

Médecine personnalisée ? Thérapie Ciblée ? Immunothérapie ?



« Médecine de précision »

Comité Consultatif National de Bioéthique

18 avril 2018

Pr Dominique BRON (Hématologie - J.BORDET- ULB)

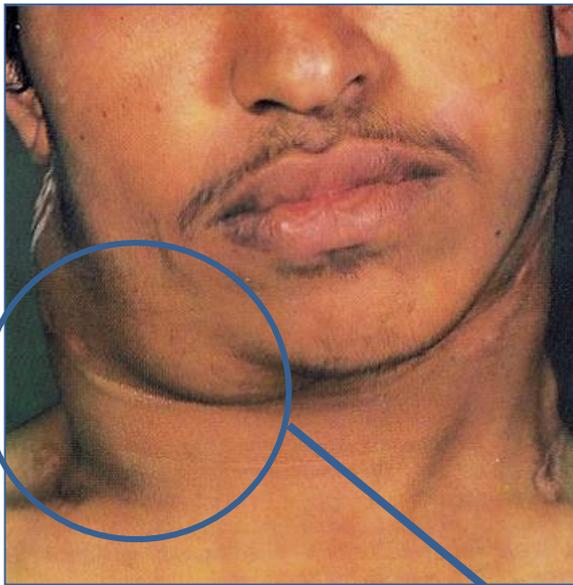
Pr Jean-Pascal MACHIELS (Oncologie-UCL)



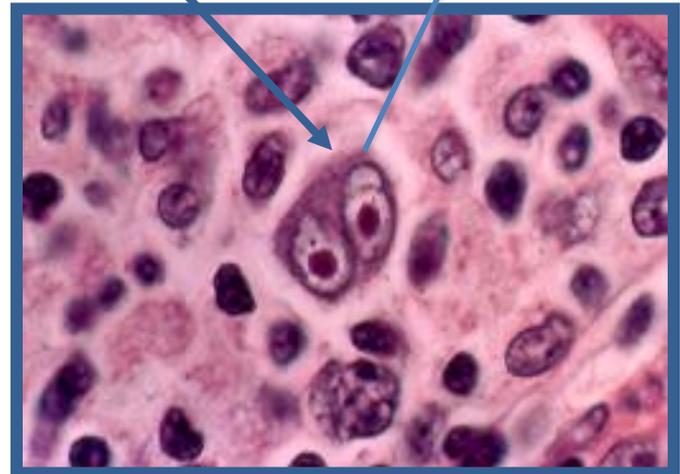
AGENDA



- **Que sait-on du cancer ?**
- Nos mécanismes naturels de défense
- Thérapie ciblée vs Médecine de Précision?
- Quelques révolutions thérapeutiques
 - La leucémie myeloïde chronique
 - Le myélome multiple
 - Le mélanome
 - Le cancer bronchique

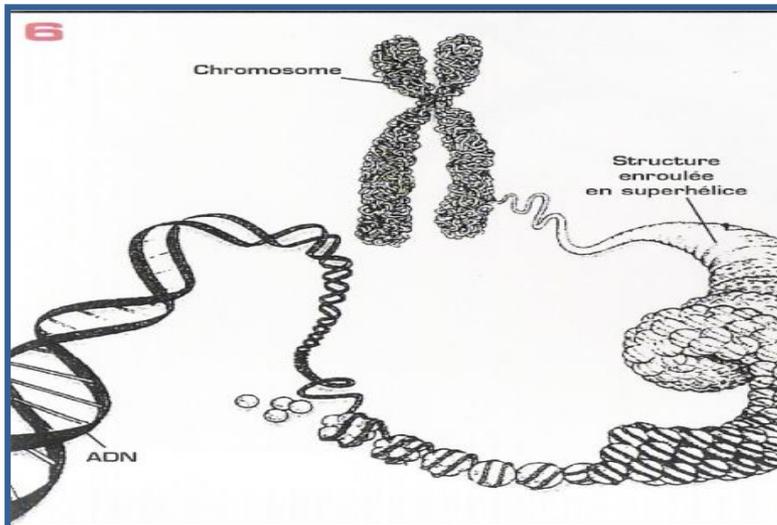
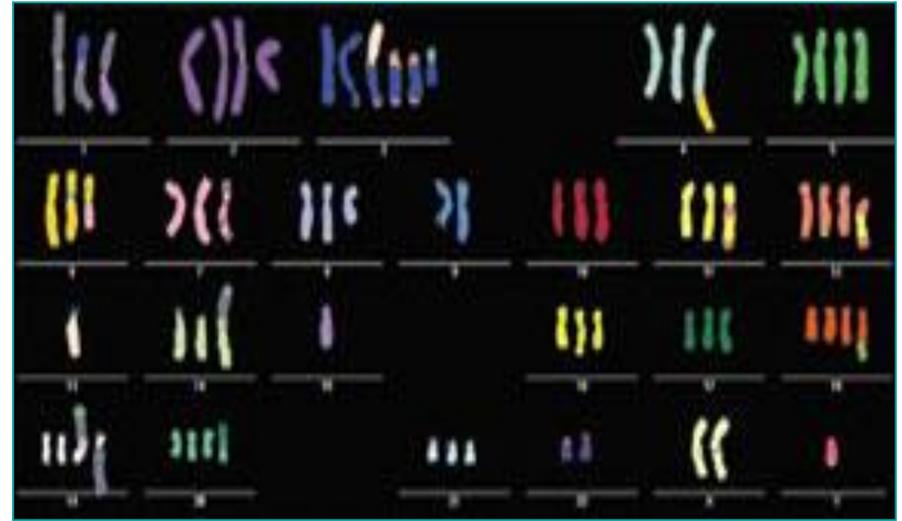
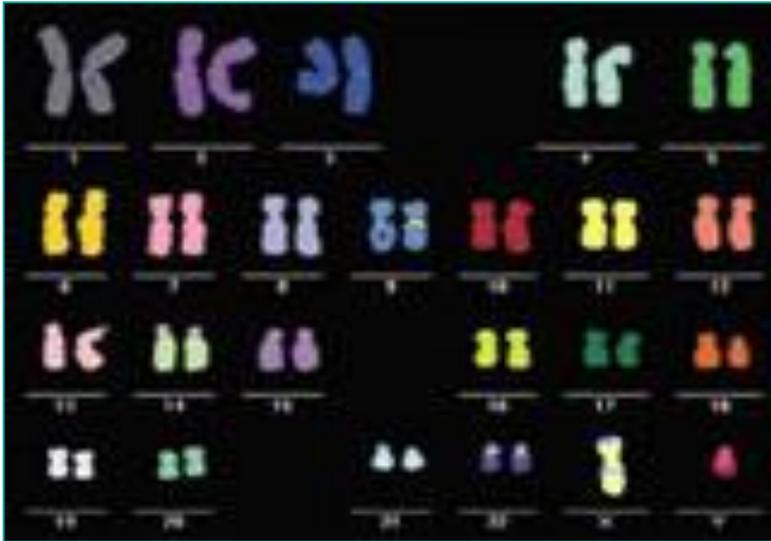


