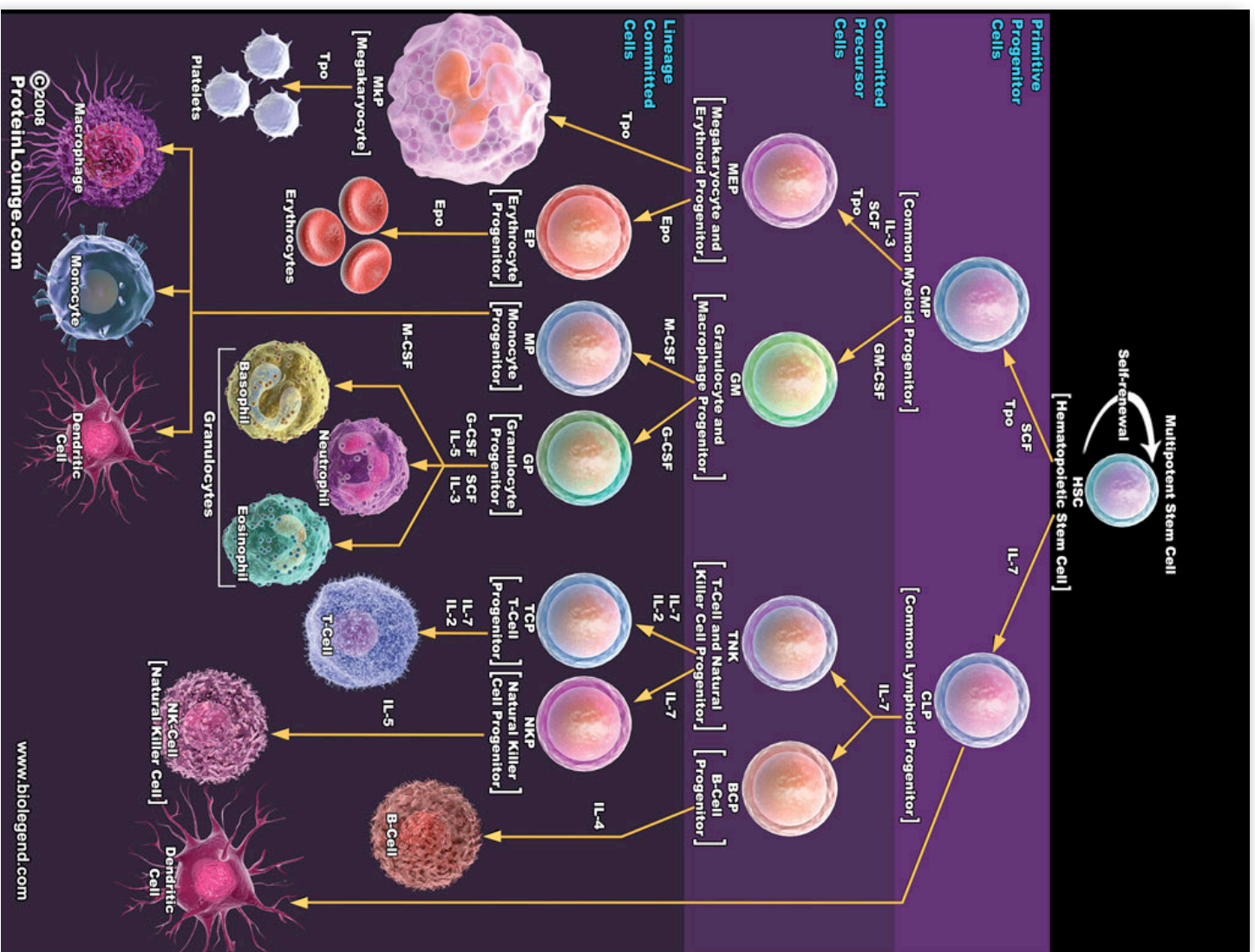
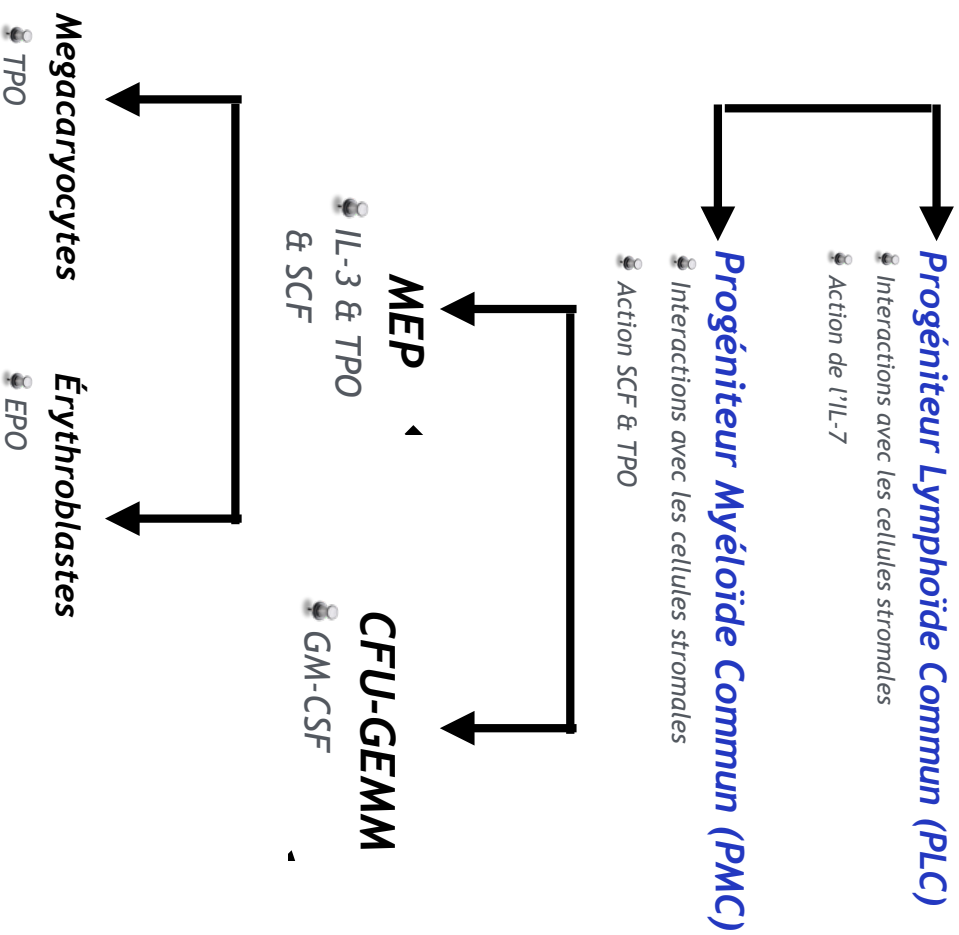
