

Relation between lymphomas and leukemias

solid neoplasm

transitional

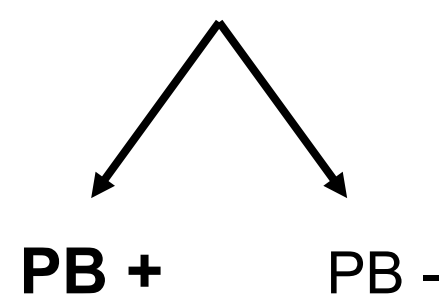
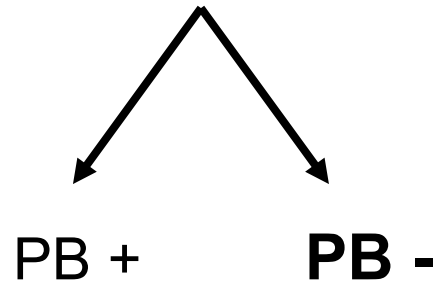
bone marrow neoplasm

LYMPHOMA

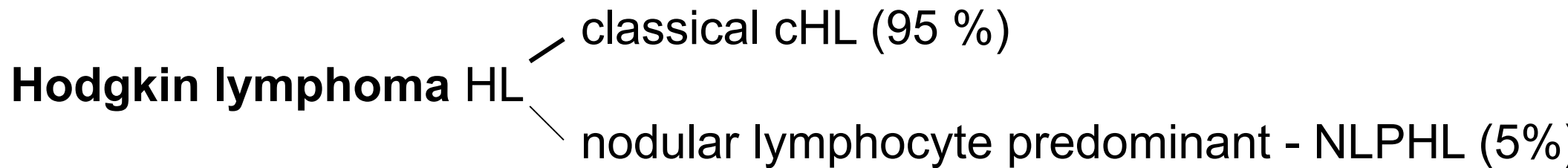
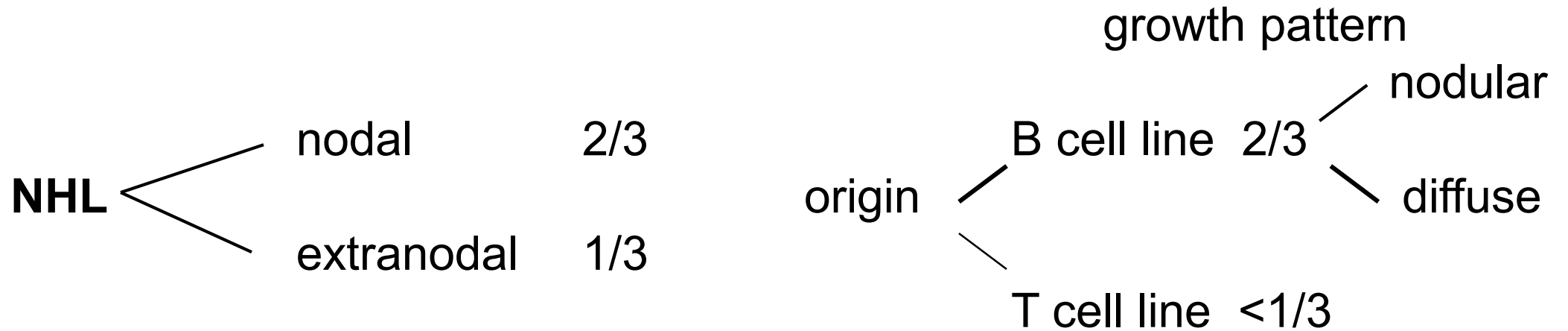
forms

LEUKEMIA

type: CLL, HCL, T cell and other



Neoplasms of hemopoetic systém - lymphomas



neoplasms of reticular cells (rare)

