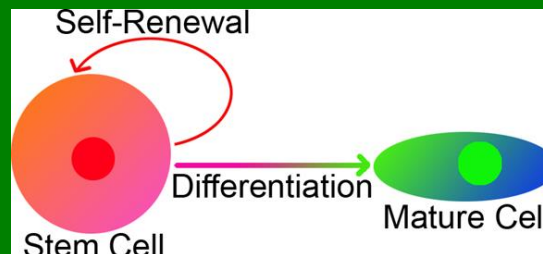
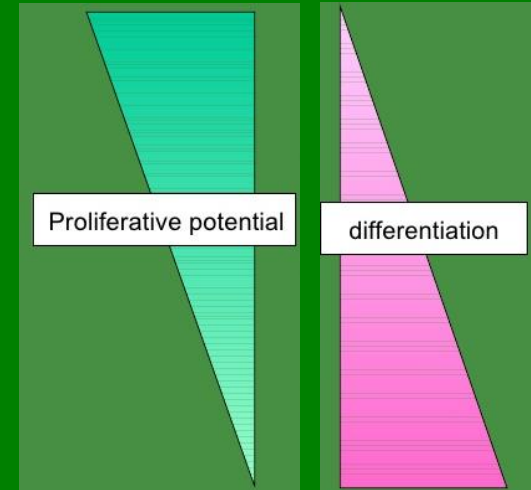
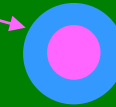
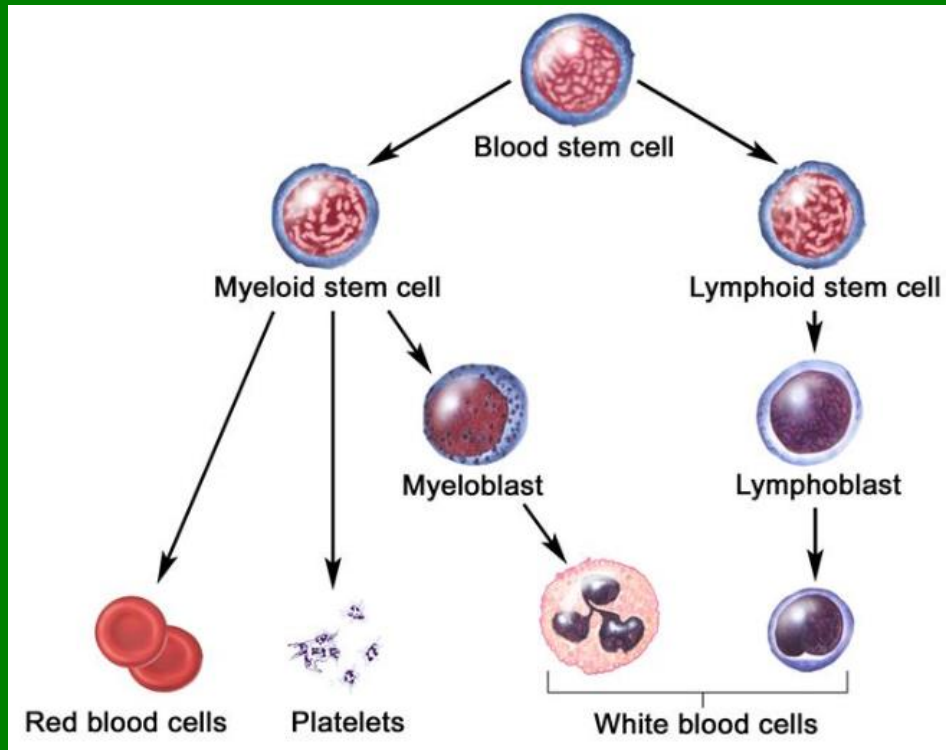


# Hematopoéza

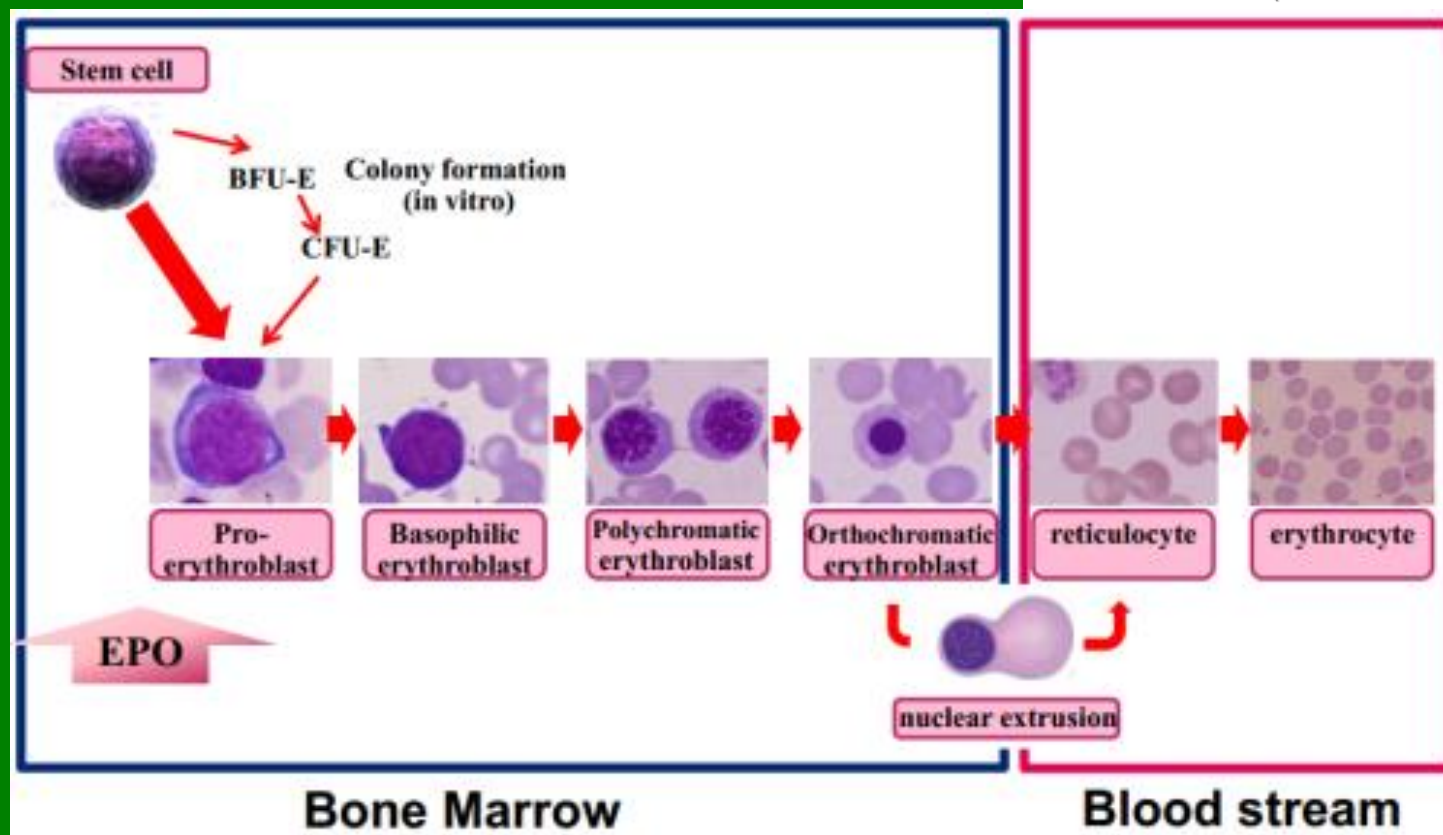
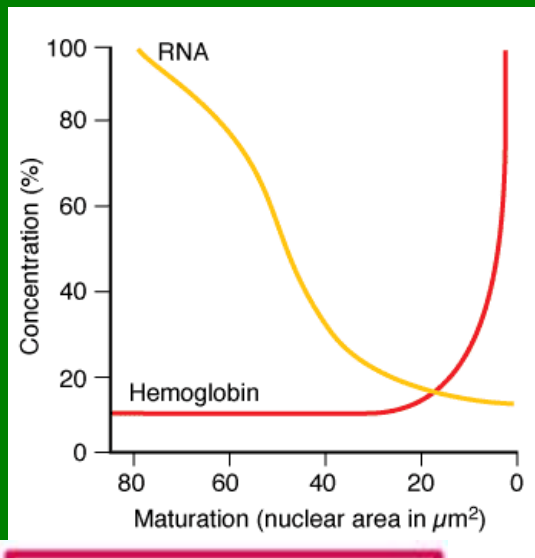
Bourková L., OKH FN Brno

