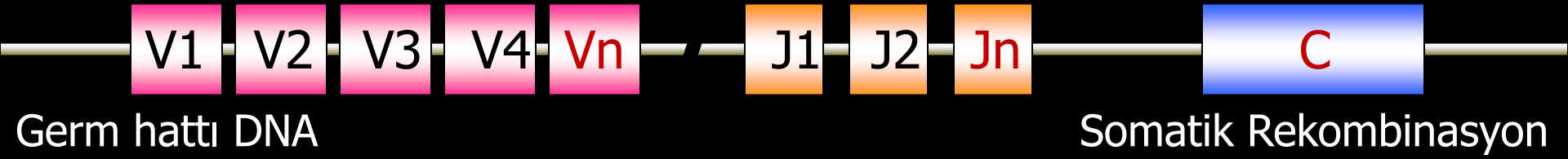
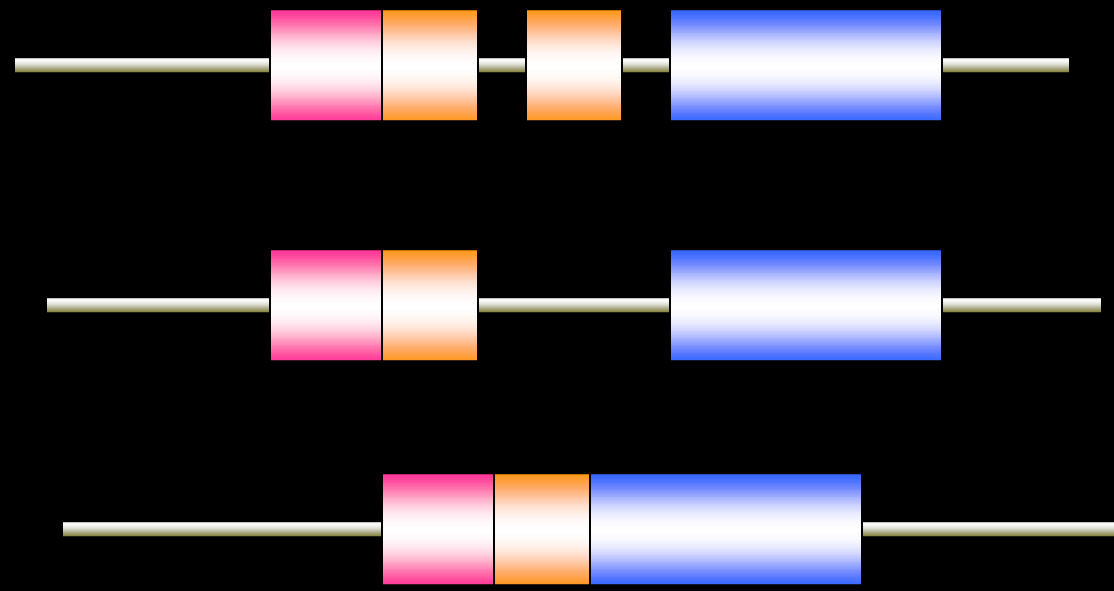