**Cellule de Reed Sternberg
CD15+, CD30+**

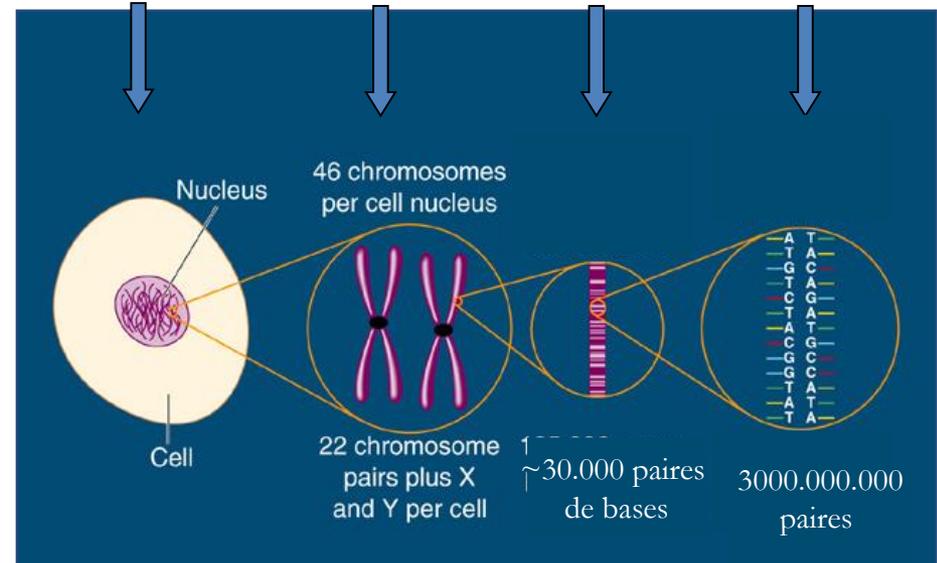


Le Lymphome de Hodgkin

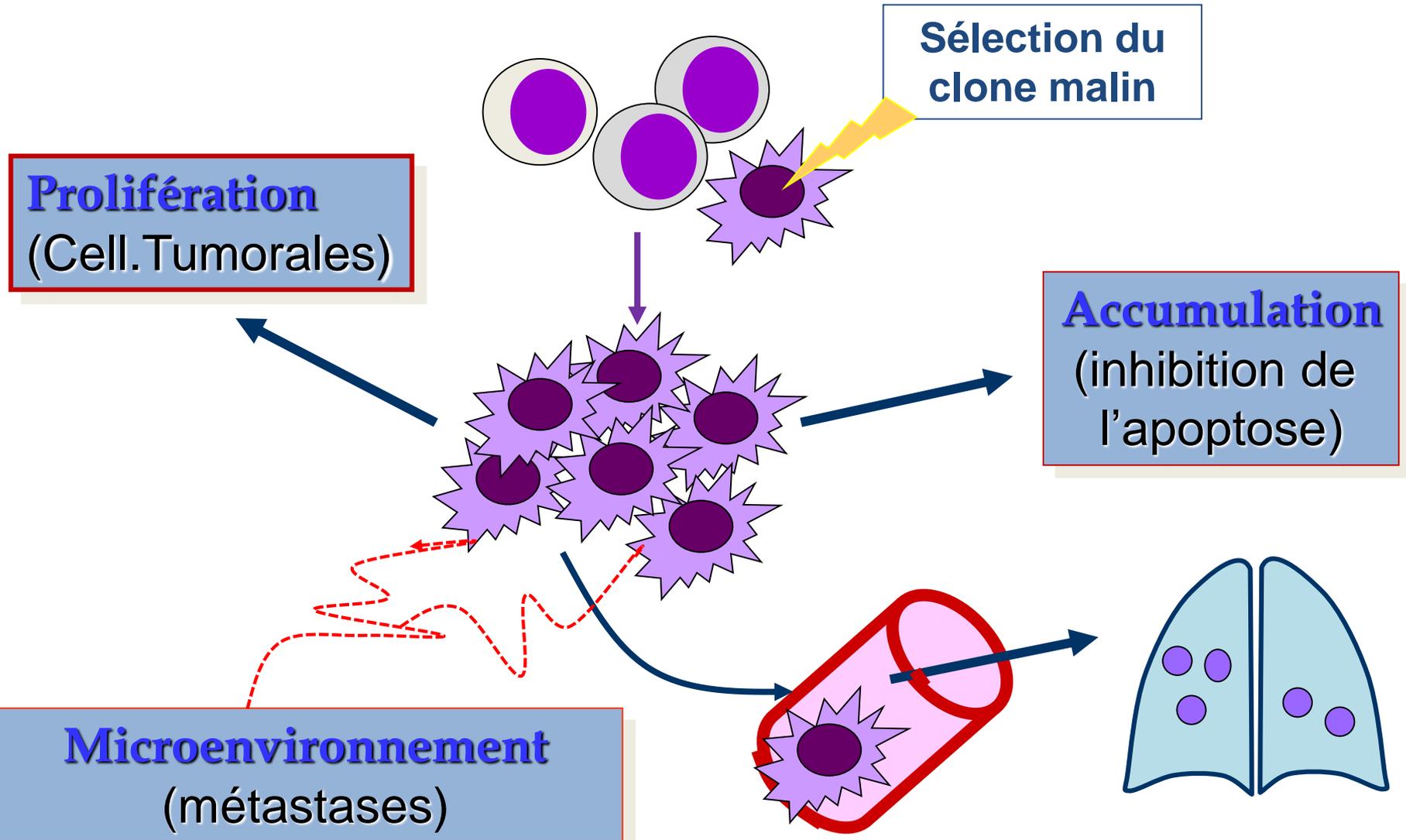
UN CANCER (LYMPHOME) RESULTE TOUJOURS D'UNE ANOMALIE GENETIQUE



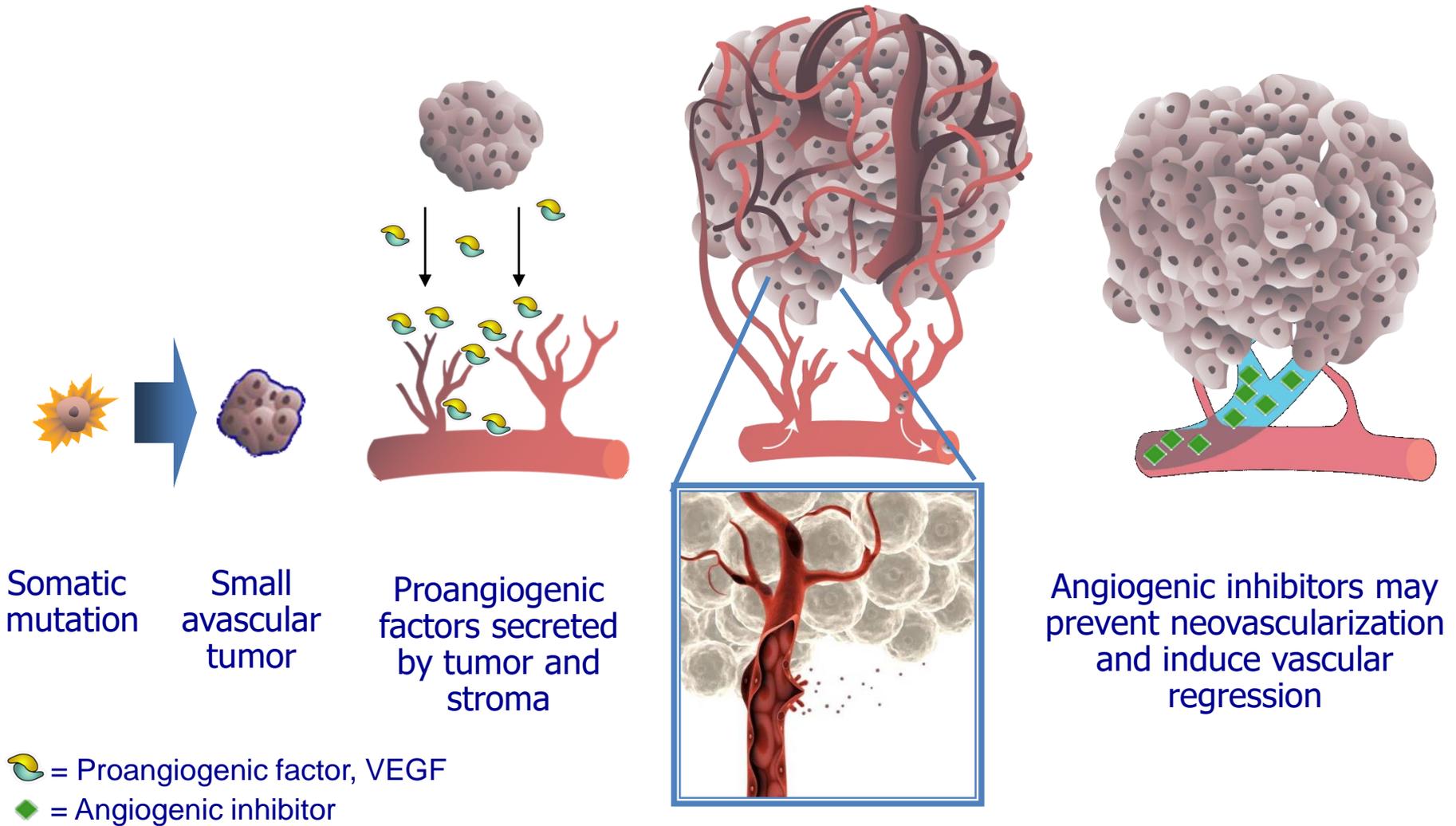
Cytologie Caryotype FISH Gén mol



Mécanismes de l'oncogénèse



Angiogenèse tumorale