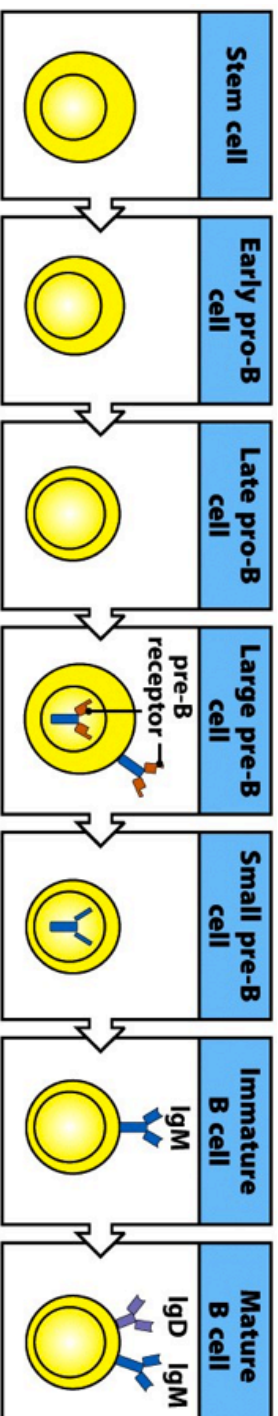