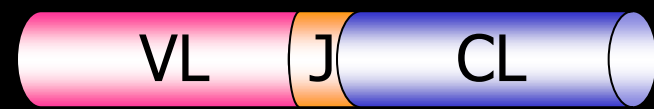
Immunglobulin Çeşitliliği



B hücre DNA

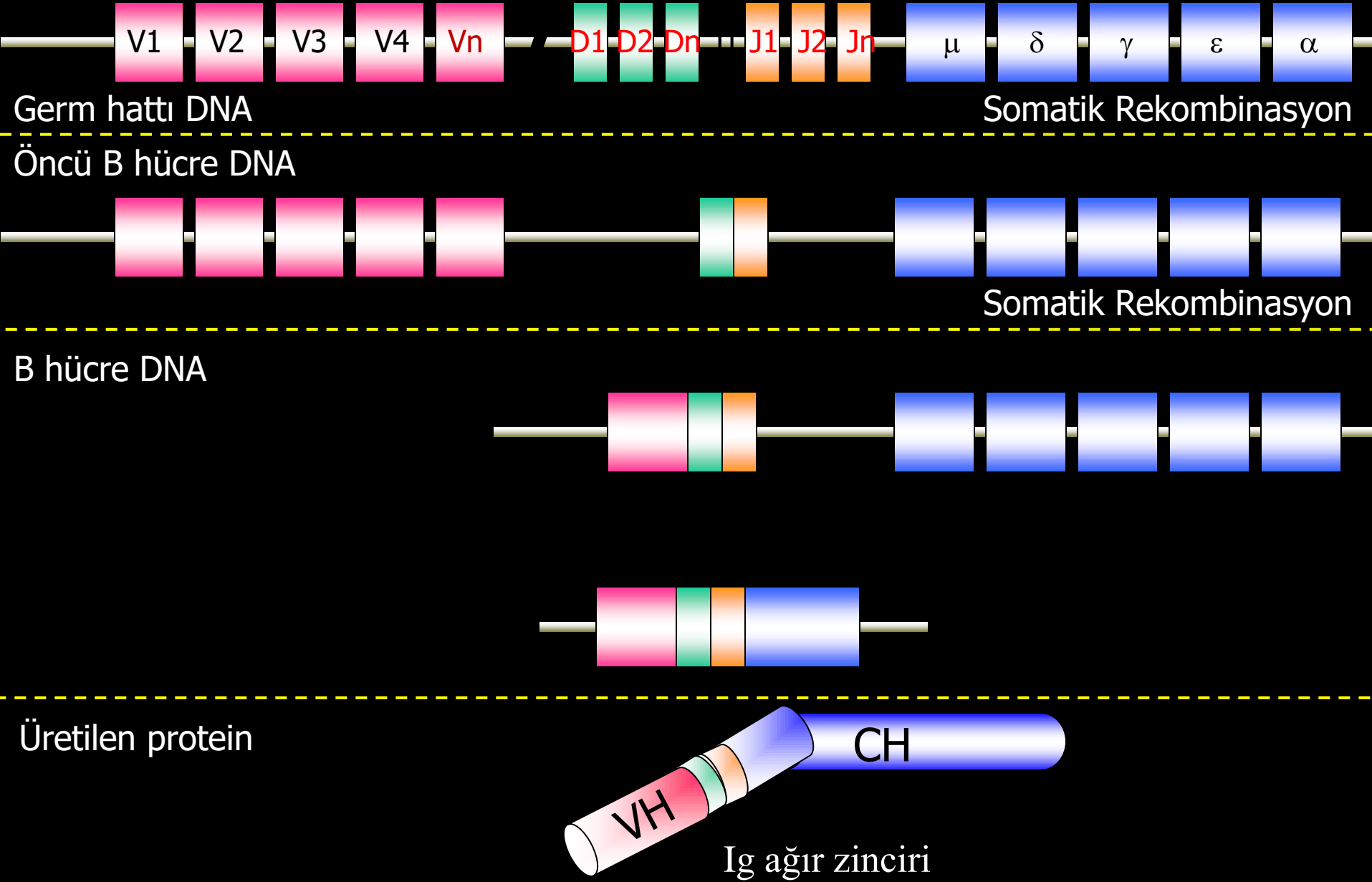


Üretilen protein



Ig Hafif zinciri

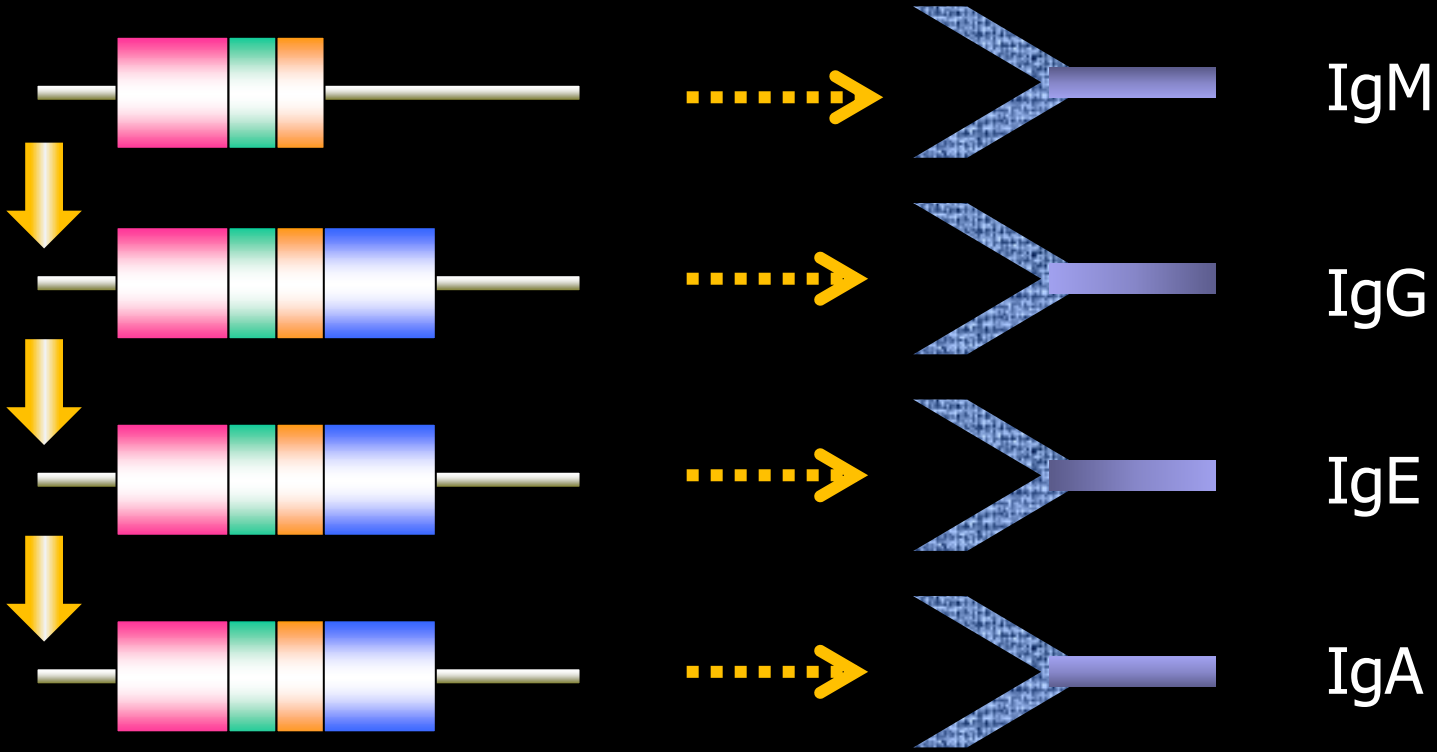