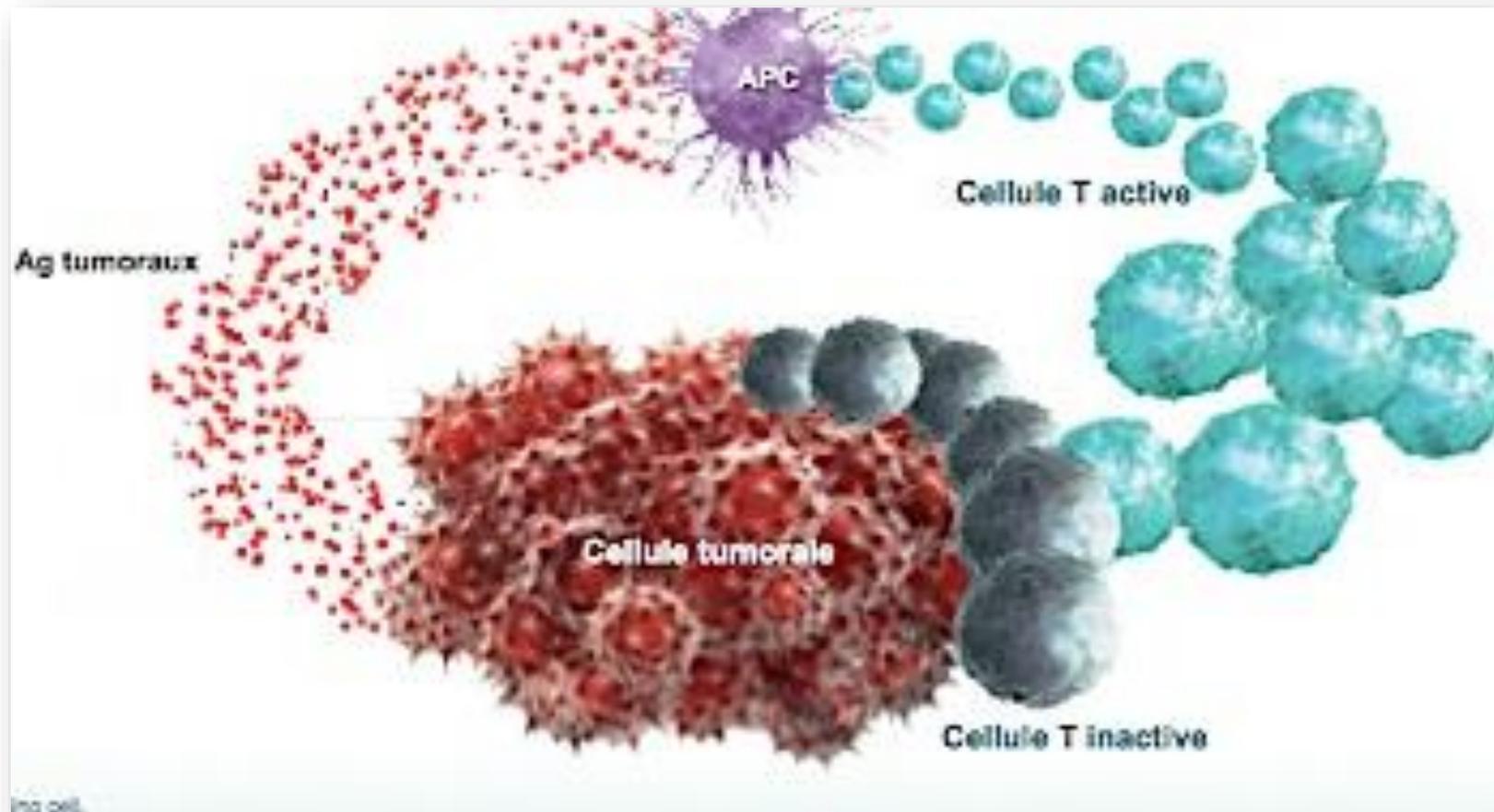
Somatic mutation

Small avascular tumor

Proangiogenic factors secreted by tumor and stroma

Angiogenic inhibitors may prevent neovascularization and induce vascular regression

Défenses naturelles neutralisées par la tumeur



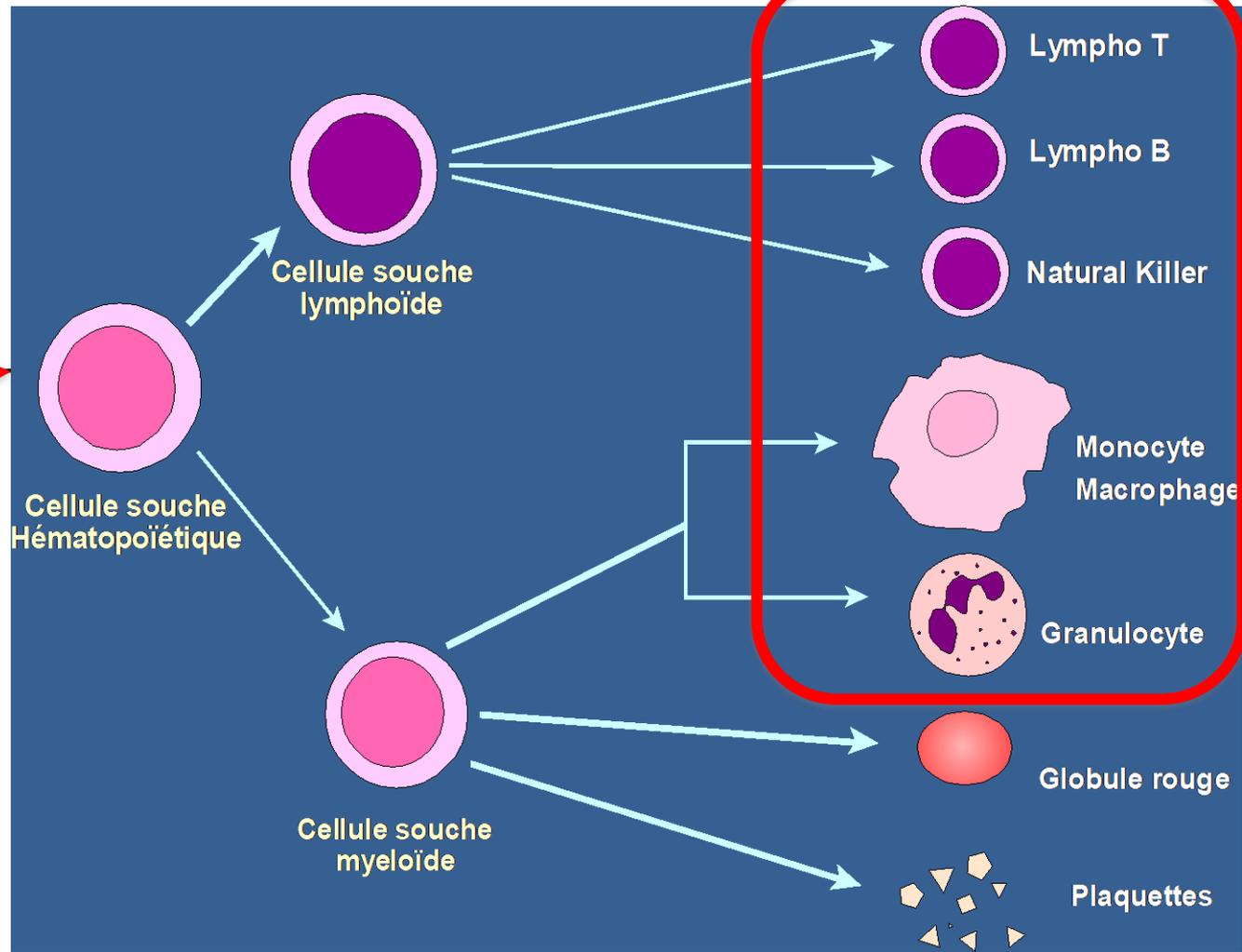
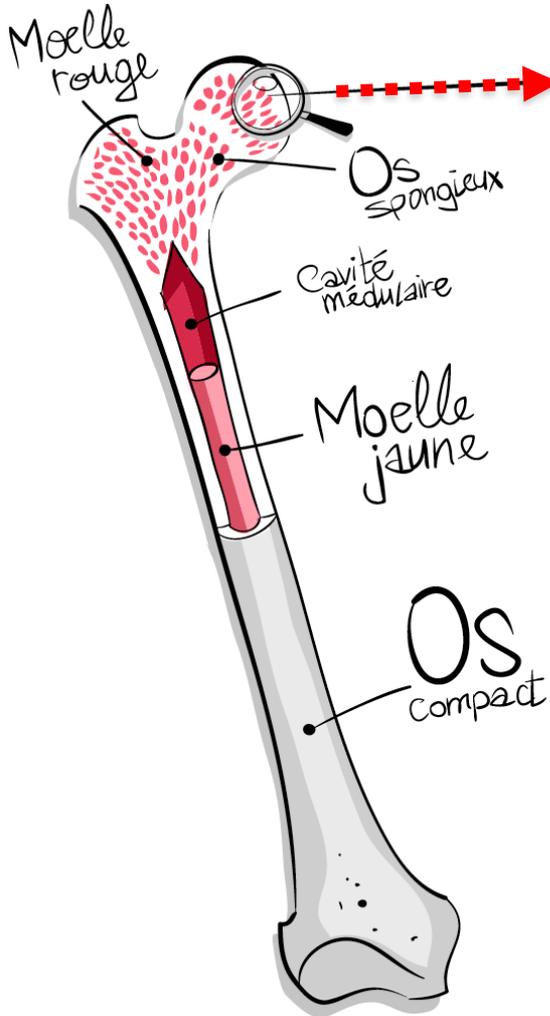
img.cell

