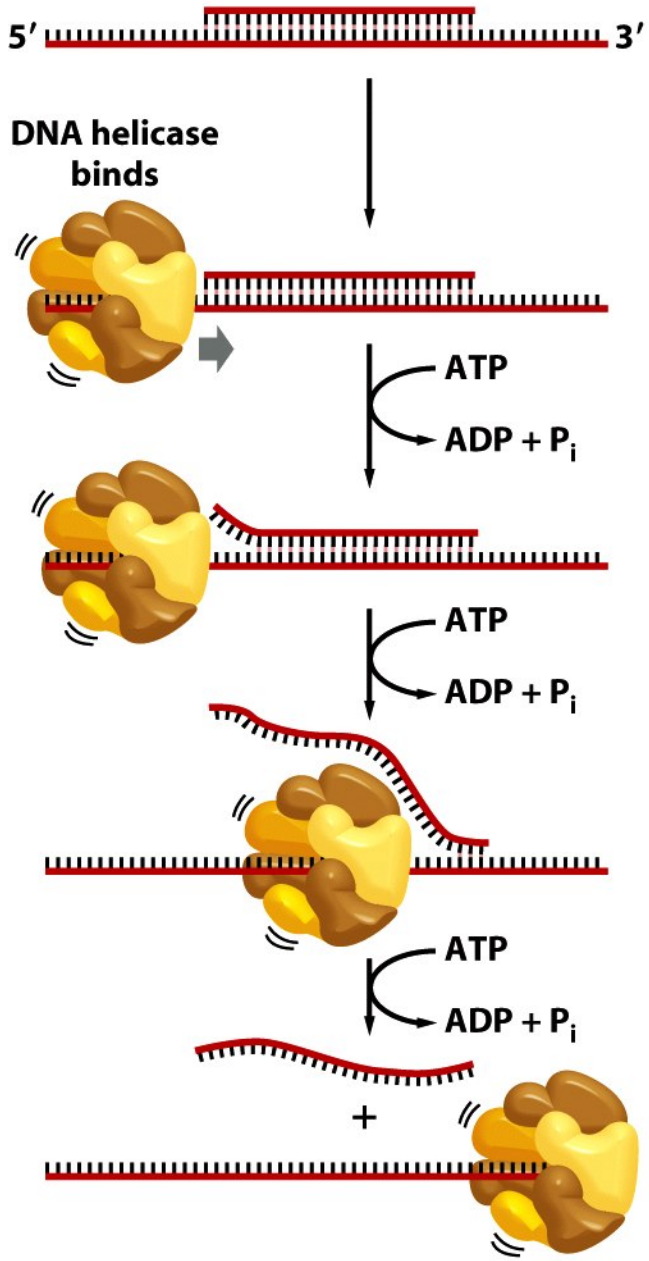
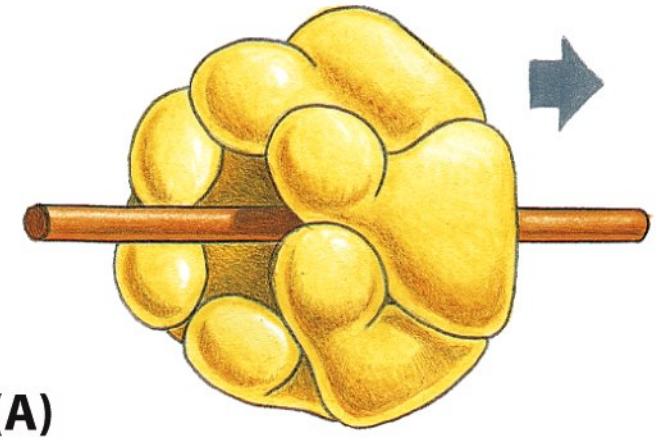
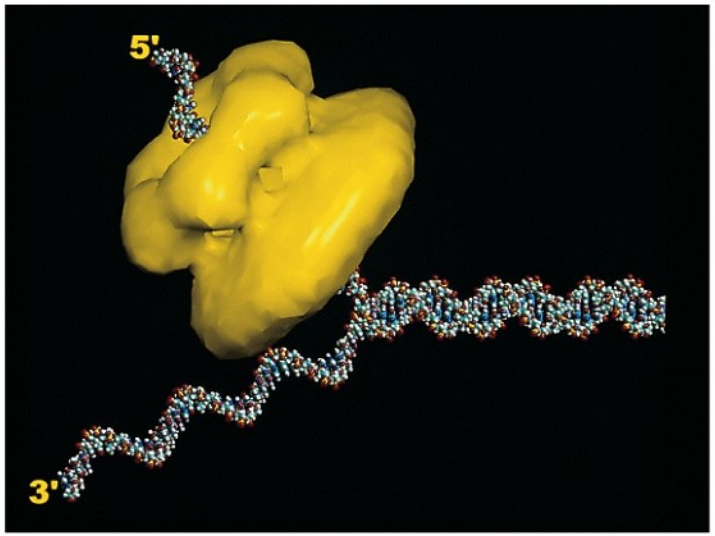


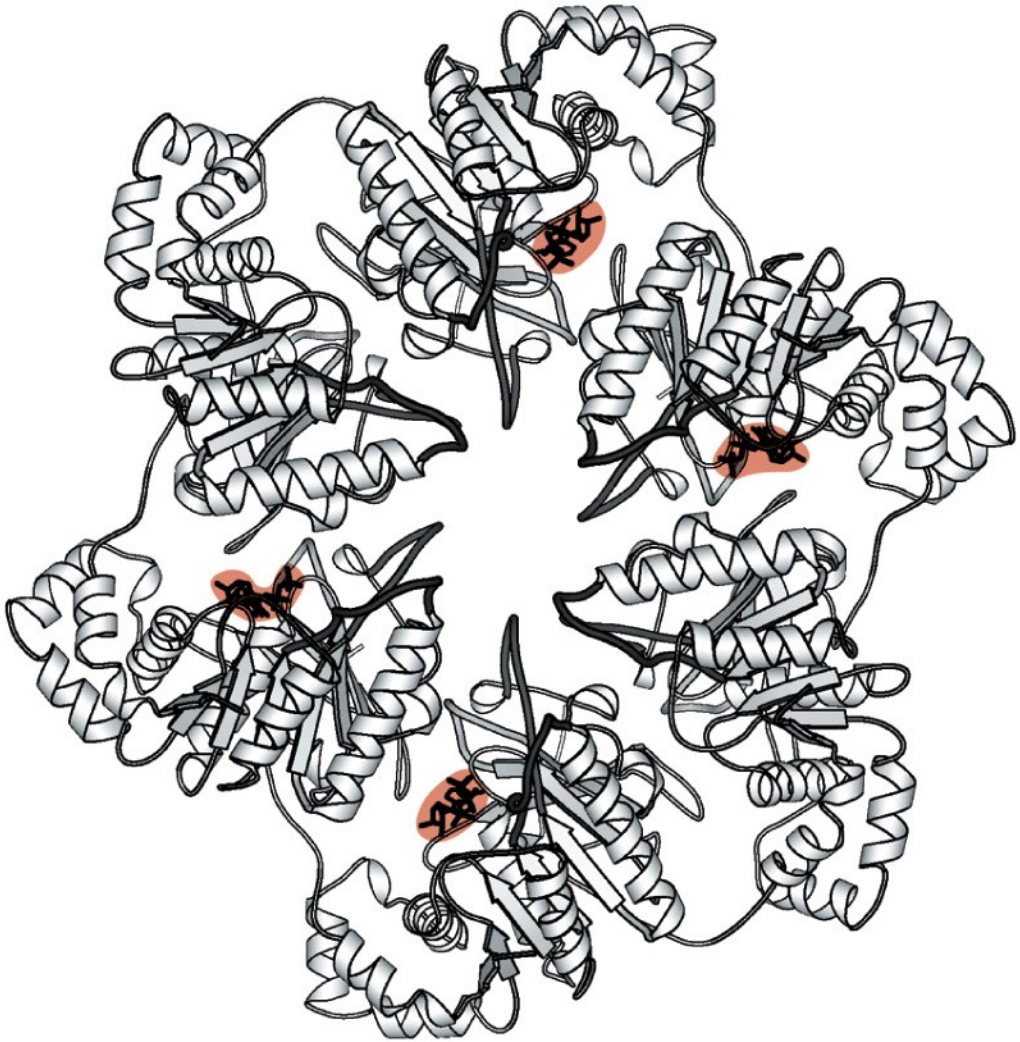
Figure 5-14 *Molecular Biology of the Cell* (© Garland Science 2008)



(A)



(B)



(C)