- bílé krvinky – leukocyty – WBC (*White Blood Cells*)
- červené krvinky – erytrocyty – RBC (*Red Blood Cells*)
- krevní destičky – trombocyty – PLT (*Platelets*)

# Kmenové buňky hematopoézy



# Erythropoéza



# Granulopoéza

myeloblast



promyelocyte



myelocyte



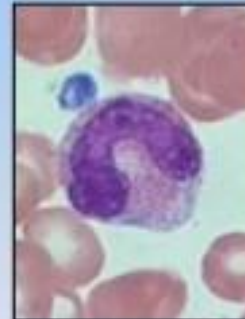
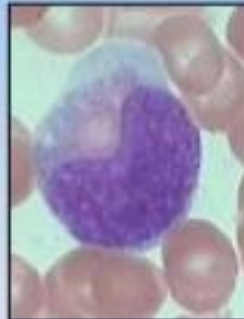
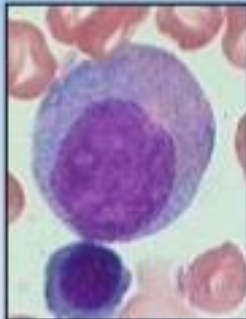
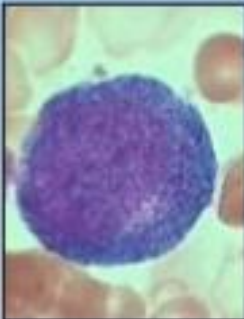
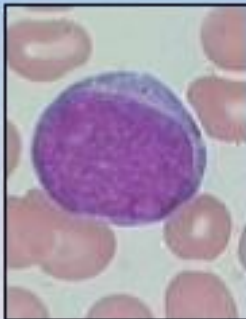
metamyelocyte

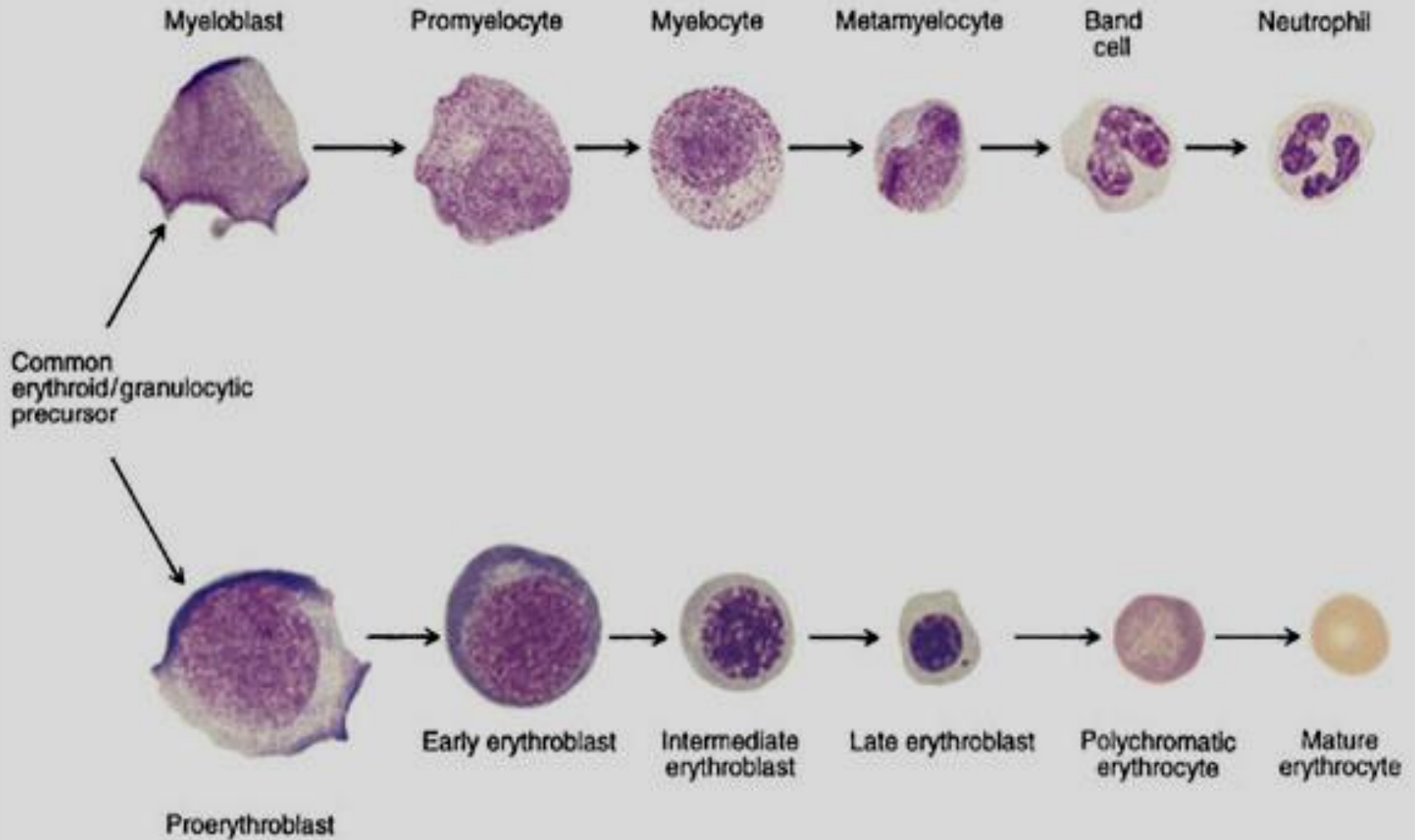


band



neutrophil





# rozdíl velikostí leukocytů

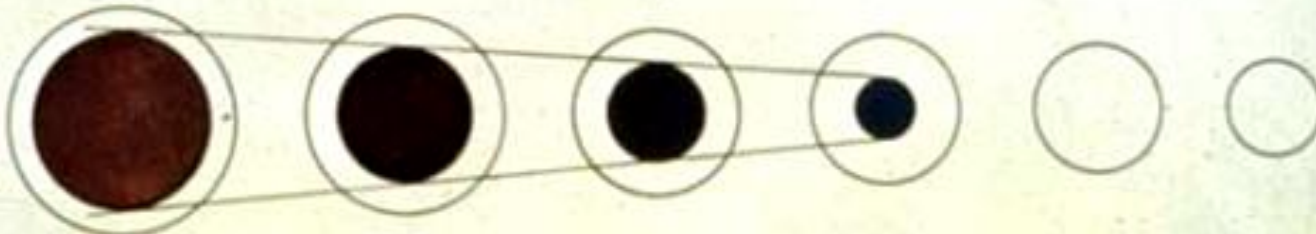


# Sledování buněčných morfologických změn



A Cell size and cytoplasm color

zbarvení, obsah  
cytoplazmy



B Nuclear size and color

velikost, tvar  
jádra



C Nuclear chromatin structure

struktura chromatinu,  
jadérka

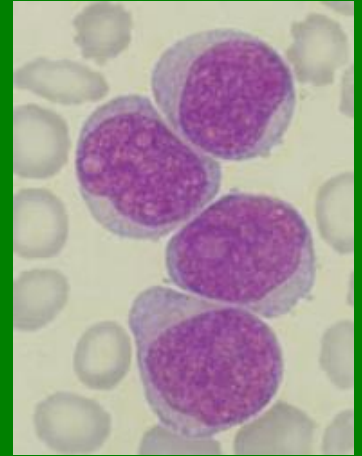
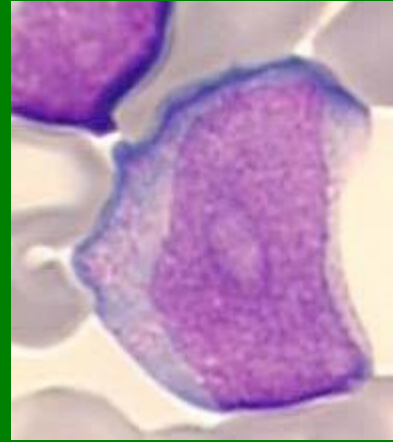


