

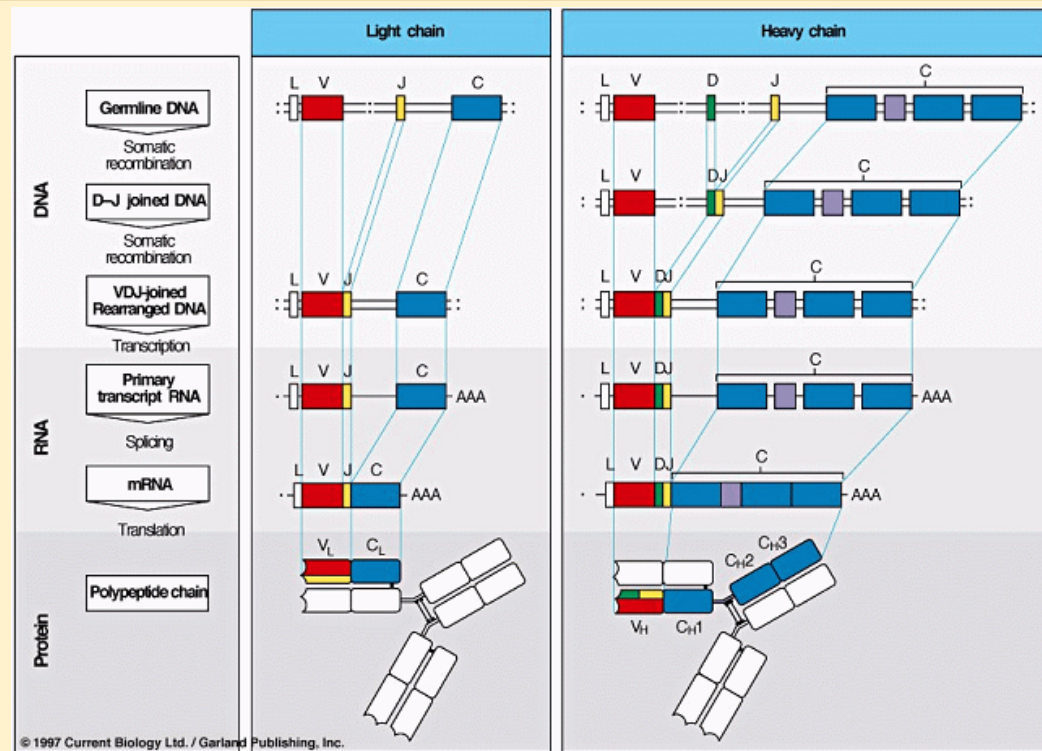


# IMUNOLOGIA

## GENES DAS IMUNOGLOBULINAS (cont.)

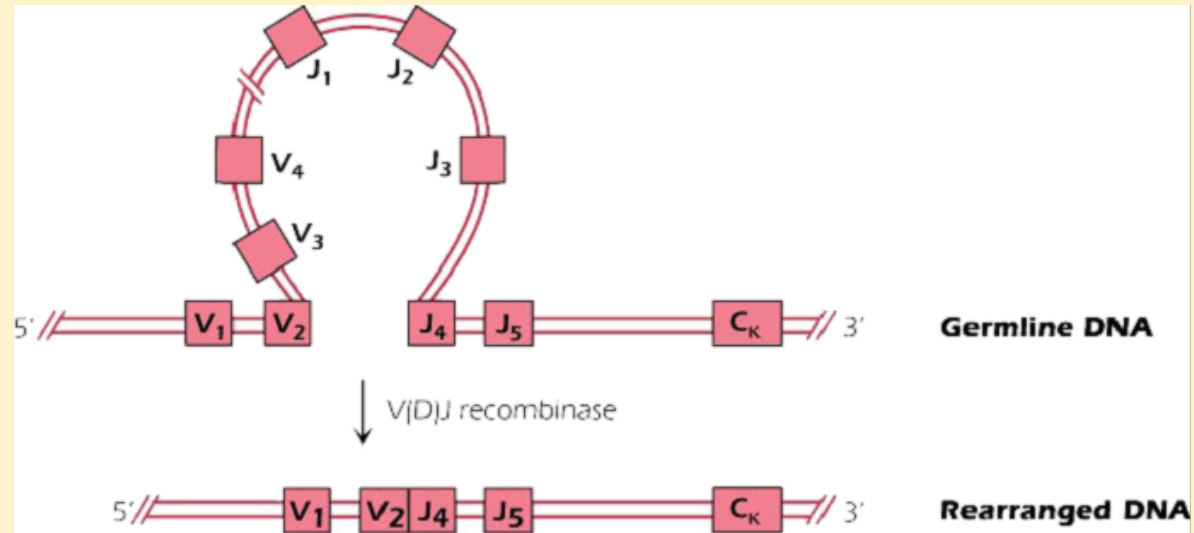


# Sequência das recombinações