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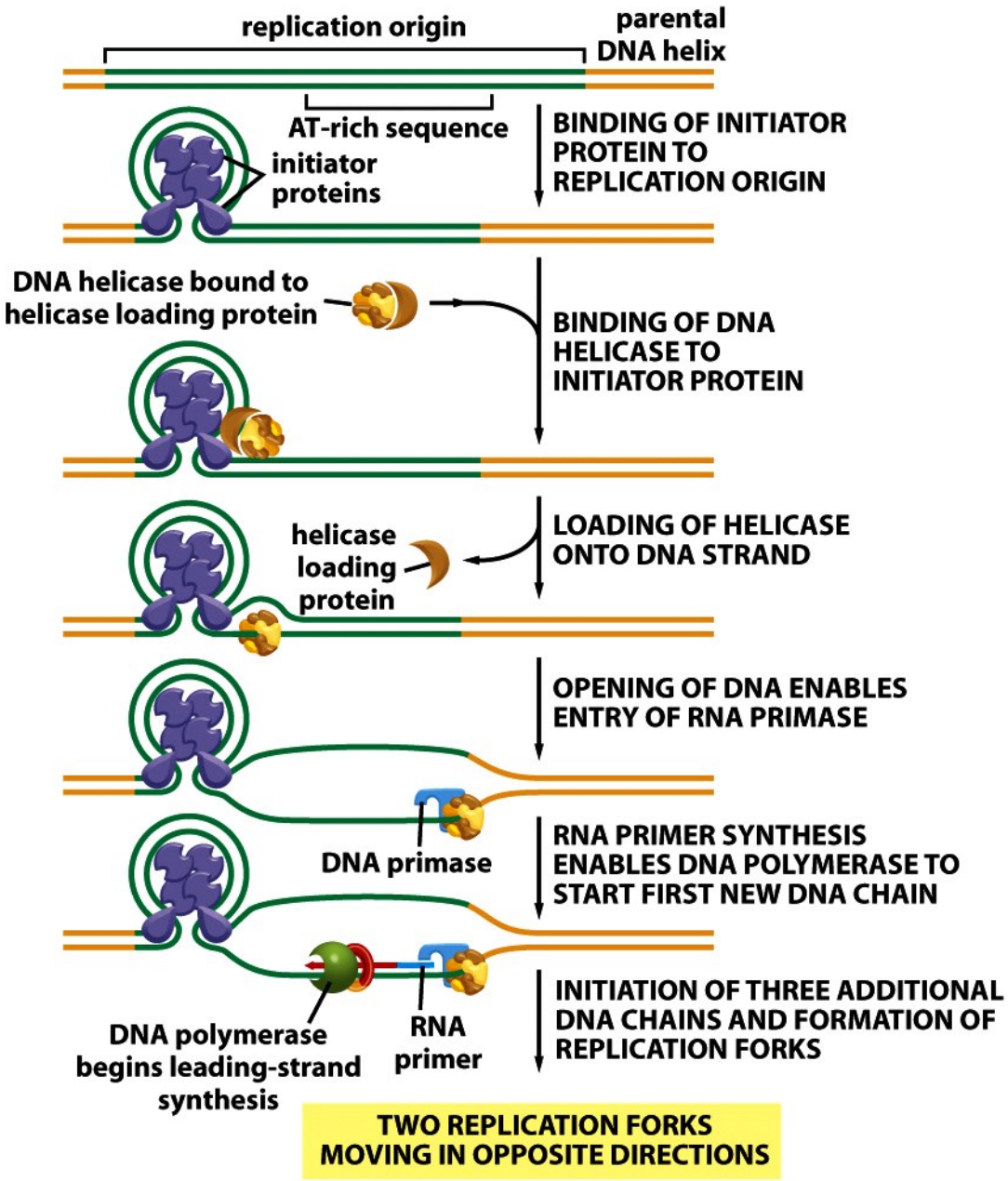


Figure 5-27 *Molecular Biology of the Cell* (© Garland Science 2008)

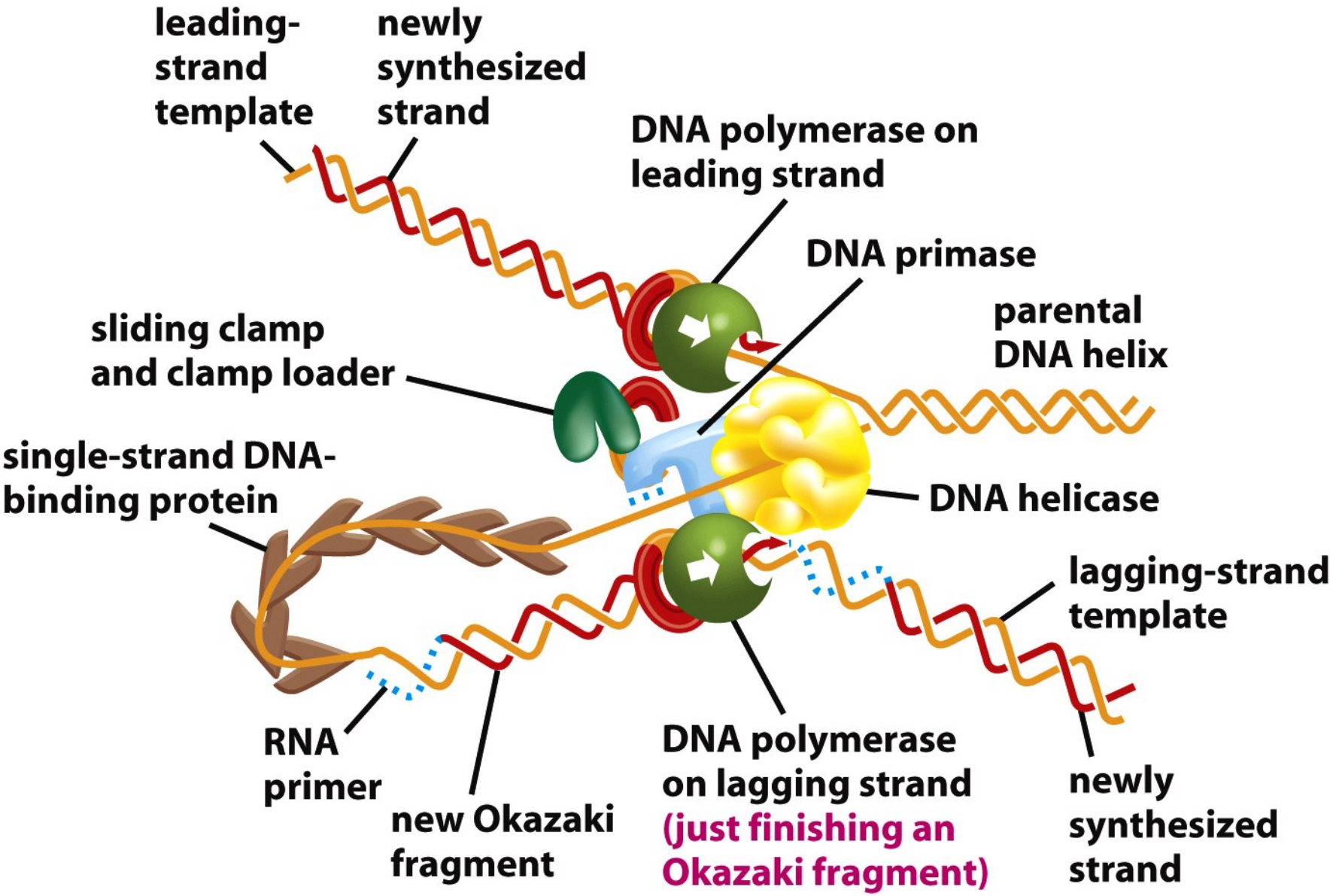


Figure 5-19a *Molecular Biology of the Cell* (© Garland Science 2008)

Transcripción

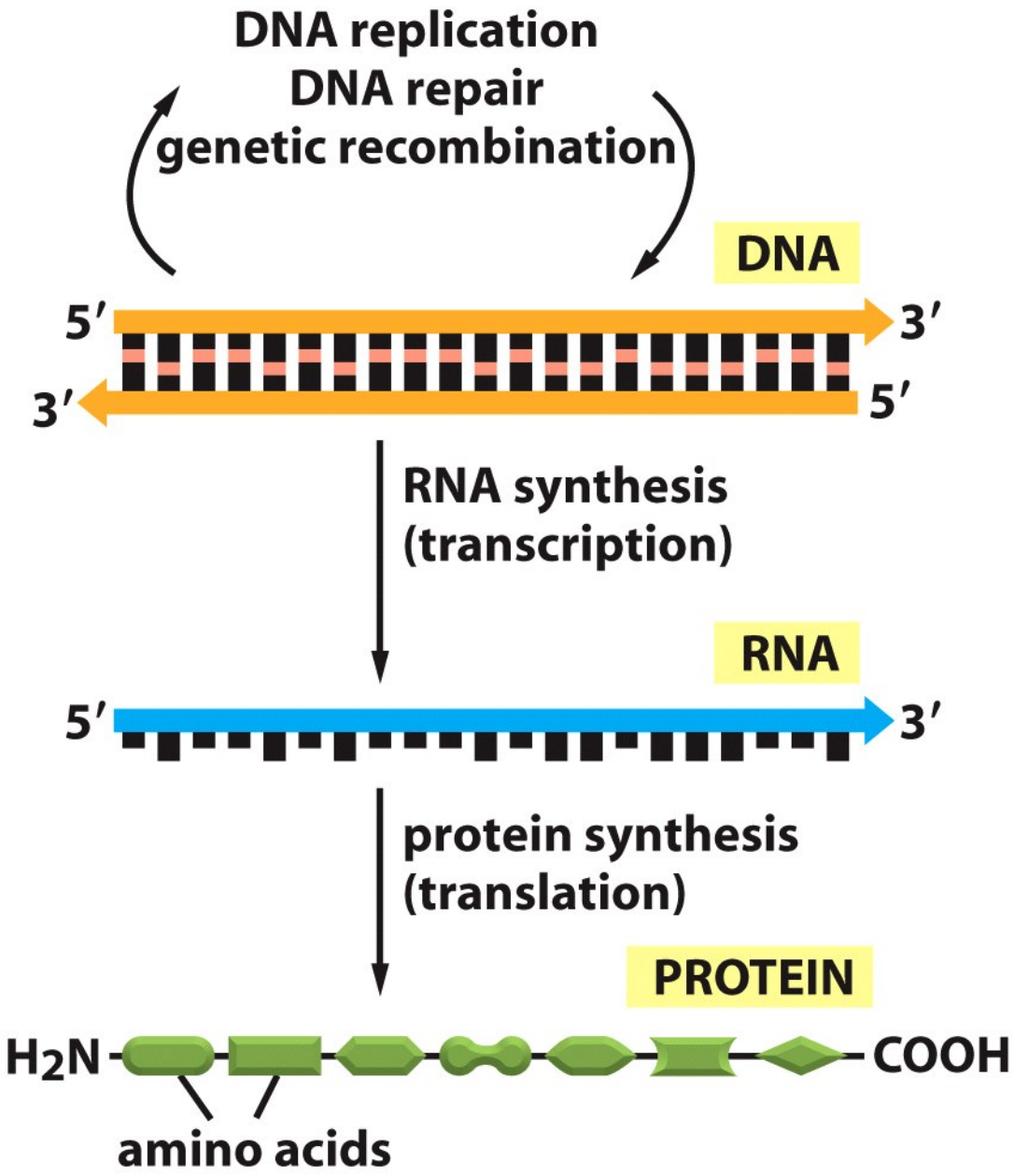


Figure 6-2 *Molecular Biology of the Cell* (© Garland Science 2008)

