



не все в долонях ДНК: Епігенетика та імунні клітини

**Гречуха Є.О., студент 5 курсу,
10М2**

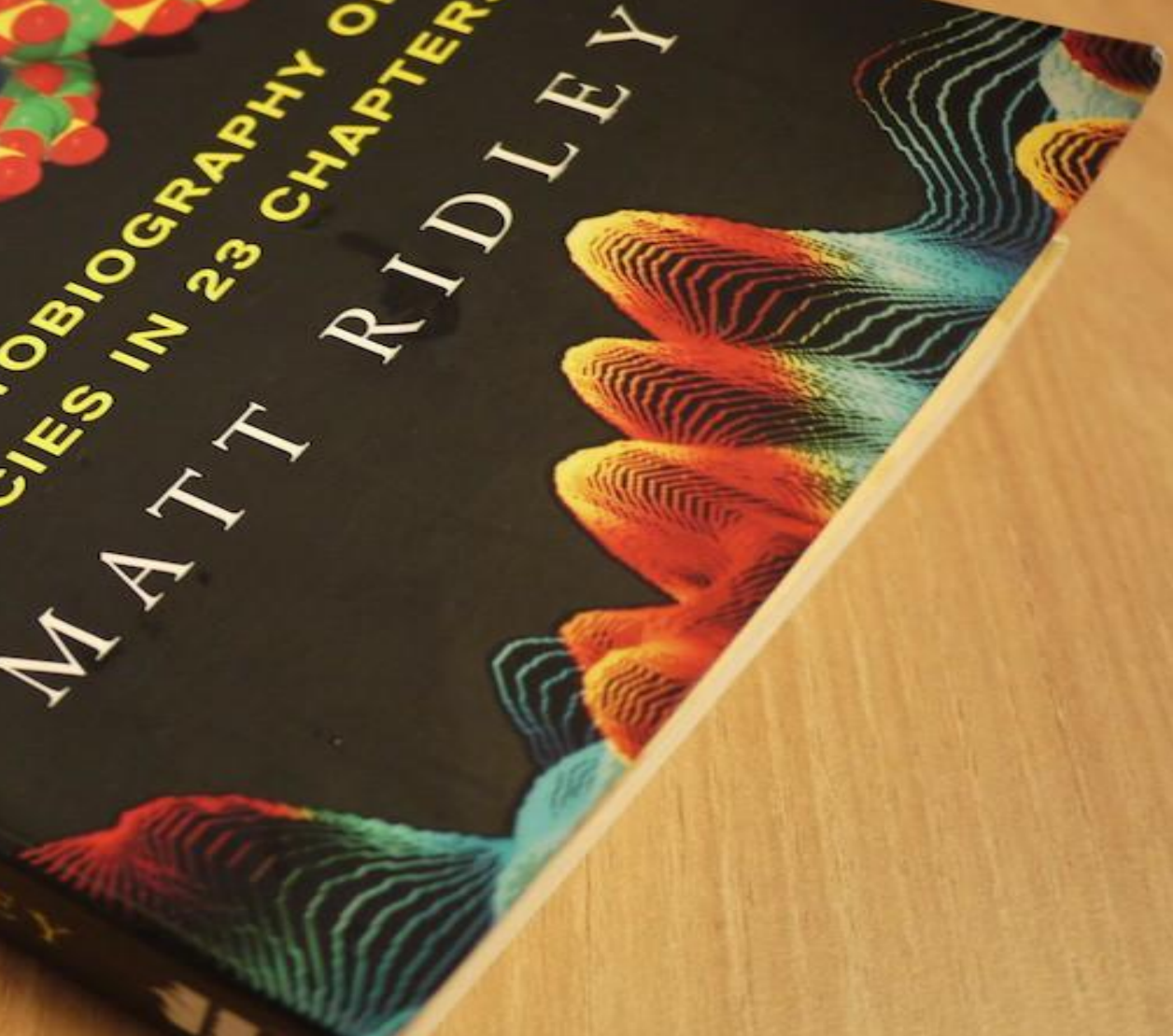
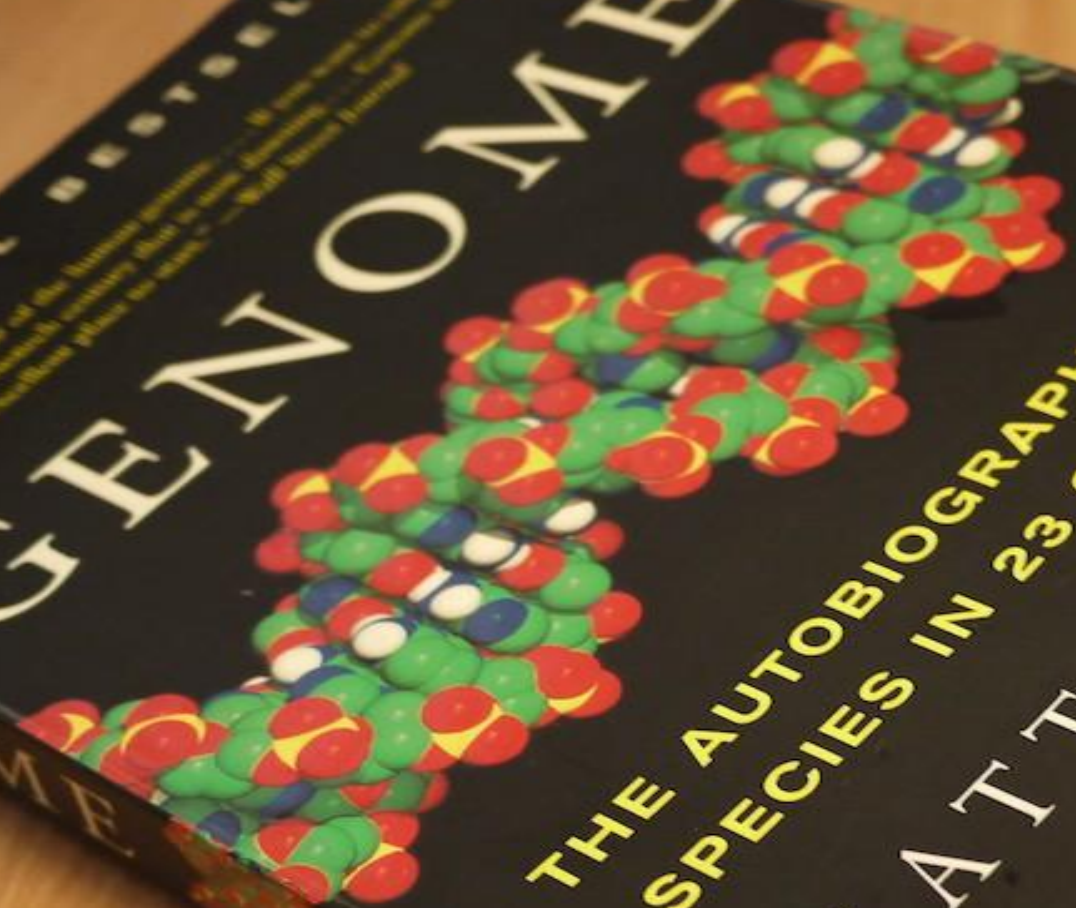
NATIONAL BESTSELLER

GENOME

"A fascinating tour of the human genome...
A tour of the human genome that is both
fascinating and enlightening." —Neil deGrasse Tyson