D Composite (Left to right: Rubriblast, Proerythrocyte, Rubrocyte, Metarubrocyte, Diffusely basophilic erythrocyte, Erythrocyte)

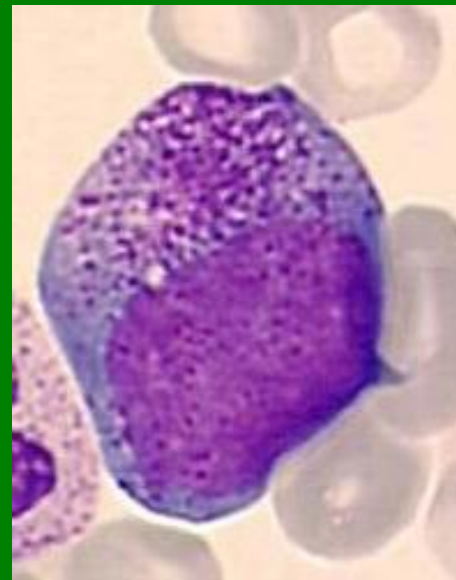
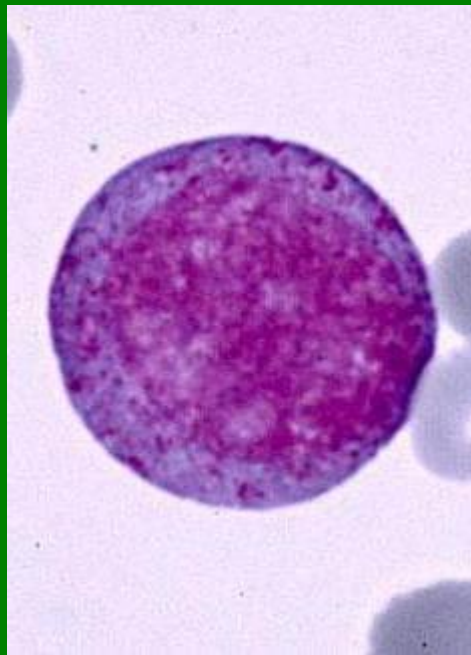
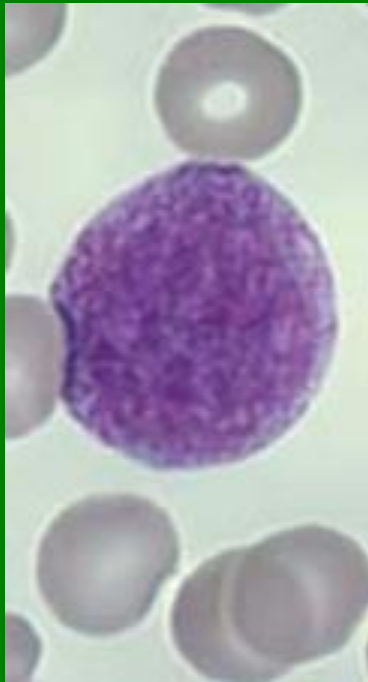
komplexní hodnocení



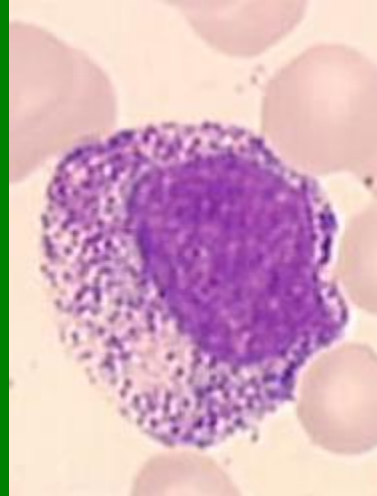
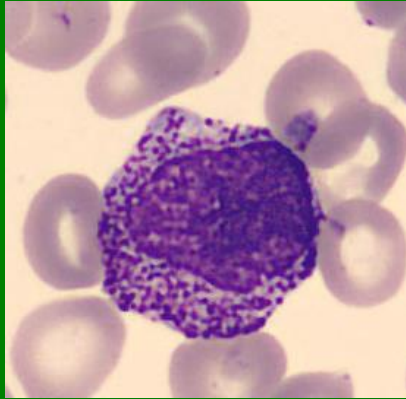
## Myeloblasty



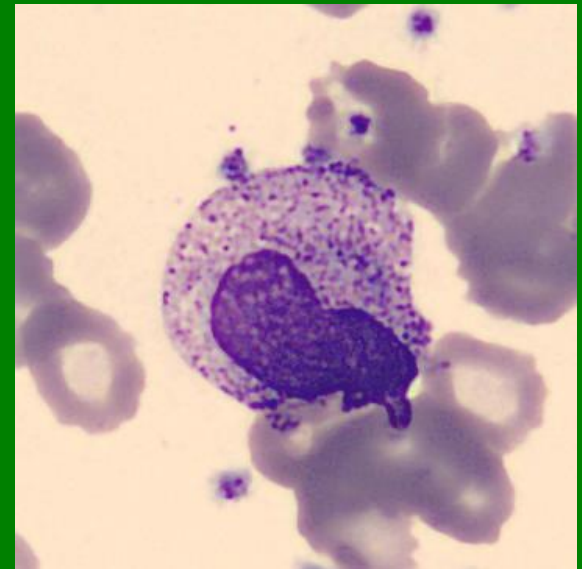
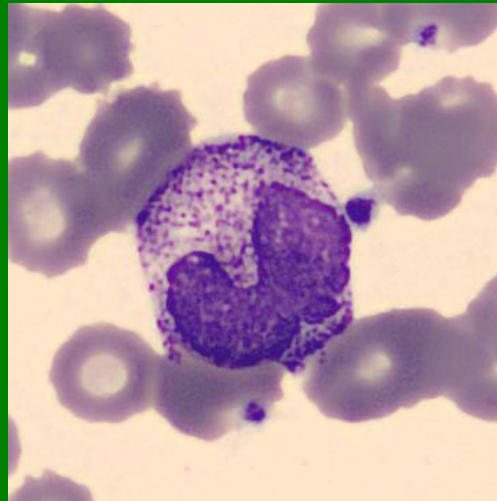
## Promyelocyty



## Myelocyty – Ne (nezralé, zralé)



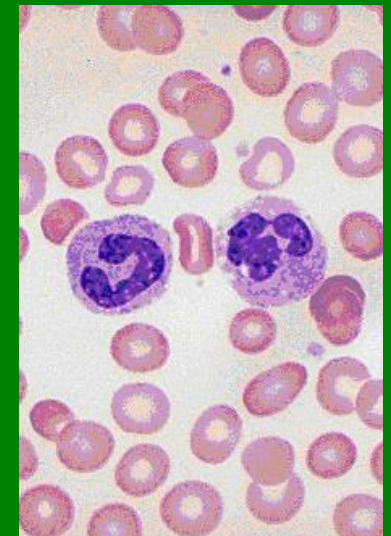
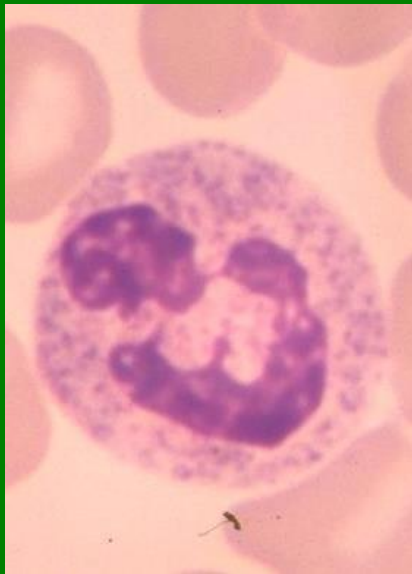
## Metamyelocyty - Ne