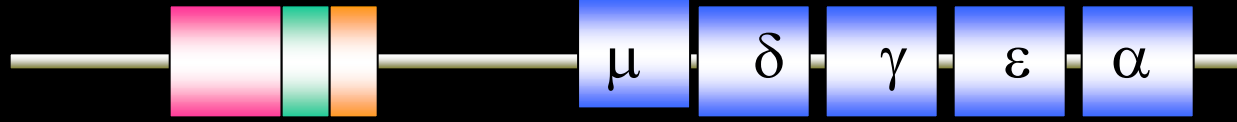
Immunglobulin Çeşitliliği

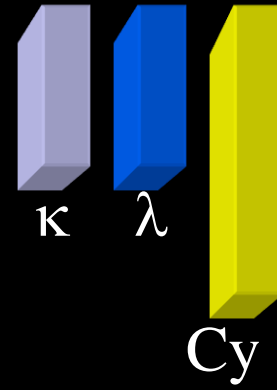
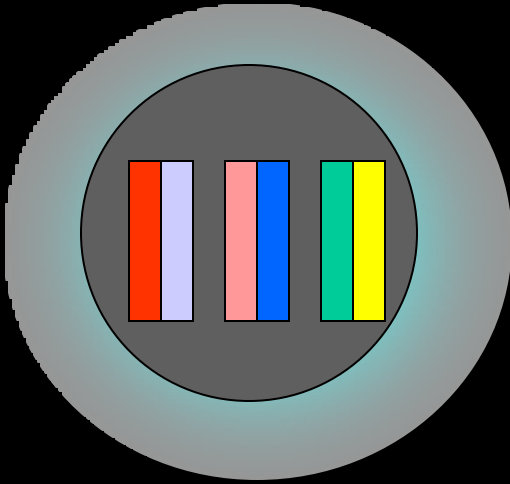
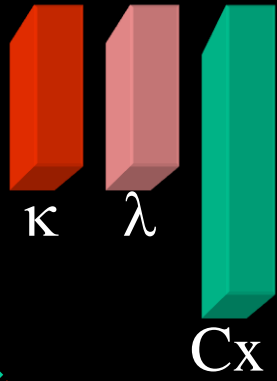