histiocytic diseases

„common histiocytes“

Langerhans cell histiocytosis - LCH

Neoplasms of hemopoetic system - lymphomas

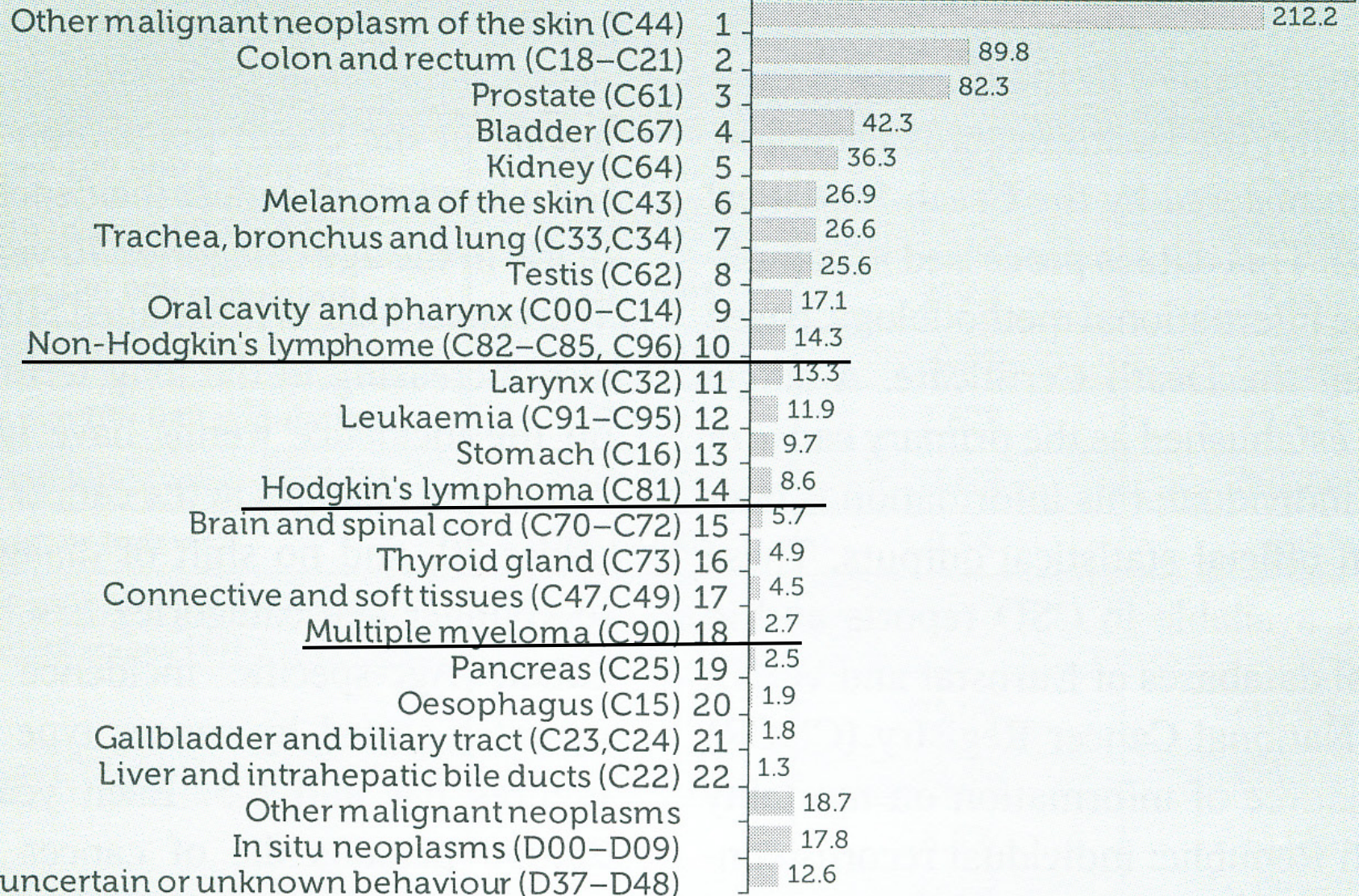
non-Hodgkin lymphomas - NHL

about 4 % of all malignant neoplasms

Prevalence rates - men

Number of cancer survivors per 100,000 men