AGENDA



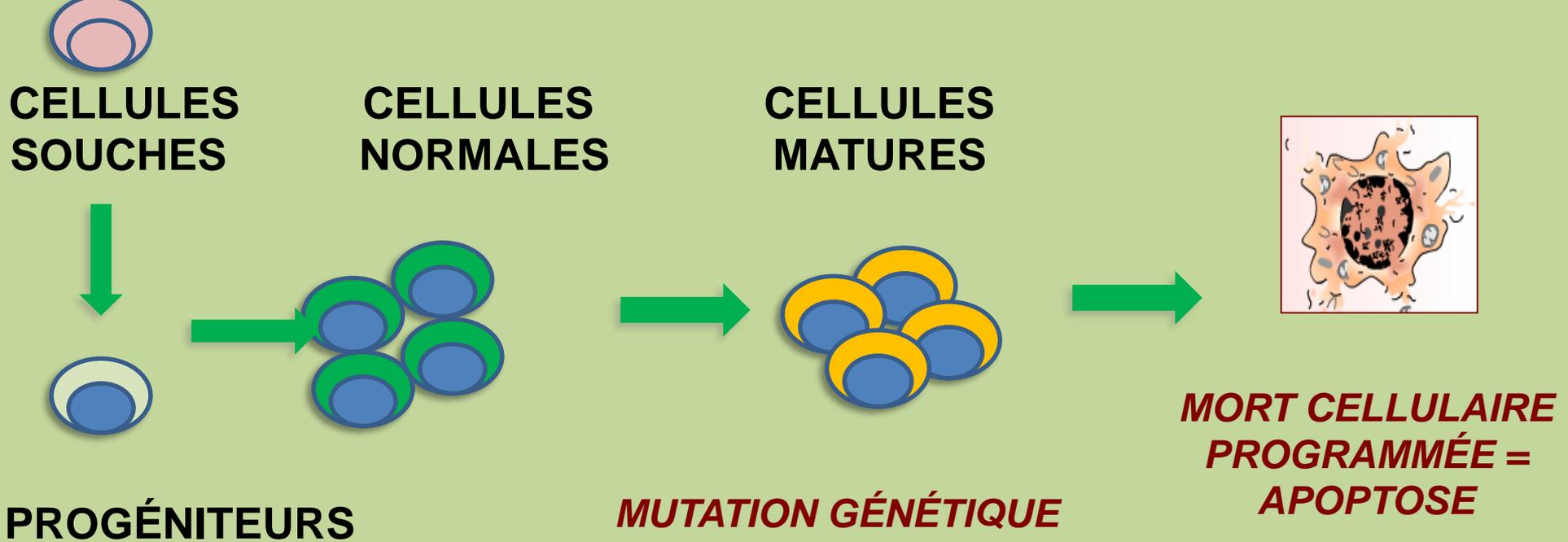
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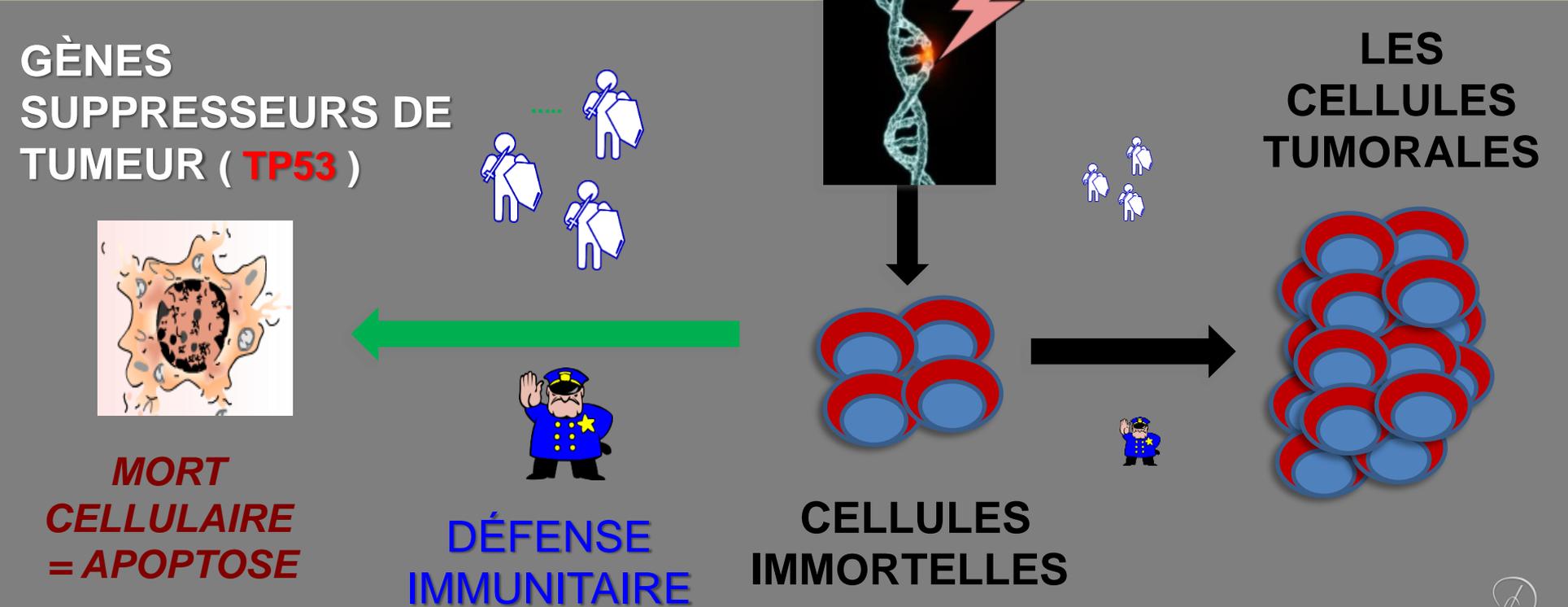
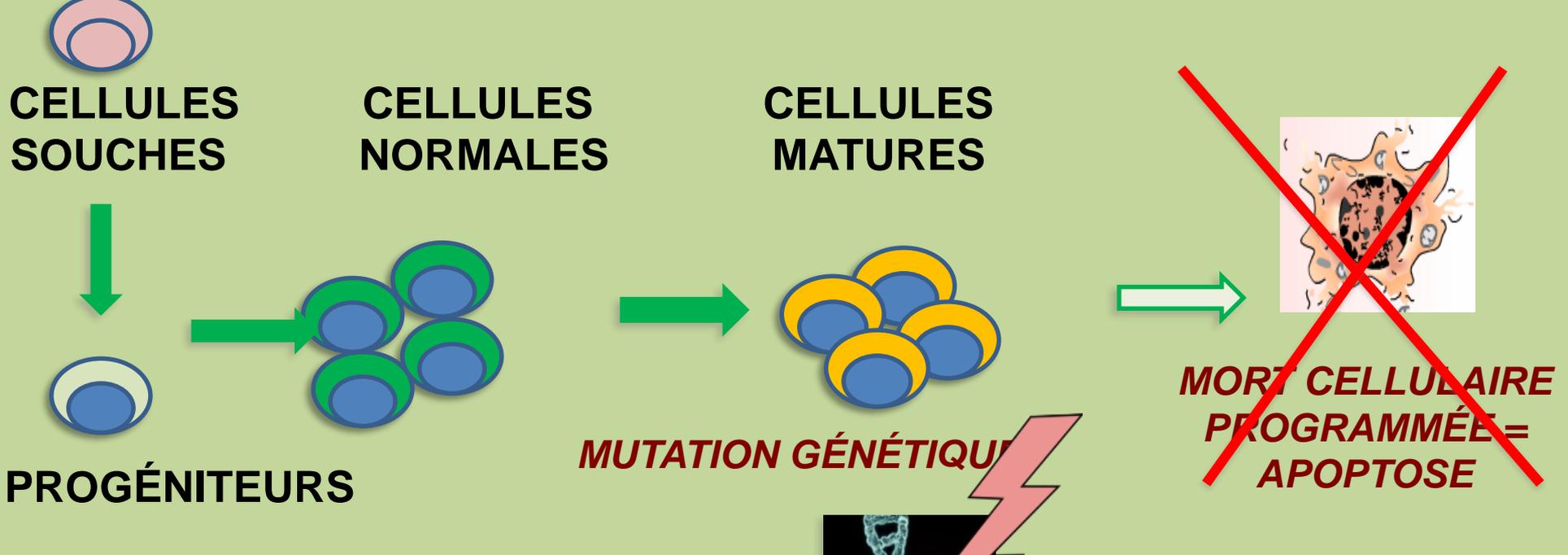
Moelle Osseuse