İzotip Değişimi

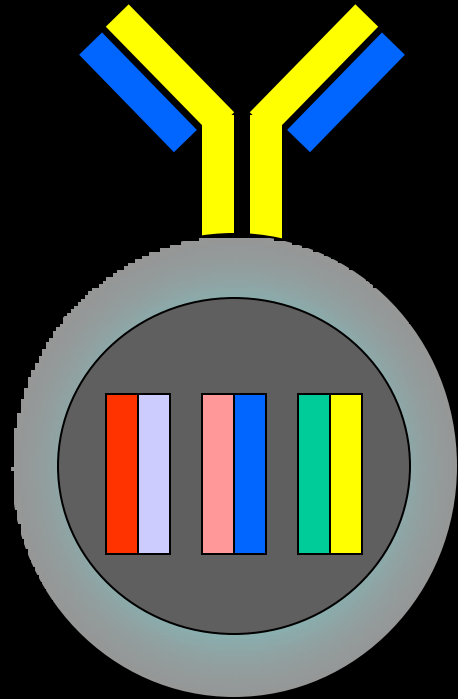
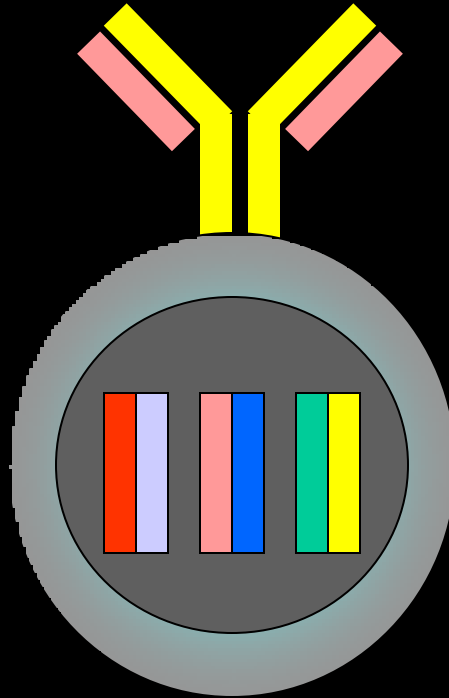
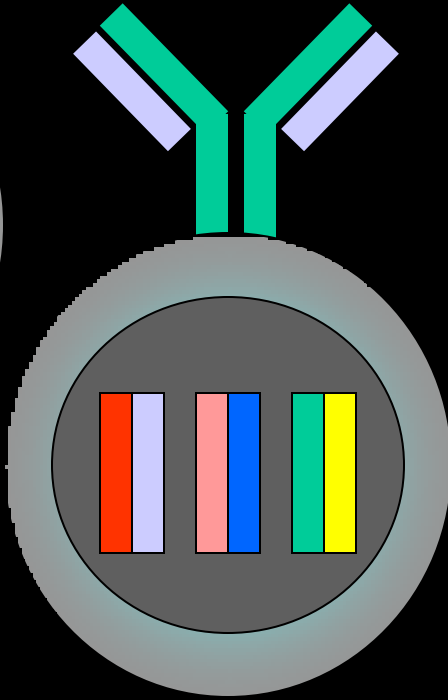
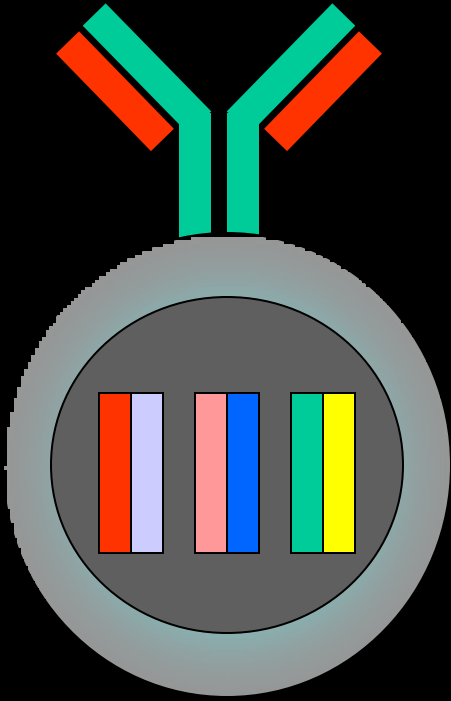
V genleri