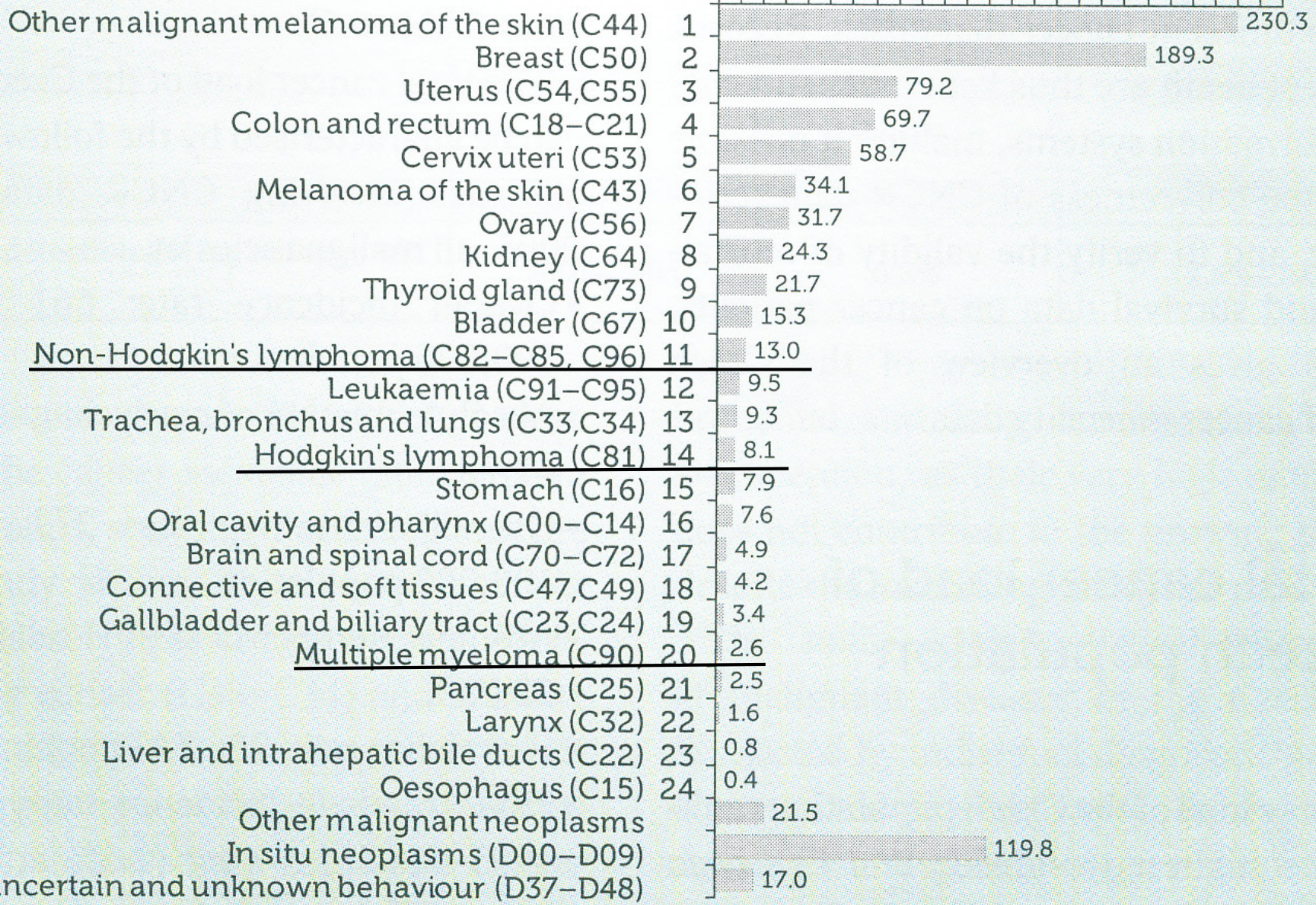
0 50 100 150 200 250



Prevalence rates - women

Number of cancer survivors per 100,000 women

0 50 100 150 200 250



non-Hodgkin lymphomas - NHL

symptomatology 14 days and more

local with regards to tumor localisation

LN - enlarged, non-tender !