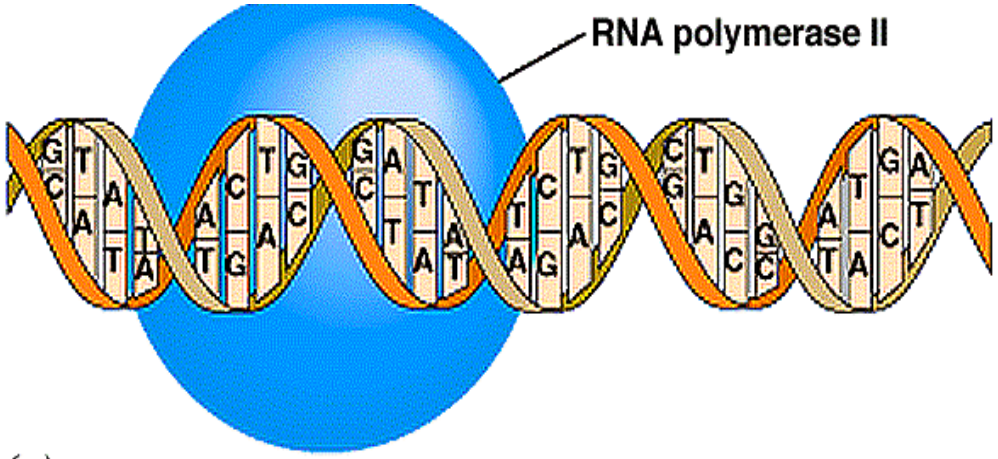
La síntesis de RNA se llama transcripción, a partir de un molde o templado de DNA. Las enzimas que catalizan este proceso se llaman RNA polimerasas. En eucariontes el proceso ocurre en el núcleo (RNAm), nucléolo (RNAribosomal), mitocondrias (RNA mitocondrial) y cloroplastos (RNA de cloroplastos).
A medida que ocurre la transcripción la RNA polimerasa separa las dos hebras del DNA e incorpora ribonucleotidos complementarios al molde de DNA.

Las RNA polimerasas, inician cadenas nuevas de RNA desde sitios apropiados en el DNA. Los procariontes tienen una RNA polimerasa, y los eucariontes 3 (I, II y III) que catalizan la síntesis de RNA r (ribosomal), RNAm (mensajero) y RNAt (transferencia), respectivamente. Los RNA transcritos pueden ser modificados luego de la transcripción

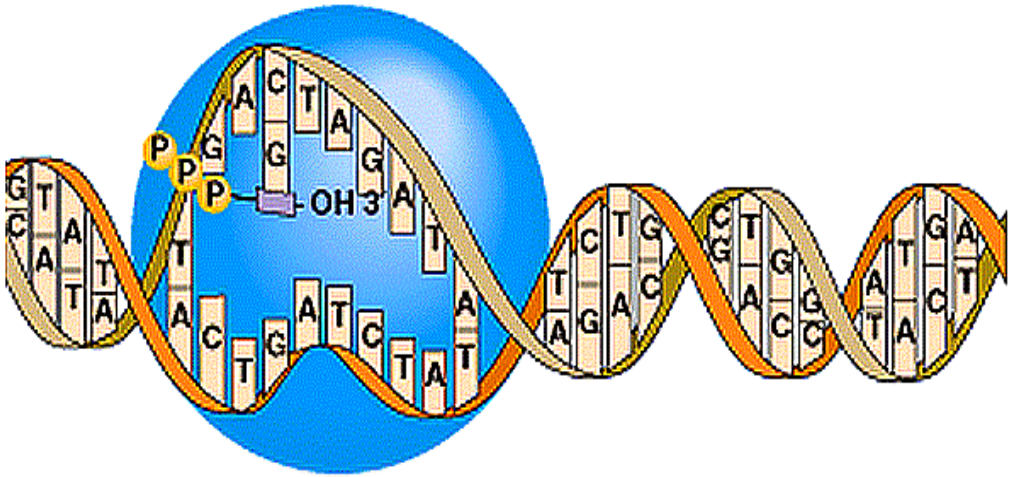
Table 6–2 The Three RNA Polymerases in Eucaryotic Cells

TYPE OF POLYMERASE	GENES TRANSCRIBED
RNA polymerase I	5.8S, 18S, and 28S rRNA genes
RNA polymerase II	all protein-coding genes, plus snoRNA genes, miRNA genes, siRNA genes, and most snRNA genes
RNA polymerase III	tRNA genes, 5S rRNA genes, some snRNA genes and genes for other small RNAs

The rRNAs are named according to their "S" values, which refer to their rate of sedimentation in an ultracentrifuge. The larger the S value, the larger the rRNA.



(a)

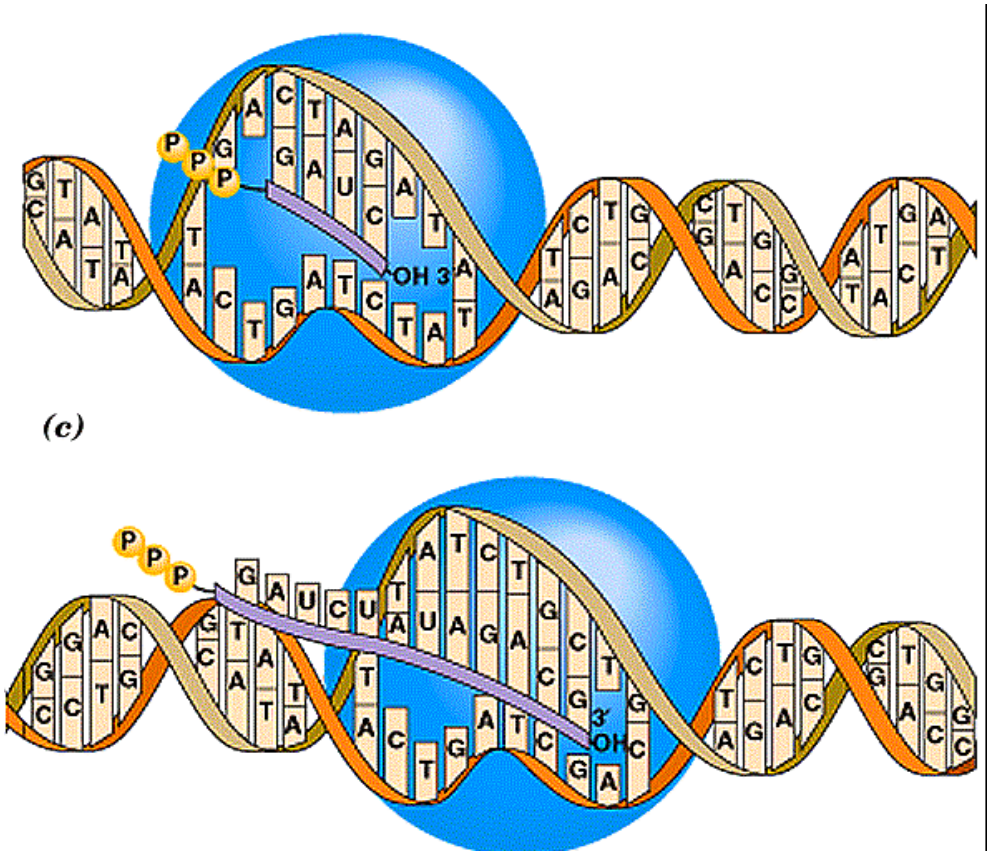


(b)