THE AUTOBIOGRAPHY OF A
SPECIES IN 23 CHAPTERS

MATT RIDLEY



GENOME
MATT RIDLEY

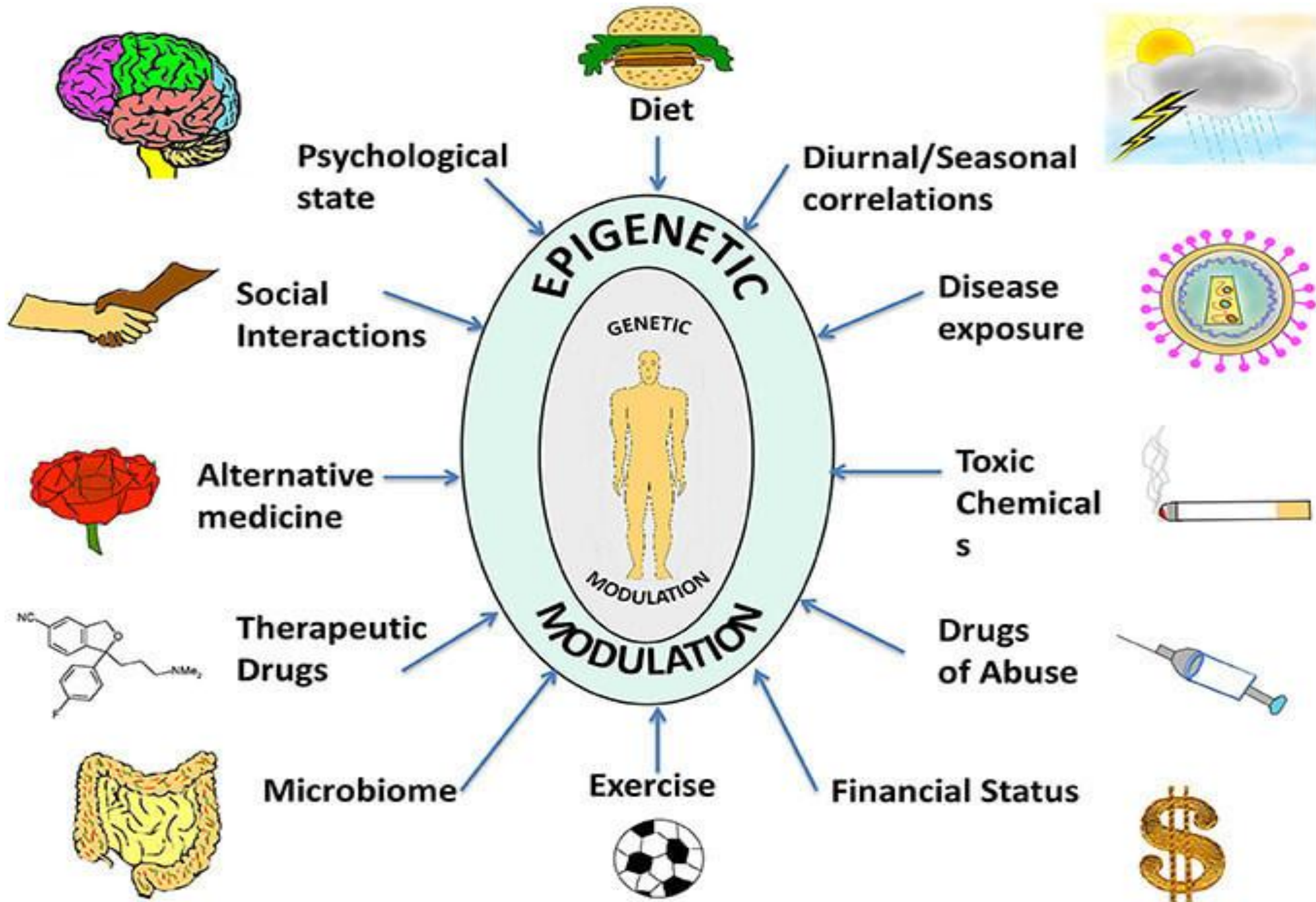




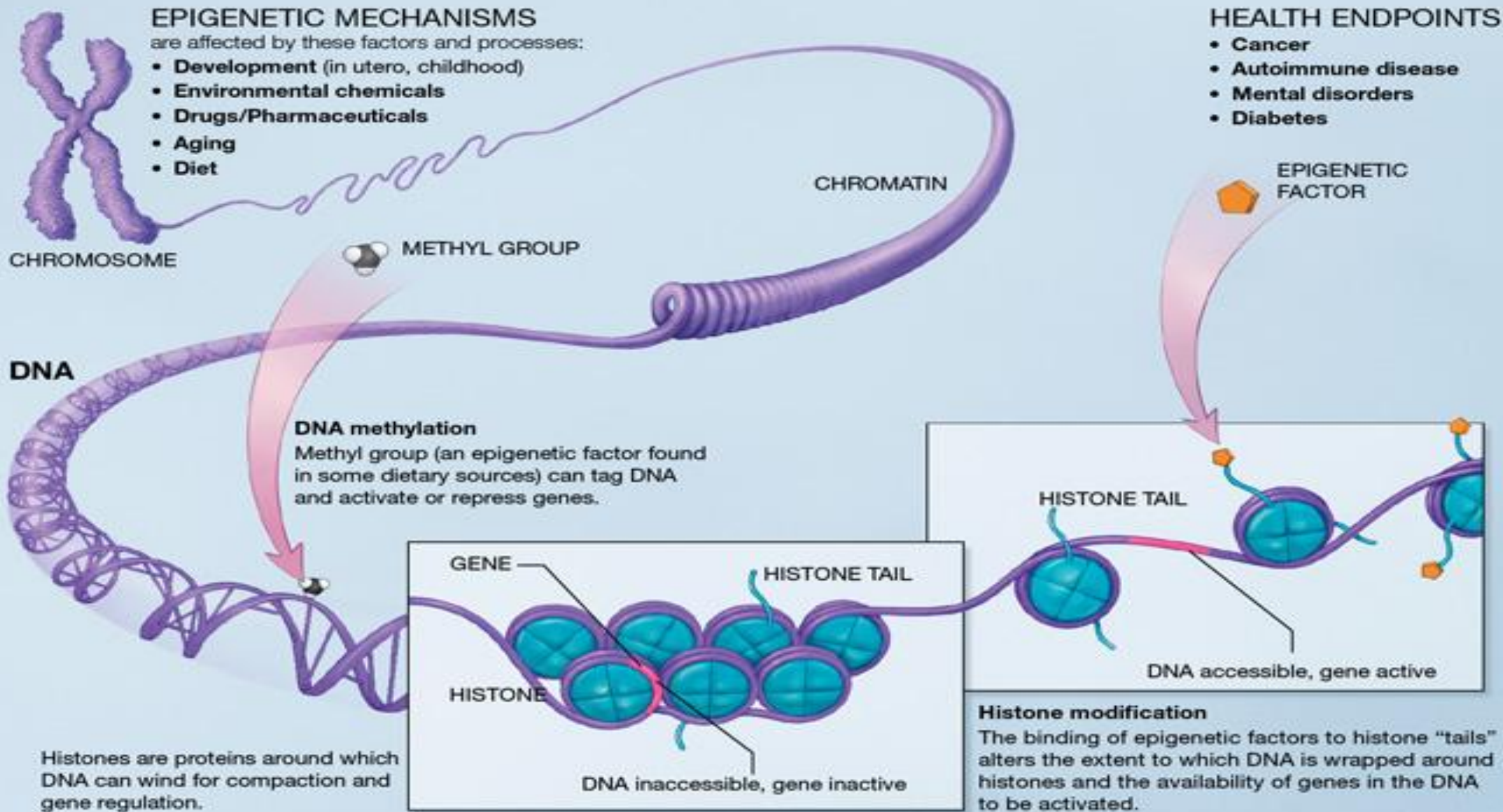
Описание
Работы с...
Далее в России
в...
разбойно част-
но. Не...
на...
лесной...
се... на...

А. В. Кривоноз
на...
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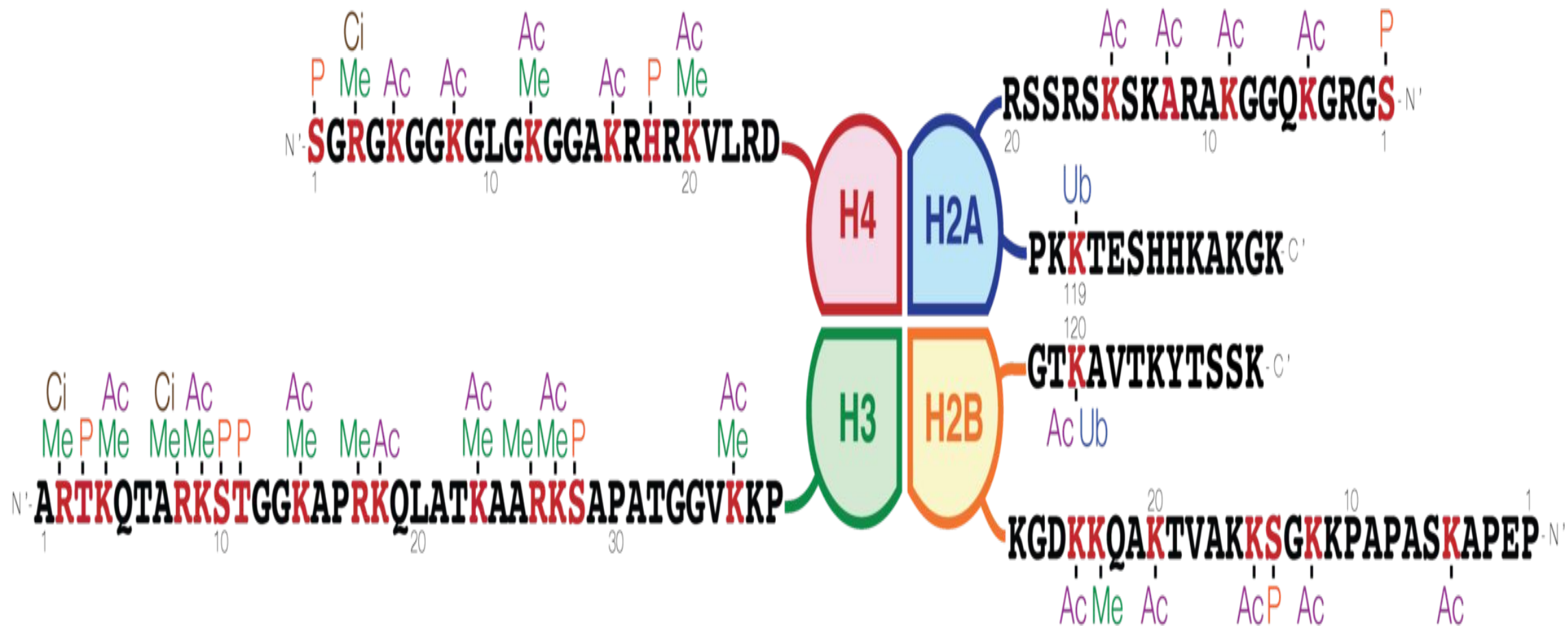