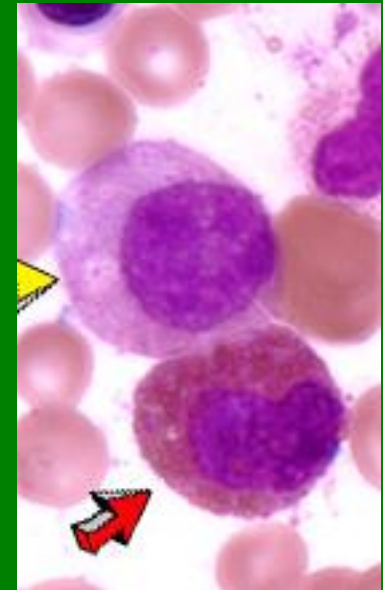
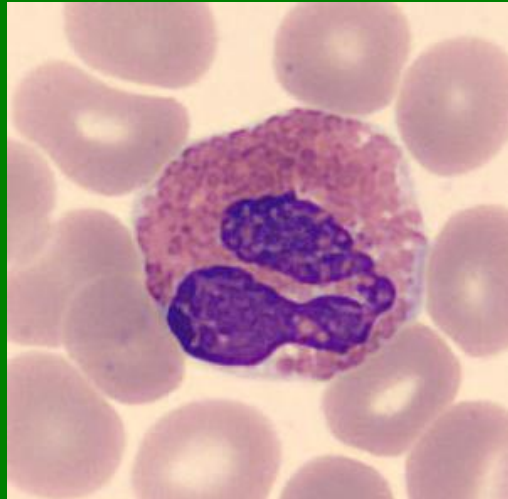
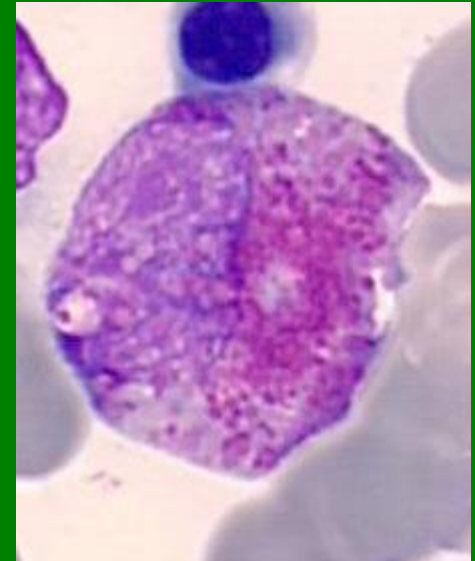
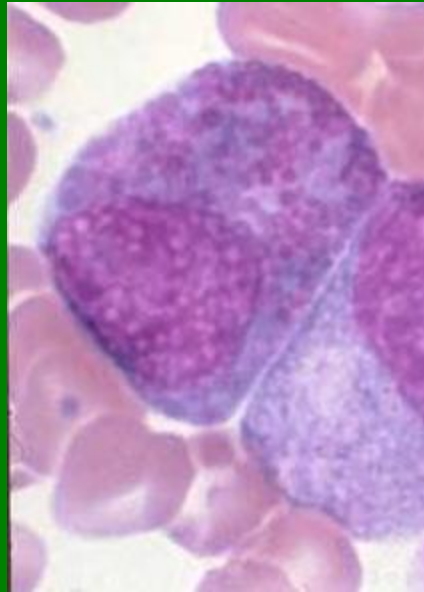
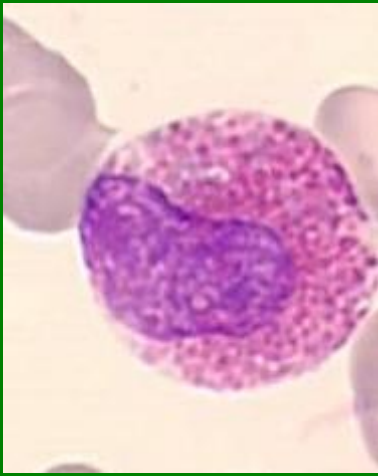
**Tyč – Ne** (rozdíl mezi nejširším a nejužším tvarem jádra je 1/3 až 1/2)



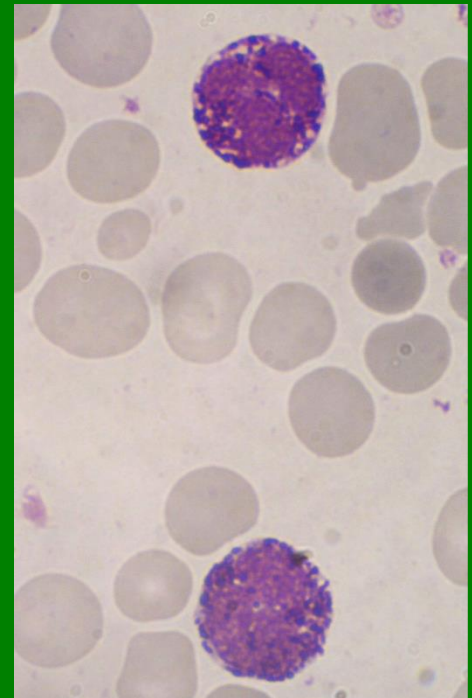
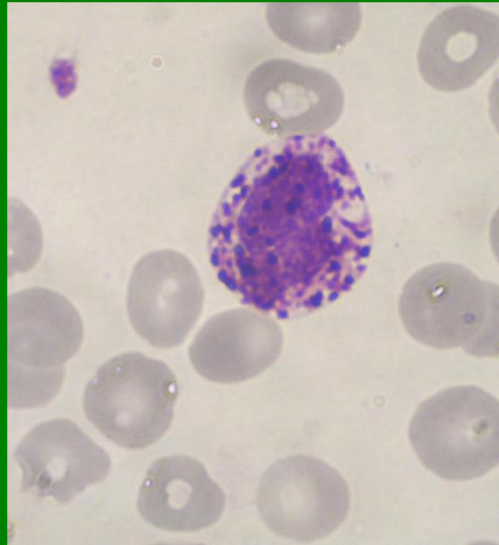
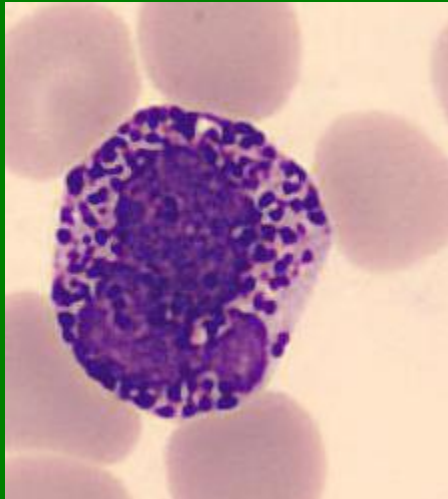
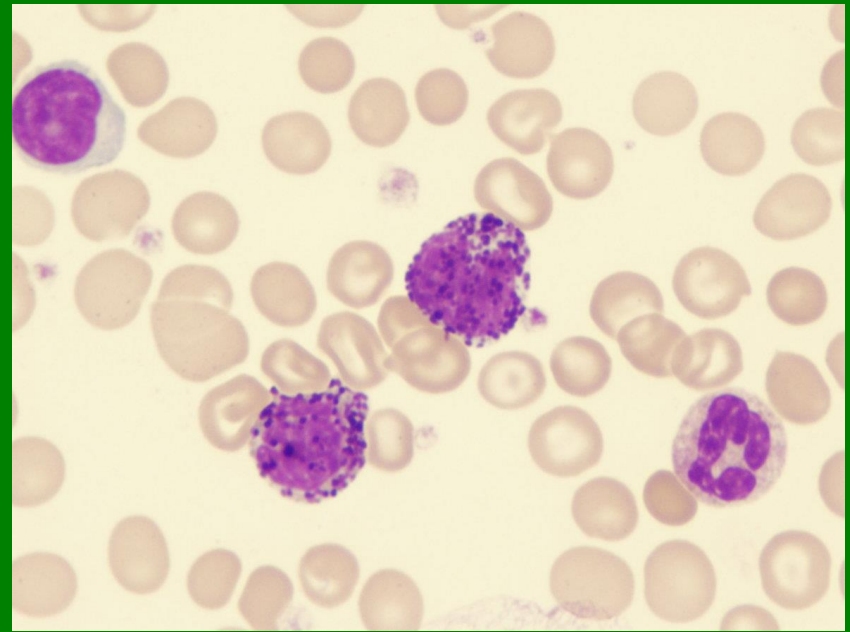
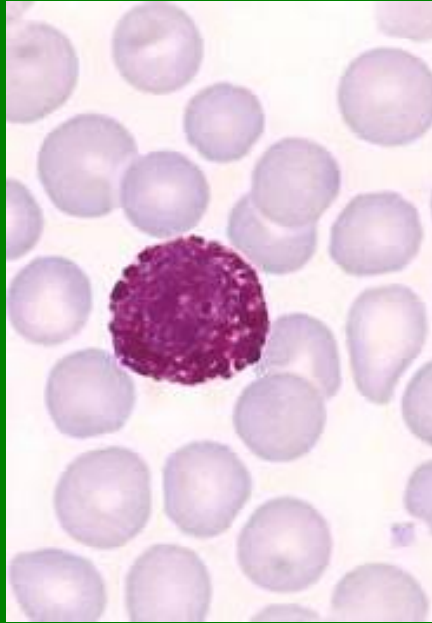
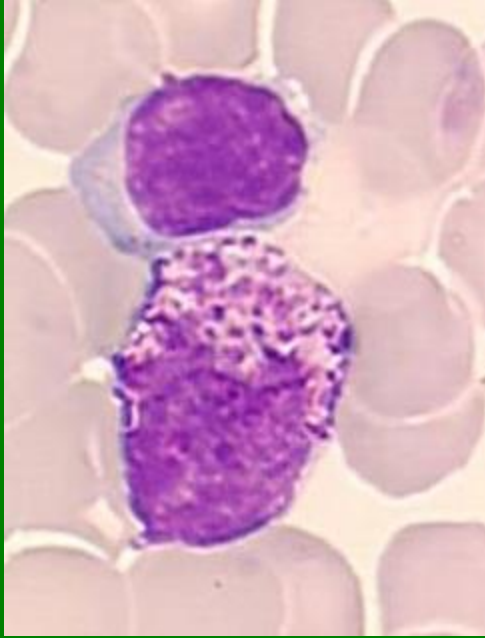
**Segment - Ne**