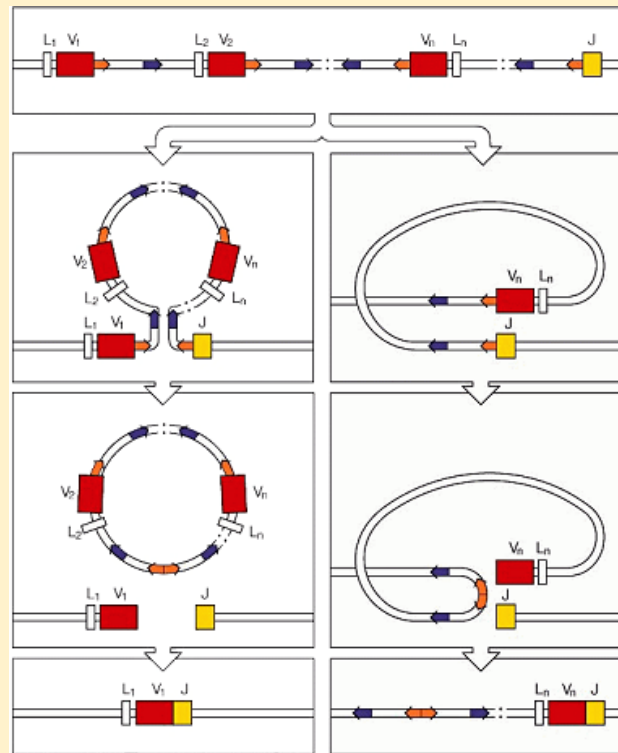


# Rearranjo de DNA (V-J)



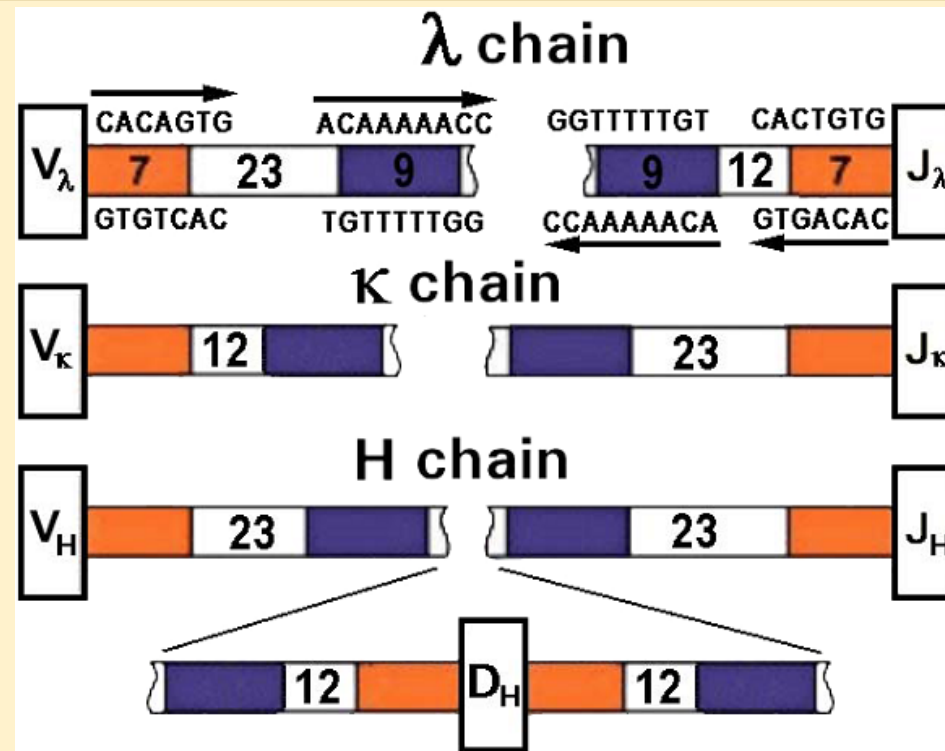


# Mecanismo da recombinação



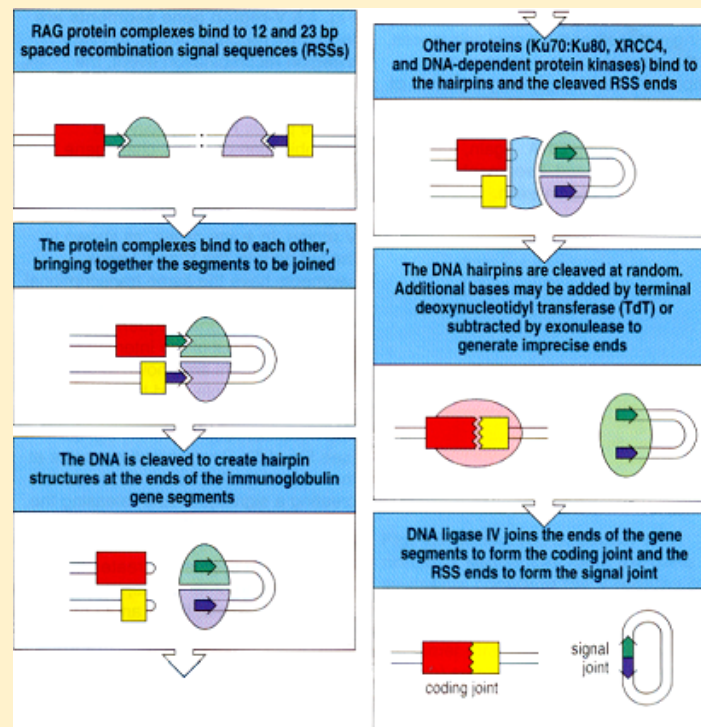