stomach - gastric symptoms

CNS – increased intracranial pressure

dyscomfort, e.g. abdominal cavity

enlargement of a visible part of the body

general

fatigue

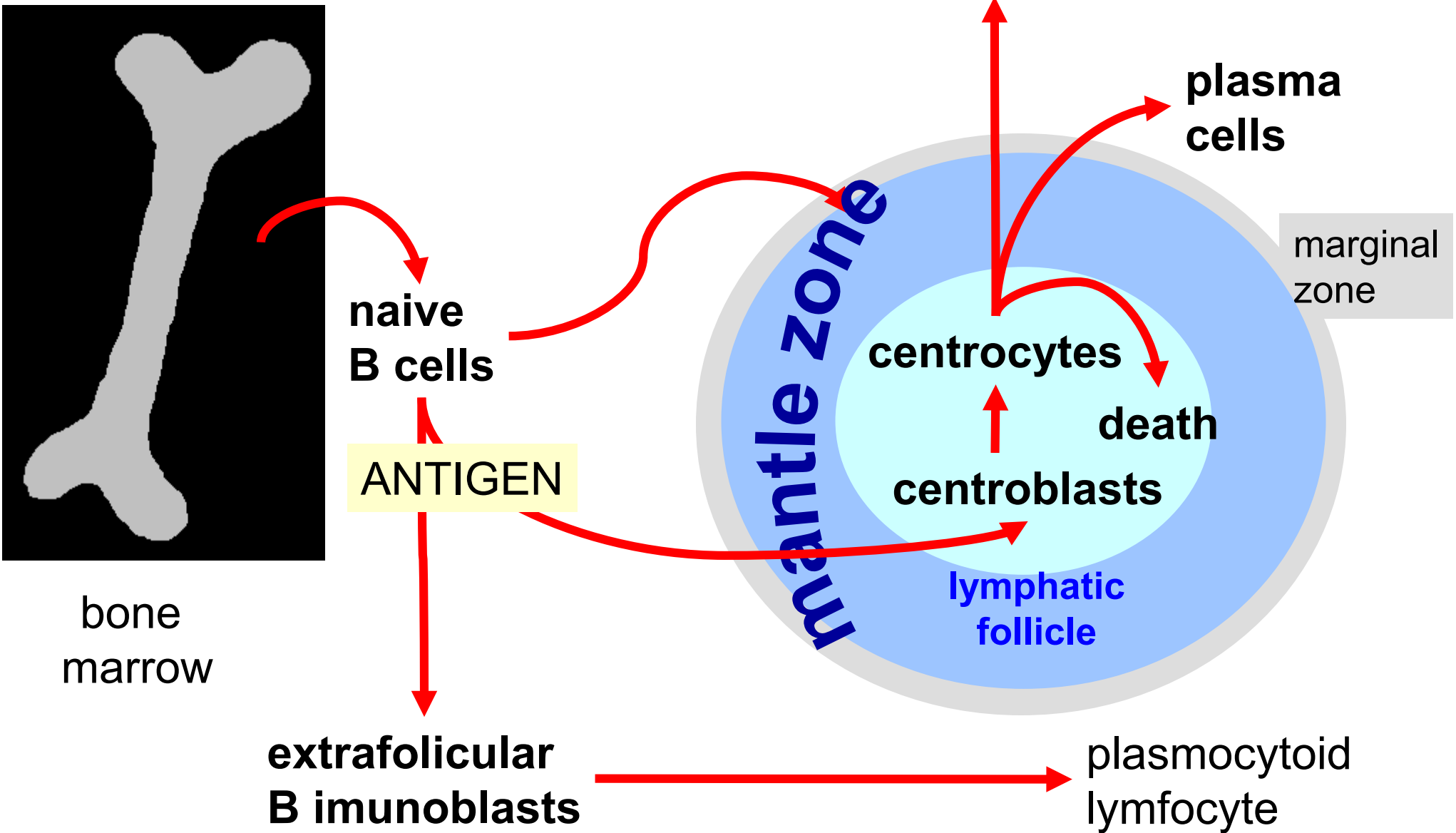
weakness

loss of weight

fever over 38 °C

night sweats (profuse sweating)

B-cell lymphomas – evolution of B-cell line



WHO Classification of the Lymphoid Neoplasms

I. Precursor B-Cell Neoplasms CD19 +, CD10 +, TdT +

II. Peripheral B-cell Neoplasms CD20 +

WHO Classification of the Lymphoid Neoplasms

I. Precursor B-Cell Neoplasms

precursor B lymphoblastic leukemia / lymphoma

II. Peripheral B-cell Neoplasms

chronic lymphocytic leukemia / small lymphocytic lymphoma

lymphoplasmacytic lymphoma

mantle cell lymphoma

follicular lymphoma (grade I, II, III)

marginal zone lymphoma

hairy cell leukemia

plasma cell myeloma

diffuse large B-cell lymphoma

Burkitt lymphoma

A model of lymphoma development
of germinal follicular cells

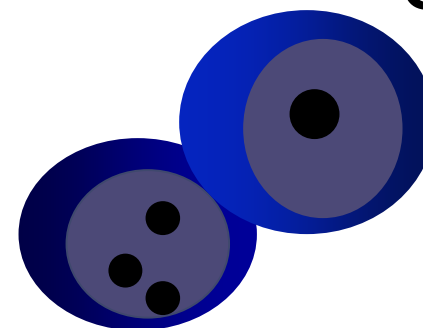
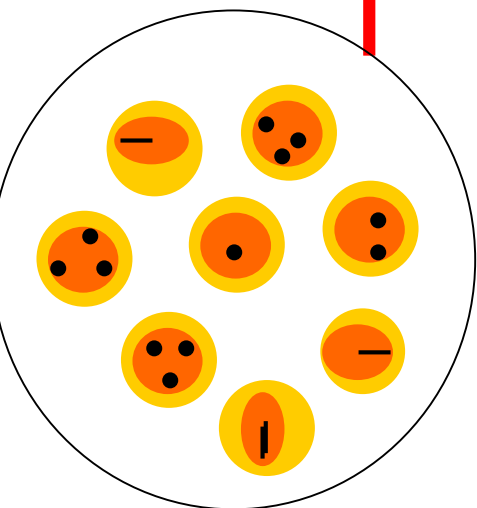
de novo DLBCL

