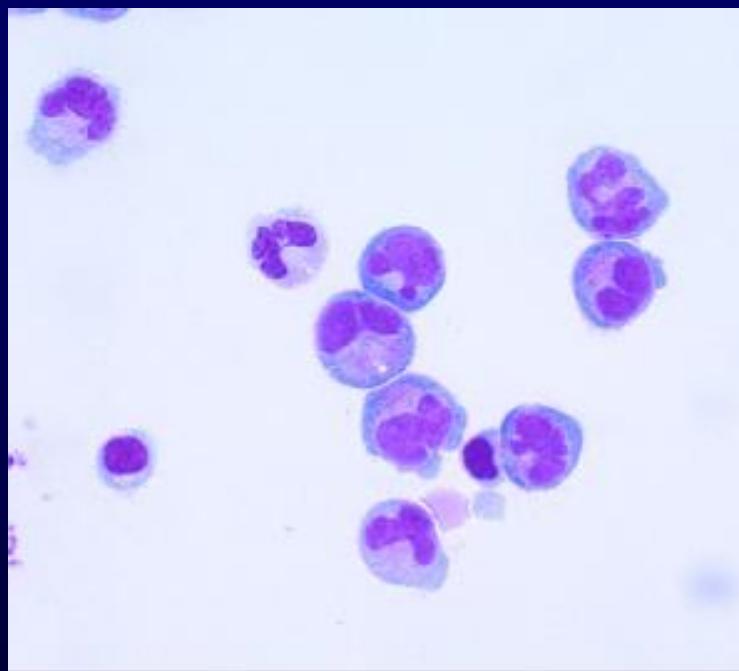
Bacterial meningitis

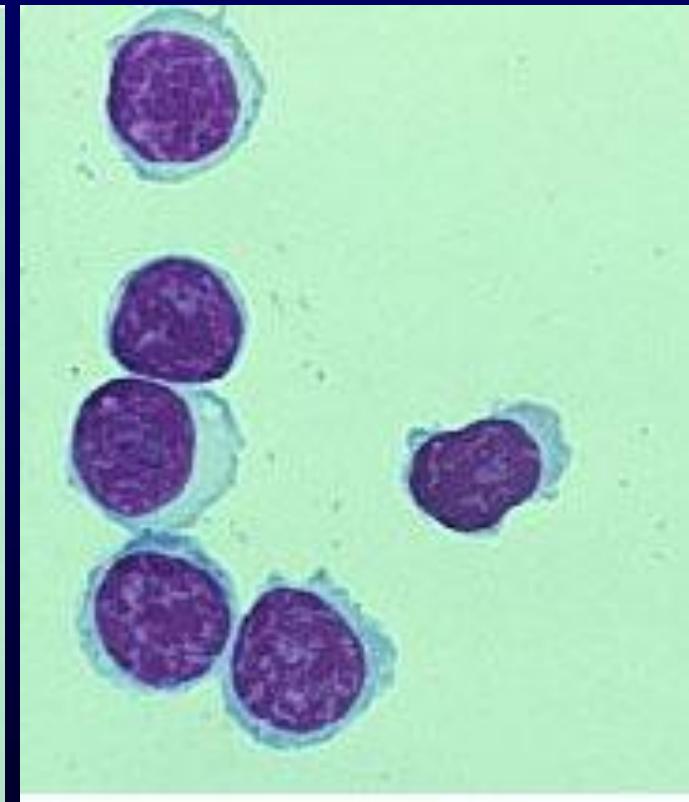


Bacterial meningitis

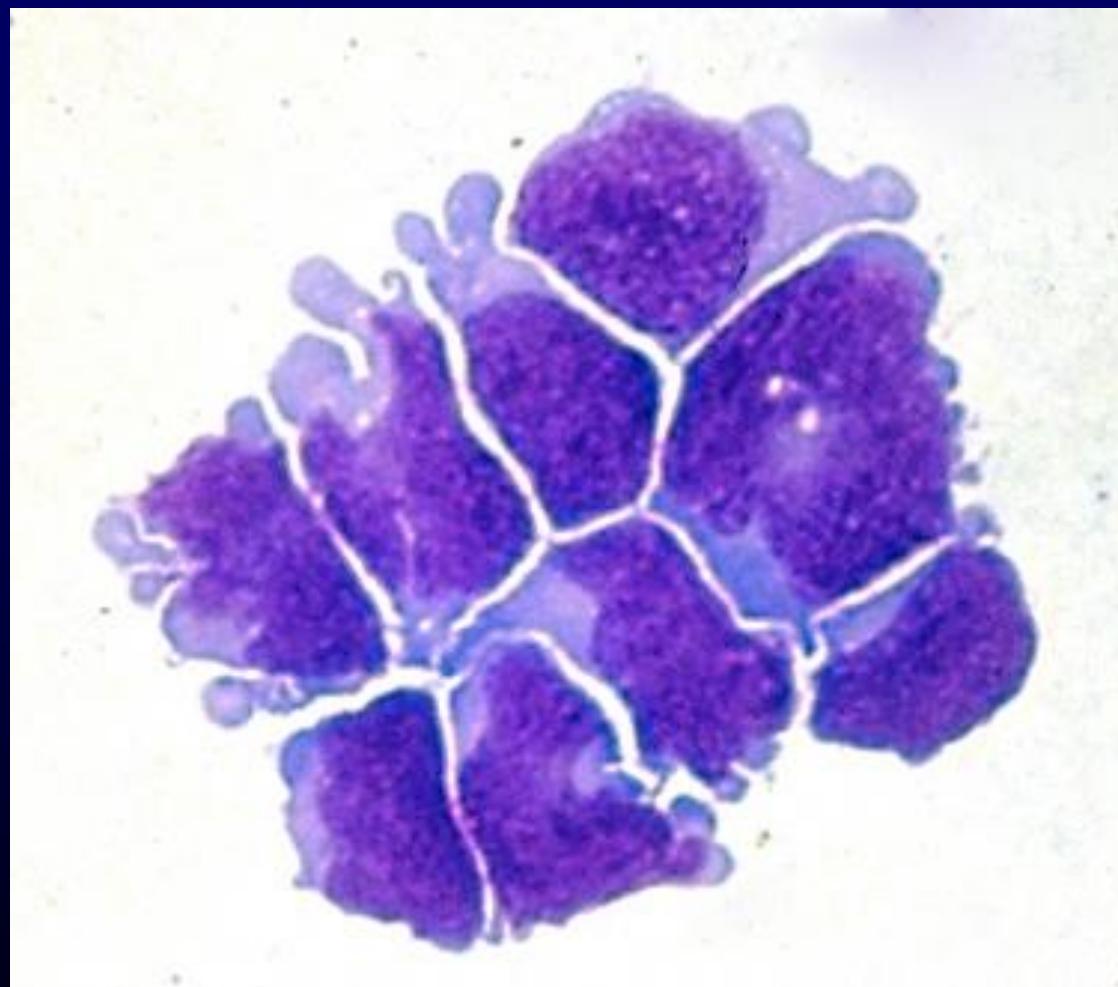


Meningeal leukemia infiltration





Cluster of tumorcells (MBL)





Köszönöm!

Thank You!