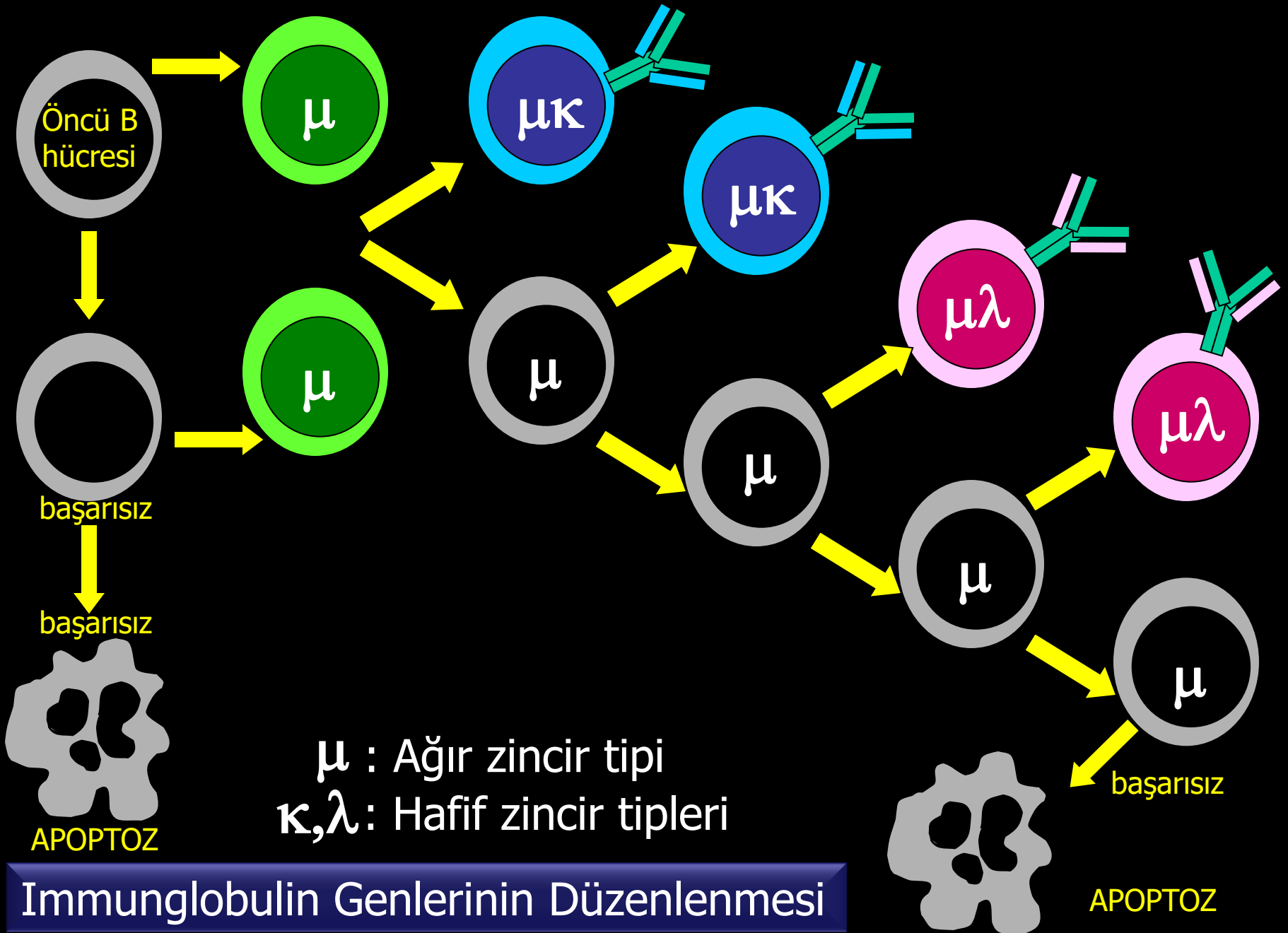
C genleri



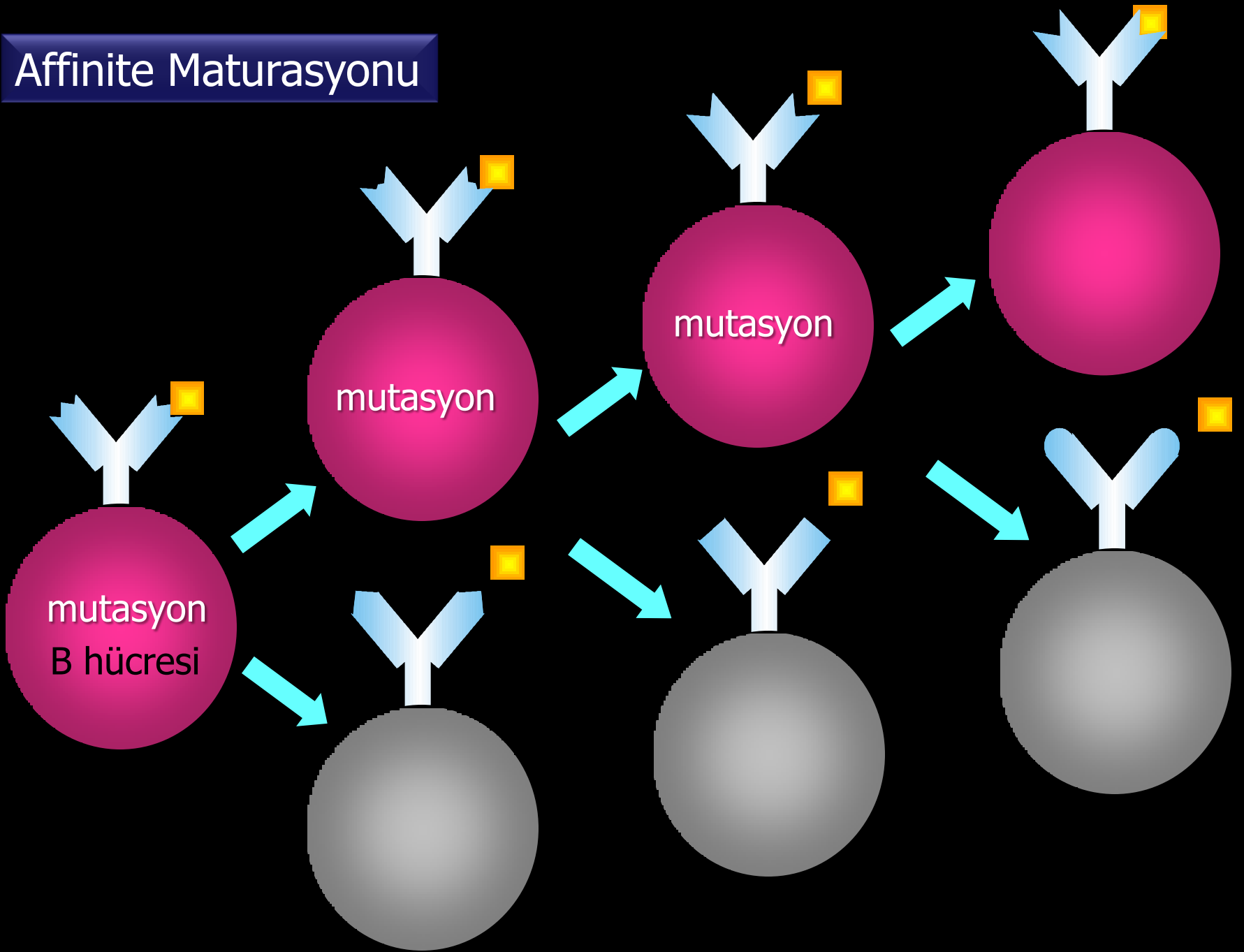


Immunglobulin Allotip Çeşitliliği





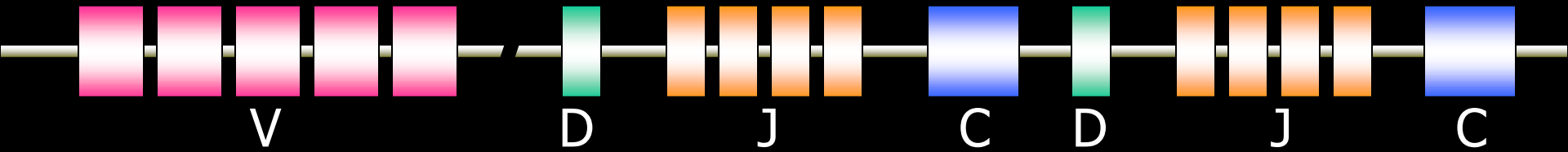
Affinite Maturasyonu