# Heptâmeros, nonâmeros, spacers



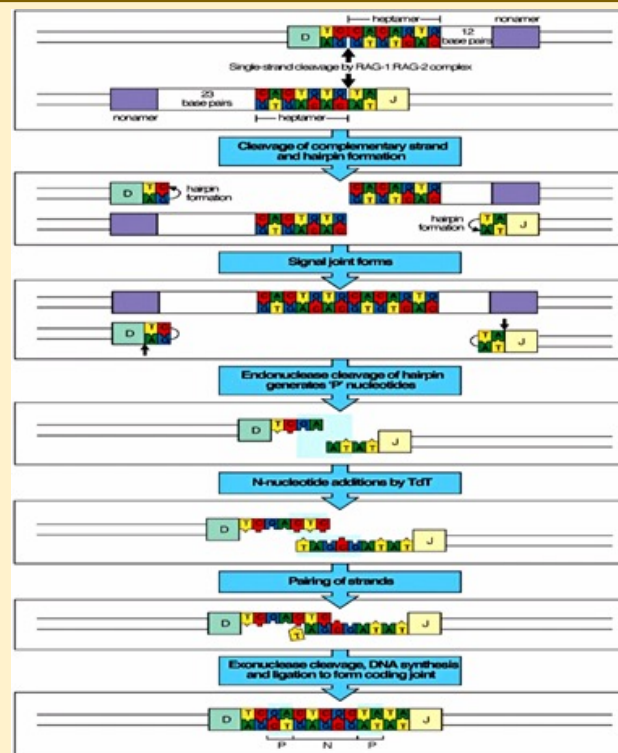


# Processo enzimático da recombinação



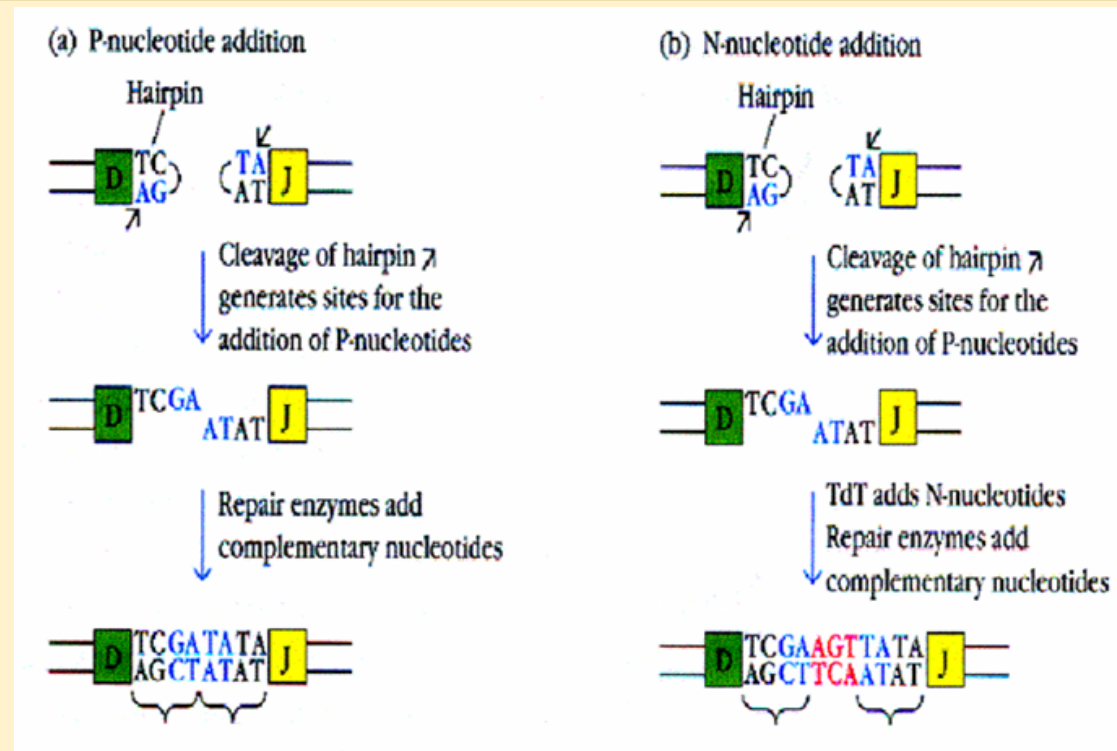


# Adição de nucleótidos (TdT)