Епігенети

ка

- Метилювання ДНК
- Модифікація гістонів
- Ремоделювання хроматину
- Пріони
- мікроРНК



Me Methylation

Ac Acetylation

Ci Citrullination

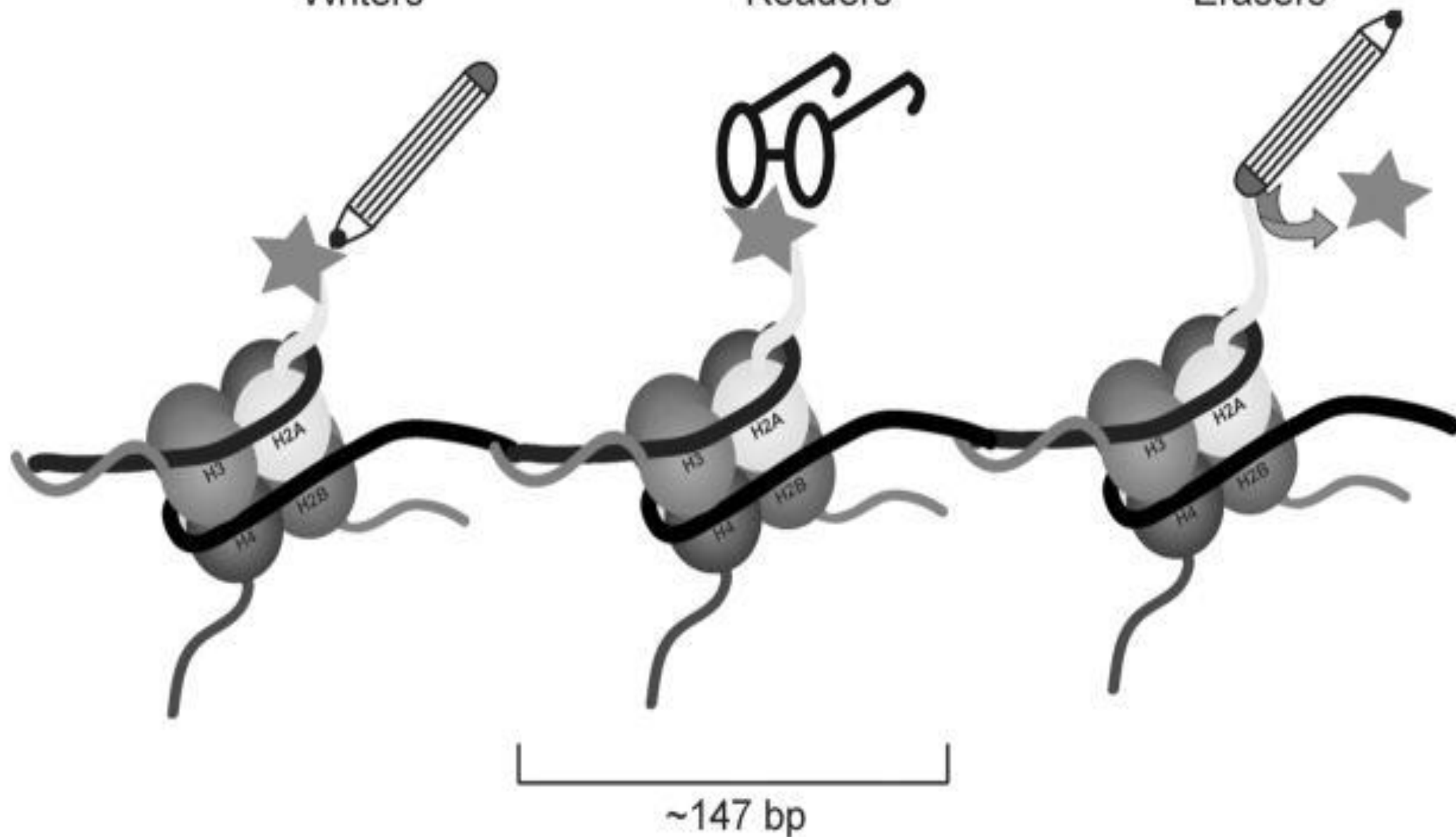
Ub Ubiquitination

P Phosphorylation

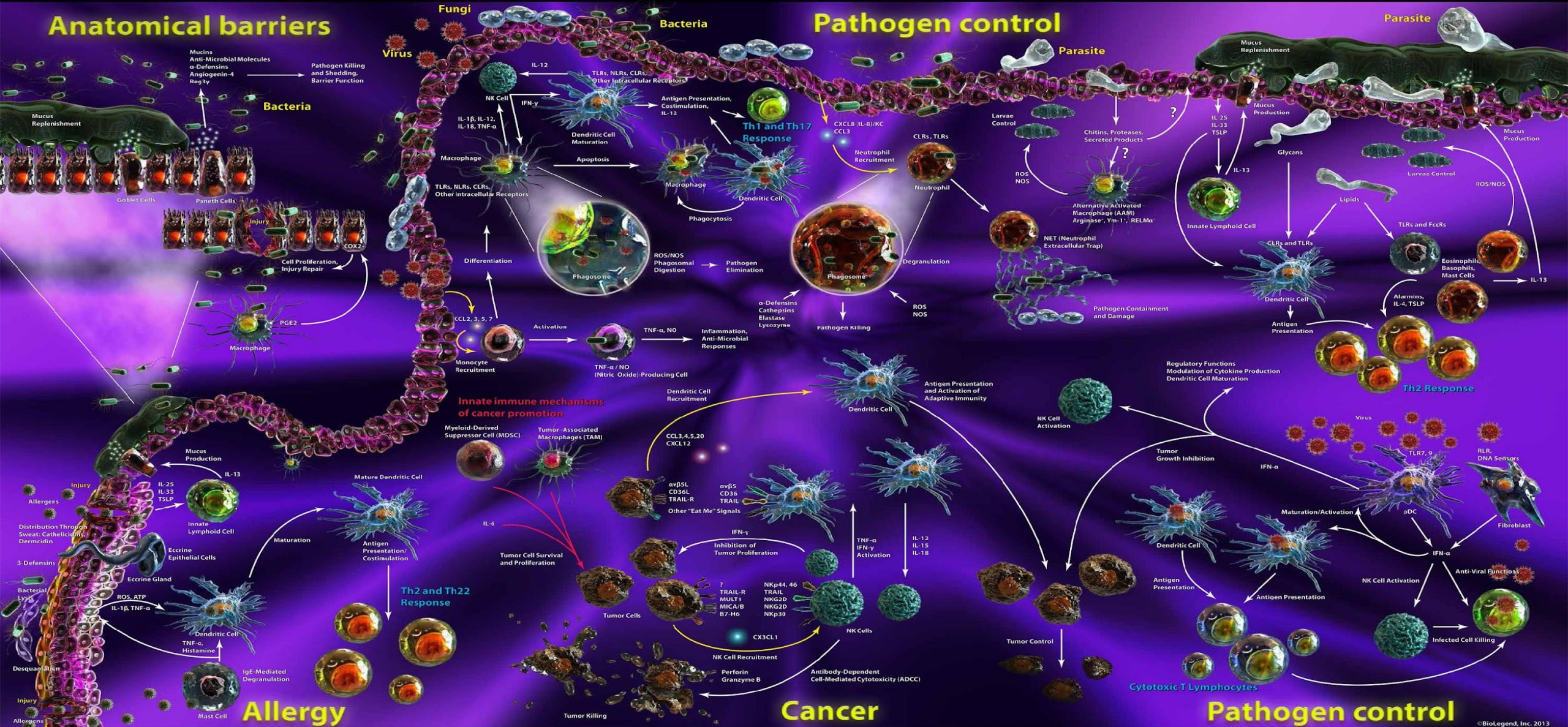
Writers

Readers

Erasers



Innate Immunity



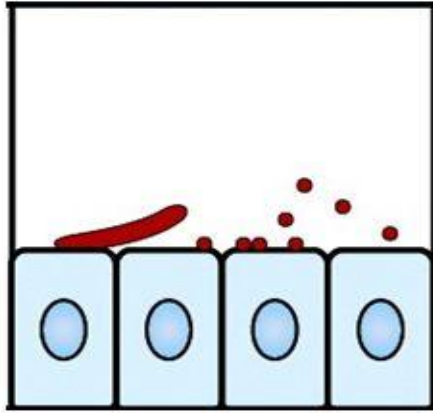
- | | | | |
|---|---|---|--|
| CD11c
CD80
CD86
MHC-II
CLRs
TLRs | CD3 ⁺
CD11b ⁺
CD119 ⁺
CD19 ⁺
CD98 ⁺
CD317 | Human:
CD123
CD138
CD139
CD144
CD146
CD155
CD166
CD184
CD186
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CD191
CD192
CD193
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CD200u
CD200v
CD200w
CD200x
CD200y
CD200z | Classic AAM:
CD11b ⁺
CD11c ⁺
CD14 ⁺
CD15 ⁺
CD16 ⁺
CD18 ⁺
CD19 ⁺
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CD23 ⁺
CD25 ⁺
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CD200m ⁺
CD200n ⁺
CD200o ⁺
CD200p ⁺
CD200q ⁺
CD200r ⁺
CD200s ⁺
CD200t ⁺
CD200u ⁺
CD200v ⁺
CD200w ⁺
CD200x ⁺
CD200y ⁺
CD200z ⁺ |
|---|---|---|--|

biolegend.com
 Interactive Poster: biolegend.com/innateimmunity
 We would like to thank Dr. Ruslan M. Medzhitov of the Yale School of Medicine for his contributions to this poster.

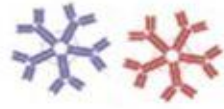
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 email: cs@biolegend.com, techserv@biolegend.com

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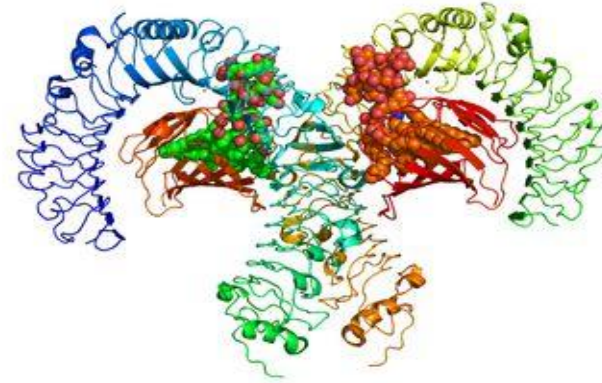
Innate Immunity



