



( Acute Lymphoblastic leukemia )

( Lymphocytes )

( Stem cells )

( )

(

)

)

(

.

:

.( )

:

:

:

( lymphocytes )

( T lymphocytes )

( B lymphocytes )

( Natural Killer cells NK )

( antibodies )

( antigens )

( cytokines )

)

.(

:( granulocytes )

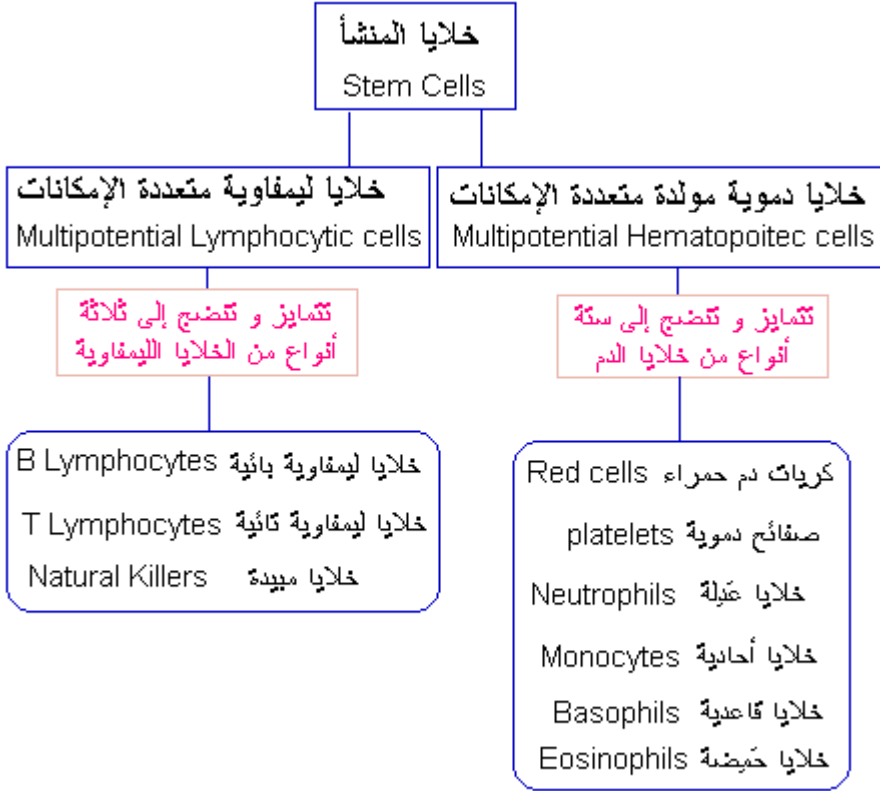
( Eosinophils )

( Basophils )

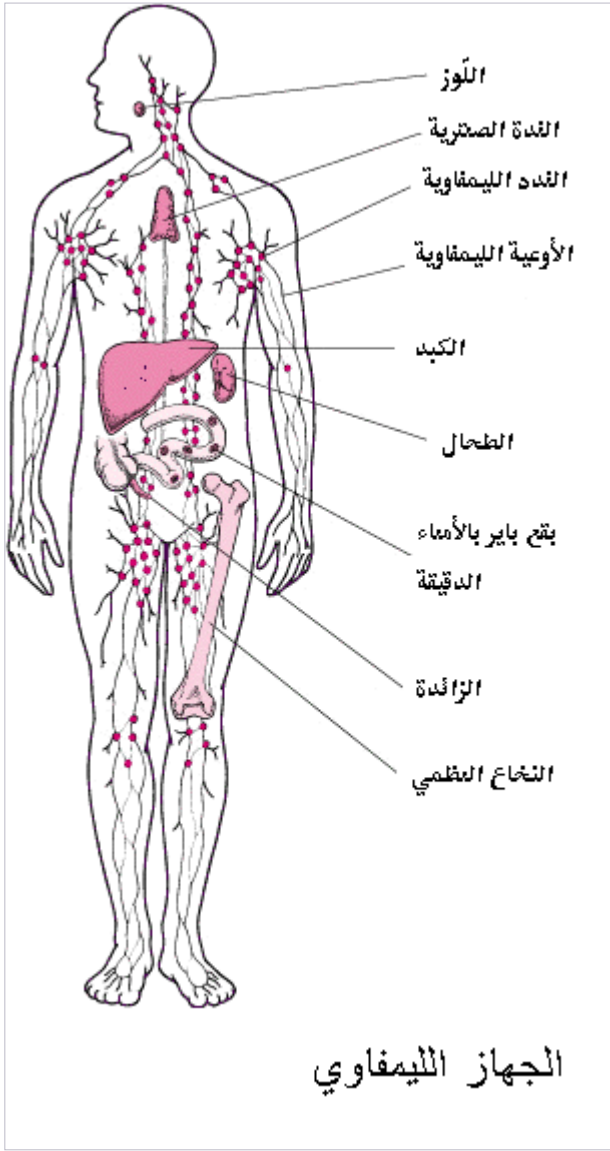
( neutrophils )