# II - Cellules de l'immunité adaptative

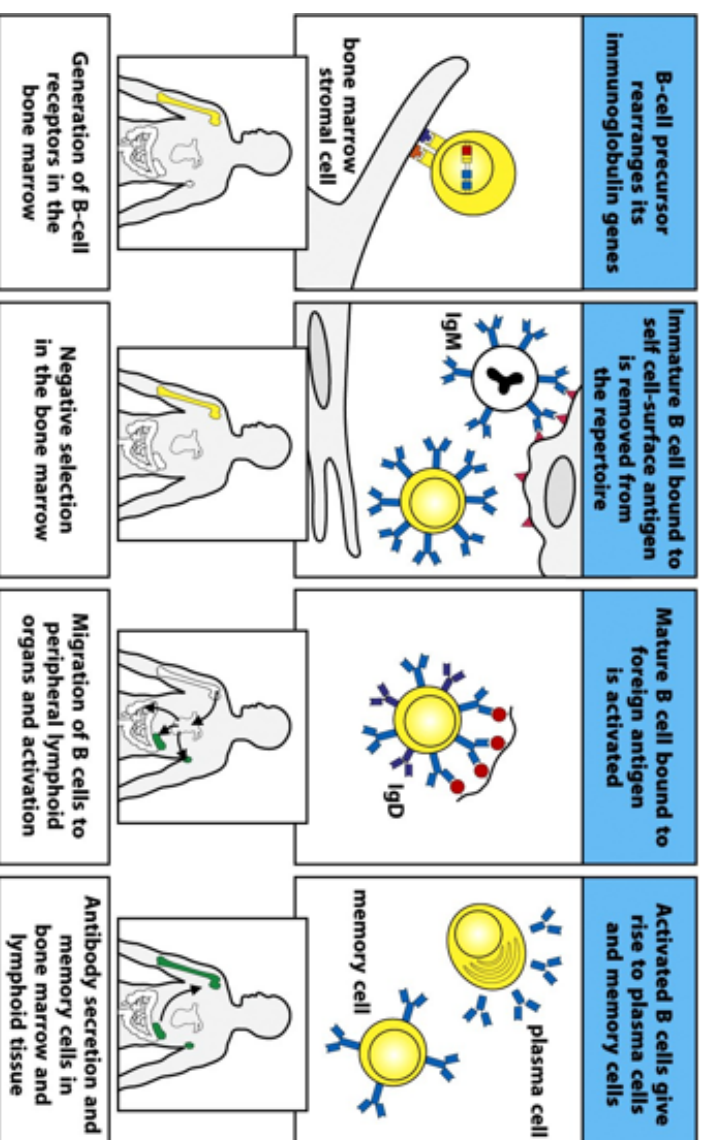


# II - Cellules de l'immunité adaptative

## Lymphocytes B

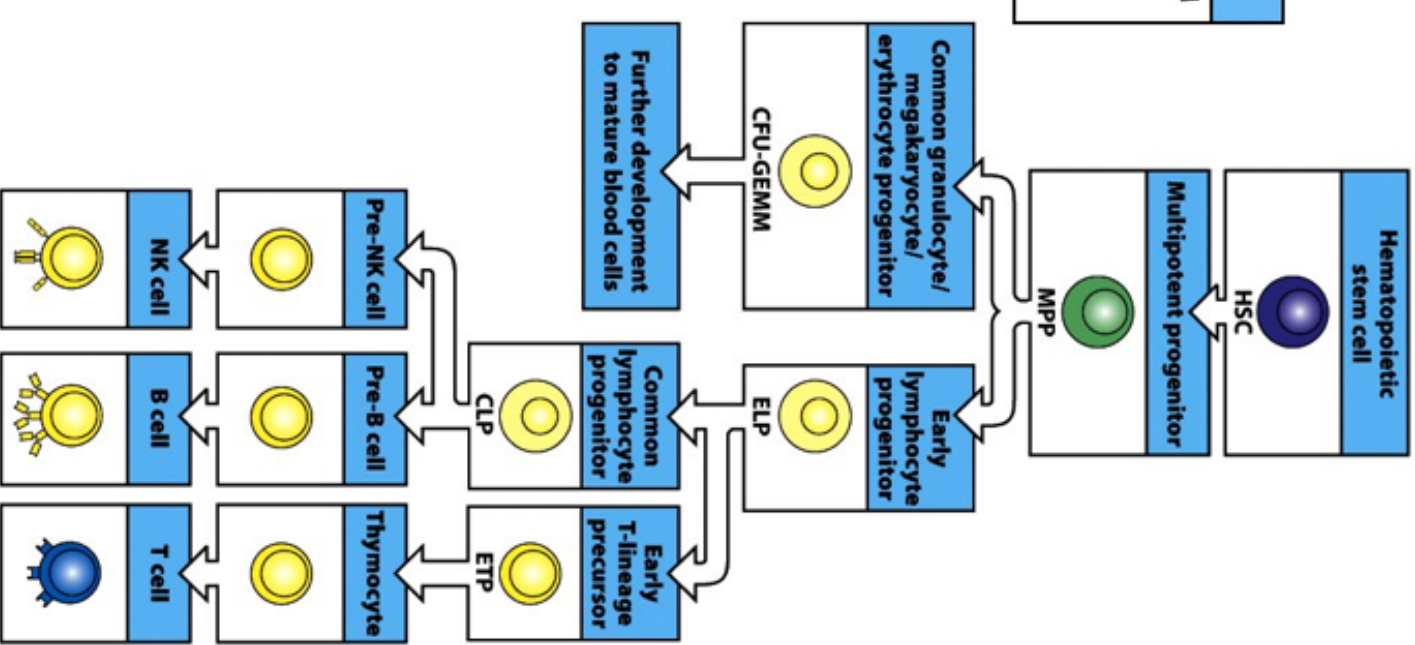


- Moelle osseuse *MAIS* rate et foie chez le fœtus
- Processus multiphasique
- Plusieurs check-point