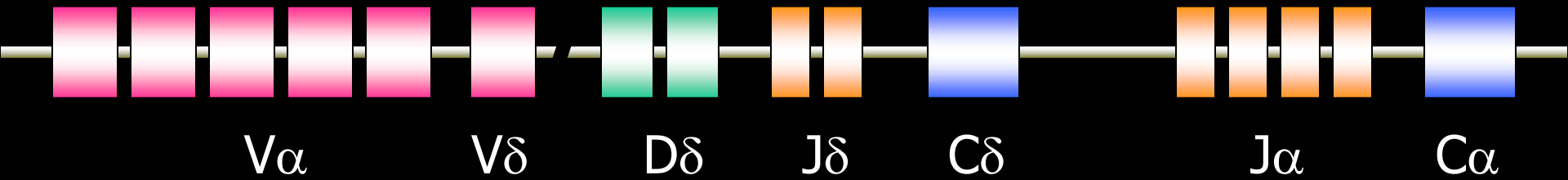
TCR Çeşitliliği

TCR Gen Organizasyonu

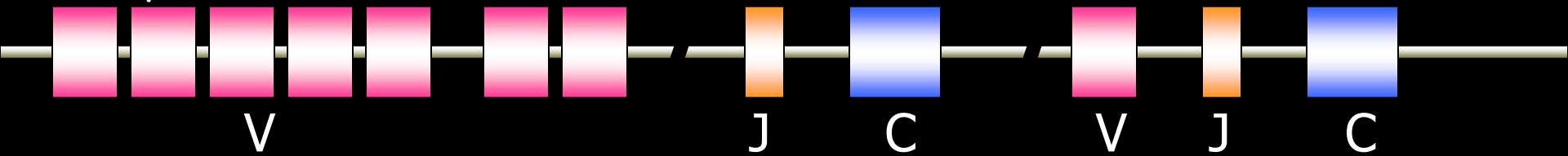
TCR β



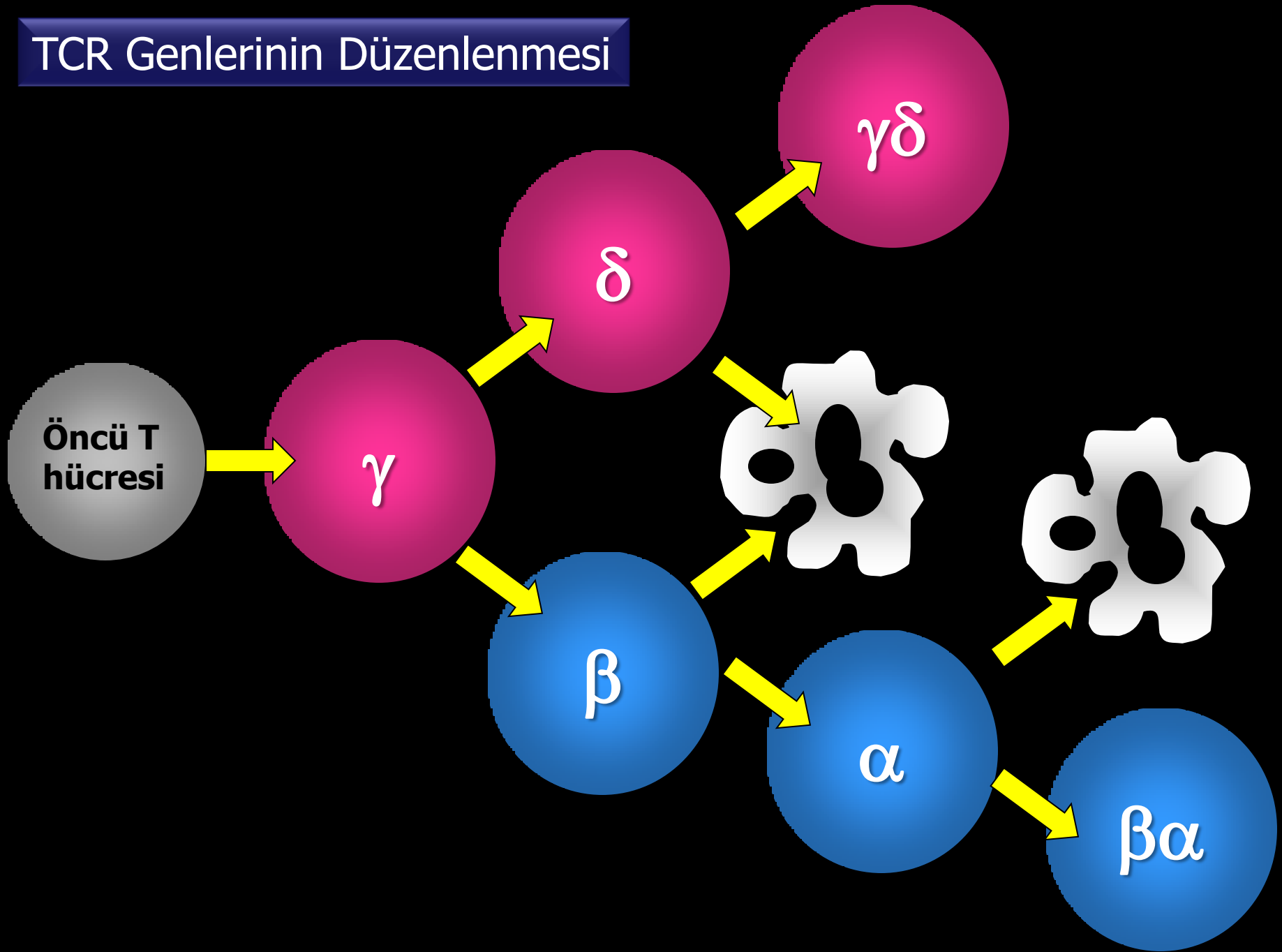