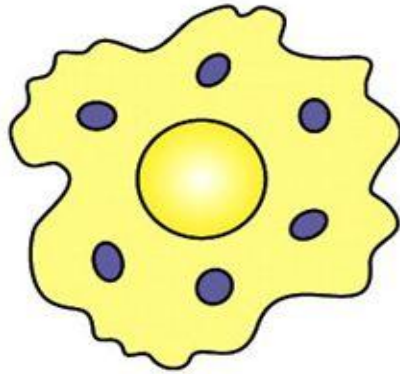
Epithelial barriers



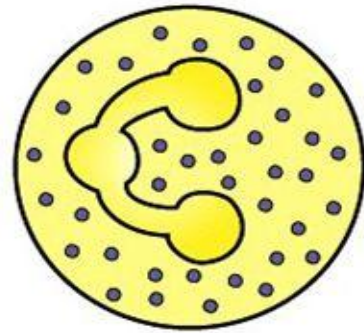
Soluble molecules



Pattern-recognition receptors:
TLRs, NLRs, scavenger Rs,
C-type lectin Rs



Macrophages

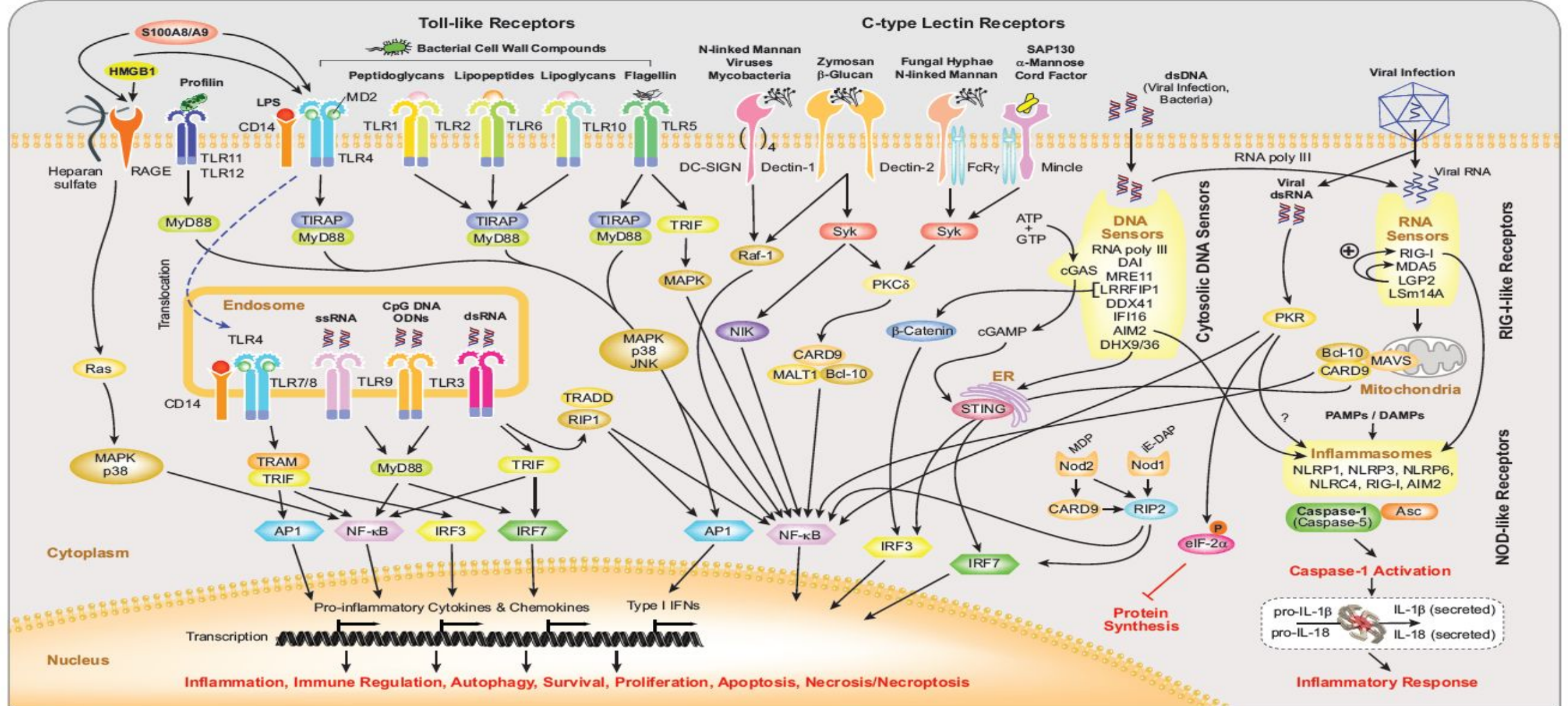


Neutrophils

Pattern Recognition Receptors (PRRs) Signaling Pathways

Adipogen International
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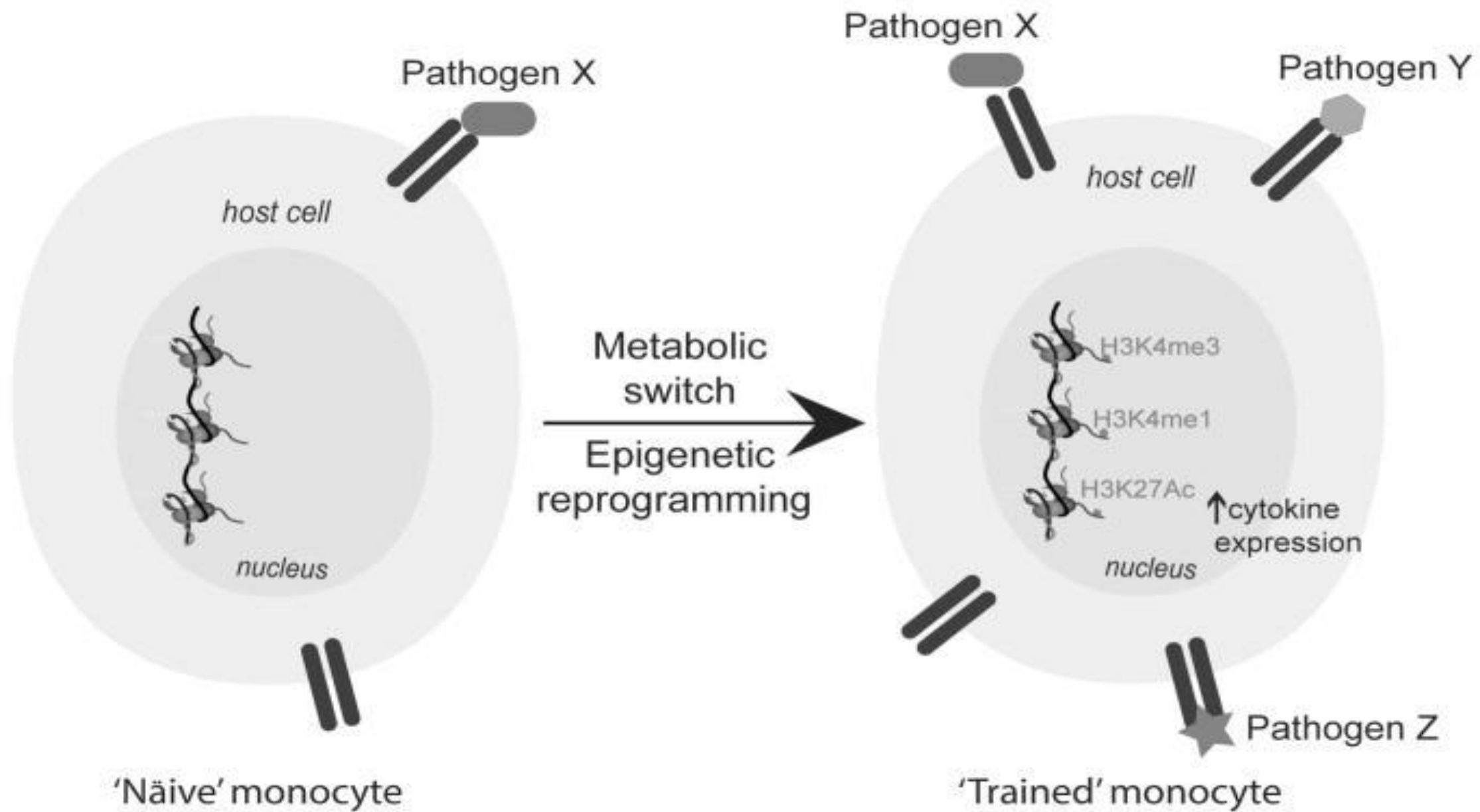


→ Activation