HEMATOPOIESE

Globules blancs



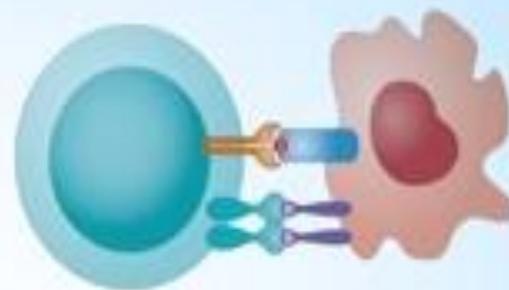


IMMUNOTHERAPIE CELLULAIRE

**Non-specific
Immune stimulation**



**Immune-checkpoint
blockade**



Adoptive cell transfer



Vaccination strategies



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→ Various Types of Targeted therapy

>100 New drugs in the pipeline !

- **Immunotherapies**

- Monoclonal antibodies (Ex: Rituximab, Specific or Bispecific)
- Monoclonal antibodies that deliver toxic molecules
- T lymphocytes activation (Ex: Vaccines, Anti PD1, T CAR,...)

- **Tyrosine Kinase Inhibitors (Ex: Glivec)**

- **Apoptosis inducers (Ex: Ibrutinib, ...)**

- **Gene expression modulators (Ex: HDACinh, Hypomethyl)**

- **Angiogenesis inhibitors (Ex: Thalidomide, Lenamidomide)**

- **Immunomodulatory Agents (Ex: lemalidomide)**

- **Signal transduction inhibitors (BTKi, Pi3Ki..)**

-

→ Precision medicine ???

- the word "personalized" could be misinterpreted (treatments are being developed uniquely for each individual...)
 - in « **Precision Medicine** », the focus is on identifying which approaches will be effective for which patients based on pharmaco-genetic, environmental and lifestyle factors.
- « **Pharmacogenetics** »
 - is a part of precision medicine : the study of how genes affect a person's response to particular drugs.
 - combines pharmacology (the science of drugs) and genomics (the study of genes and their functions) to develop effective, safe medications and doses that are tailored to variations in a person's genes.

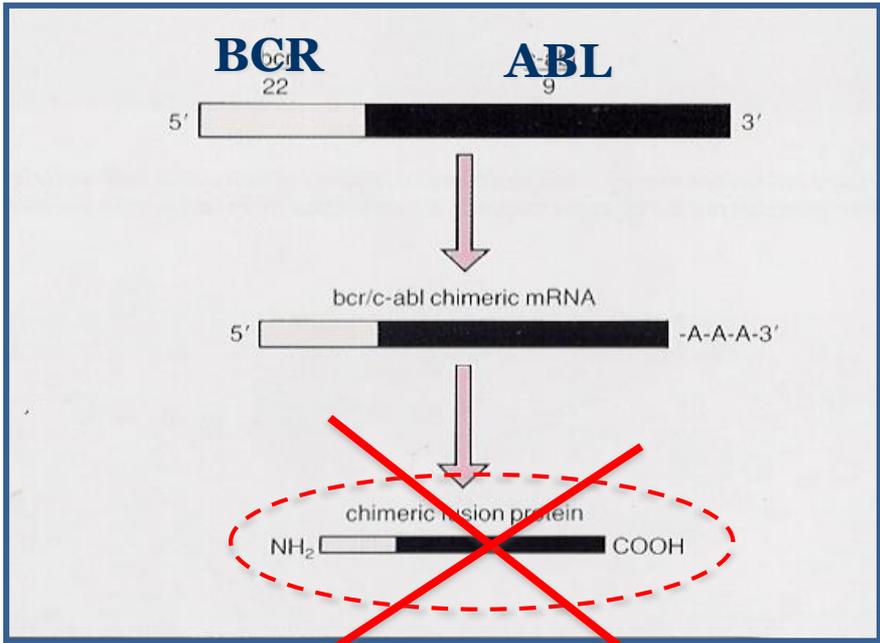
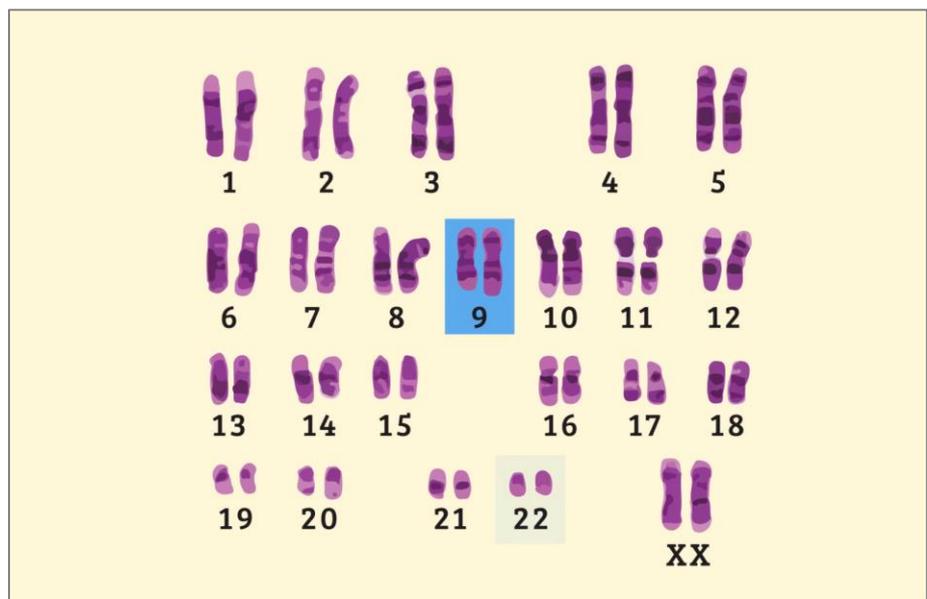
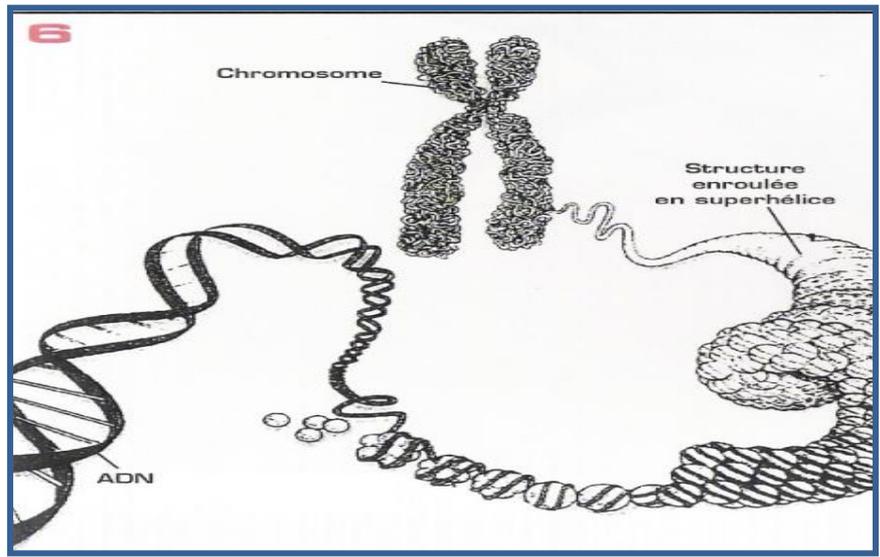


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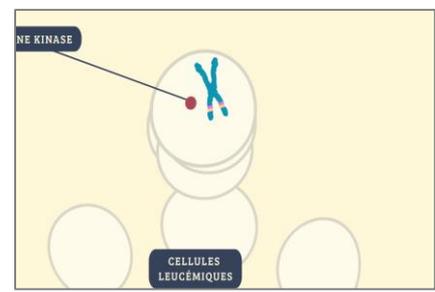
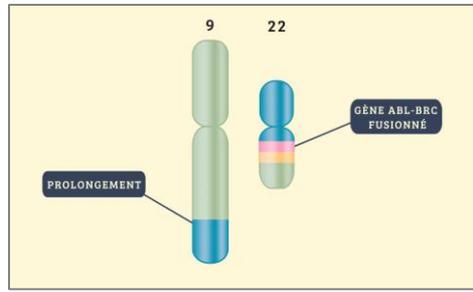
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Guérir → Comprendre → chercher → chercheurs...