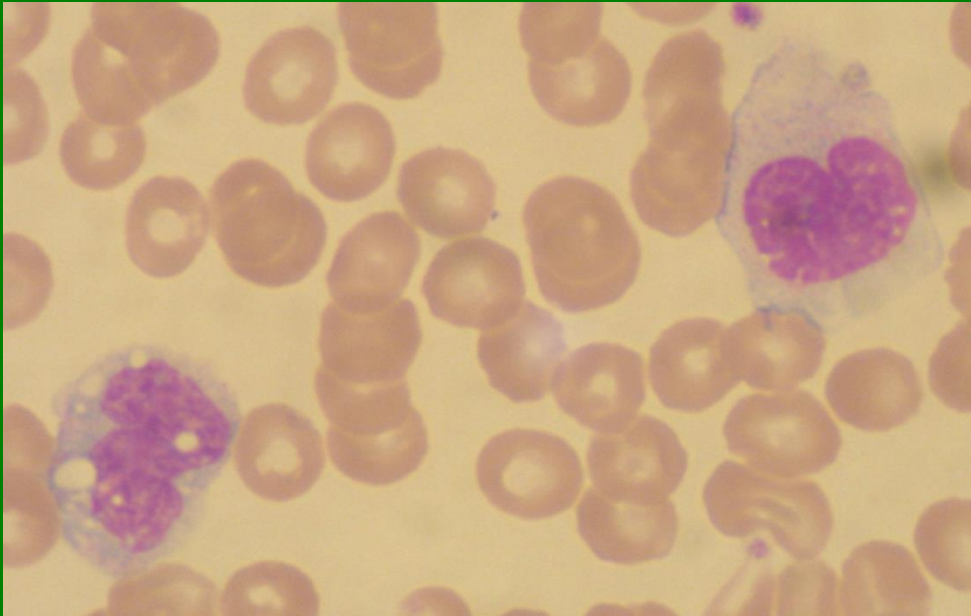
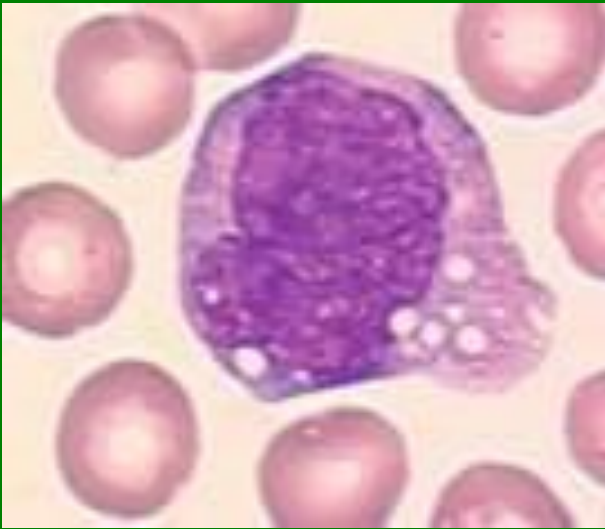
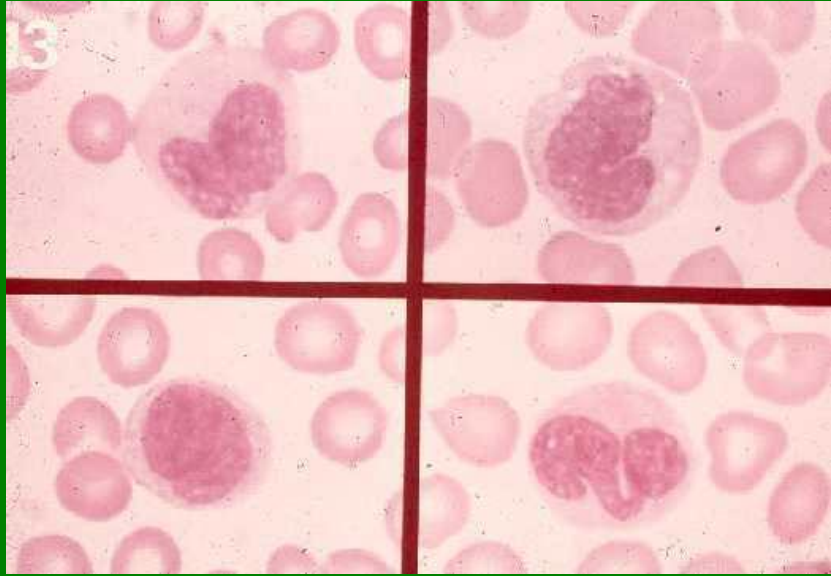
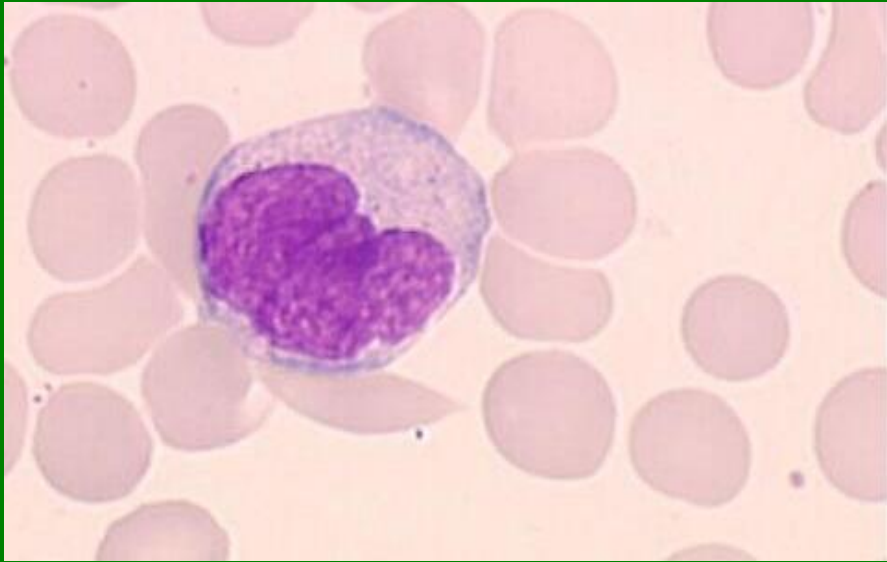
# Eozinofily