:( monocytes )

( megakaryocyte )



( Lymphocytes )



( Blast )

% 5

( )

( )

)

(

: ( )  
 ( ) ( lymphocytic leukemia )  
 .( ) )  
 ) ( myelogenous leukemia )  
 (

.( Chronic ) ( Acute ) ( )

( )

( )

( )

( acute lymphocytic leukemia ALL ) : \_\_\_\_\_  
% 80 75

( acute myeloid leukemia AML ) : \_\_\_\_\_  
% 20

( Chronic myelogenous leukemia CML ) : \_\_\_\_\_  
% 2

( Philadelphia chromosome )  
% 90

( Chronic lymphocytic leukemia CLL ) : \_\_\_\_\_

4 : 1

( undifferentiated )

( biphenotypic )

---

( deoxyribonucleic acid DNA )

( genes )

( chromosomes )

( )

( mutations )

:

( Translocation )

•

( inversion )

•

( )

( addition )

•

( 7+ )

( deletion )

•

7-

( Proto-oncogenes )

Tumor suppressor )

( genes

( oncogene )

( )

)

(

( )

( Risk factors )

) ( )

(

:

( )

:

:

( )

:

( ) ( ) :

:

( Alkylating agents ) ( )

) ) ( )

( hemophilia )

( sickle cell anemia )

( syndromes )

.( down's syndrome )

:

( Li-Fraumeni syndrome ) •

( down's syndrome ) •

.( )

( Klinefelter's syndrome ) •

( x chromosome )

( )

( neurofibromatosis )

( Fanconi's anemia )

( Wiscott-Aldrich Syndrome )

( )

( )



:

:

( )

:

:

:

:

)

:

(

:( thymus )

( )

)

( superior vena cava syndrome SVC )

(

:

( extramedullary spread )

:

( )

.( chloroma )

( )



( )

( Bone marrow biopsy )

% 25

( Bone marrow aspiration )

12.5

1.5

Magnetic resonance )

(

( Computed tomography scan)  
imaging

( Antibodies )

( Cytogenetics )

chromosomes )

(

( Translocation )



(

( L1, L2, L3 ) 3 2 1

1

2

3

:

:( B-cell ALL )

% 85

:

55

( early precursor B cell )

•

% 25

20

( Pre-B cell )

%65

•

% 3

( Mature B-cell )

•

3

( Burkitt's leukemia )

( Burkitt's lymphoma )

:( T-cell ALL )

% 15

% 13

( thymus )

:

:( Untreated )

:( Remission )

:( Recurrent )

( Remission Induction )  
( Consolidation )  
( Maintenance )

( prognostic factors )

( high-risk )

( standard risk )

( very high-risk )

:

:

:

:

:

50.000

( early precursor B cell )

( Pre-B cell )

:

( )



:  
( catheters )

( intrathecal )

.( Ommaya reservoir )

( )

( )

( multiple drug resistance MDR )

( Tumor lysis syndrome )

( )

( uricozyme )

( Allopurinol )

.( )

( ionizing radiation )

( external ) ( Internal )

)

(

( neoadjuvant therapy )  
( adjuvant therapy )

:

.(

)

( Bone marrow transplant )

hematopoietic cells )

)

( Stem cells )

( )

(

)

( Bone marrow transplant )

( Stem cells transplant )

( )

( Autologous )  
( Allogeneic )

( human leukocyte antigens HLA )

( peripheral stem cells )

)

.(

)

(

( hematopoietic growth factors )

( Remission Induction )

1

% 99

( asparaginase ) ( prednisone )  
( Antitumors antibiotics ) ( vincristine )  
( anthracycline )  
( daunomycin )

( CNS Prophylaxis )

( methotrexate )  
( Triple intrathecal )  
( Cytarabine ) ( Hydrocortisone )  
)  
( ) ( )

( Consolidation )

( )  
( L'asparaginase )  
( antimetabolites )  
( leucovorin ) ( methotrexate )  
( mercaptopurine )

( Maintenance )

( methotrexate )  
( prednisone )

( 6-Mercaptopurine )  
( vincristine )

)  
(

.( )

( )

( translocation )

( Gleevec )  
( Philadelphia chromosome )

( Molecular targeted therapy )

( Recurrent )

( relapse )

)

(

( remission reinduction )

( anthracyclines )  
( cytarabine )

( cyclophosphamide )  
( prednisone ) ( vincristine )

( daunomycin )

)  
(

)

(

( stem cell transplant )



) (

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