Cellules stromales

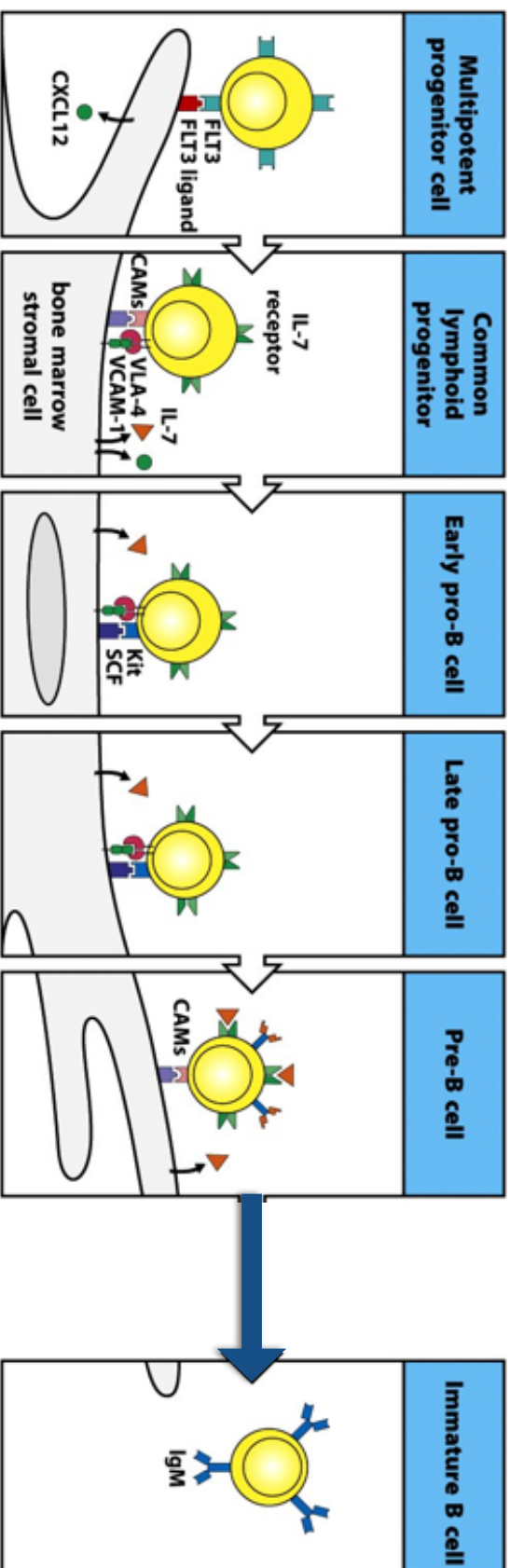
Antigènes/Anticorps



# II- Cellules de l'immunité adaptative

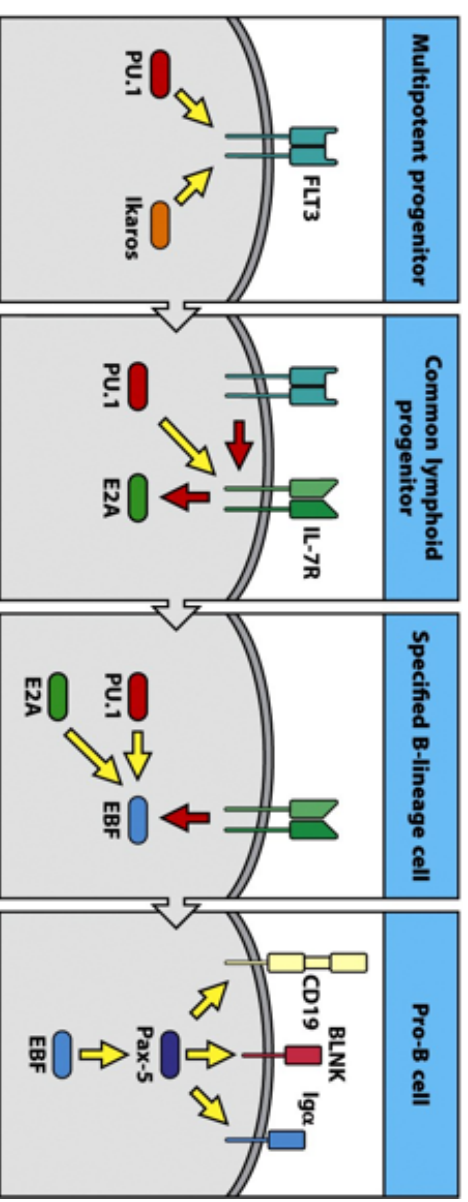
## Lymphocytes B

Phase d'interaction avec les cellules stromales



- **CPP** : pas de renouvellement & expression de Flt3
- Diff lymph & expression de IL-7R sous influence du fact trans PU.1
- Rétention des PLC par SDF-1, complexe VLA-4/VCAM
- Expression de Kit & interaction avec SCF