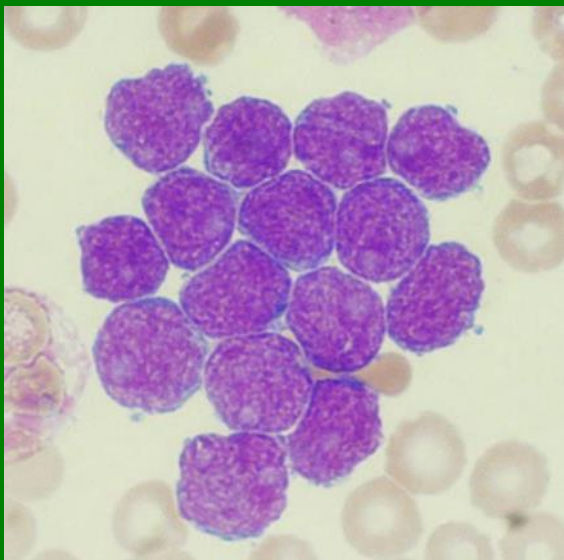
# Bazofily



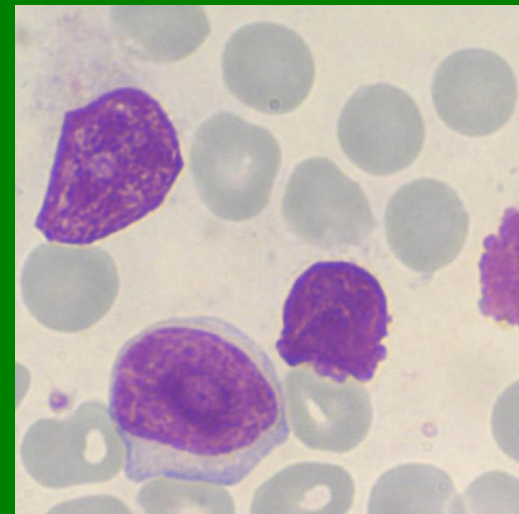
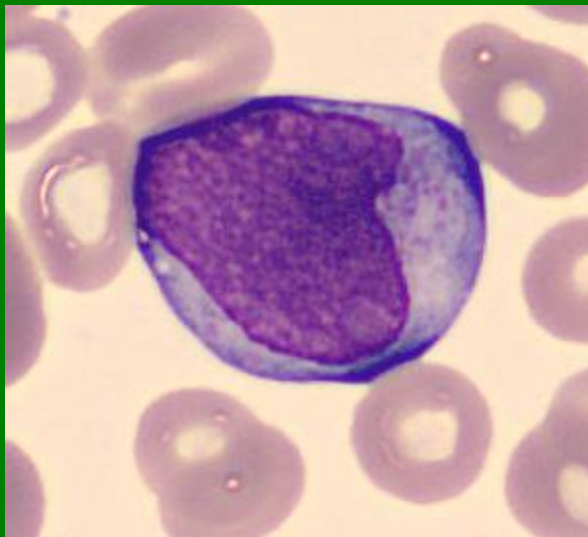
# Monocyty



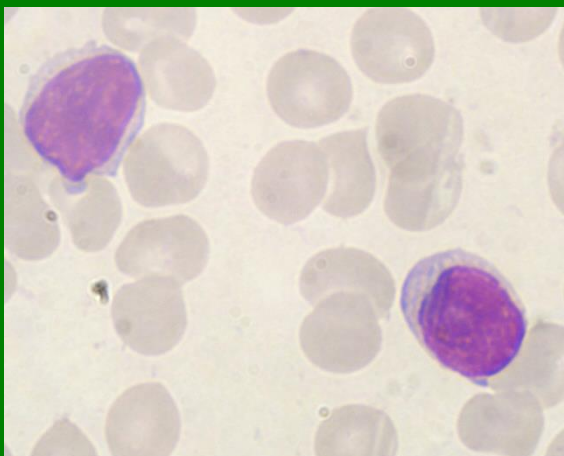
**Lymfoblasty**



**Prolymfocyt**



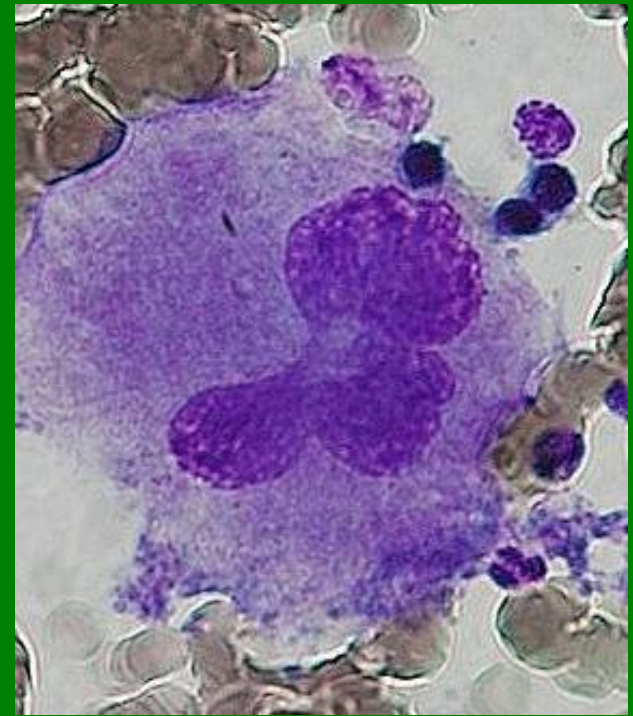
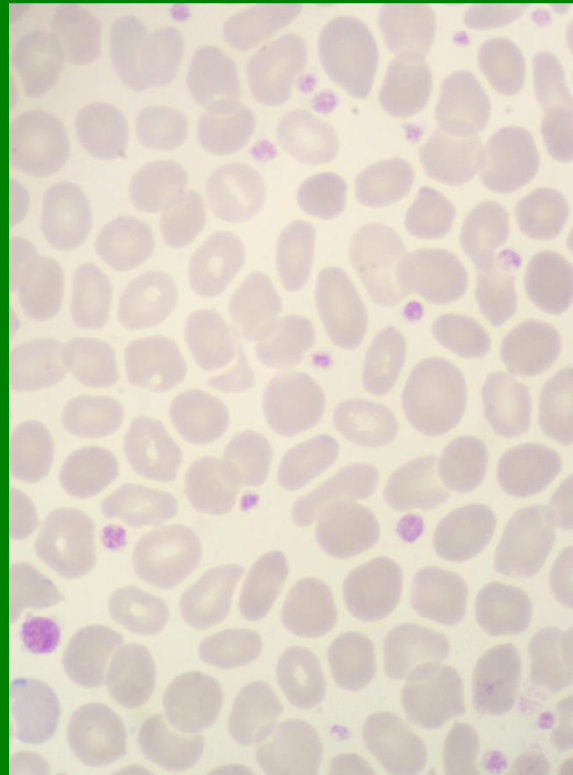
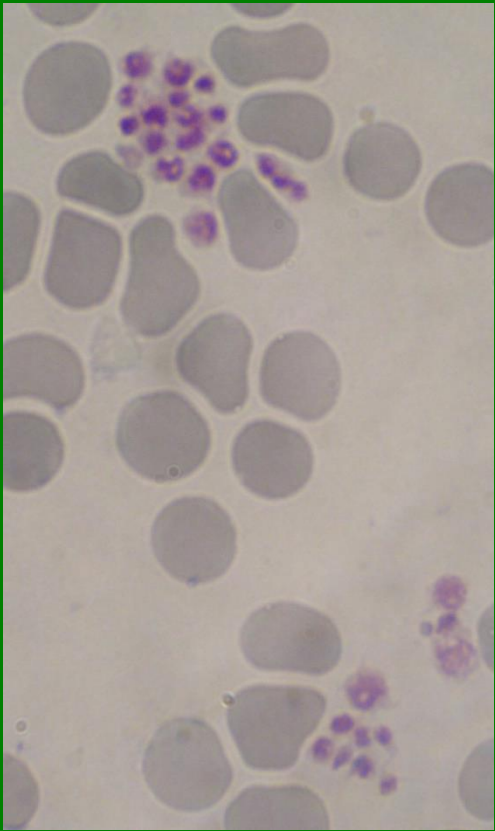
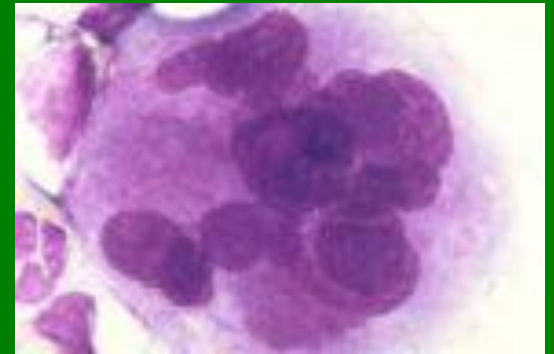
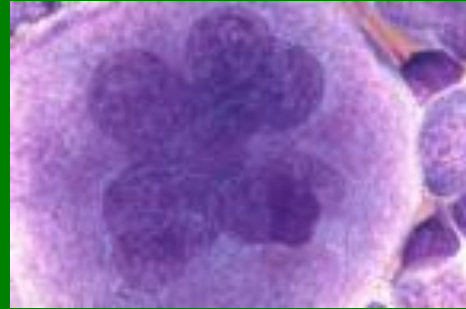
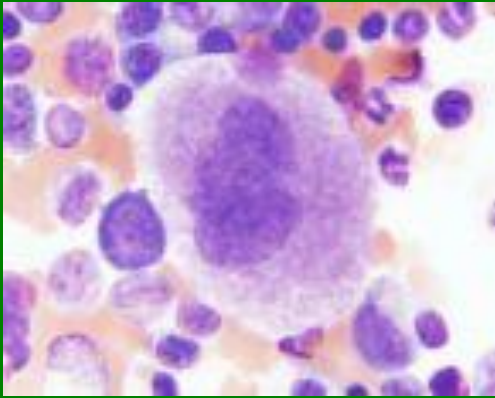
**Lymfocyty**