 - - - Translocation
 —|— Inhibition

TLRs:

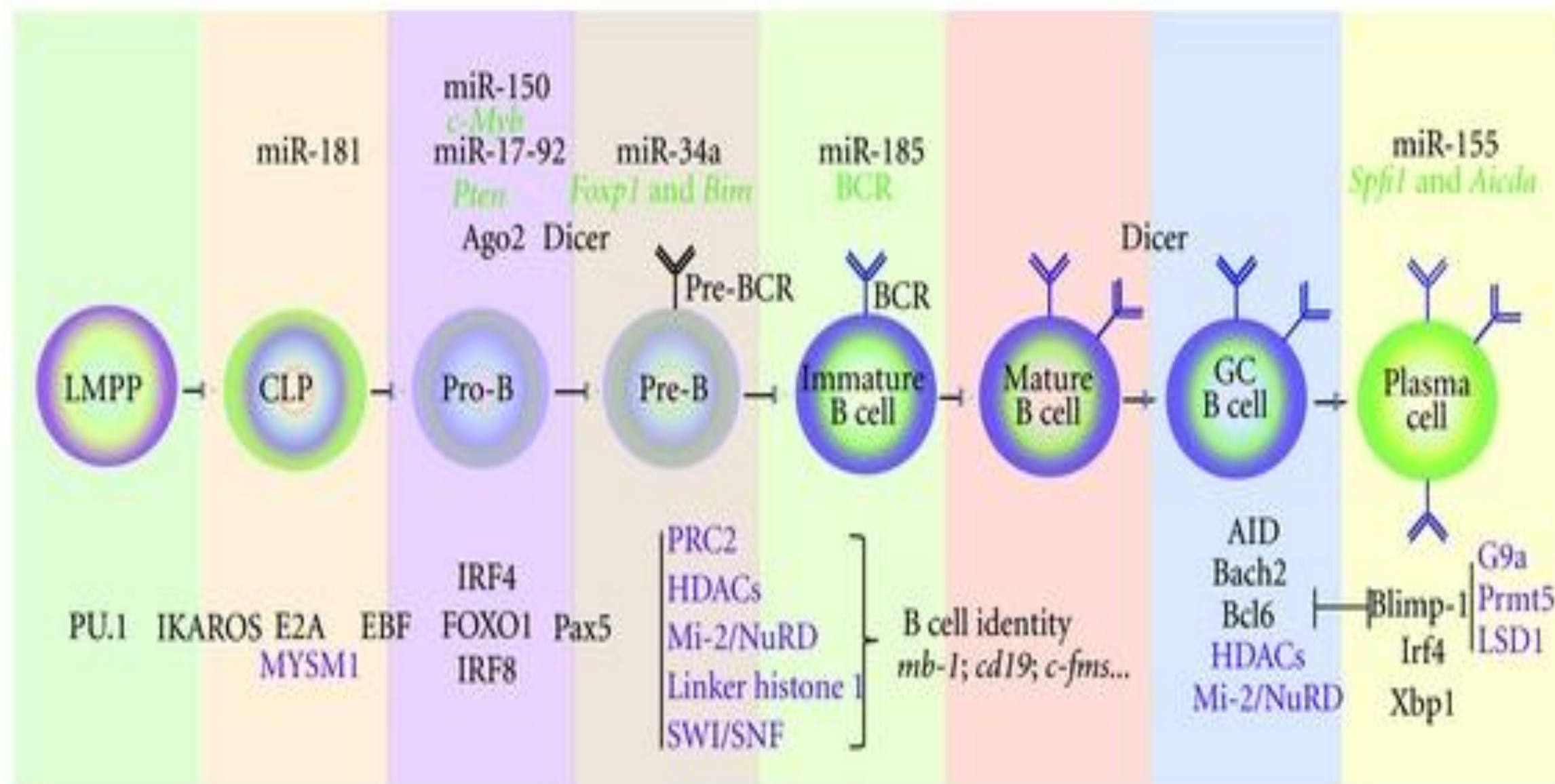
 ← Horseshoe-shaped solenoid N-terminal extracellular leucine-rich repeat (LRR) motifs
 ← Compact and globular C-terminal intracellular Toll/interleukin-1 receptor (TIR) domain

TLR11/TLR12: Expressed in mice only



В- лімфоцити

Bruna Barneda-Zahonero *“Epigenetic Regulation of B Lymphocyte Differentiation, Transdifferentiation, and Reprogramming”*
2012



1.