- Expression du BCR & Igm



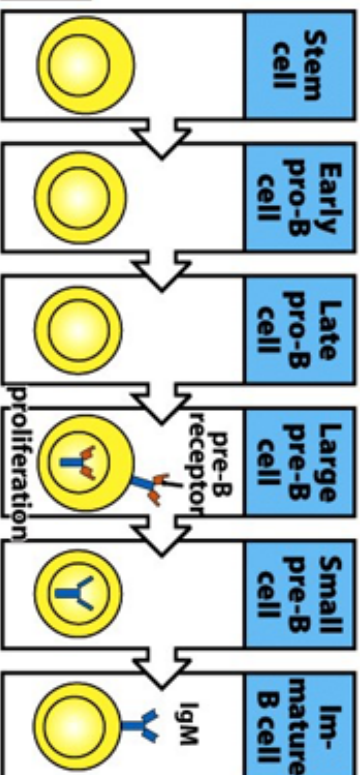


# II - Cellules de l'immunité adaptative

## Lymphocytes B

Phase d'interaction avec les cellules stromales

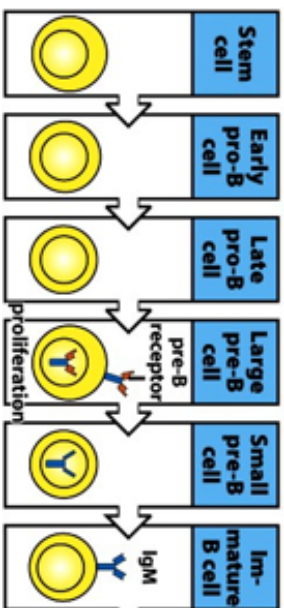
Protein	Function	Stem cell	Early pro-B cell	Late pro-B cell	Large pre-B cell	Small pre-B cell	Im-mature B cell
FLT3	Signaling						
Kit	Growth factor receptor						
IL-7 receptor							
CD25 (IL-2 receptor)							
CD19	Signal transduction						
CD45R (B220)							
CD43	Unknown						
CD24							
BP-1							
Ikaros	Aminopeptidase						
Oct-2							
E2A & EBF							
Pax-5/BSAP							



# II - Cellules de l'immunité adaptative

## Lymphocytes B

### Phase d'interaction avec les cellules stromales



D-JH	
VH-DJH	
Vκ-Jκ	
VA-Jλ	

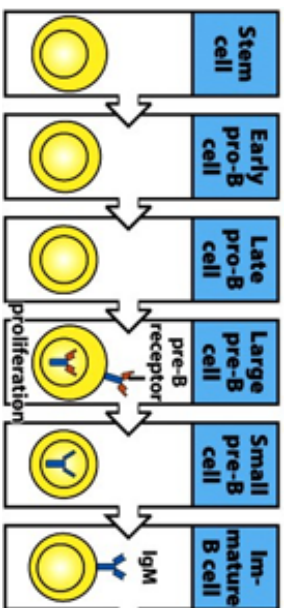
	Stem cell	Early pro-B cell	Late pro-B cell	Large pre-B cell	Small pre-B cell	Immature B cell
H-chain genes	Germine	D-J rearranging	V-DJ rearranging	VDJ rearranged	VDJ rearranged	VDJ rearranged
L-chain genes	Germine	Germine	Germine	Germine	V-J rearranging	VJ rearranged
Surface Ig	Absent	Absent	Absent	μ chain transiently at surface as part of pre-B-cell receptor. Mainly intracellular	Intracellular μ chain	IgM expressed on cell surface

Protein	Function
RAG-1	Lymphoid-specific recombinase
RAG-2	
TdT	N-nucleotide addition
λ5	Surrogate light-chain components
VpreB	
Igα	Signal transduction
Igβ	
CD45R	
Btk	

# II - Cellules de l'immunité adaptative

## Lymphocytes B

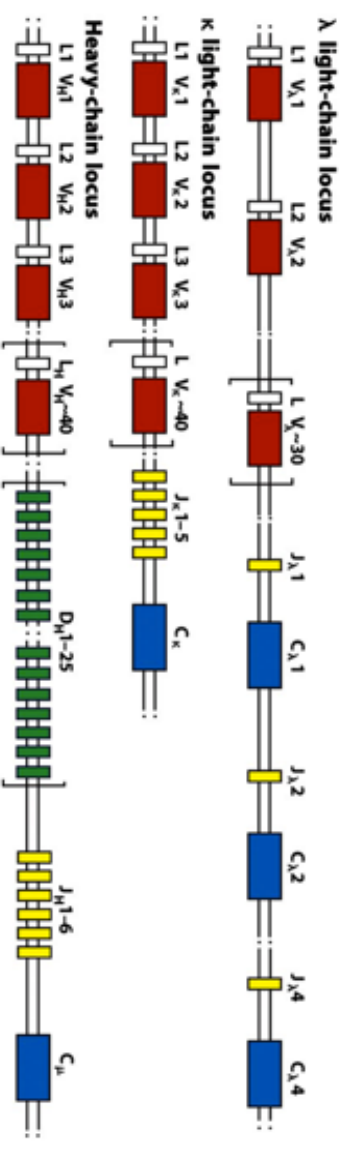
Phase d'interaction avec les cellules stromales