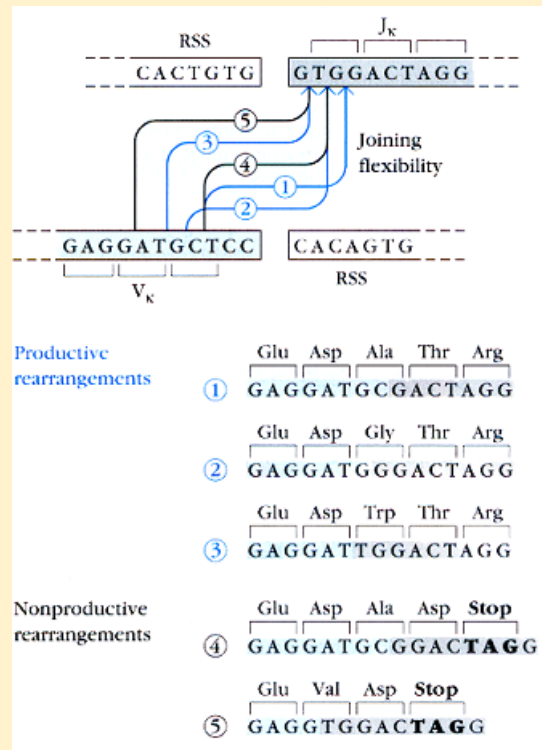


# Nucleótidos P- e N-



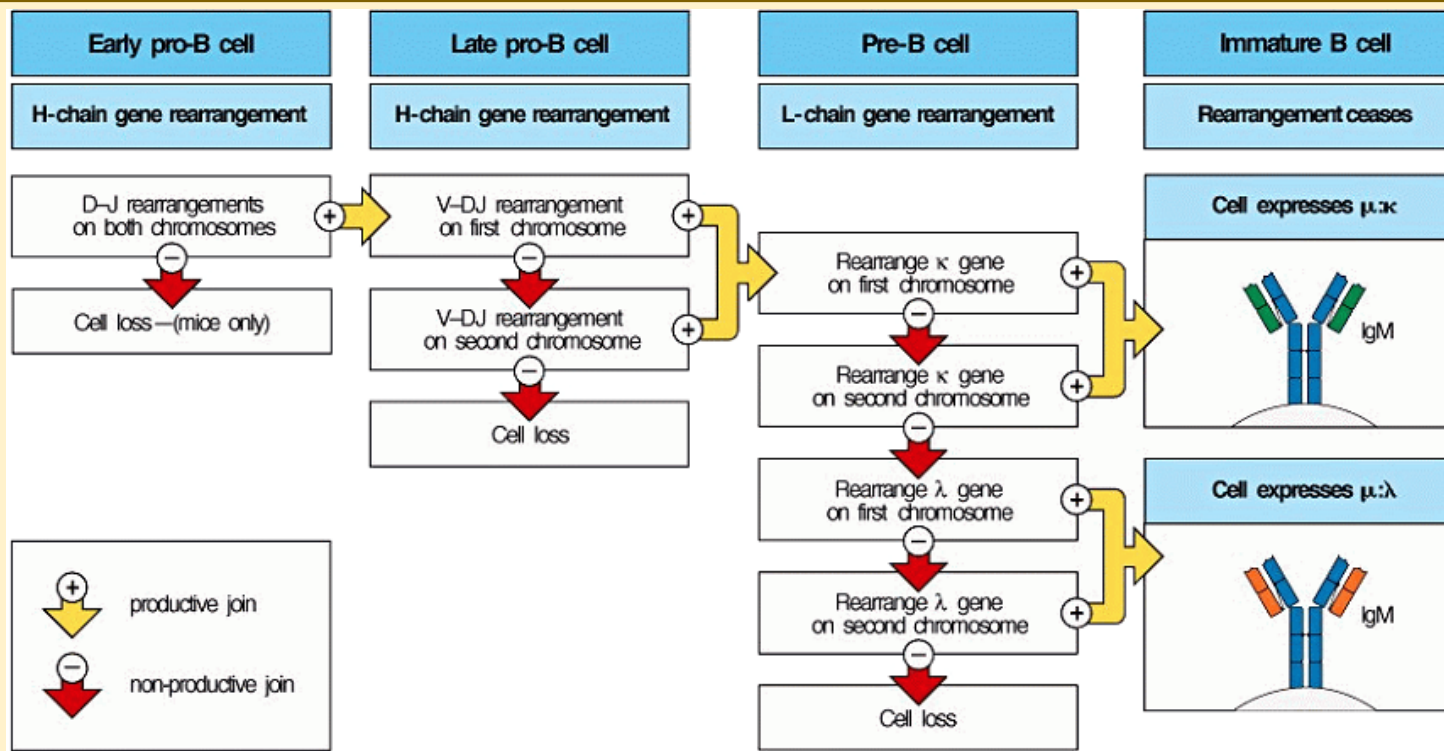


# Flexibilidade na junção



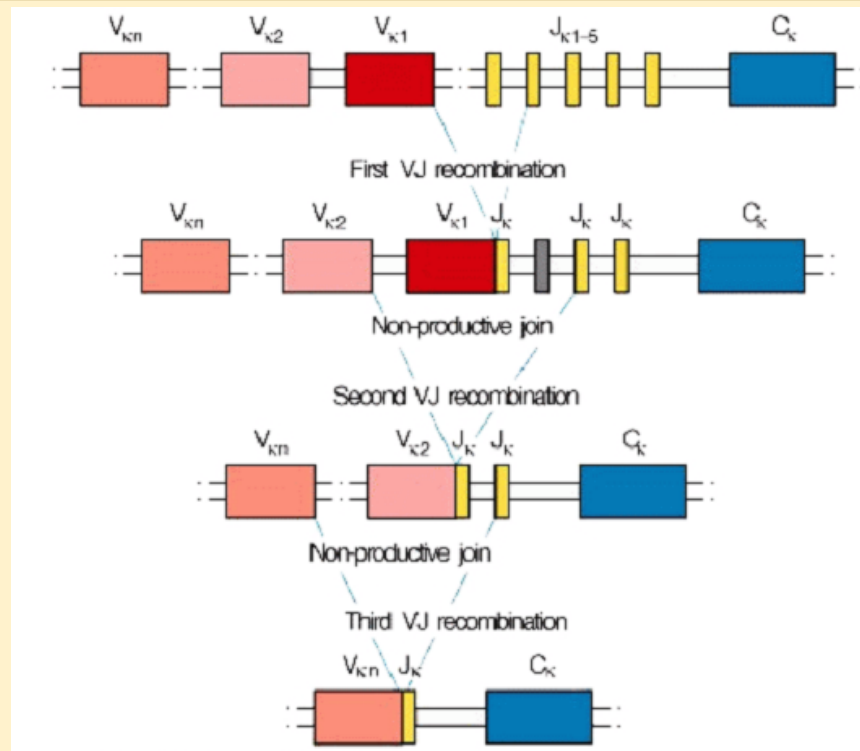