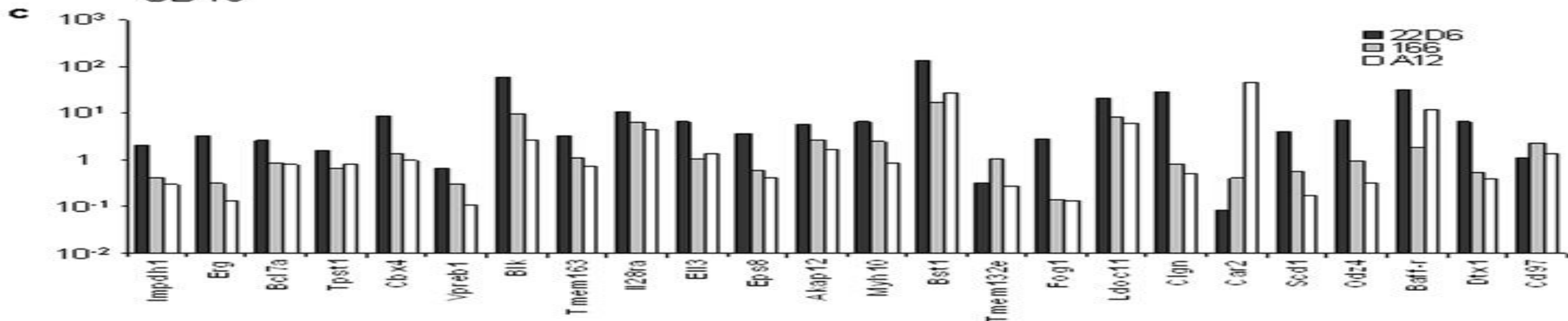
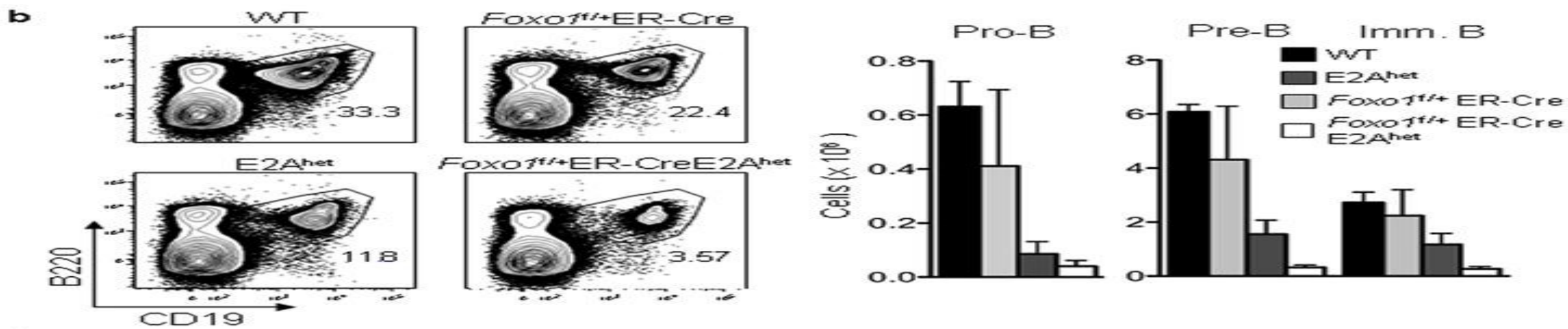
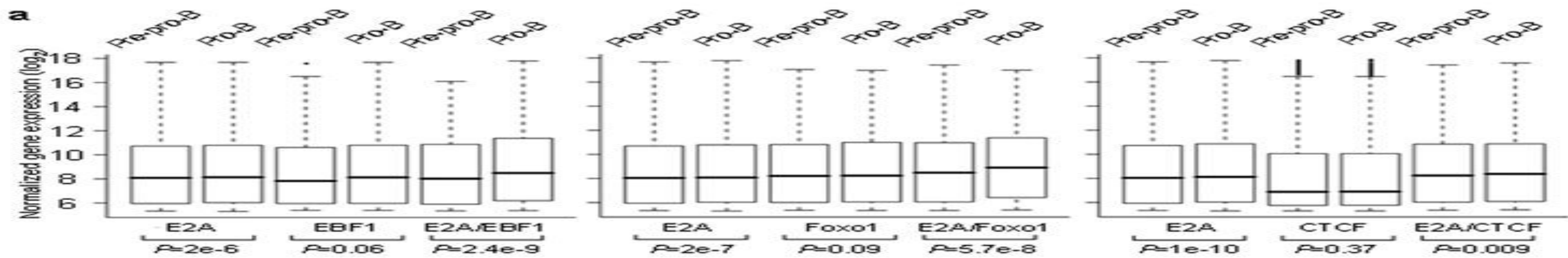
Клітина попередник лімфопоезу: для перетворення в В-лімфоцити мають подіяти транскрипційні фактори - *ikaros* та *PU*.

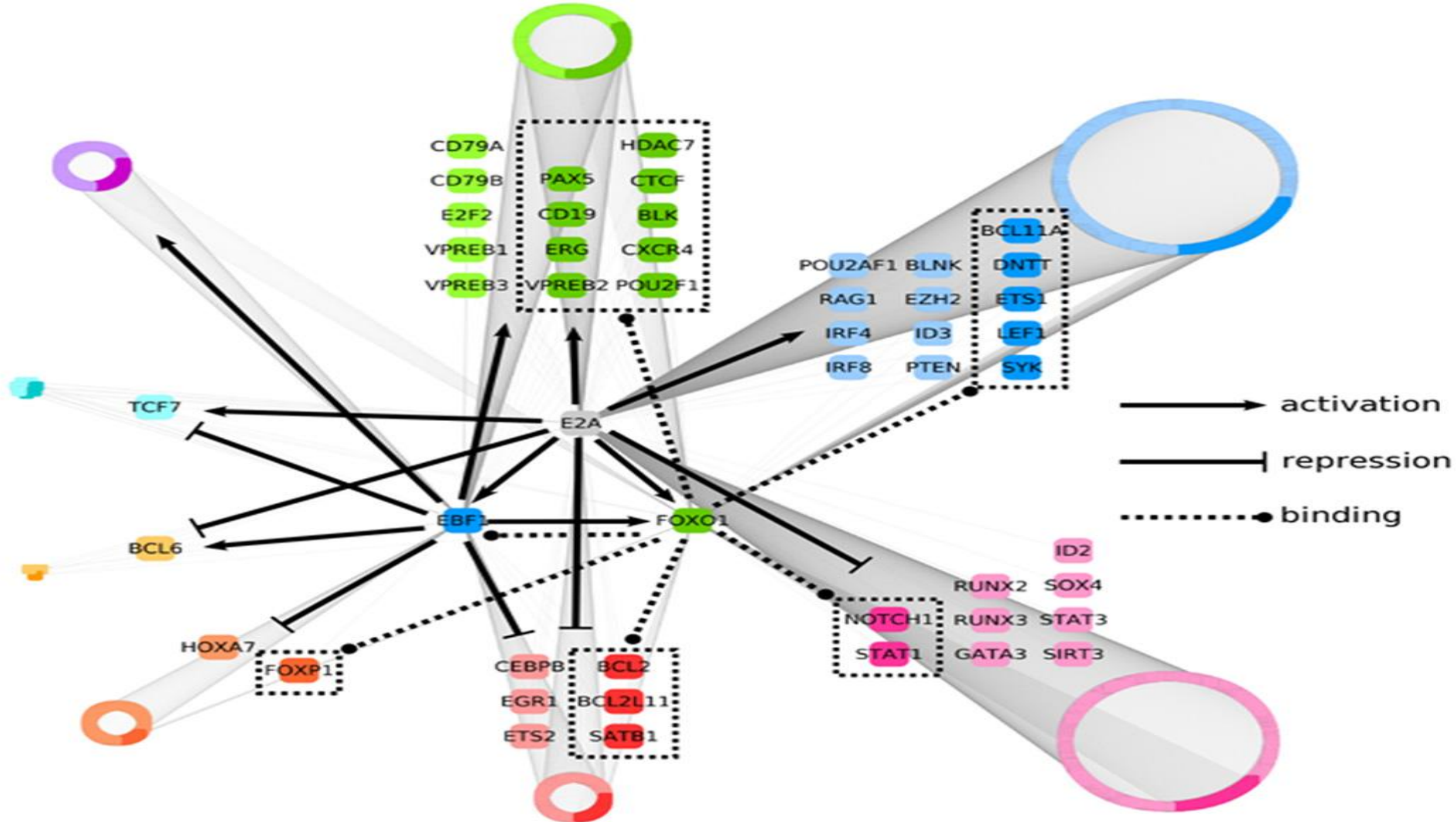
2.