D-J <sub>H</sub>	
V <sub>H</sub> -D <sub>H</sub> J <sub>H</sub>	
V <sub>K</sub> -J <sub>K</sub>	
V <sub>λ</sub> -J <sub>λ</sub>	

	Stem cell	Early pro-B cell	Late pro-B cell	Large pre-B cell	Small pre-B cell	Immature B cell
H-chain genes	Germine	D-J rearranging	V-DJ rearranging	V <sub>D</sub> J rearranged	V <sub>D</sub> J rearranged	V <sub>D</sub> J rearranged
L-chain genes	Germine	Germine	Germine	Germine	V-J rearranging	V <sub>J</sub> rearranged
Surface Ig	Absent	Absent	Absent	μ chain transiently at surface as part of pre-B-cell receptor. Mainly Intracellular	Intracellular μ chain	IgM expressed on cell surface

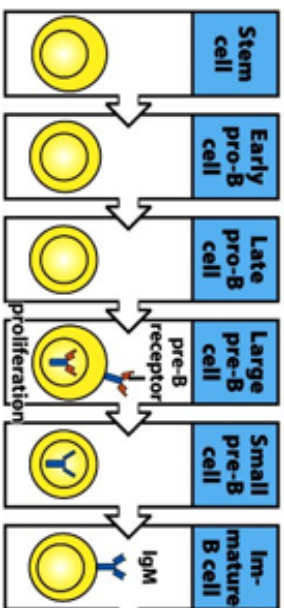
Protein	Function
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VpreB	
Igα	Signal transduction
Igβ	
CD45R	
Btk	



# II - Cellules de l'immunité adaptative

## Lymphocytes B

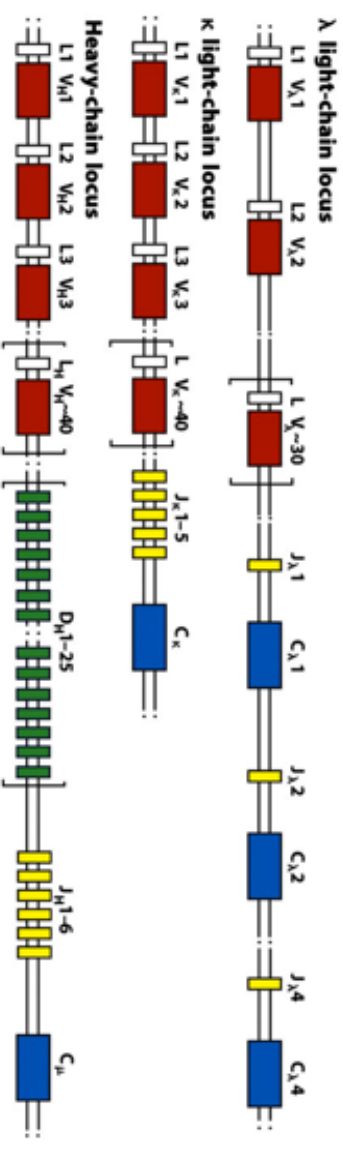
Phase d'interaction avec les cellules stromales



D-JH	
VH-DJH	
Vκ-Jκ	
VA-JA	

	Stem cell	Early pro-B cell	Late pro-B cell	Large pre-B cell	Small pre-B cell	Immature B cell
H-chain genes	Germline	D-J rearranging	V-DJ rearranging	VDJ rearranged	VDJ rearranged	VDJ rearranged
L-chain genes	Germline	Germline	Germline	Germline	V-J rearranging	VJ rearranged
Surface Ig	Absent	Absent	Absent	μ chain transiently at surface as part of pre-B-cell receptor. Mainly Intracellular	Intracellular μ chain	IgM expressed on cell surface

Protein	Function
RAG-1	Lymphoid-specific recombinase
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TdT	N-nucleotide addition
λ5	Surrogate light-chain components
VpreB	
Igα	Signal transduction
Igβ	
CD45R	
Btk	



Segment	Light chains			Heavy chain
	κ	λ	H	
Variable (V)	40	30	40	
Diversity (D)	0	0	25	
Joining (J)	5	4	6	