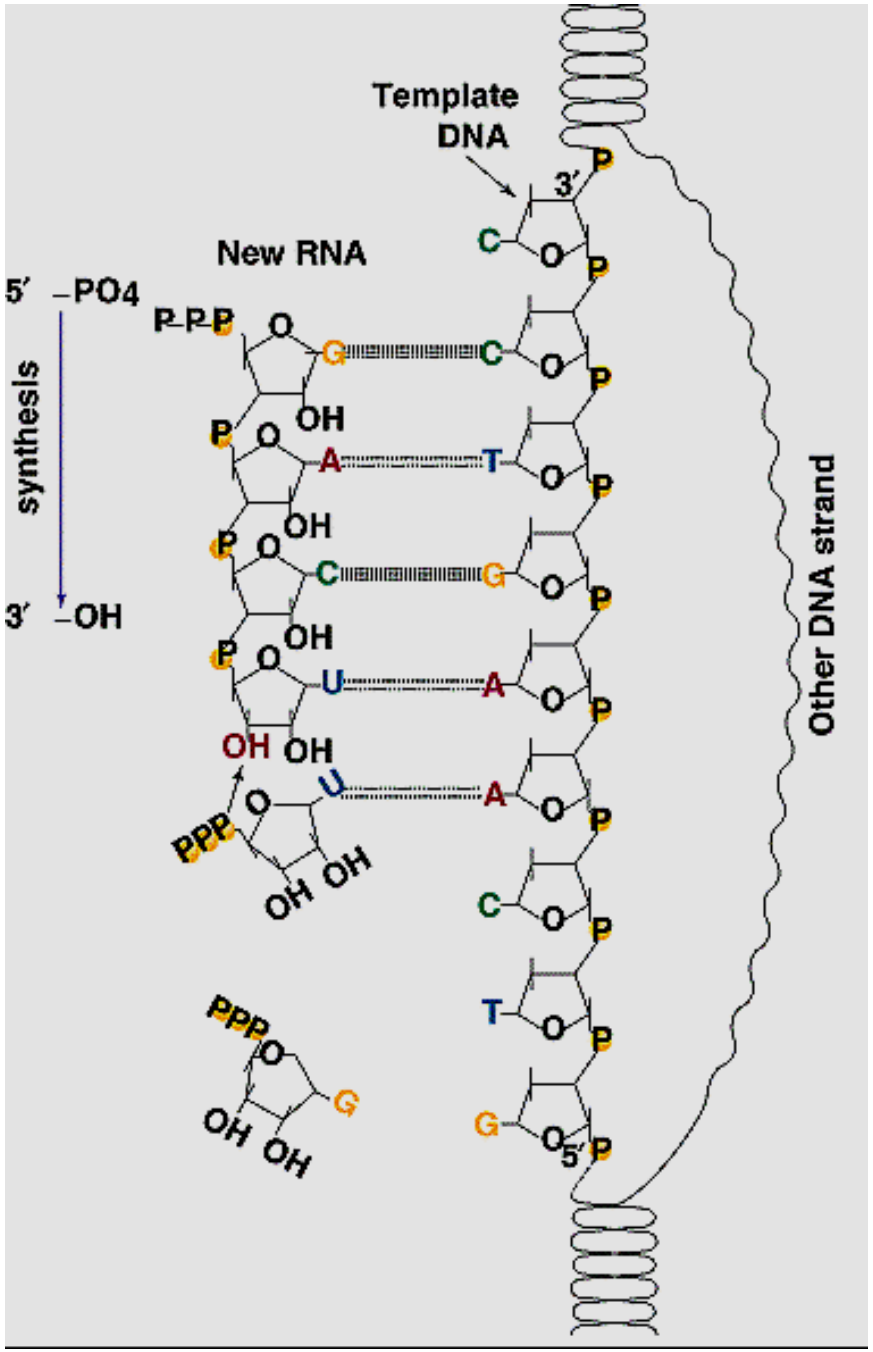
Reconocimiento del sitio de iniciación de transcripción por la RNA polimerasa, en el promotor del gen que se transcribe

Ubicación del primer nucleotido transcrito.

c) Formación del primer enlace fosfodiéster.



d) Prosigue la síntesis con movimiento de la RNA polimerasa a lo largo del DNA. Se reorganiza la doble hélice.



Biosíntesis de RNA mostrando la asimetría en la transcripción. El Nuevo RNA se forma desde su extremo 5´ hacia el extremo 3´.

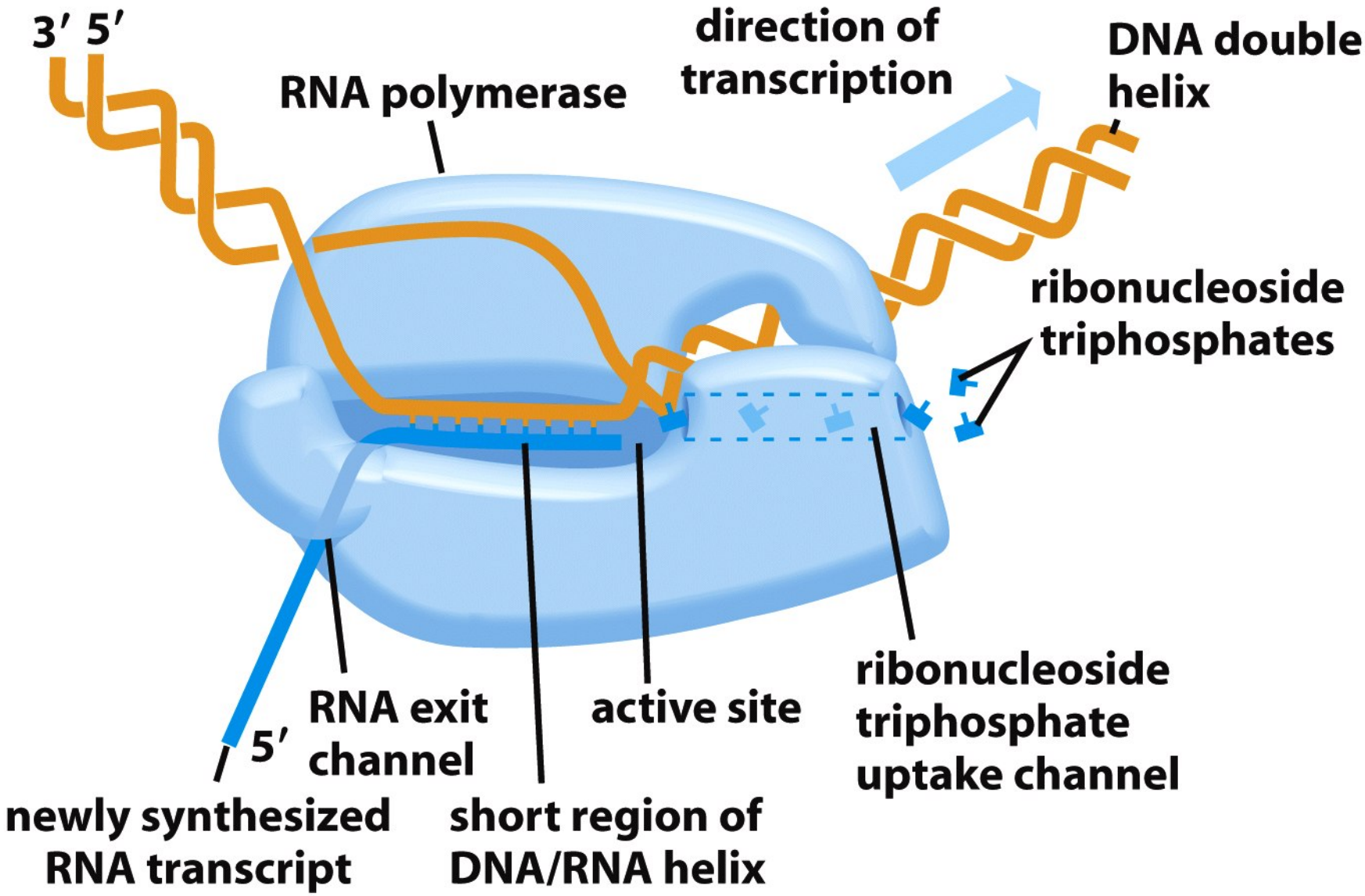


Figure 6-8a *Molecular Biology of the Cell* (© Garland Science 2008)

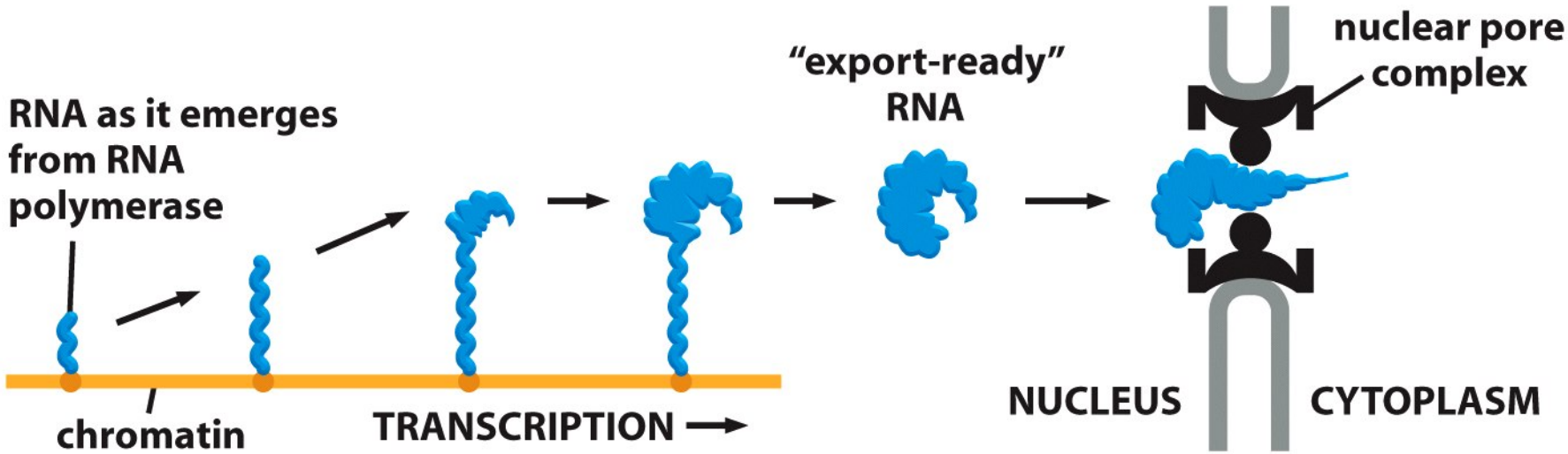


Figure 6-39a *Molecular Biology of the Cell* (© Garland Science 2008)