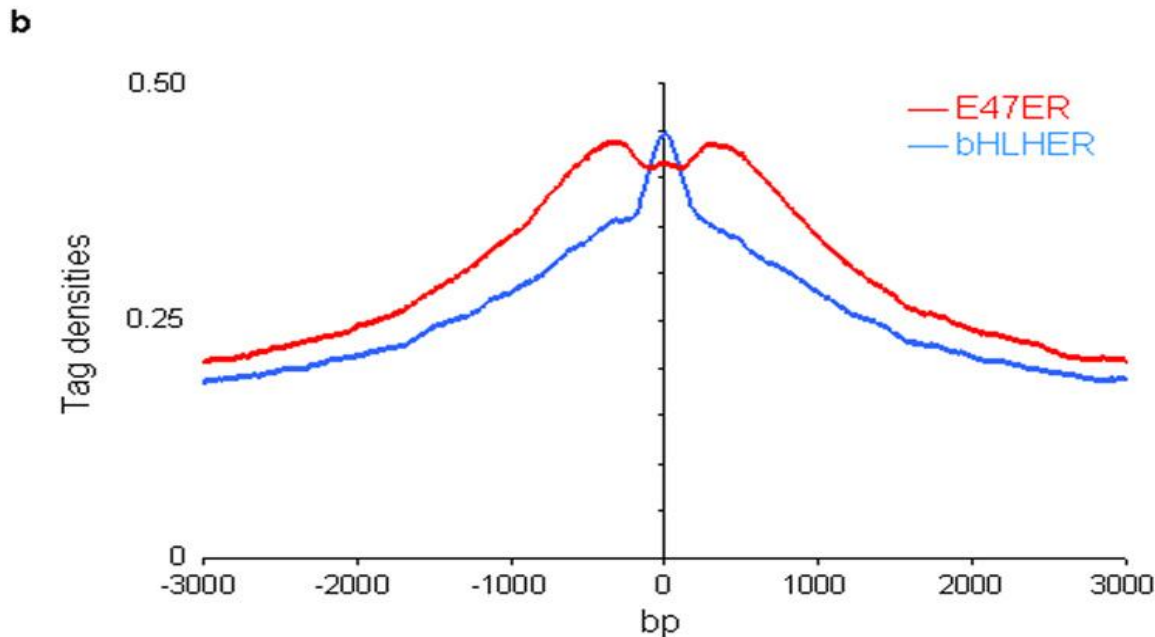
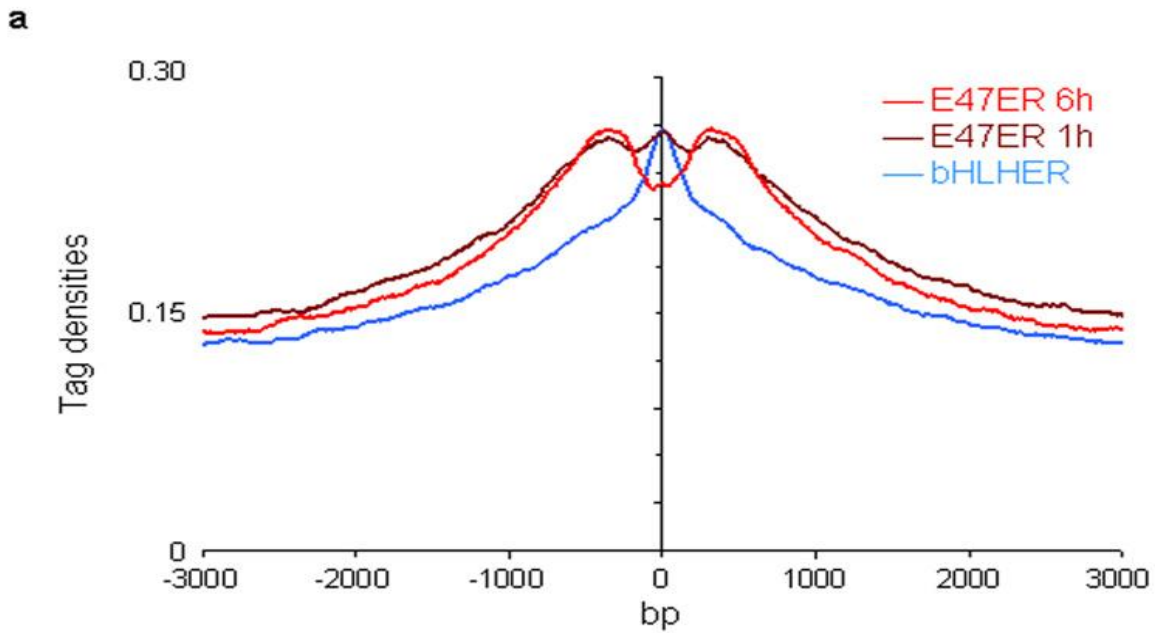
Рання «спеціалізація»: E2A, EBF, and FOXO1 (а саме реанжерування генів V(D)J).

3.

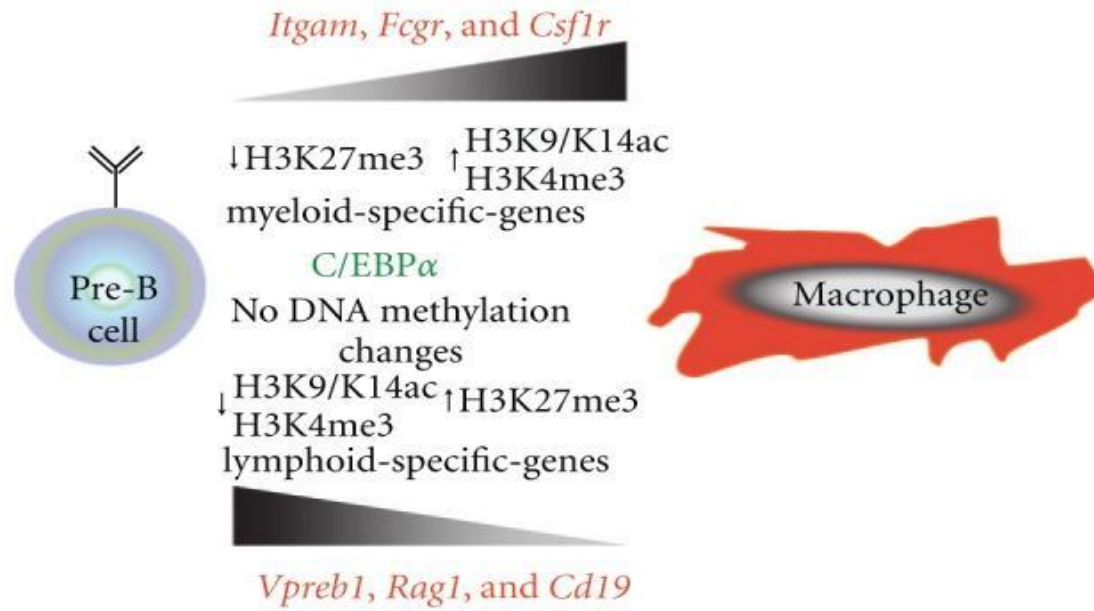
Фактори репресії транскрипції Bcl6 and Blimp-1 мають місце в перетворенні в плазматичні клітини.



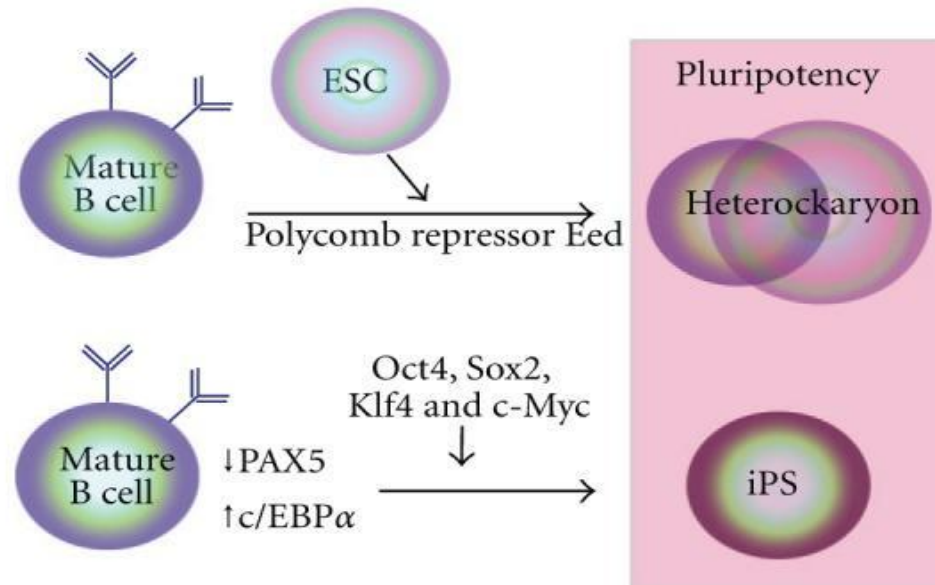




E47 DNA binding alters the pattern of H3K4 monomethylation. (a) Forced E47 expression in E2A-deficient pre-pro-B cells promotes the establishment of a bimodal distribution of H3K4me1 centered across E2A occupancy. E2A-deficient pre-pro-B cells were transduced with virus carrying the full-length coding DNA sequence of E47 fused to the estrogen receptor domain (E47ER). As a control, cells were transduced with virus expressing the E47 bHLH domain fused to the ER domain (bHLHER). Twenty-one hours post infection, cells were incubated with tamoxifen to induce E47 activity for either one or six hours, harvested, formaldehyde cross-linked, immunoprecipitated with an anti-E2A or anti-H3K4me1 antibody, and analyzed by CHIP-Seq. X-axis shows the genomic distance from E2A bound regions. Y-axis shows the individual immunoprecipitated mapped reads (or tags) per base pair. (b) Forced E47 expression in E2A-deficient T cells promotes the establishment of a bimodal distribution of H3K4me1 centered across E2A occupancy. E2A-deficient A12 cells were transduced with virus and analyzed by CHIP-Seq as described above.