GC-like

germinal
center
cells

CD10+ BCL6+

MUM1 (IRF4)-



A model of lymphoma development
of germinal follicular cells

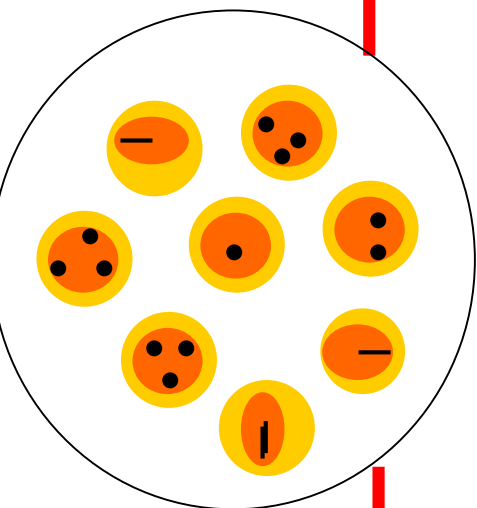
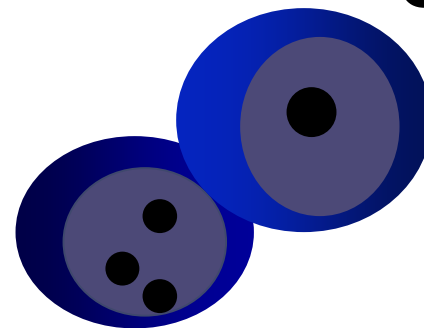
de novo DLBCL

GC-like

germinal
center
cells

CD10+ BCL6+

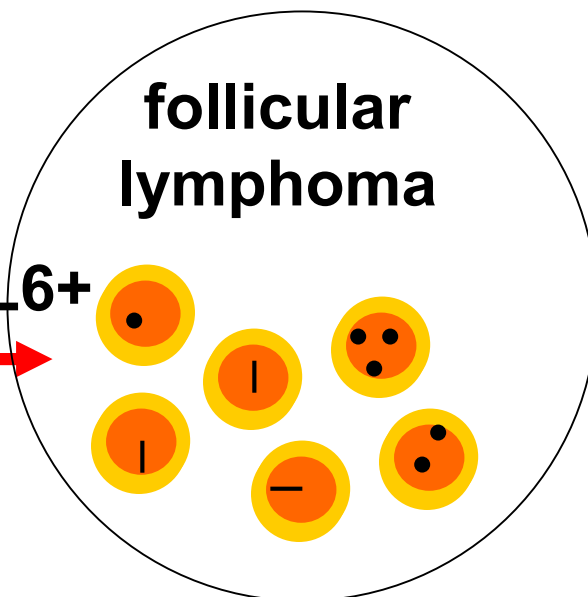
MUM1 (IRF4)-



CD10+ BCL6+

BCL2+

follicular
lymphoma



A model of lymphoma development
of germinal follicular cells

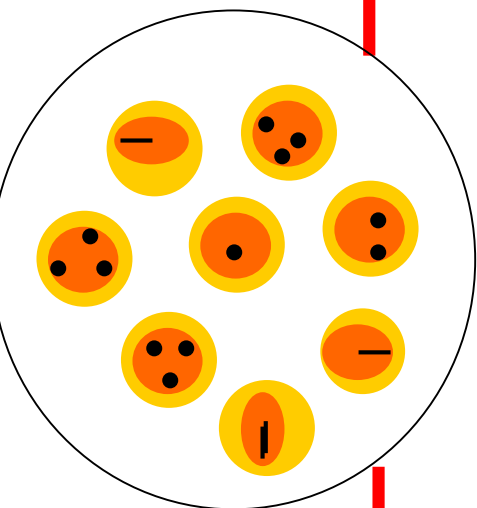
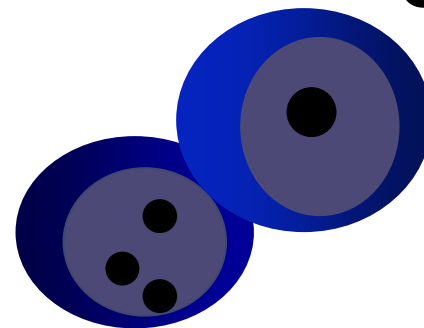
de novo DLBCL