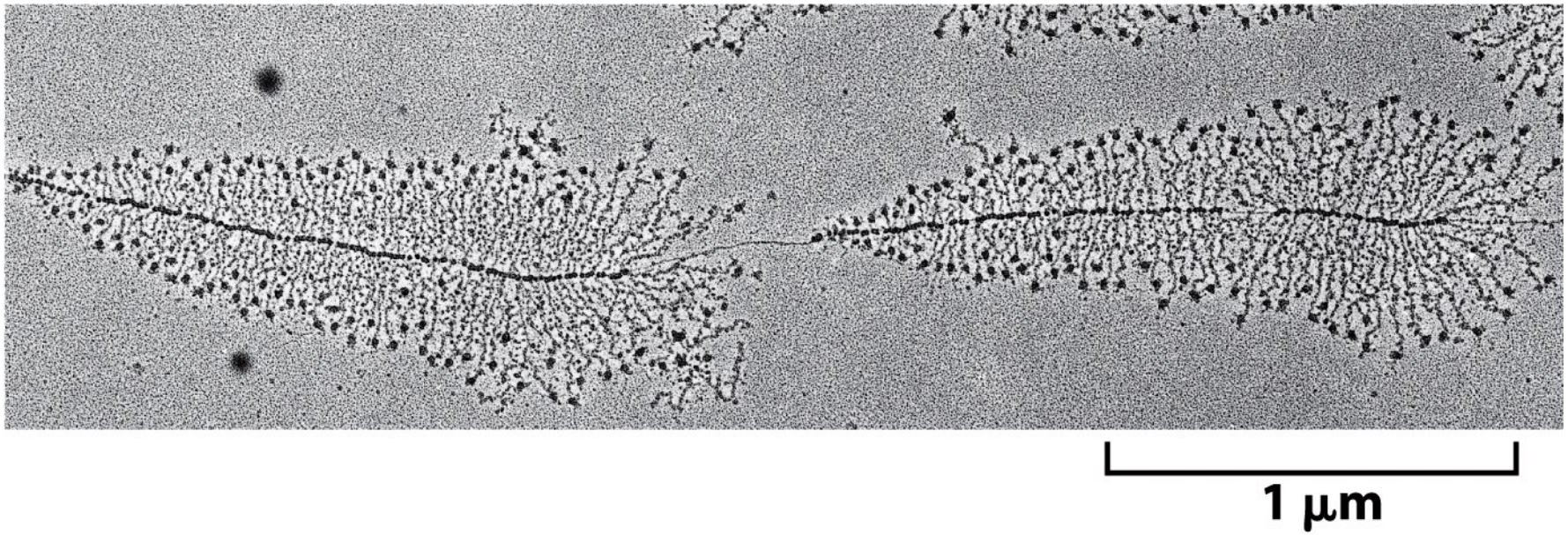


Figure 6-9 *Molecular Biology of the Cell* (© Garland Science 2008)

Table 6–3 The General Transcription Factors Needed for Transcription Initiation by Eucaryotic RNA Polymerase II

NAME	NUMBER OF SUBUNITS	ROLES IN TRANSITION INITIATION
TFIID		
TBP subunit	1	recognizes TATA box
TAF subunits	~11	recognizes other DNA sequences near the transcription start point; regulates DNA-binding by TBP
TFIIB	1	recognizes BRE element in promoters; accurately positions RNA polymerase at the start site of transcription
TFIIF	3	stabilizes RNA polymerase interaction with TBP and TFIIB; helps attract TFIIE and TFIIH
TFIIE	2	attracts and regulates TFIIH
TFIIH	9	unwinds DNA at the transcription start point, phosphorylates Ser5 of the RNA polymerase CTD; releases RNA polymerase from the promoter

TFIID is composed of TBP and ~11 additional subunits called TAFs (TBP-associated factors); CTD, C-terminal domain.

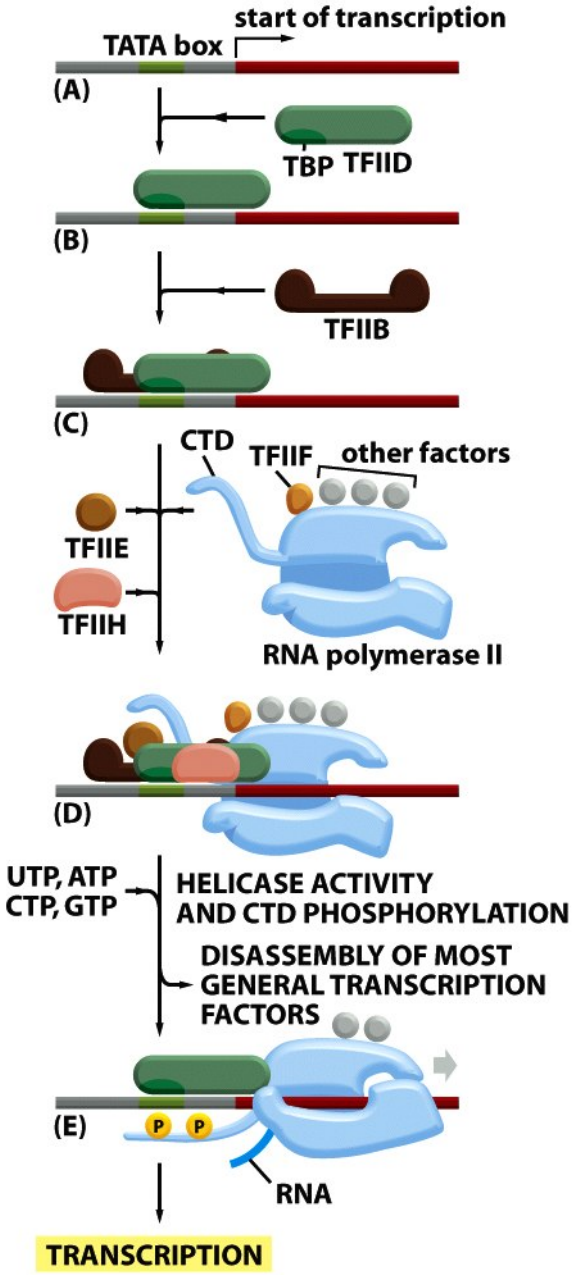


Figure 6-16 *Molecular Biology of the Cell* (© Garland Science 2008)

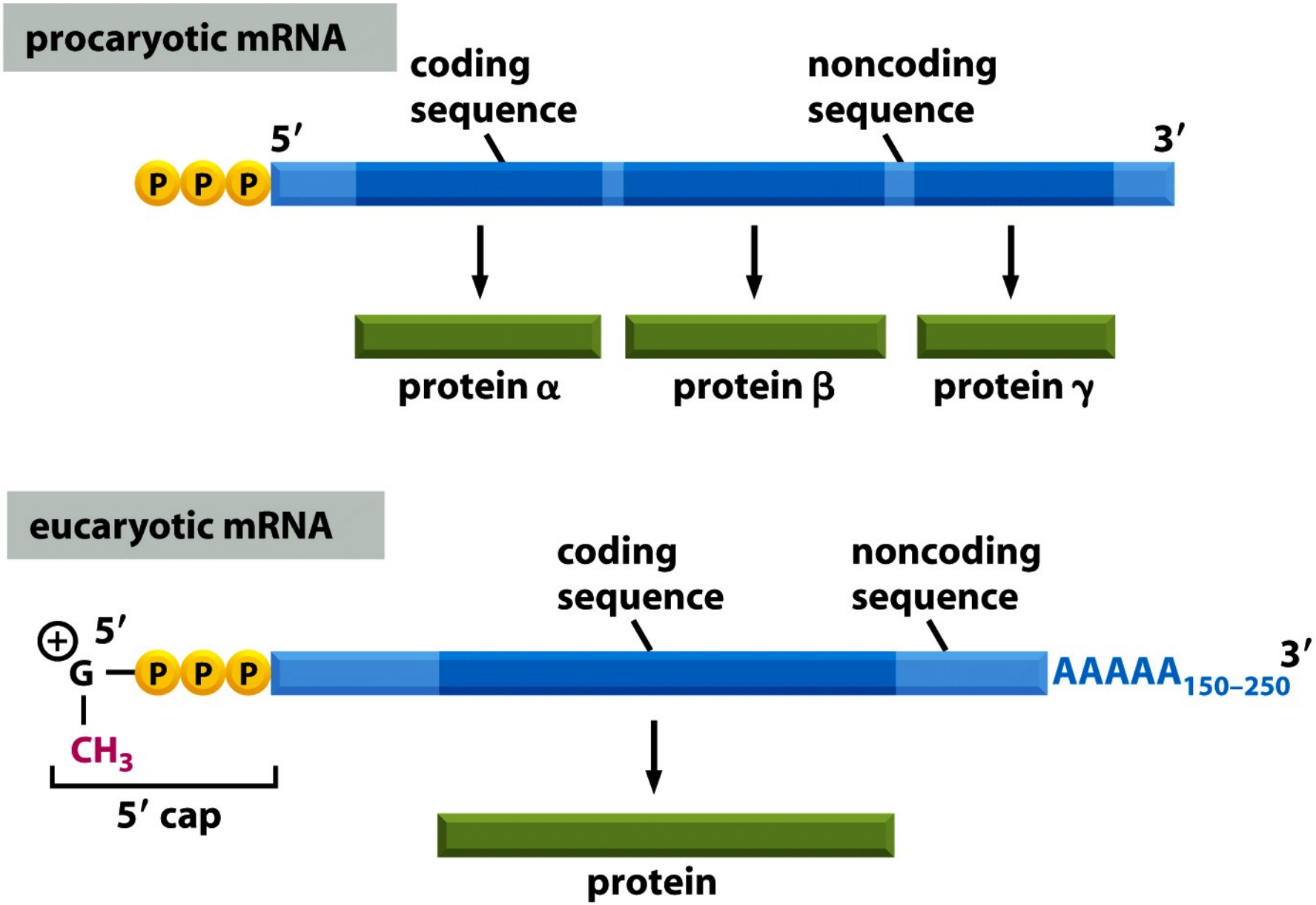


Figure 6-22a *Molecular Biology of the Cell* (© Garland Science 2008)