(a) Transdifferentiation

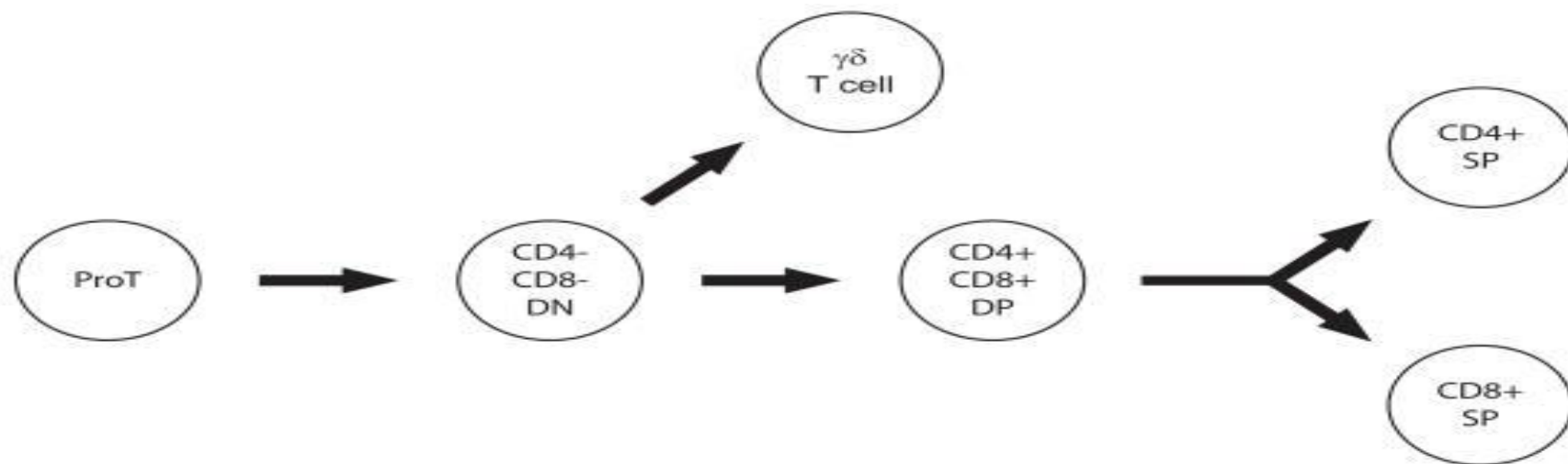


(b) Reprogramming to pluripotency

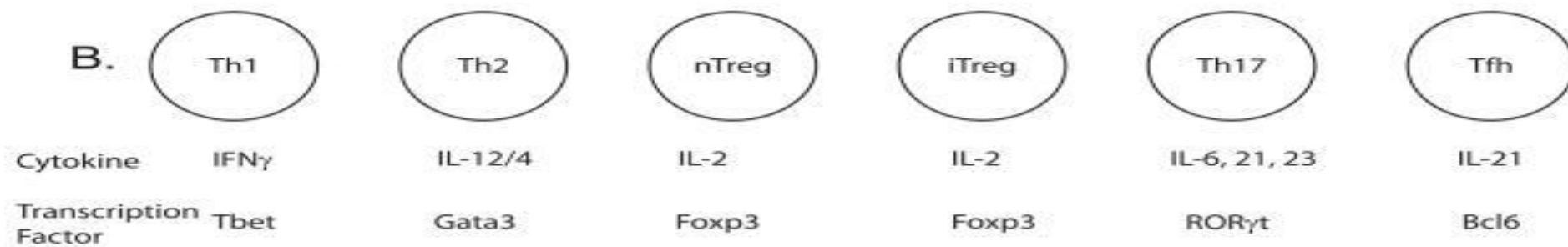
T- лімфоцити

**Brendan E. Russ: «*T cell immunity as a tool for studying epigenetic regulation of cellular differentiation*»
2013**

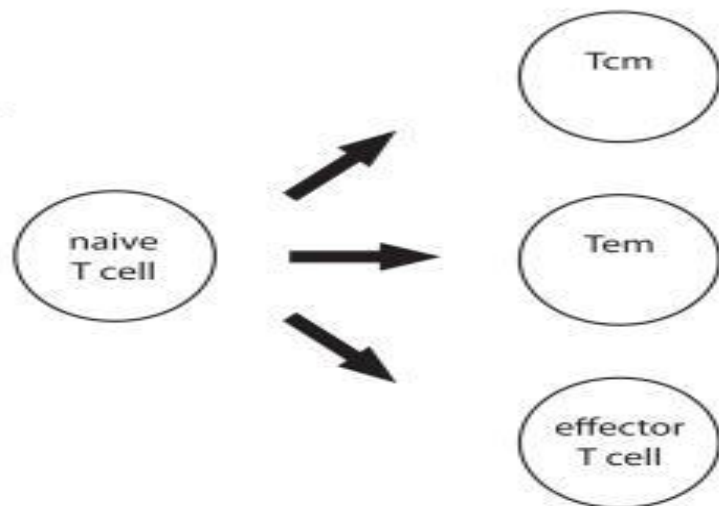
A.

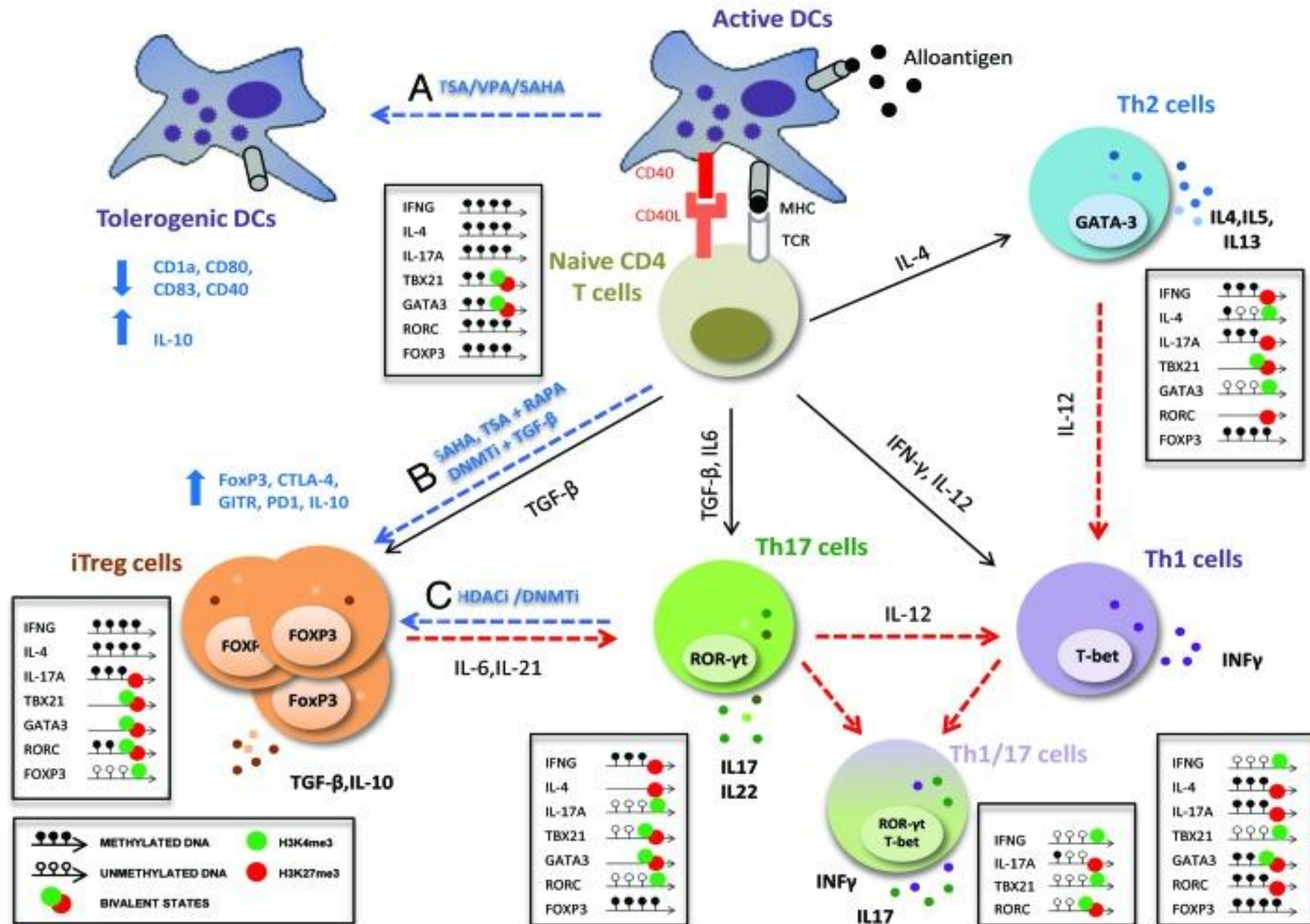


B.



C.





<https://www.encodeproject.org/>

<http://www.roadmapepigenomics.org/>