# Exclusão alélica



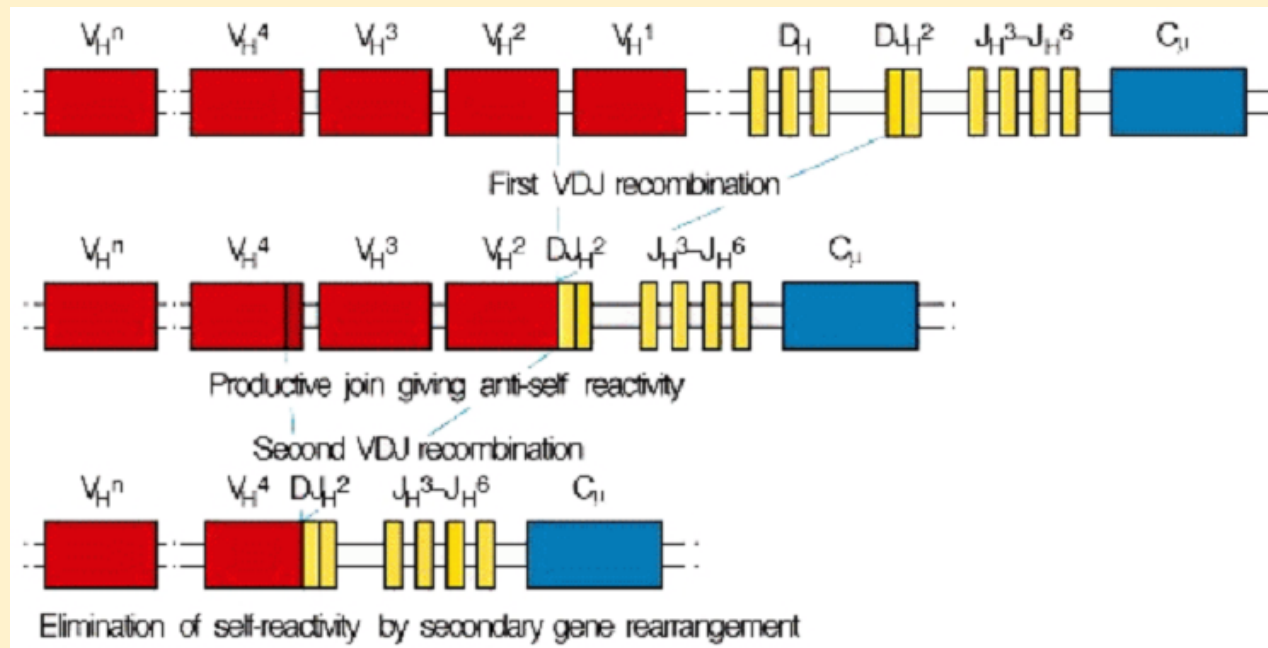


# Segundos rearranjos (cadeia leve)



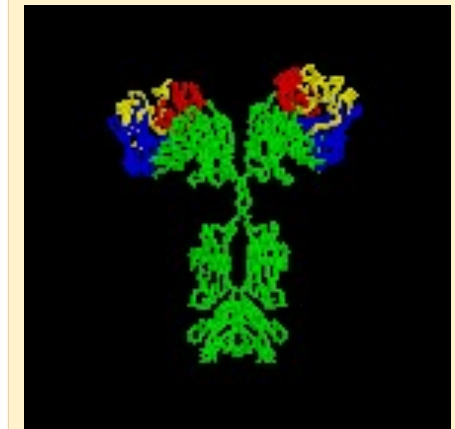
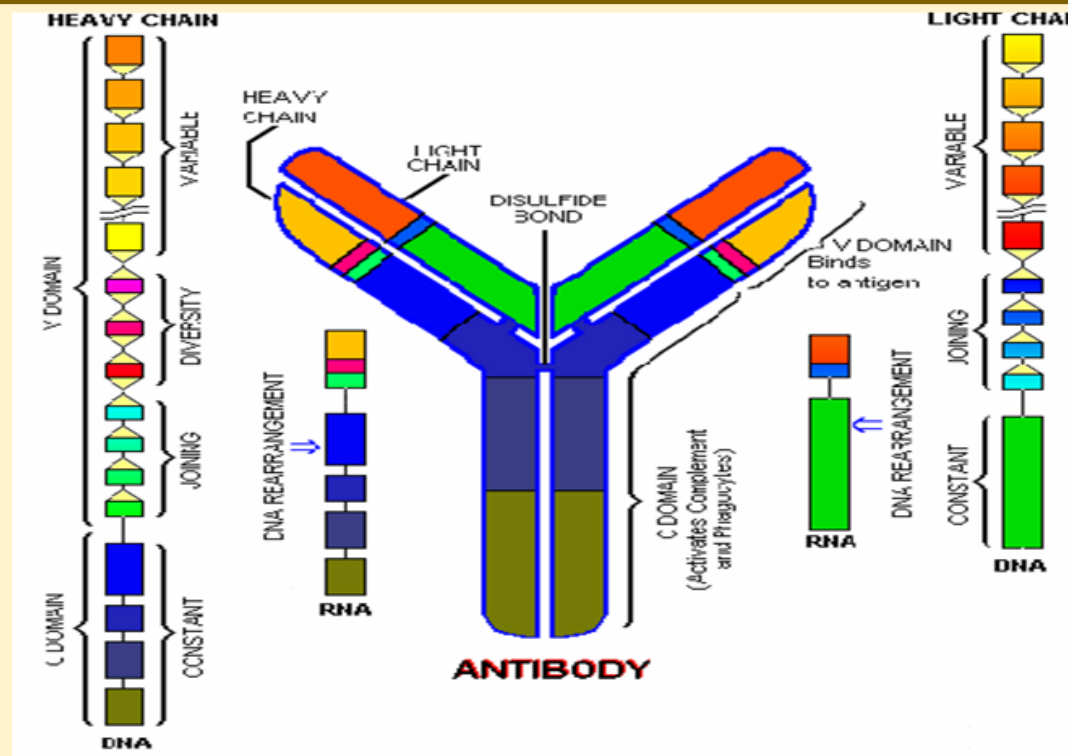