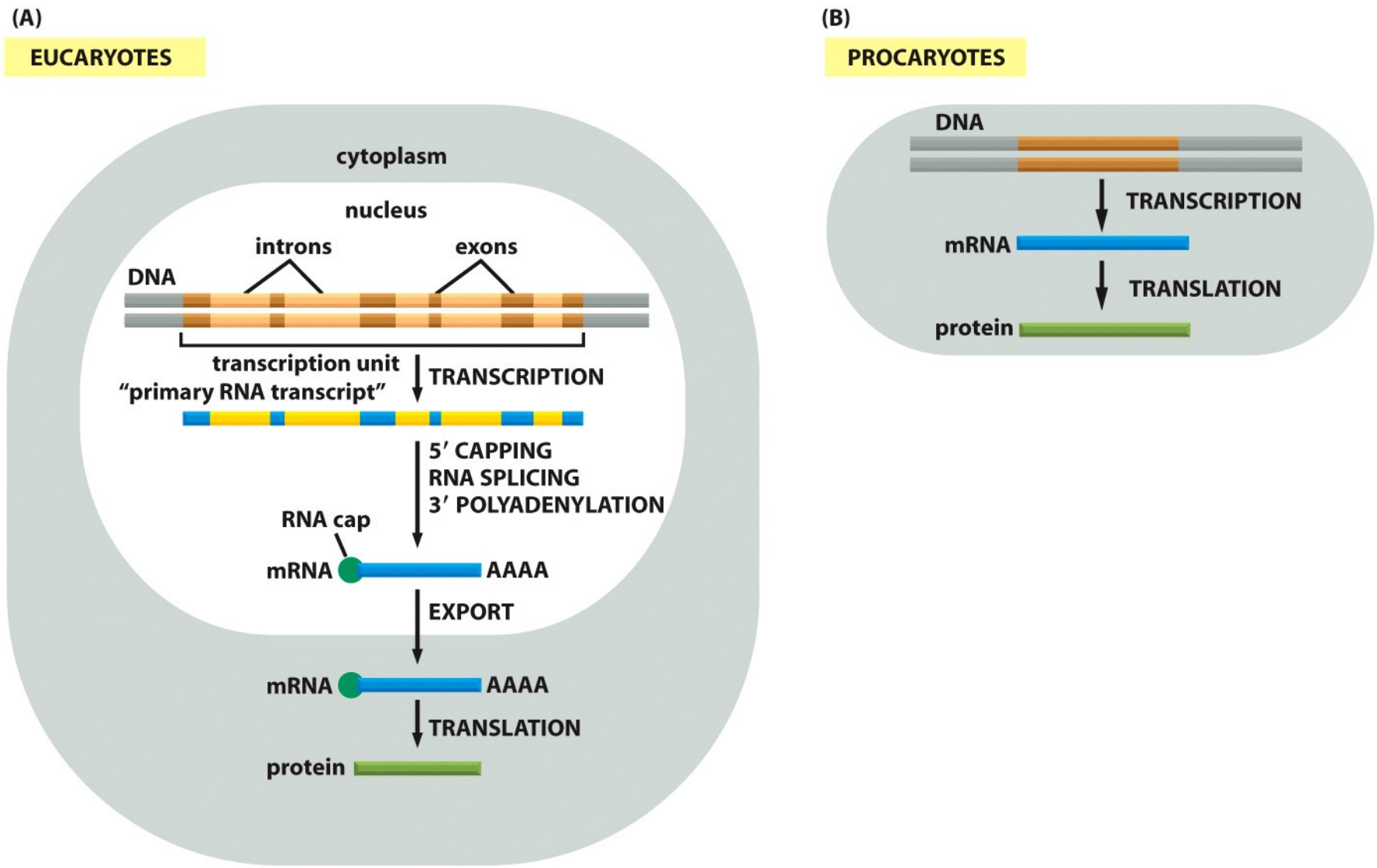


Figure 6-21 *Molecular Biology of the Cell* (© Garland Science 2008)

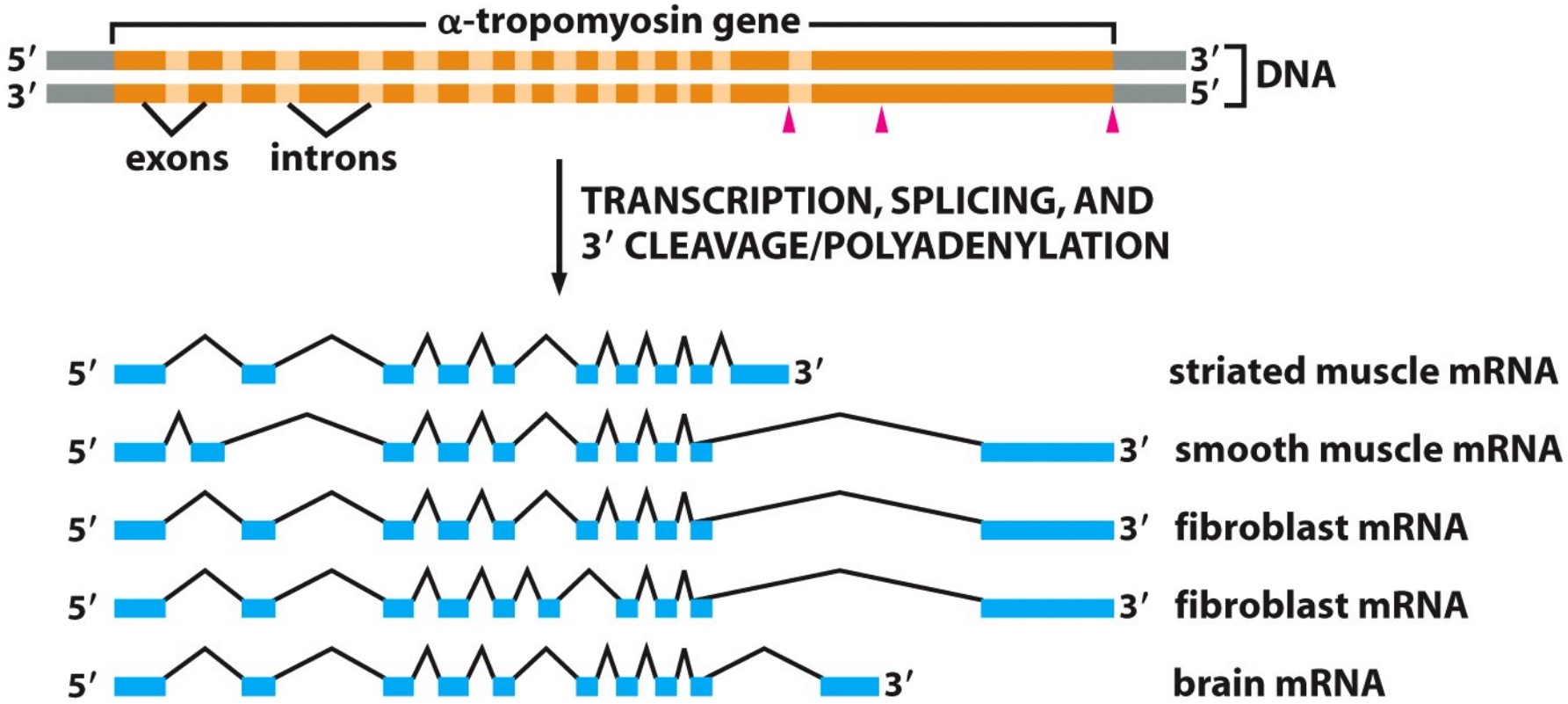


Figure 6-27 *Molecular Biology of the Cell* (© Garland Science 2008)