EXEMPLE#1 : LA LEUCEMIE MYELOIDE CHRONIQUE



Chromosome de Philadelphie



Imatinib (GLIVEC®) 2000



1989



2016



Mécanismes de l'oncogénèse

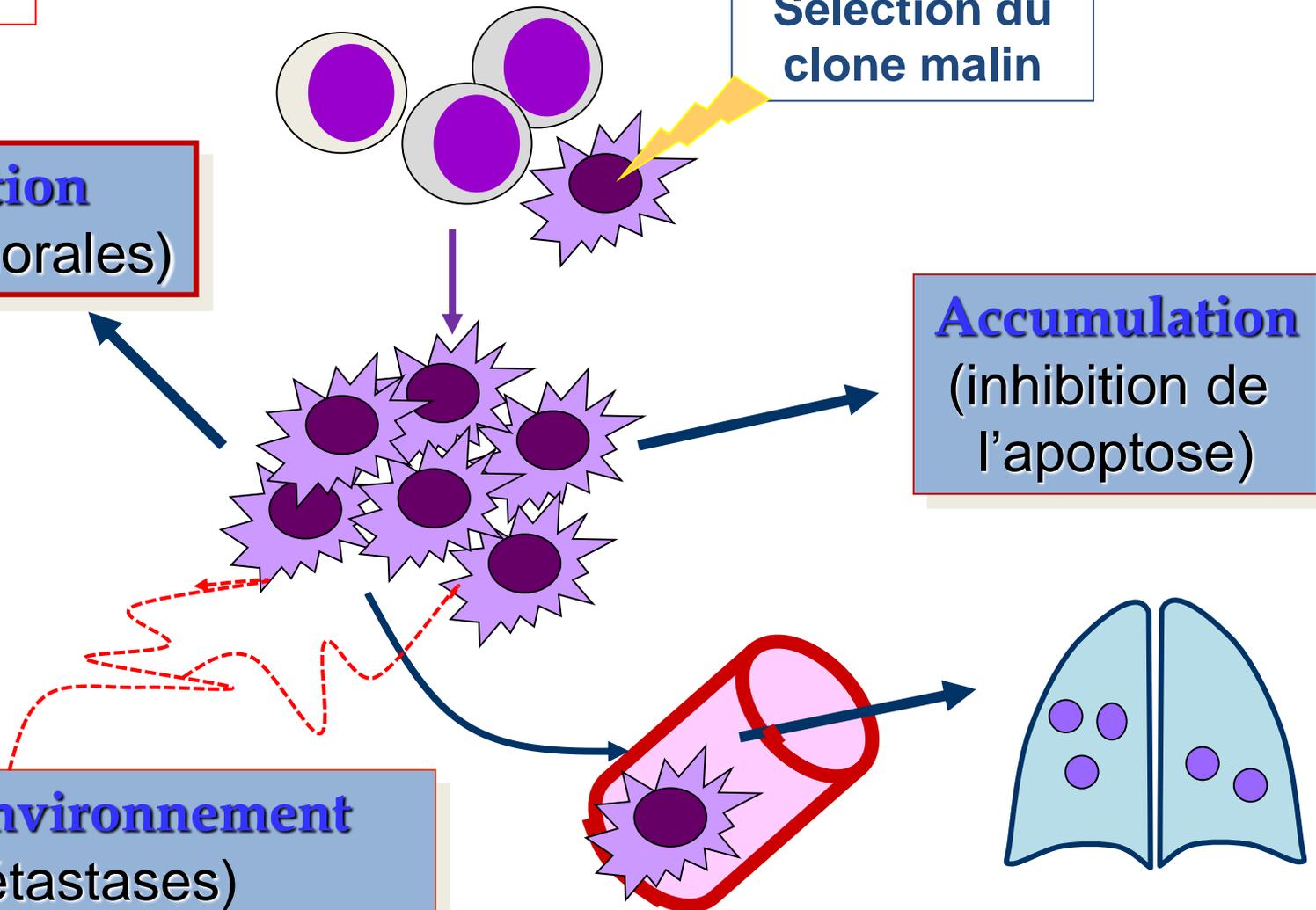
GLIVEC®

Prolifération
(Cell. Tumoraales)

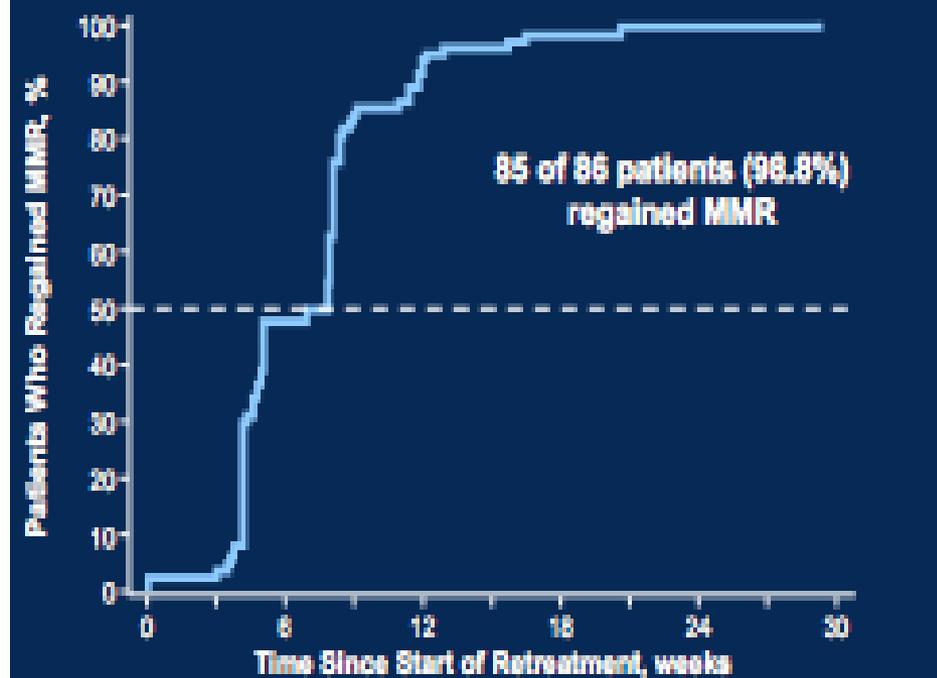
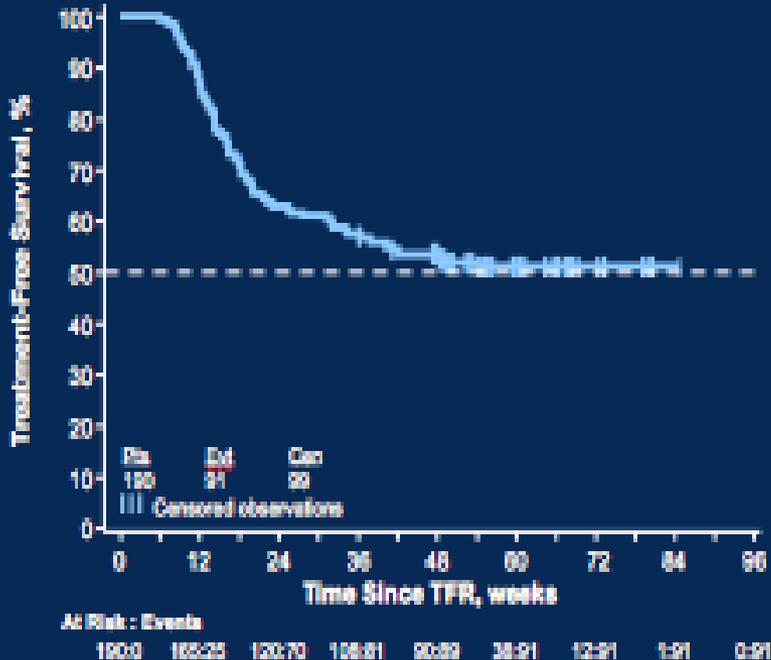
Sélection du clone malin

Accumulation
(inhibition de l'apoptose)

Microenvironnement
(métastases)



Peut-on Stopper le GLIVEC® ??