**Plazmatická buňka**

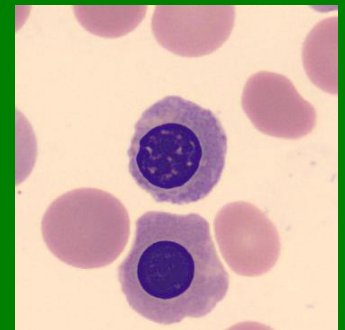
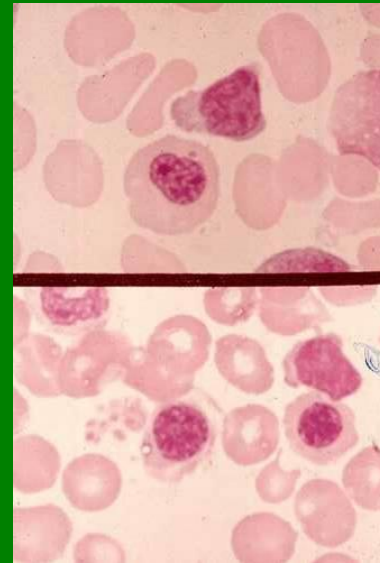
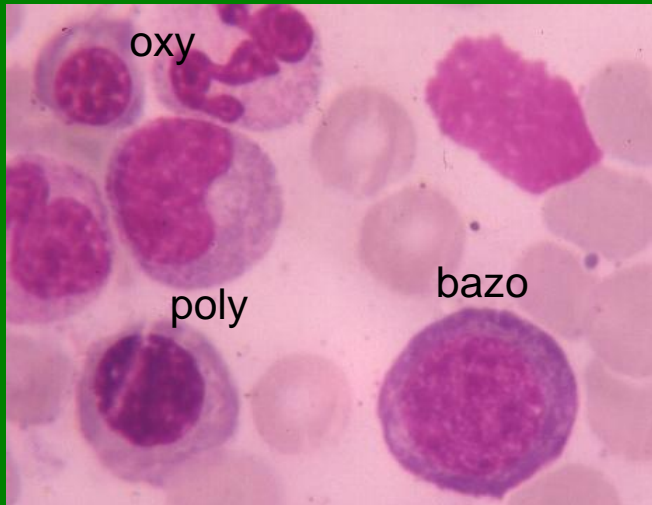
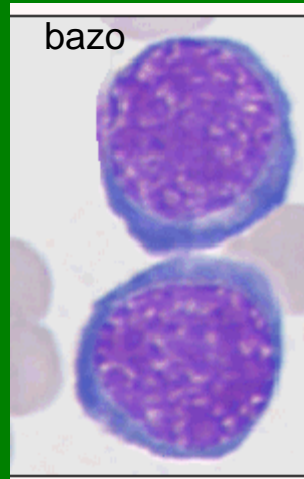
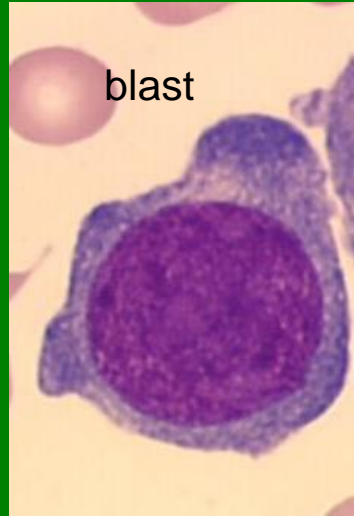
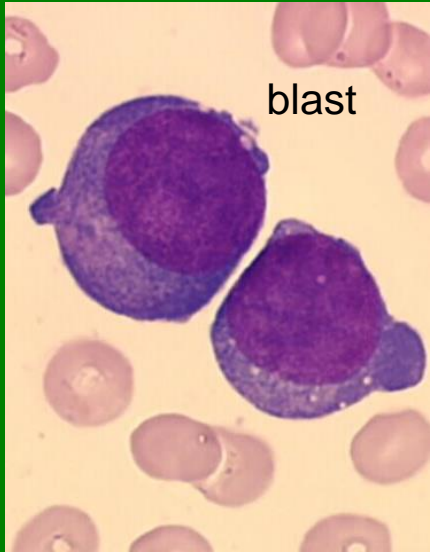


# Megakaryocyty, PLT



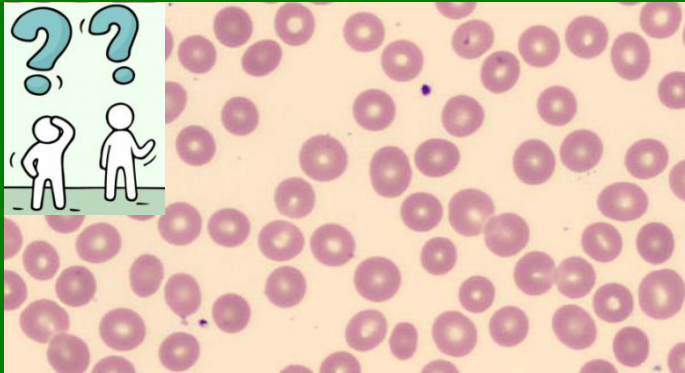


# NRBC

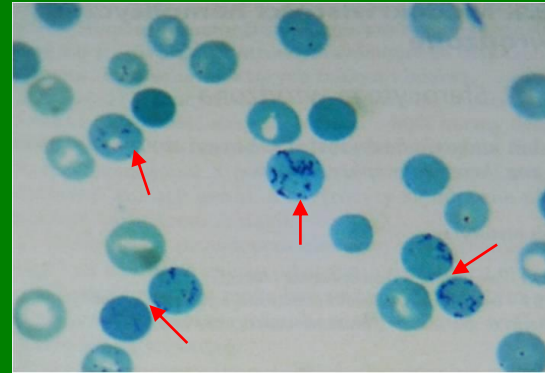


# Retikulocyty

RBC/Retic?