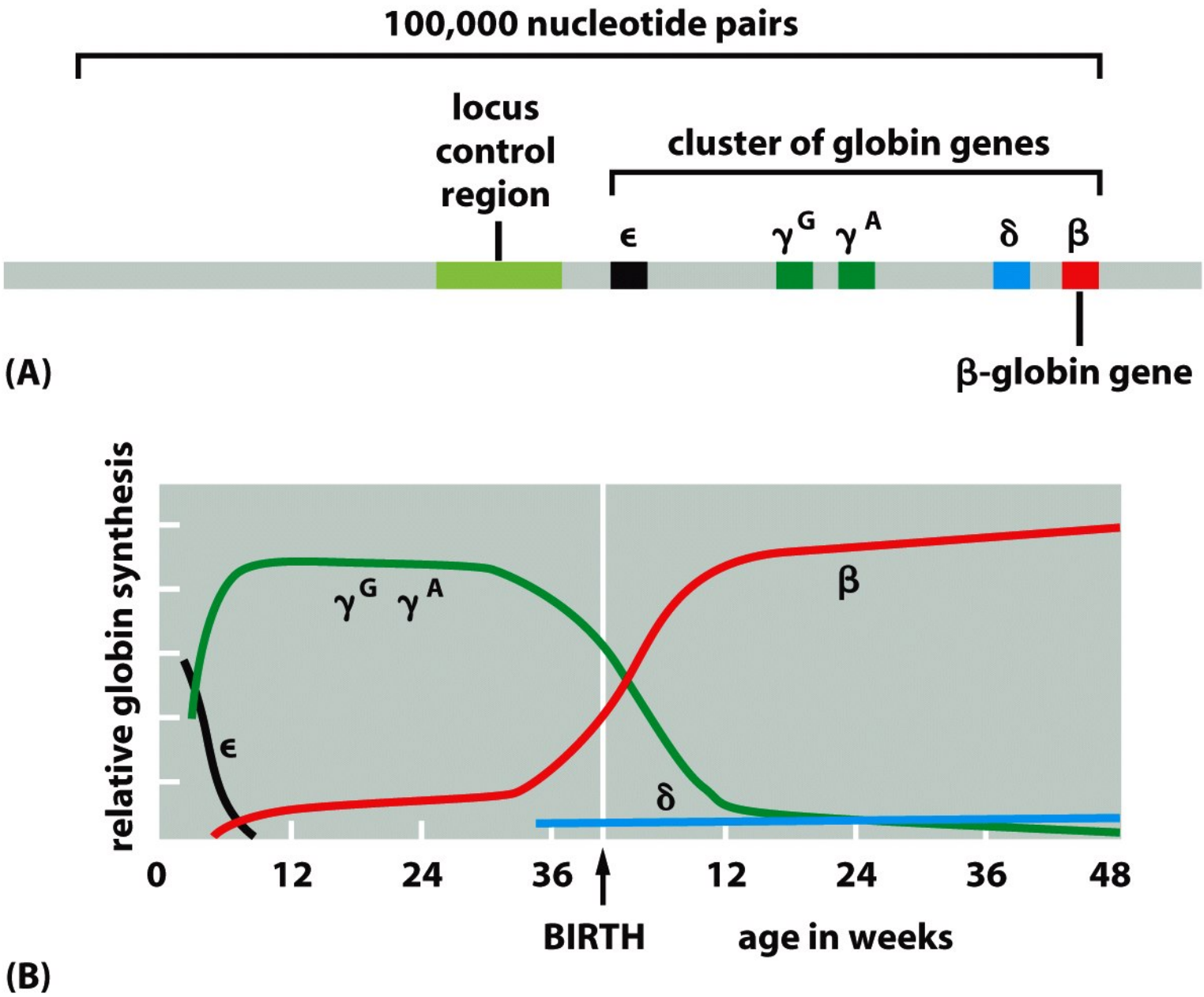
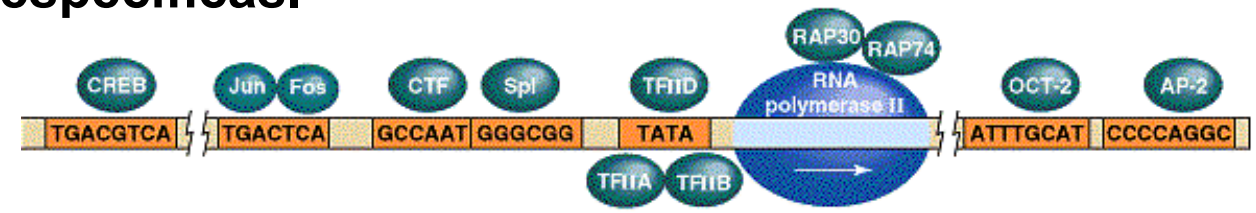


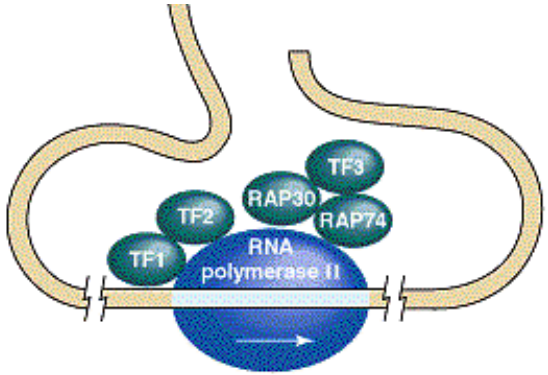
Figure 7-61 *Molecular Biology of the Cell* (© Garland Science 2008)

El DNA tiene dos tipos de secuencia: sitios de control y la región codificante. Los sitios de control son reconocidos por proteínas específicas.



Un gen típico (transcrito por la RNA polimerasa II) tiene un promotor que se extiende río arriba del sitio en que se inicia la transcripción. El promotor tiene varios elementos de secuencia cortos (< 10 pb) que unen factores de transcripción, estos pueden extenderse por mas de 200 pb.

El DNA puede estar doblado o reordenado de modo que el sitio de iniciación no es accesible, los factores de transcripción en el promotor y en sitios enhancer (potenciadores) interactúan para formar un gran complejo de proteínas que facilitan el reconocimiento del inicio.



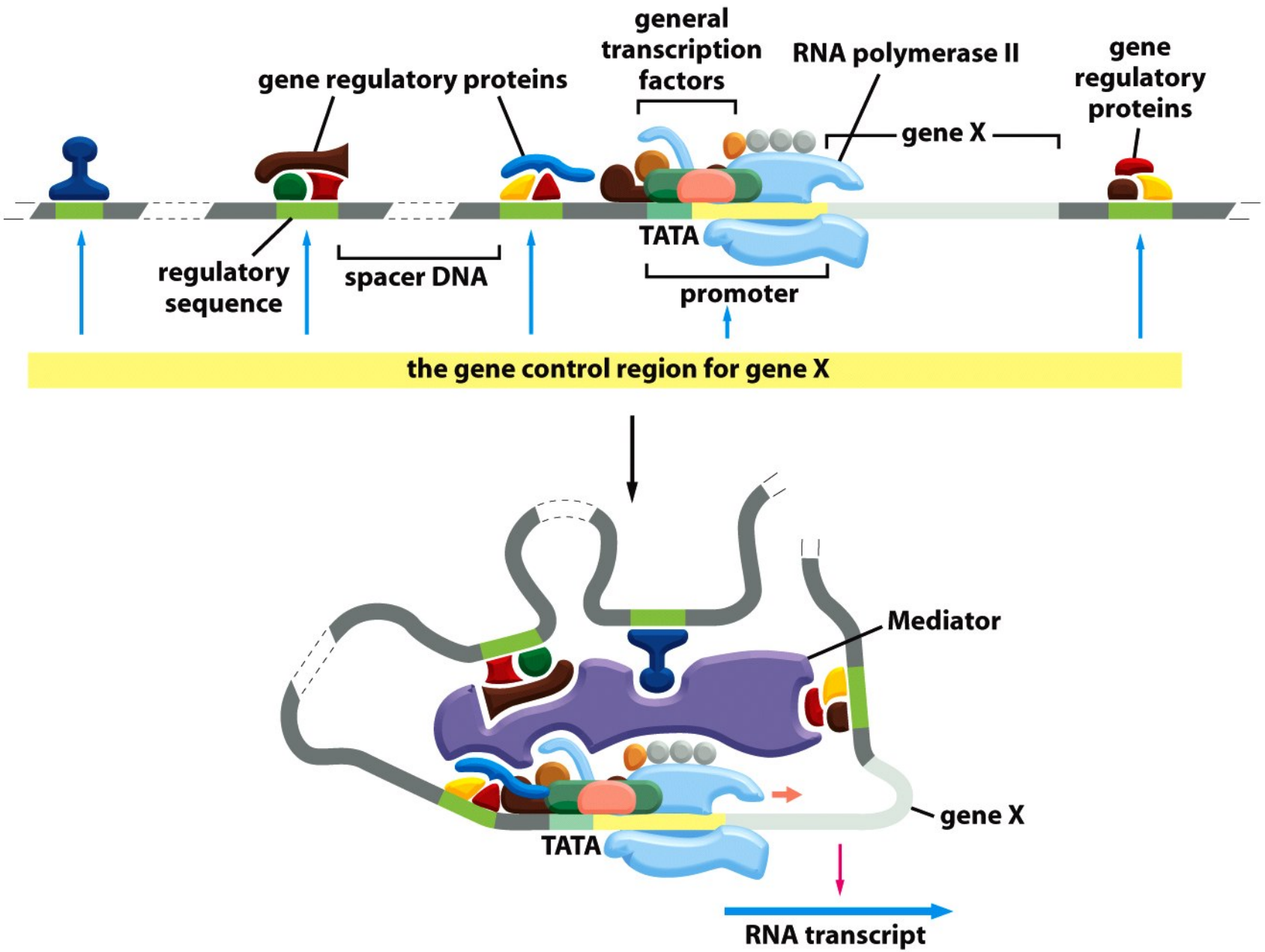


Figure 7-44 *Molecular Biology of the Cell* (© Garland Science 2008)