EXEMPLE #2 : MYELOME MULTIPLE

GLIVEC®

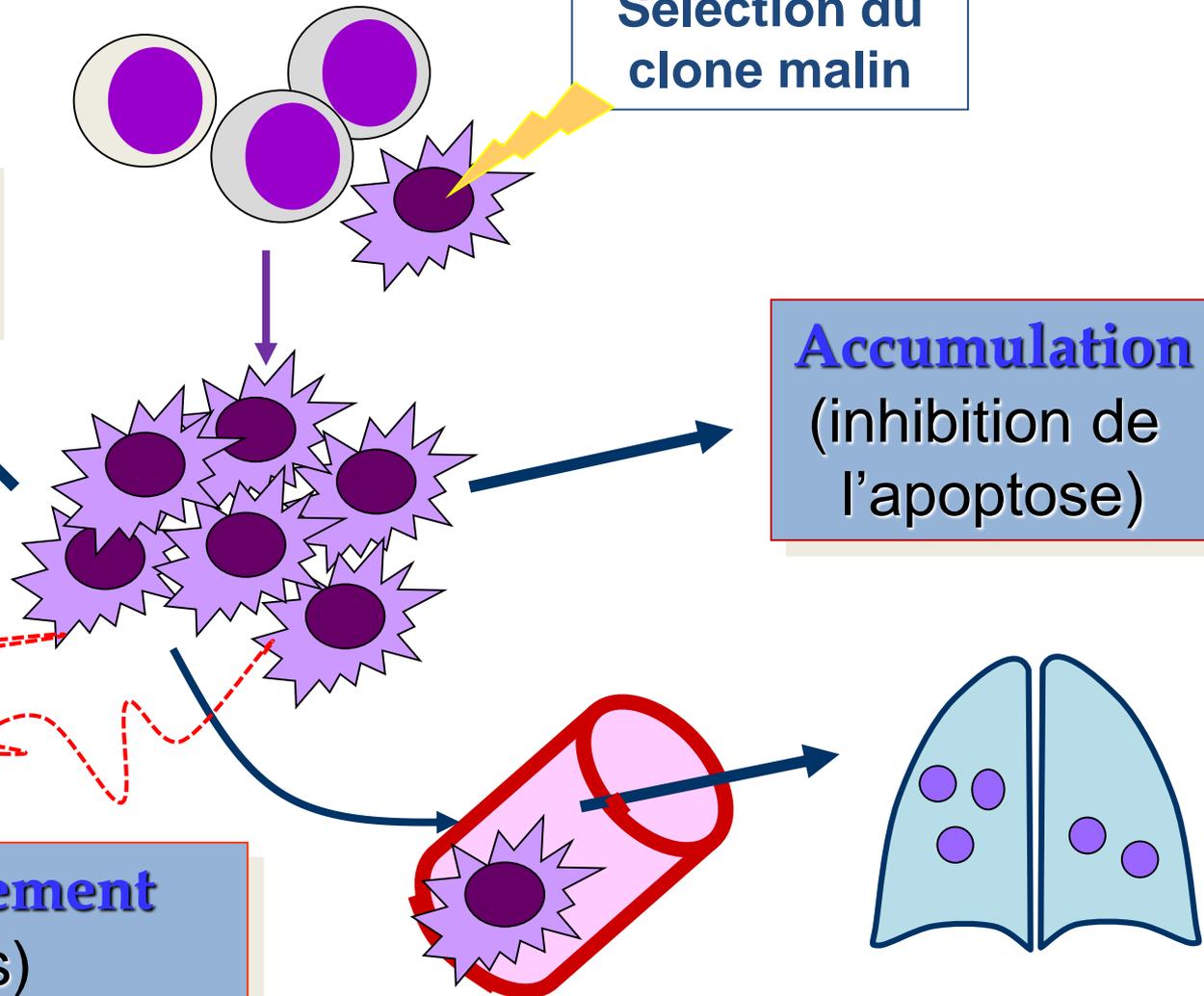
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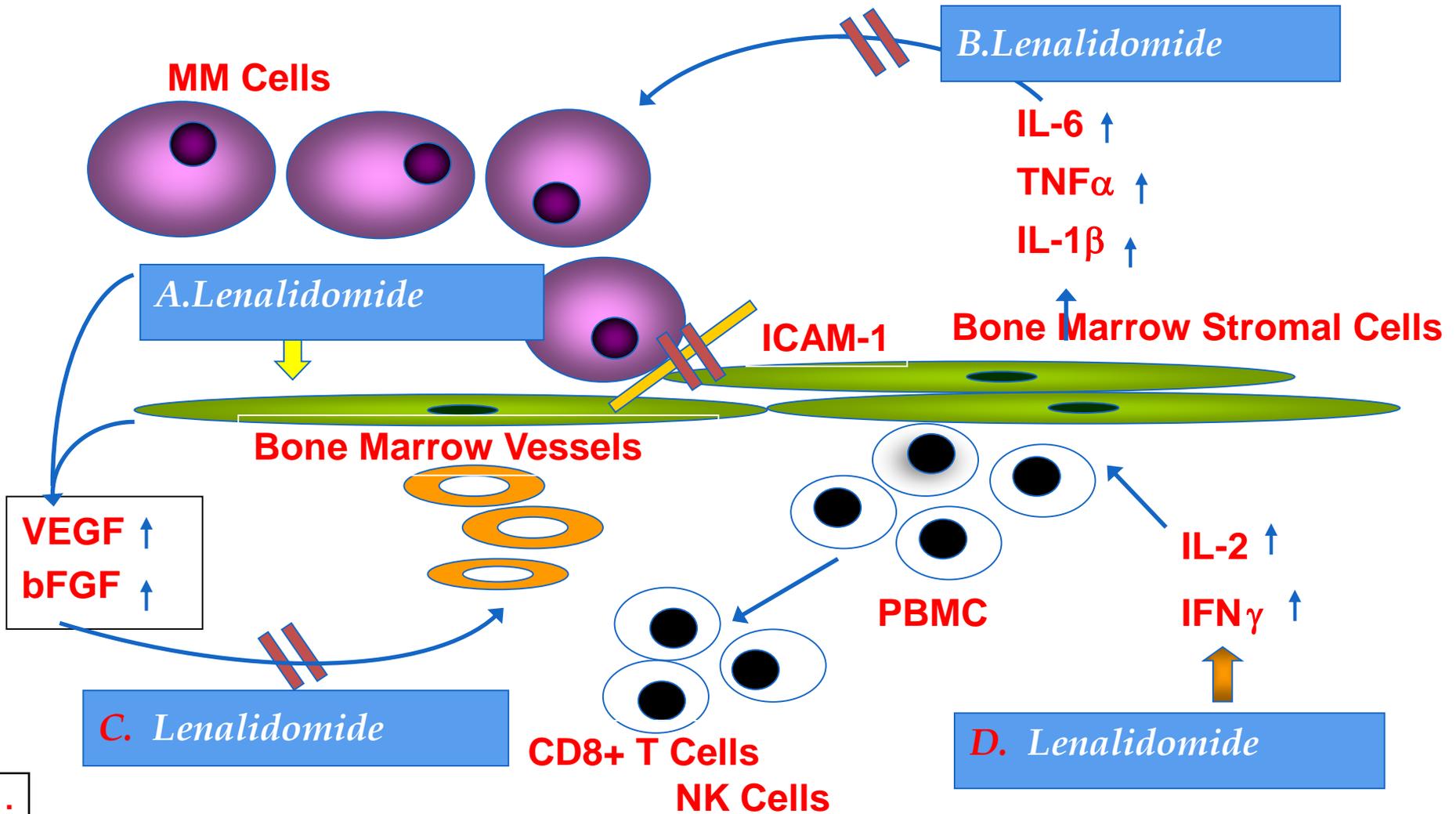
LENALIDOMIDE

Microenvironnement
(métastases)