# Segundos rearranjos (cadeia pesada)



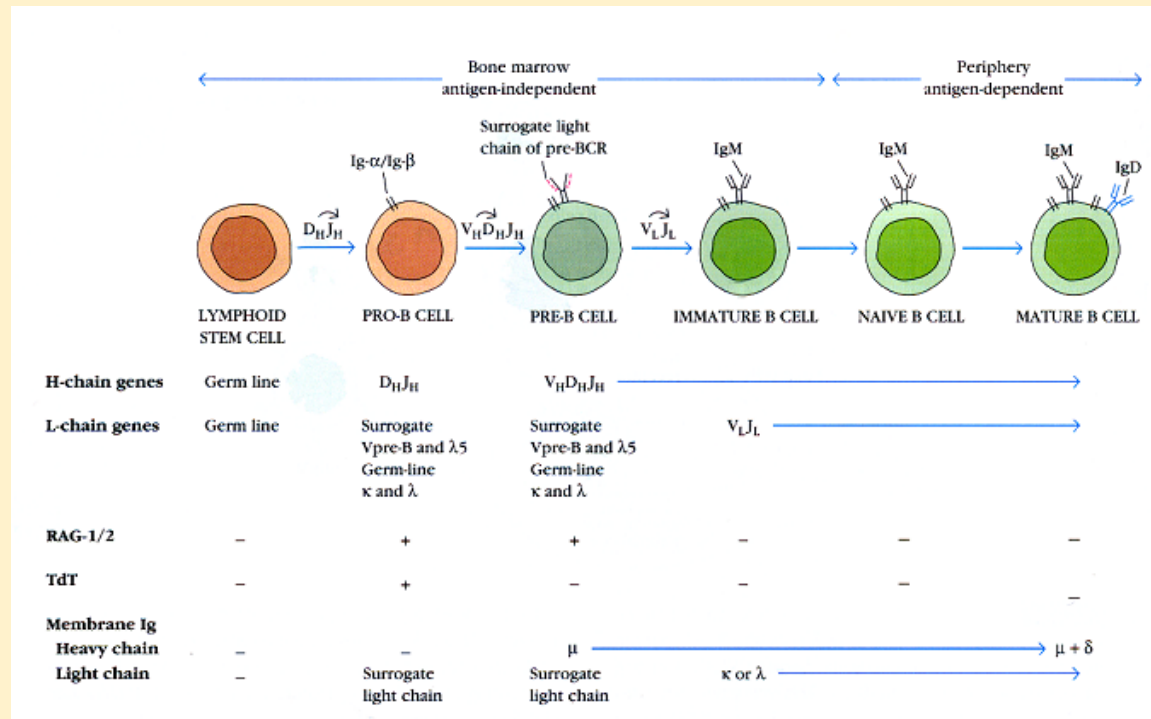


# Imunoglobulina



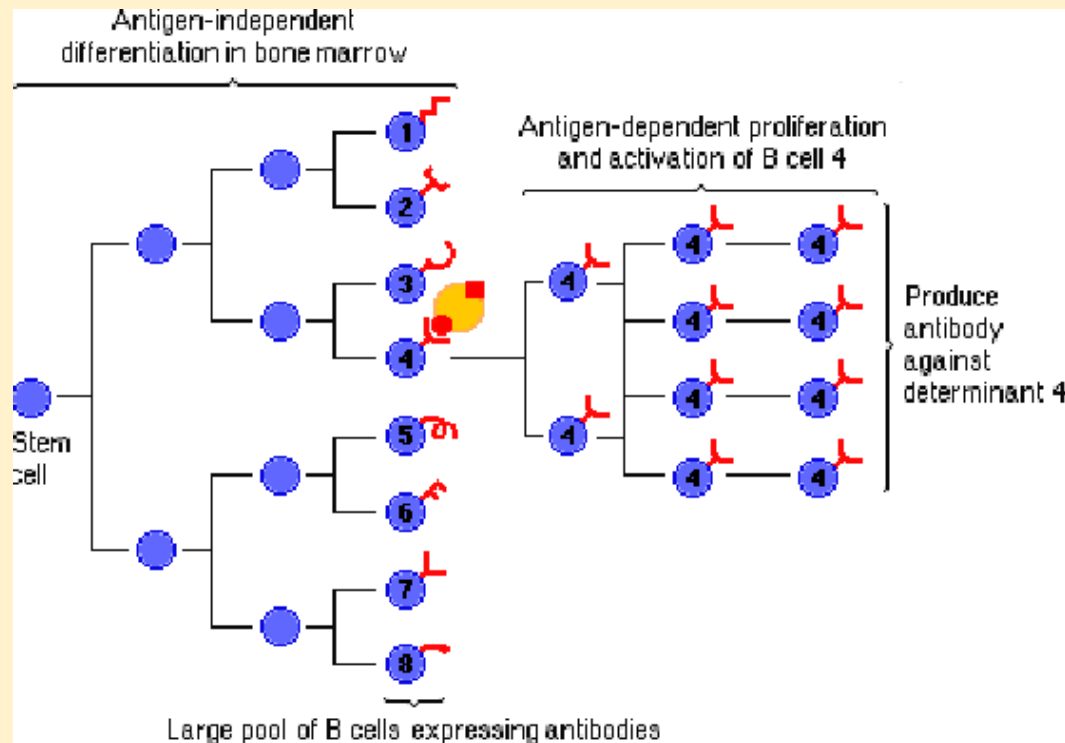


# Diferenciação celular



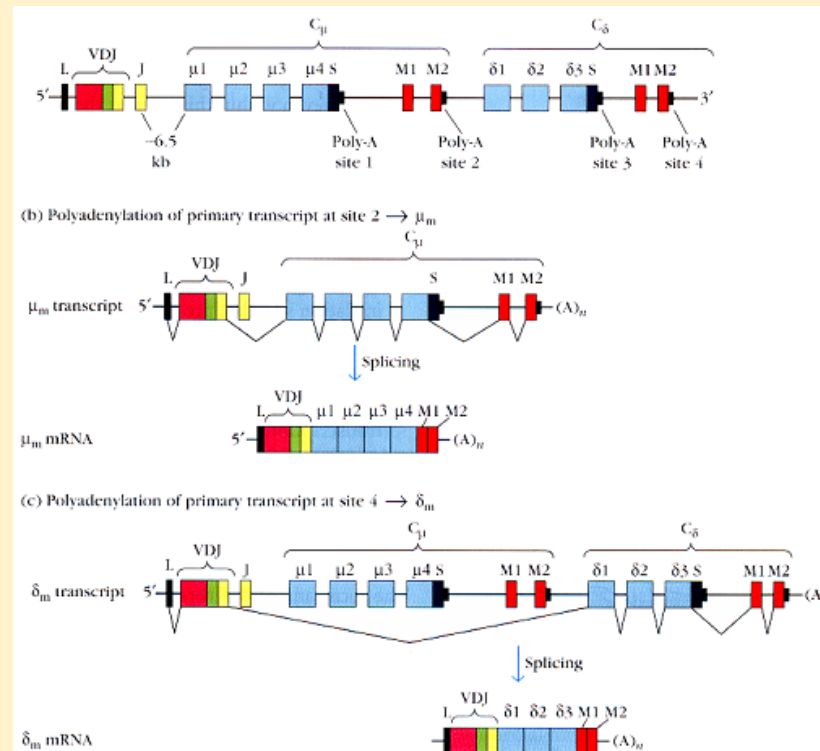


# Expansão clonal



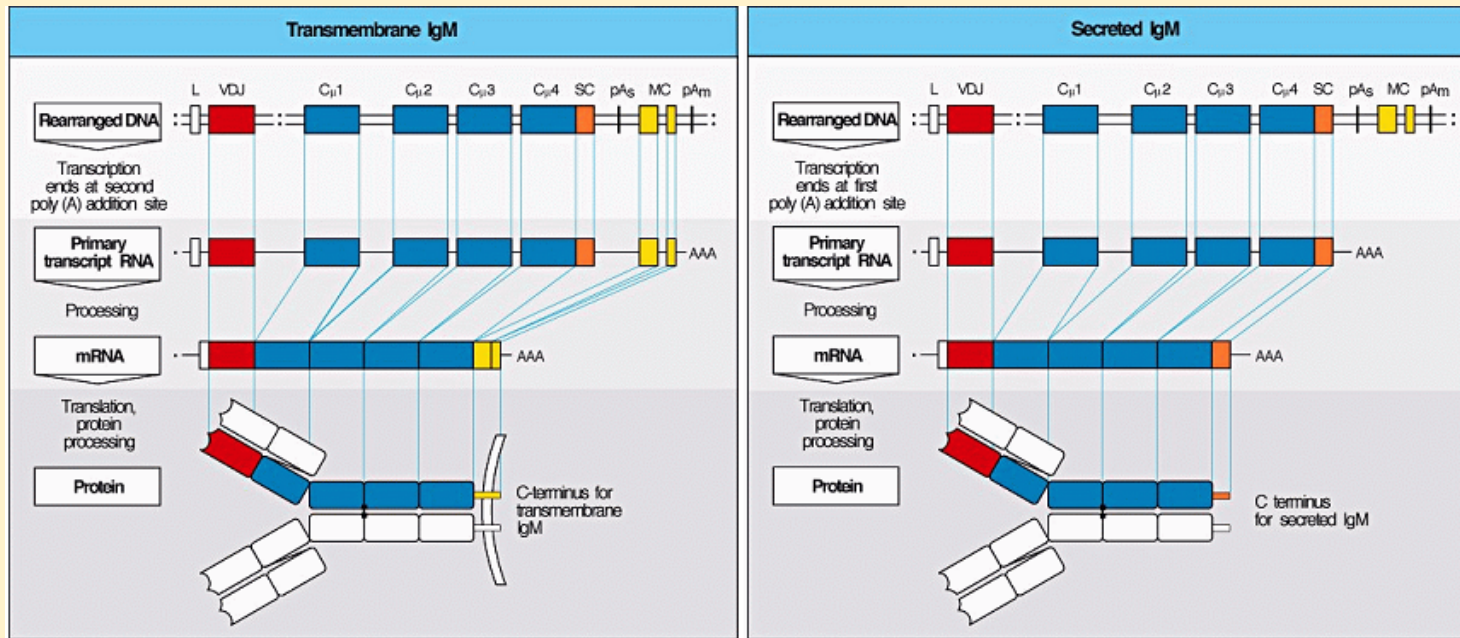


# Co-expressão IgM e IgD



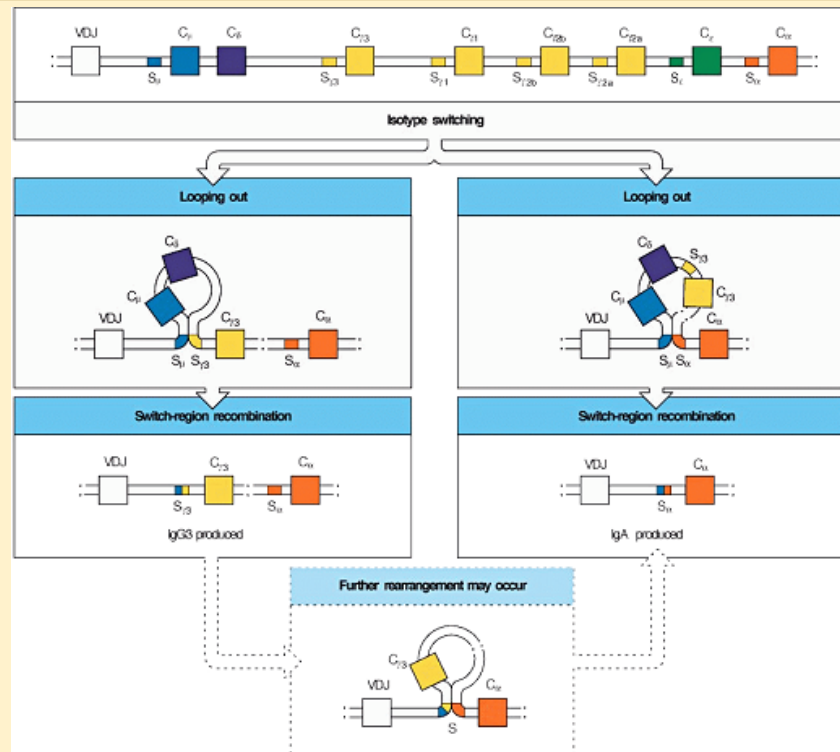