GC-like

germinal
center
cells

CD10+ BCL6+

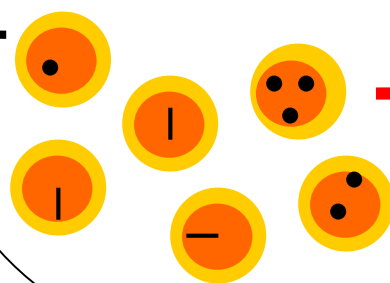
MUM1 (IRF4)-



CD10+ BCL6+

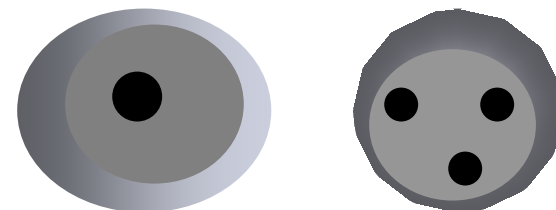
BCL2+

follicular
lymphoma



TP53

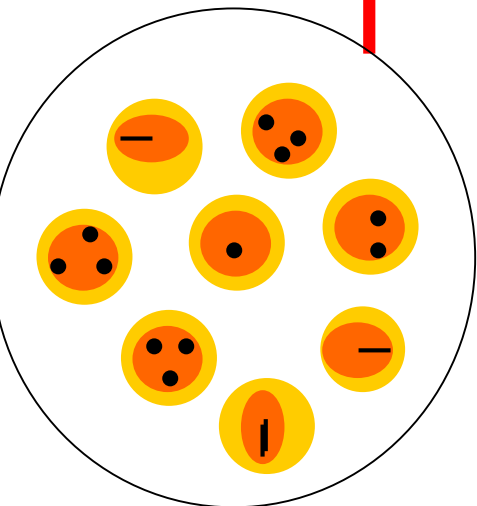
secondary DLBCL
transformed
DLBCL



A model of lymphoma development of germinal follicular cells

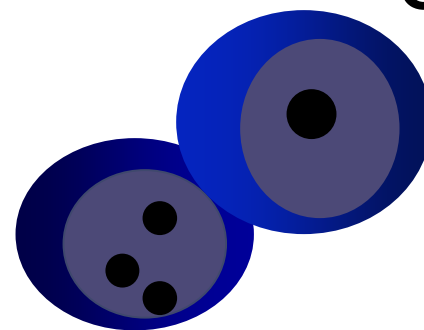
de novo DLBCL

germinal center cells



CD10+ BCL6+

MUM1 (IRF4)-

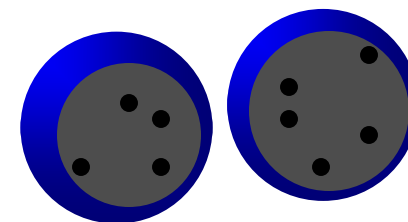


GC-like

CD10+ BCL6+

BCL2- CMYC+

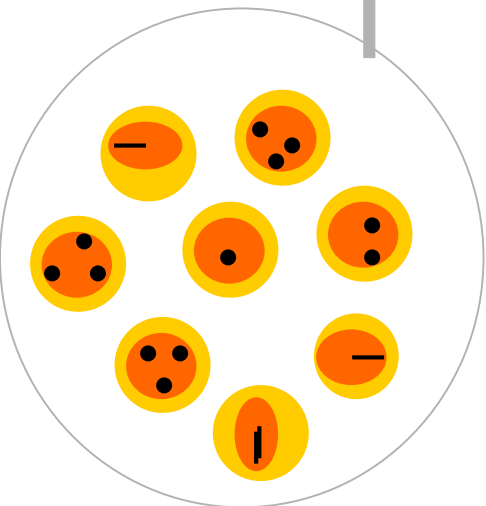
Burkitt lymphoma



A model of lymphoma development of germinal follicular cells

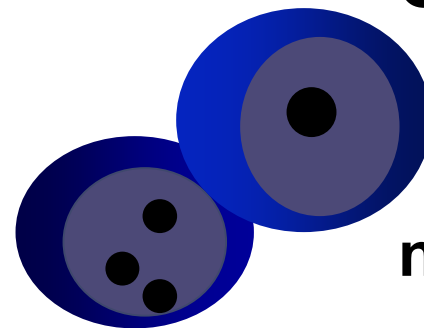
de novo DLBCL

germinal center cells



CD10+ BCL6+

MUM1 (IRF4)+
extra-follicular B cells
CD10- BCL6-



GC-like

nonGC-like



diffuse large B cell lymphoma

DLBCL

> 40 %

ICD-O
M 9680/3

DLBCL

prognosis depends on

stage of the disease = localized x generalized

immunophenotype

GC - like
non GC - like

double expressor
BCL-2 + *and*
MYC +

genotype

..