TCR $\alpha\delta$

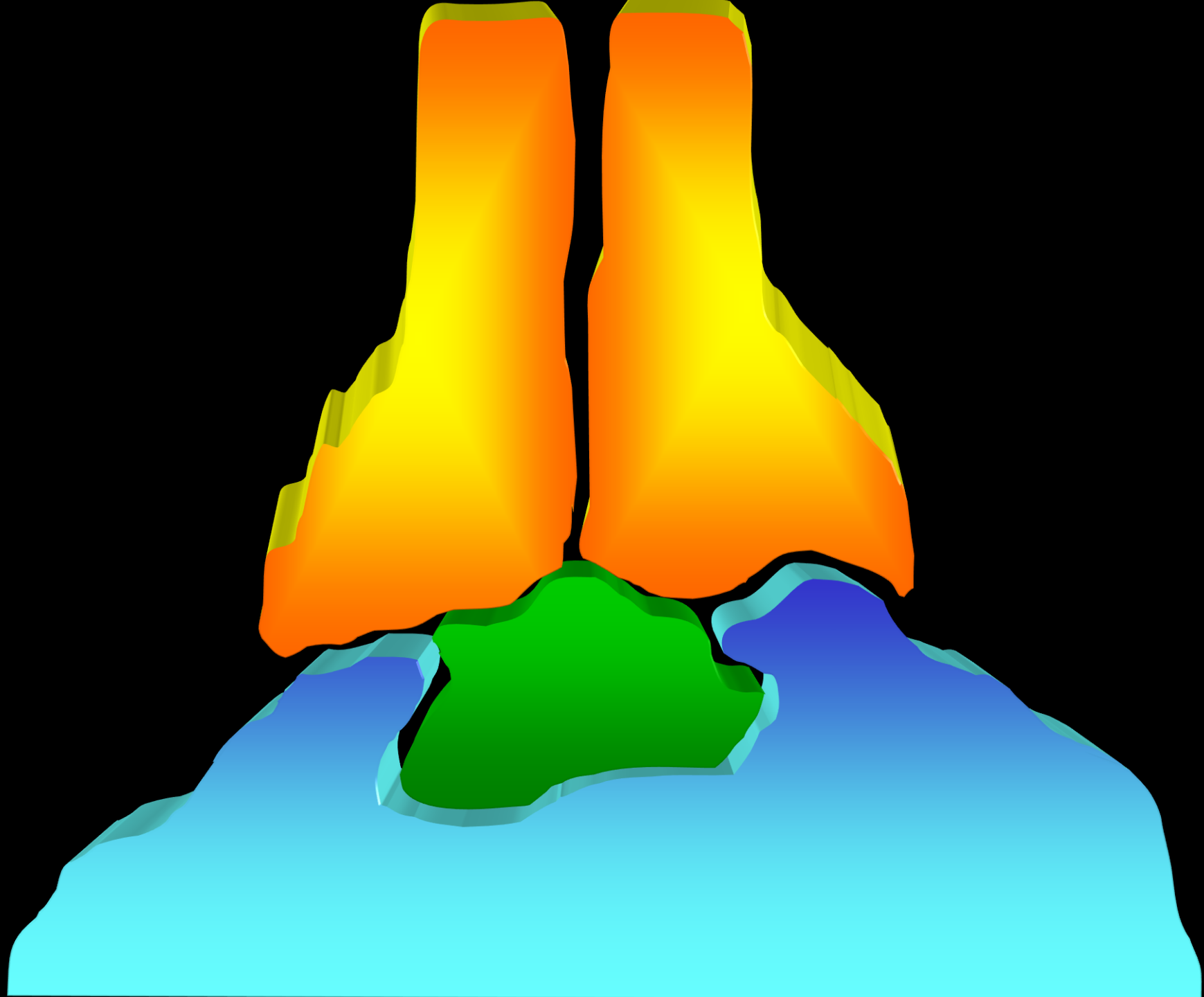


TCR γ



TCR Genlerinin Düzenlenmesi





	Ađır Zincir (H)	Hafif Zincir (L)
V ekzon sayısı	1000-1500	250
D ekzon sayısı	5-12	-
J ekzon sayısı	4-9	5
VDJ rekombinasyonu	$2 \times 10^4 - 16 \times 10^8$	1250
J çeşitliliđi (X10)		12500
VH X VL	$2.5 \times 10^{10} - 2 \times 10^{11}$	
N- bölge eklenmesi Somatik mutasyon	10^{16}	