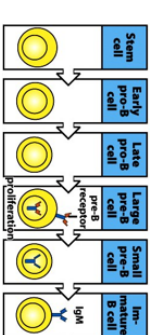
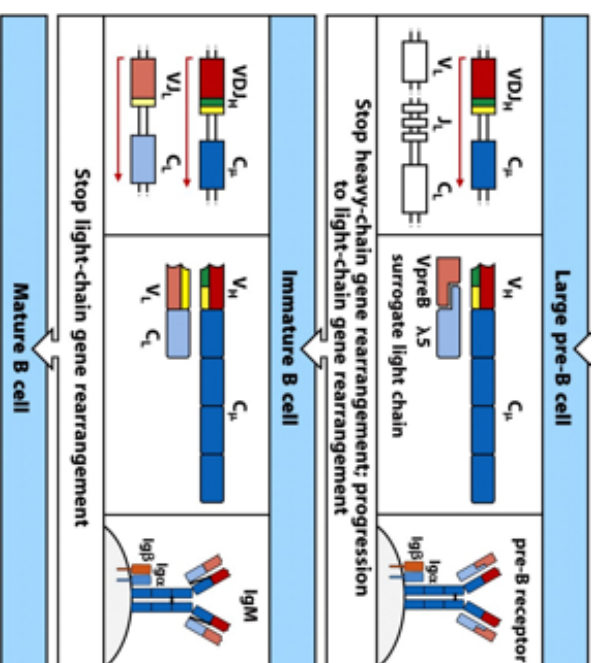
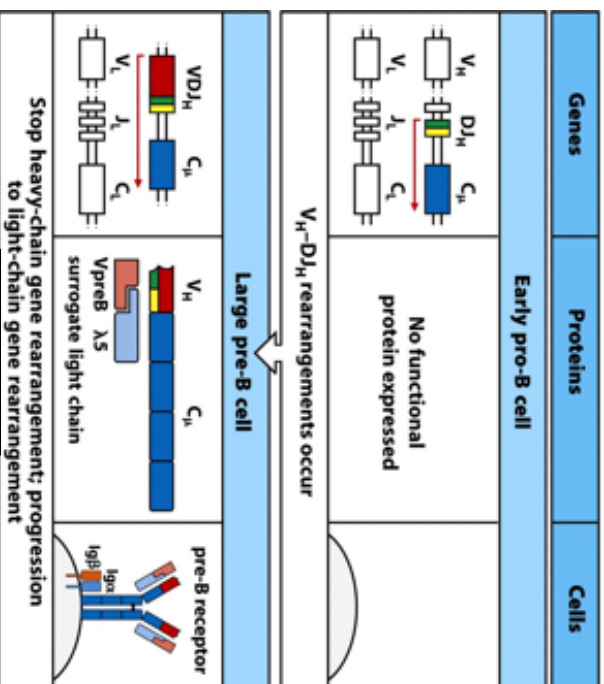
Number of functional gene segments in human immunoglobulin loci



# II- Cellules de l'immunité adaptative

## Lymphocytes B

### Phase d'interaction avec les cellules stromales

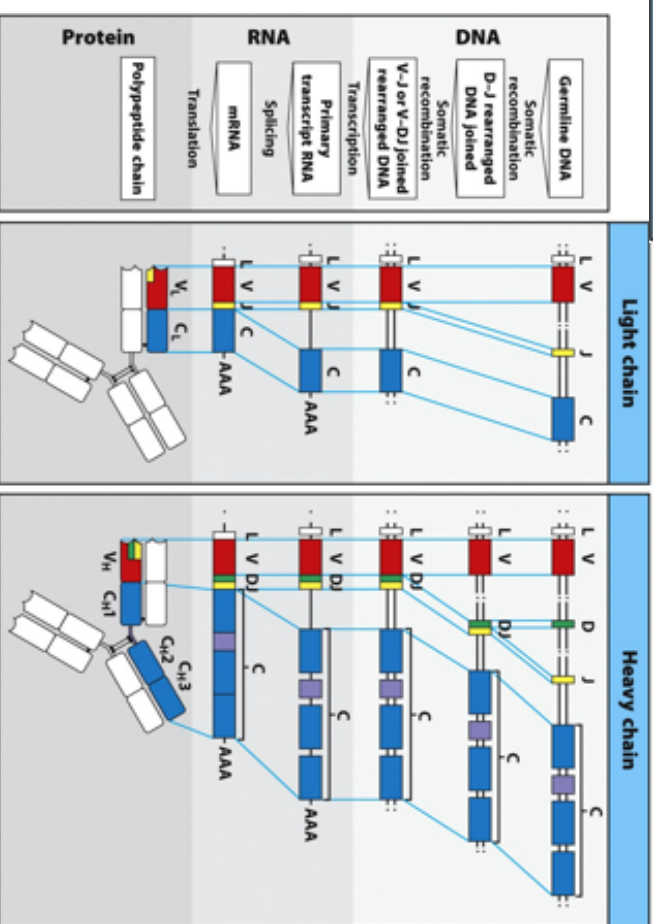
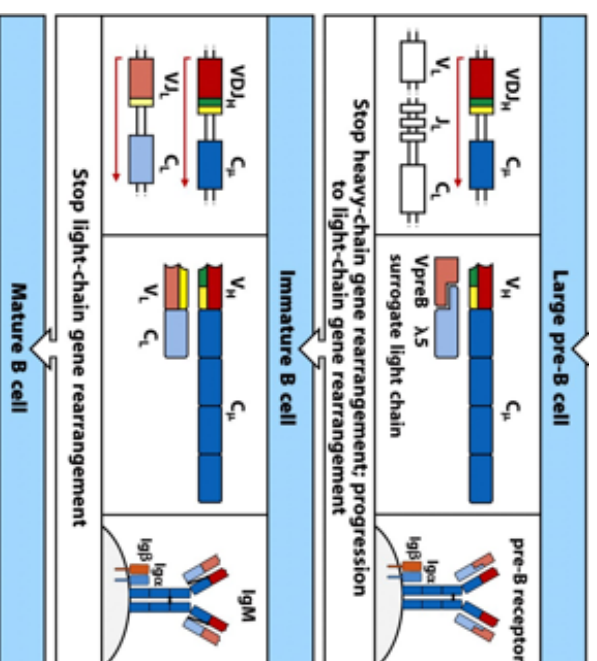
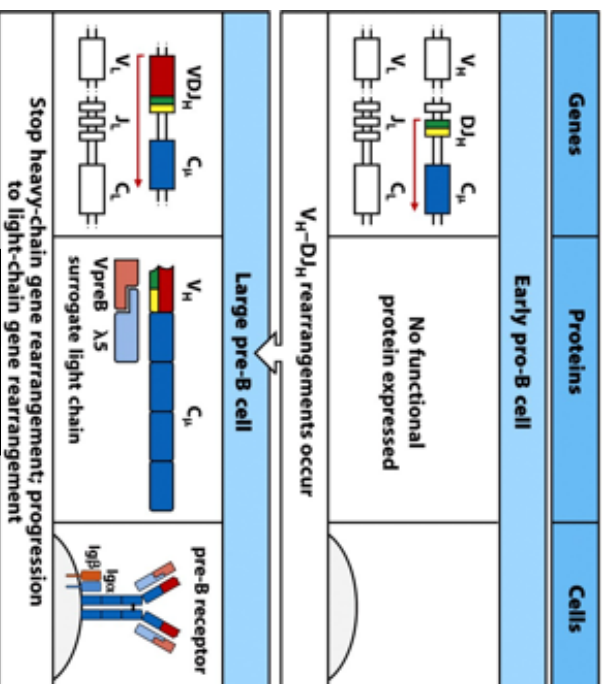
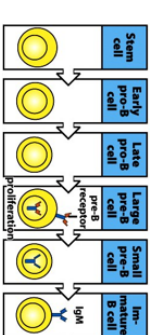