double hit DLBCL

gene *BCL-2* rearrangement *and*
gene *MYC* rearrangement

primary mediastinal (thymic) large B cell lymphoma

PMBCL

~ 2 - 3 %

median 35 years
female : male / 2 : 1

ICD-O
M 9679/3

follicular lymphoma

FL

> 25 %

ICD-0
M 9690/3

5-year survival

stage 1 **90 %**
stage 2

stage 3 **80 %**
stage 4

Burkitt lymphoma

BL

> 1 %

ICD-O
M 9687/3

Burkitt lymphoma

Denis Parsons **Burkitt**

1911 – 1993

a surgeon

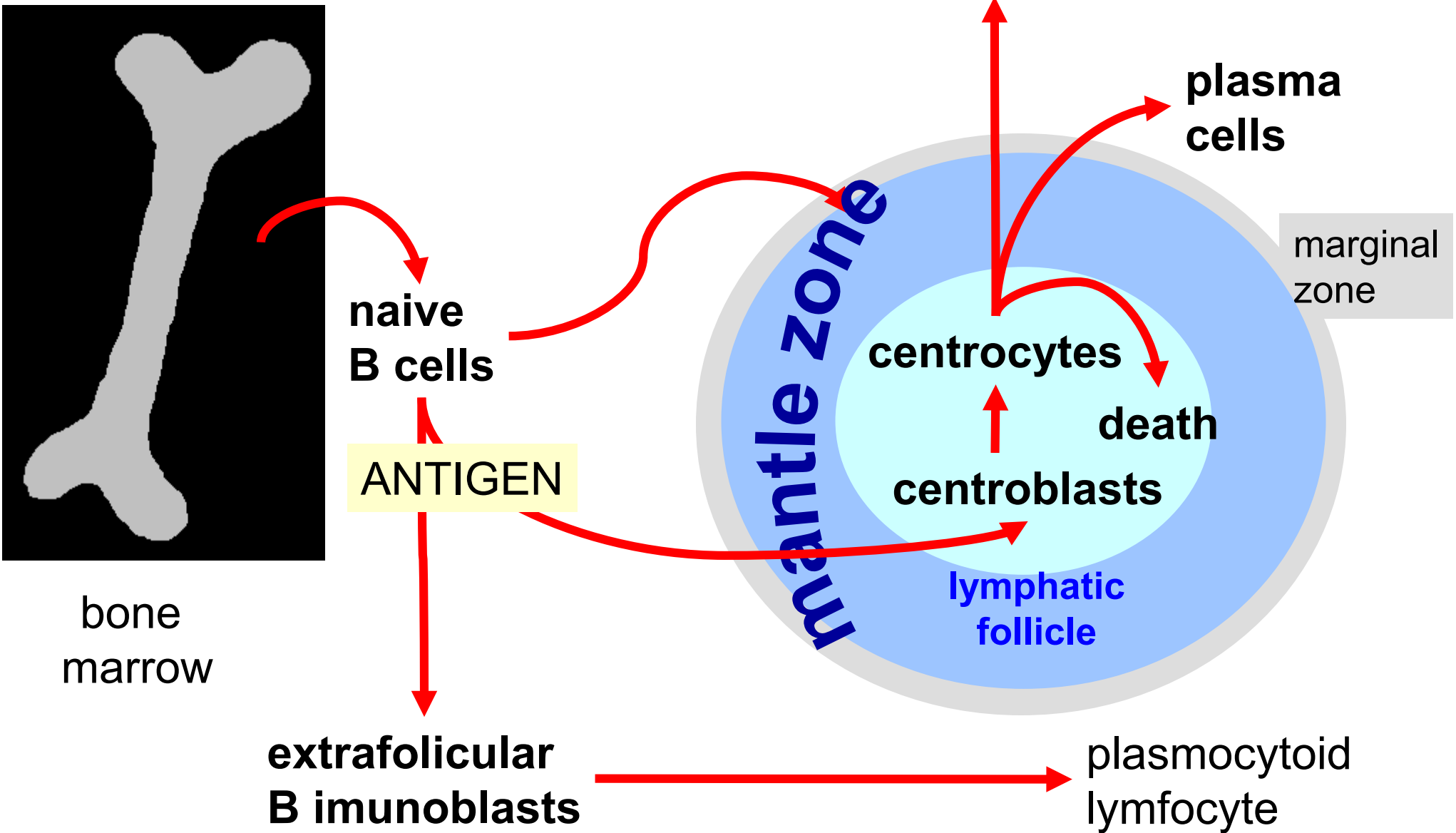
mantle cell lymphoma

MCL

> 7 %

ICD-O
M 9673/3

B-cell lymphomas – evolution of B-cell line



marginal zone lymphoma

extranodal – MALT lymphoma

splenic

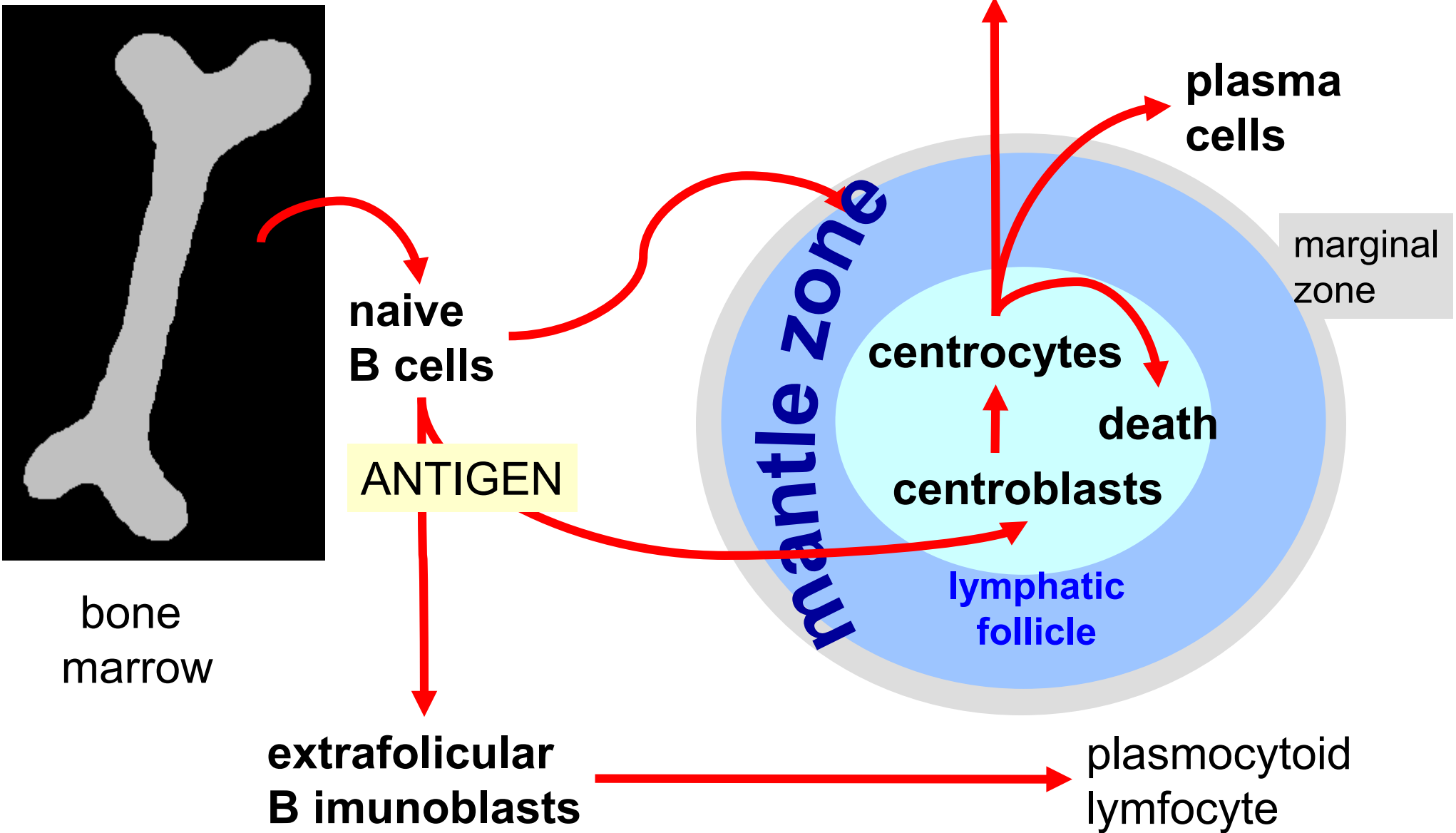
nodal

MZL

10 %

ICD-O
M 9699/3

B-cell lymphomas – evolution of B-cell line



chronic lymphocytic leukemia / small lymphocytic lymphoma

chronická lymfocytická leukémie / malobuněčný lymfocytický lymfom

CLL / SLL

> 10 %

ICD-O

M 9823/3

M 9670/3

plasma cell myeloma

PCM

multiple myeloma

15% of hematologic neoplasms

ICD-O

M9732/3

precursor lesion

MGUS

ICD-O

M 9765/1

WHO Classification of the Lymphoid Neoplasms

III. Precursor T-Cell Neoplasms

precursor T lymphoblastic leukemia / lymphoma

IV. peripheral T-Cell and Natural Killer Cell Neoplasms

T-cell chronic lymphocytic leukemia

Large granular lymphocytic leukemia

Mycosis fungoides and Sézary syndrome

Peripheral T-cell lymphoma, unspecified

Angioimmunoblastic T-cell lymphoma

NK / T-cell lymphoma

Intestinal T-cell lymphoma

Adult T-cell leukemia / lymphoma

Anaplastic large cell lymphoma

Mycosis fungoides

MF

Mycosis fungoides

peripheral T cell lymphoma, unspecified

PTCL

> 25 %

enteropathy associated T-cell lymphoma

EATL

< 5 %

anaplastic large cell lymphoma

ALCL

25 – 30 % of lymphomas in children

CD30+ ALK1-

> 5 %

CD30+ ALK1+

7 %