# Secreção de IgM



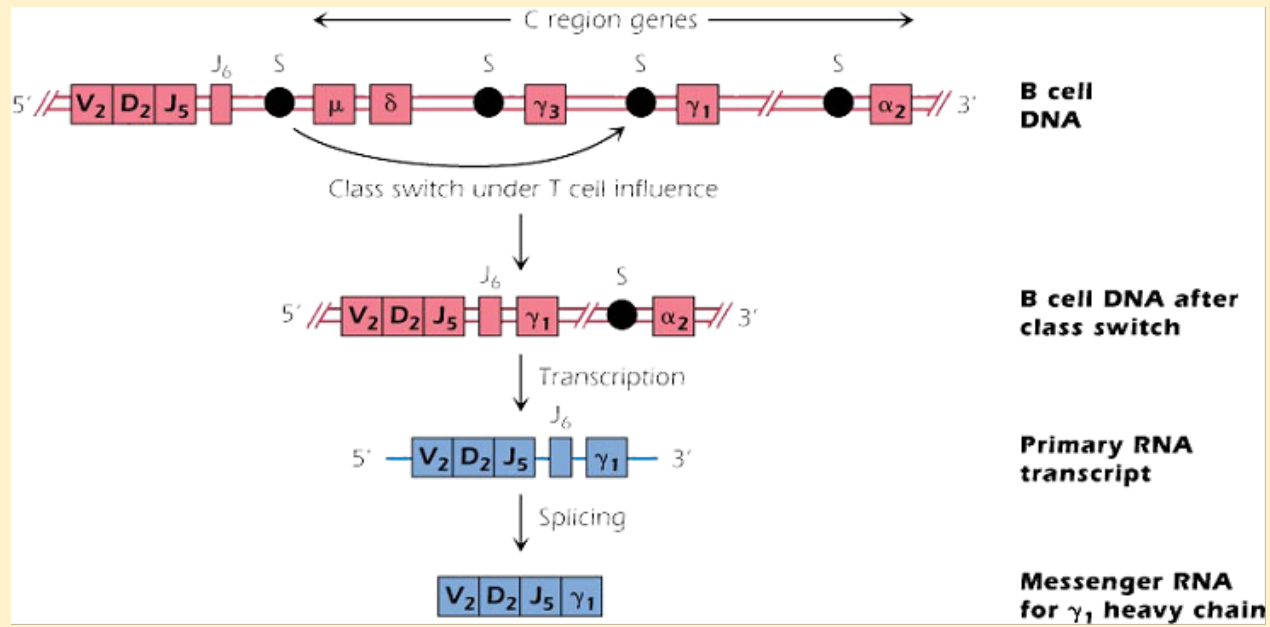


# Switch de cadeia (1)



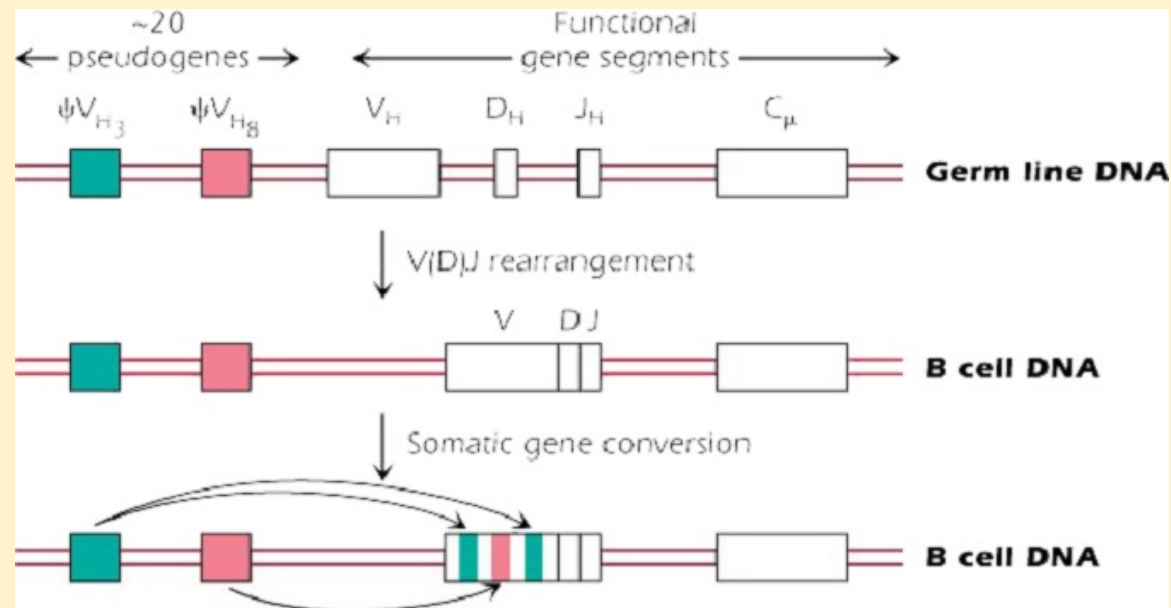


# Switch de cadeia (2)



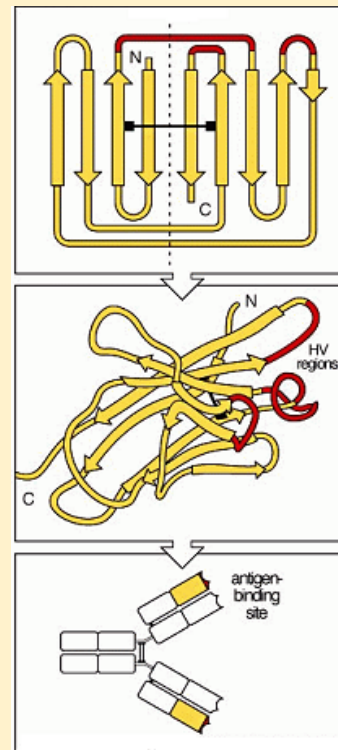


# Conversão somática de genes



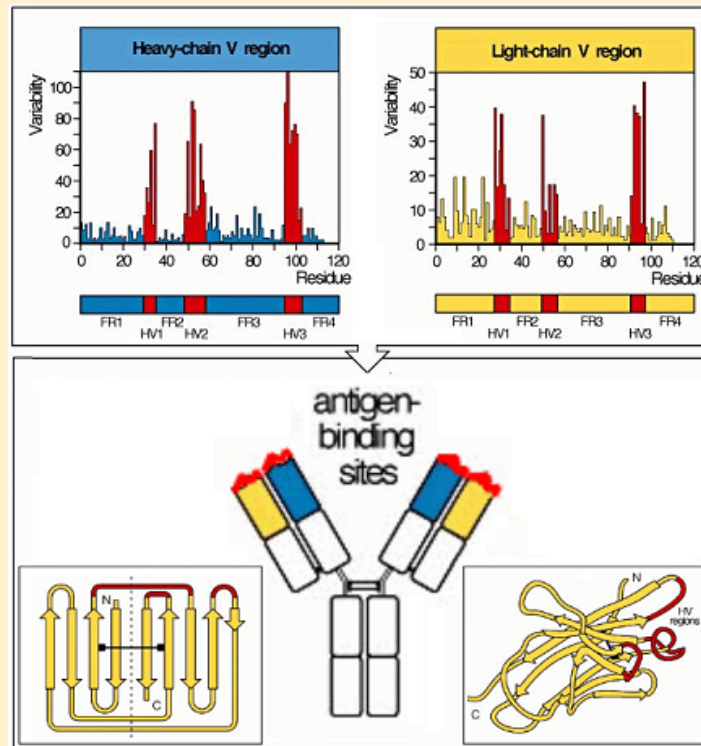


# Regiões hipervariáveis





# Mutações somáticas





# Mecanismos de diversidade

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- Múltiplos segmentos genéticos na linha germinal
  - Regiões variáveis
  - Regiões constantes
- Recombinações V(D)J
- Flexibilidade nos pontos de junção
- Novos nucleótidos nas junções (P- N-) (TdT)
- *Splicing* diferencial
- Hipermutações somáticas



# Respostas humorais