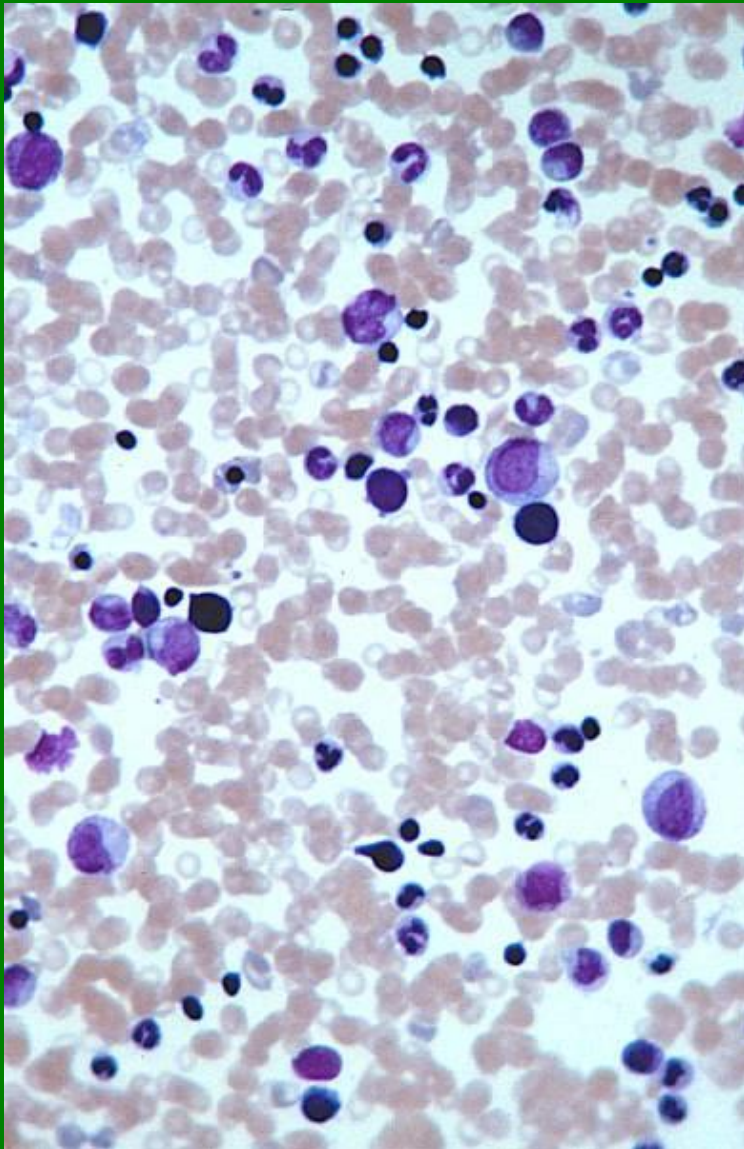
Retic



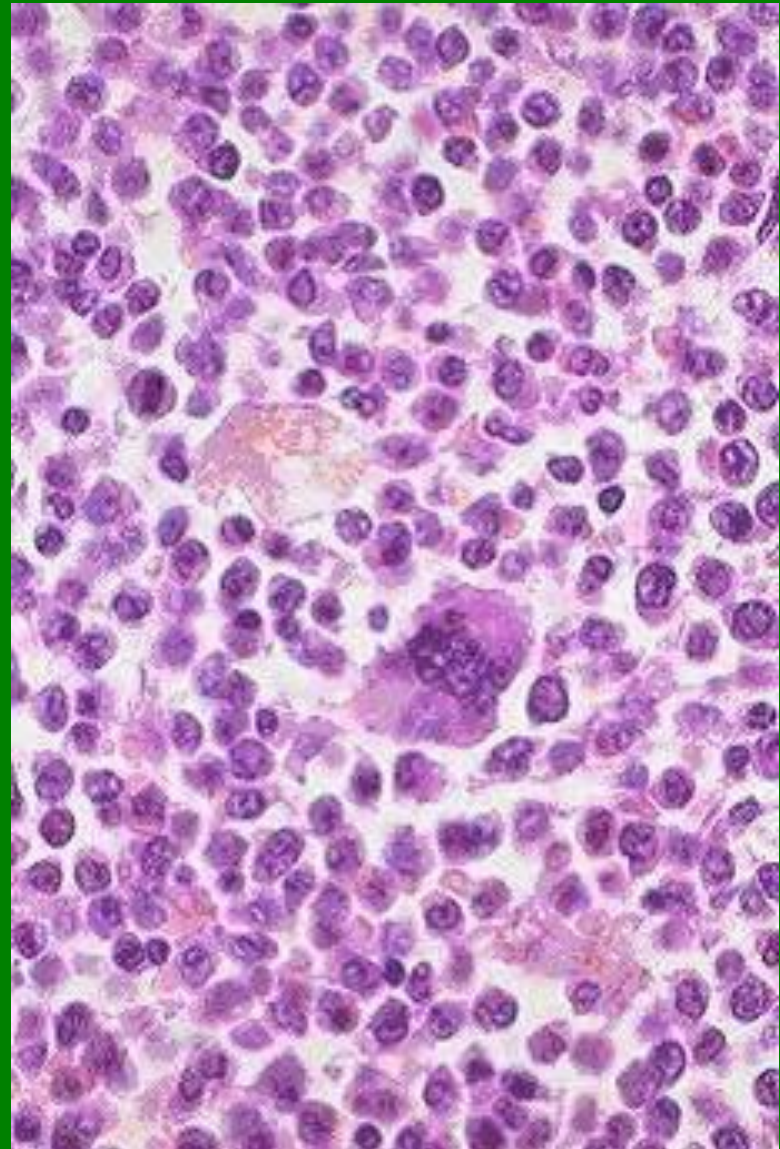
- větší než normocyty
- obsahují zbytky RNA v buněčných organelách (ribozomy, endoplazmatické retikulum)
- proto ještě může docházet k syntéze hemoglobinu
- průkaz speciálním barvením  
(nelze prokázat běžným panoptickým barvením)

# Kostní dřeň – buněčnost

normální



vysoká



# Fyziologické zastoupení buněk

## □ kostní dřeň

- Proerytroblast: 0 - 2%
- Erytroblast bazofilní: 1 – 3%
- Erytroblast polychromní: 2 – 20%
- Erytroblast ortochromní: 2 – 15%
- ❖ Červená řada – celkem: 15 – 38%
- Myeloblast: 0 – 3%
- Promyelocyt: 0 – 7%
- Myelocyt neutrofilní: 5 – 20%
- Metamyelocyt neurofilní: 5 – 20%
- Tyč neutrofilní: 5 – 25%
- Segment neutrofilní: 5 – 25%
- Eozinofily celkem: 0 – 5%
- Bazofily: 0 – 1%
- ❖ Granulocytární řada celkem: 50 – 70%
- Žírná buňka: 0 – 0,2%
- Lymfocyt: 5 – 20%
- Plazmatická buňka: 0 – 3%
- Monocyt: 0 – 3%

Poměr: (Granulocyty + Monocyty) : Erytrocyty  
1,5 : 1 – 5 : 1 (ženy); 1,5 : 1 – 4,2 : 1 (muži)

## ■ periferní krev - leukocyty

- Neutrofilní segmenty: 47 – 70%
- Neutrofilní tyče: 0 – 4%
- Lymfocyty: 20 – 45%
- Monocyty: 2 – 10%
- Eozinofily: 0 – 5%
- Bazofily: 0 – 1%