# II - Cellules de l'immunité adaptative

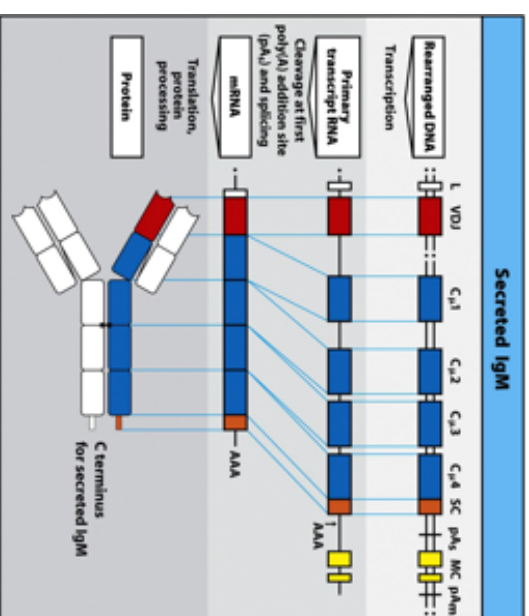
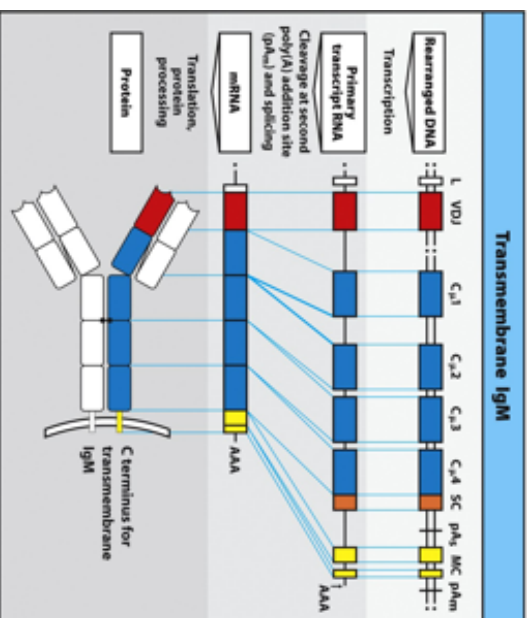
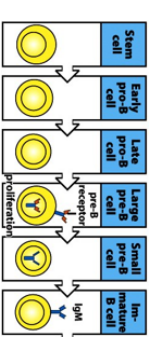
## Lymphocytes B

### Phase d'interaction avec les cellules stromales



# II - Cellules de l'immunité adaptative

## Lymphocytes B



# II - Cellules de l'immunité adaptative

## Lymphocytes B