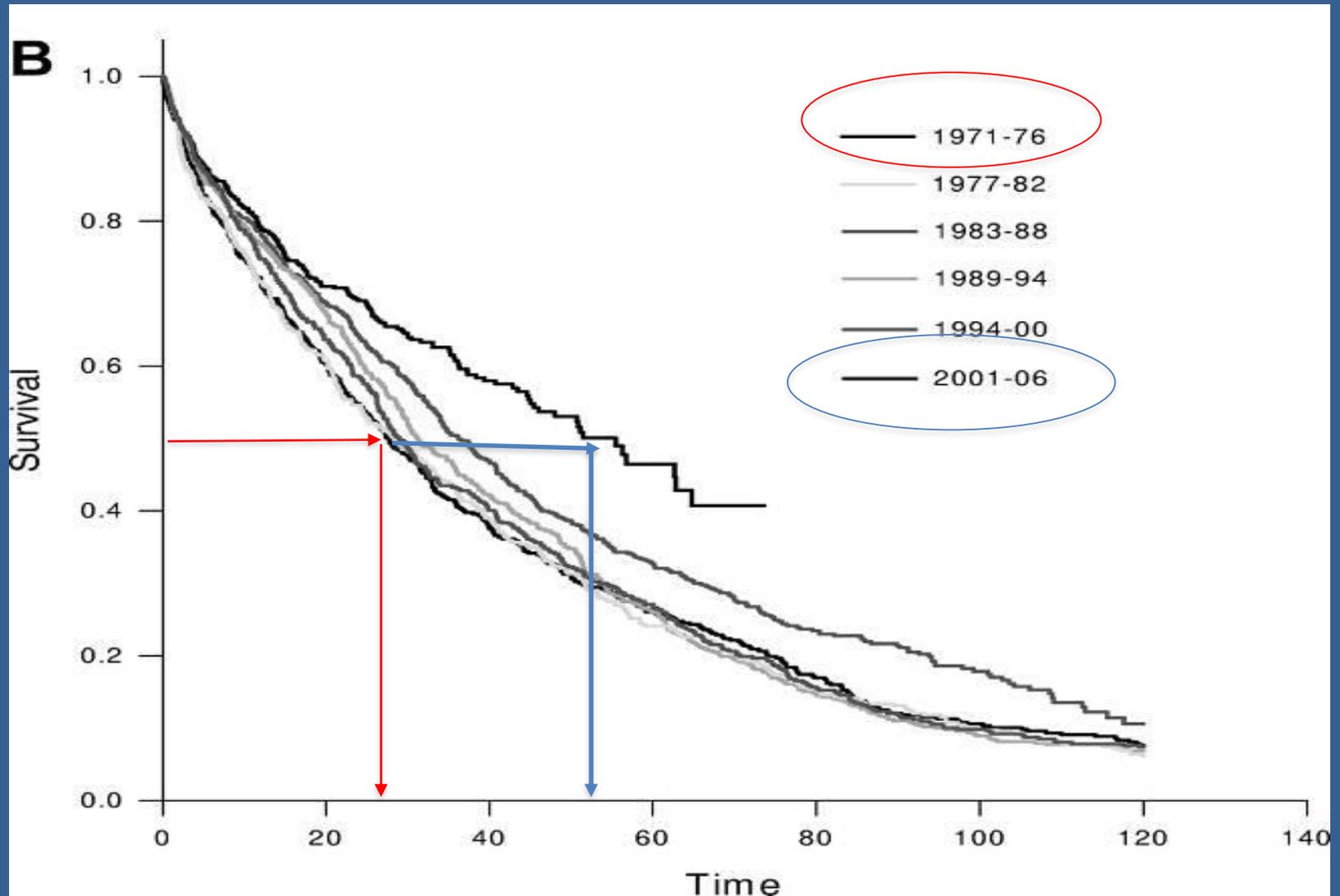


Lenalidomide : effets sur le Micro-environnement

Revlimid®

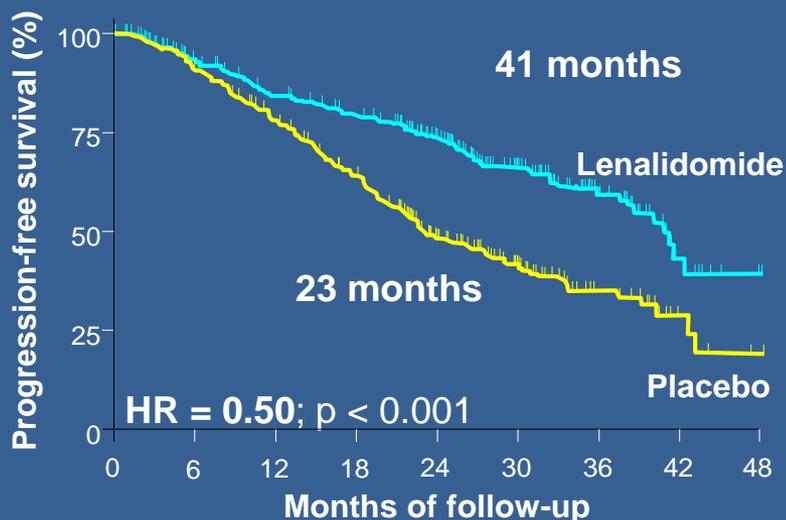


Evolution de la survie avec un Myélome Multiple

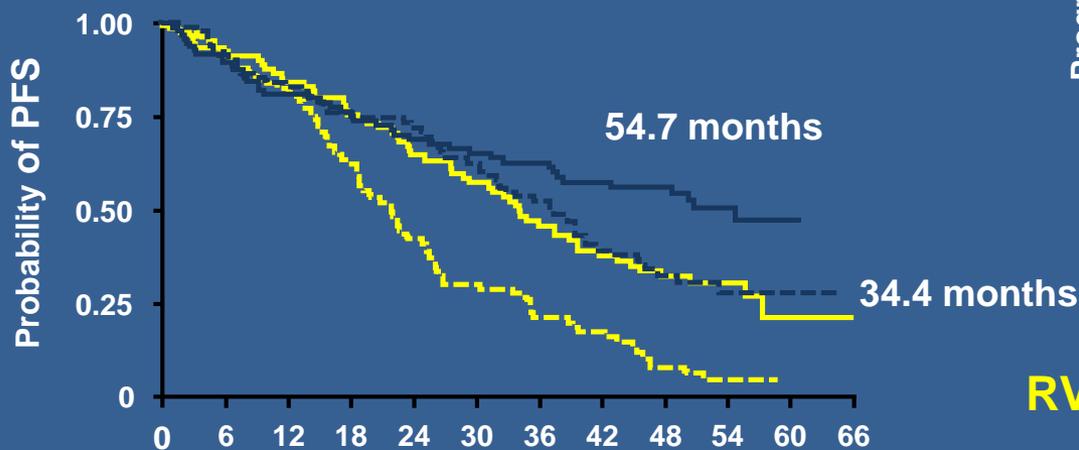
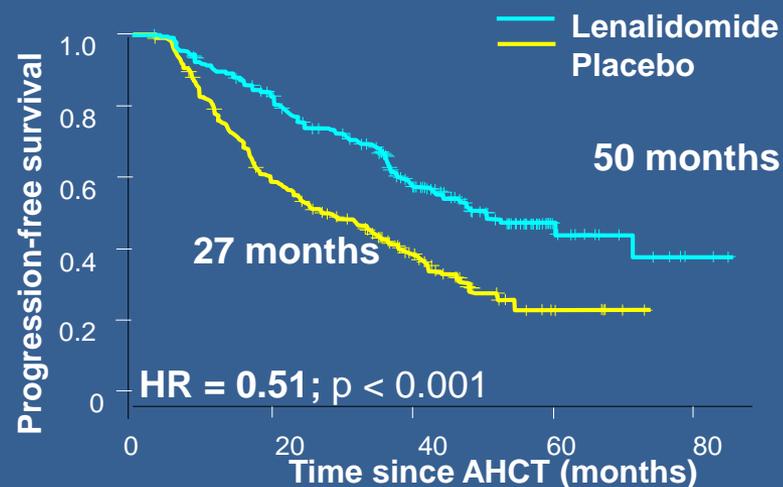


2018 : Bénéfice du Lenalidomide en maintenance Dans le MM – 3 études cliniques

IFM 2005-02¹



CALGB 100104²



Mécanismes de l'oncogénèse

Sélection du

Prolifé
(Cell. Tr

***VERS LA GUERISON DES
CANCERS ?***

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de
(se)

Microenvironnement
Defenses immunitaires