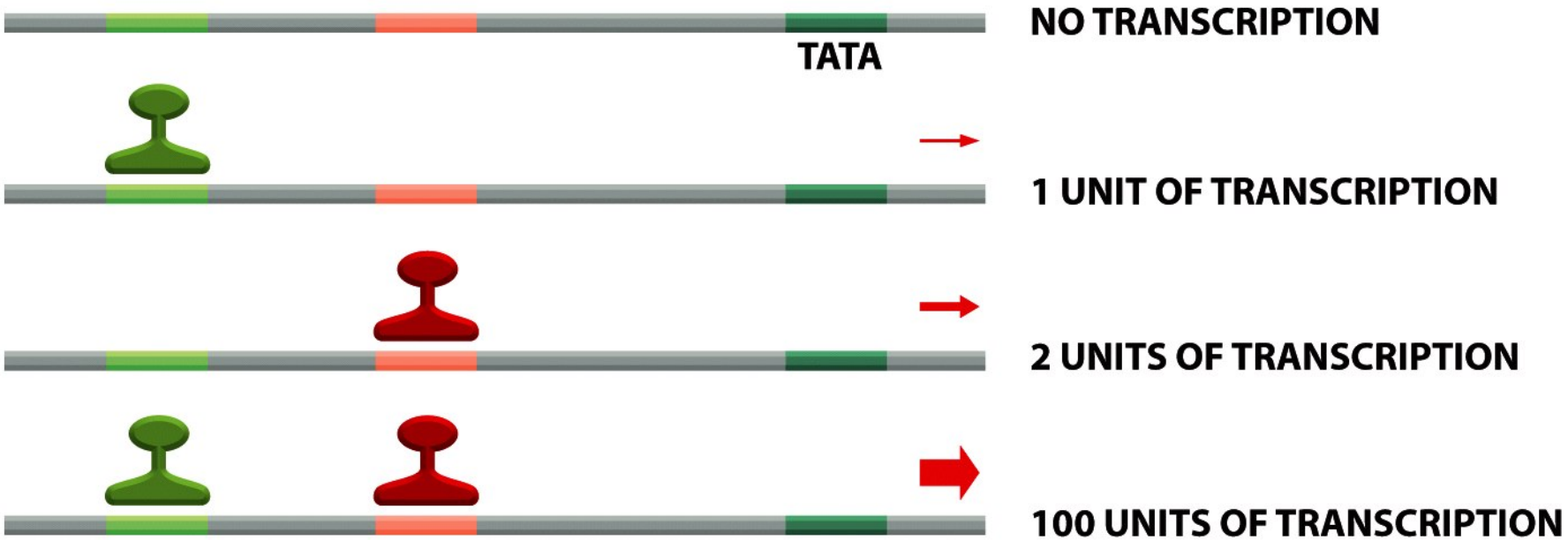
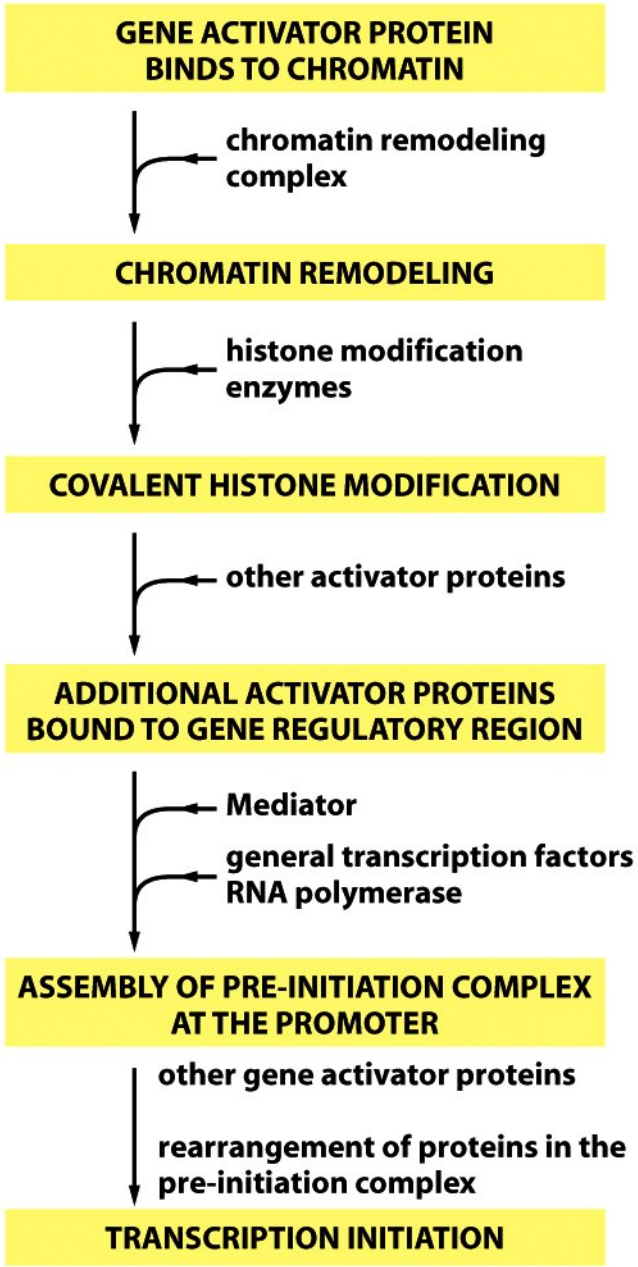


Figure 7-48 *Molecular Biology of the Cell* (© Garland Science 2008)



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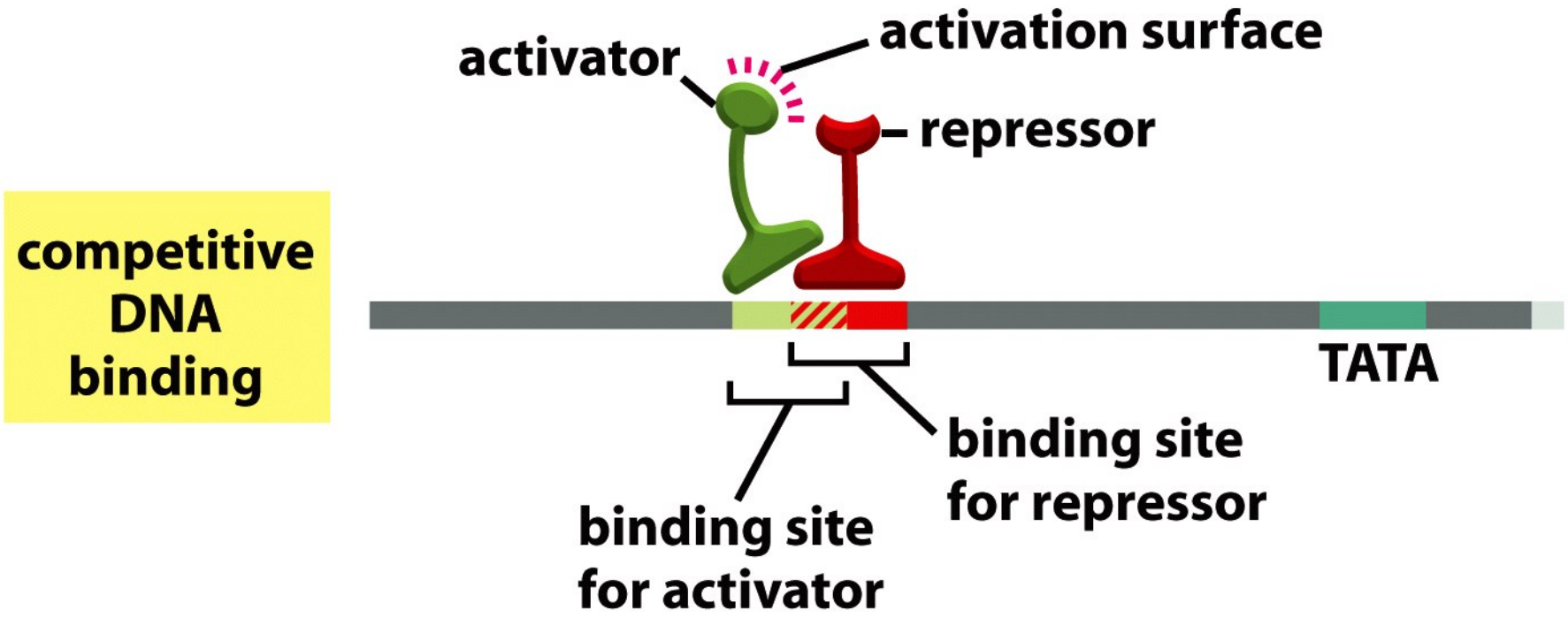


Figure 7-50a *Molecular Biology of the Cell* (© Garland Science 2008)

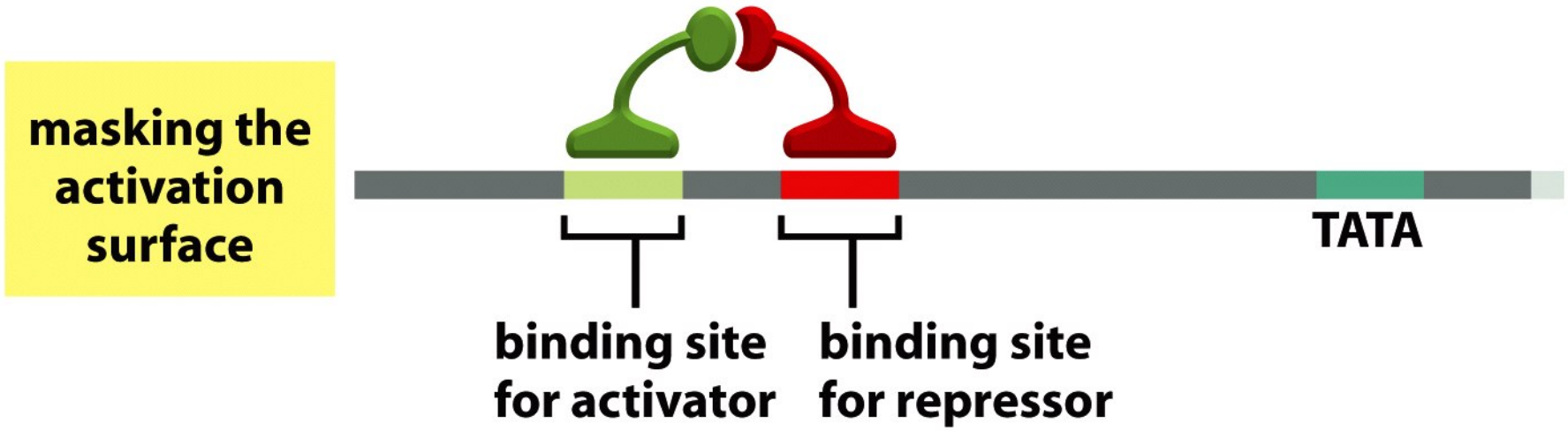


Figure 7-50b *Molecular Biology of the Cell* (© Garland Science 2008)

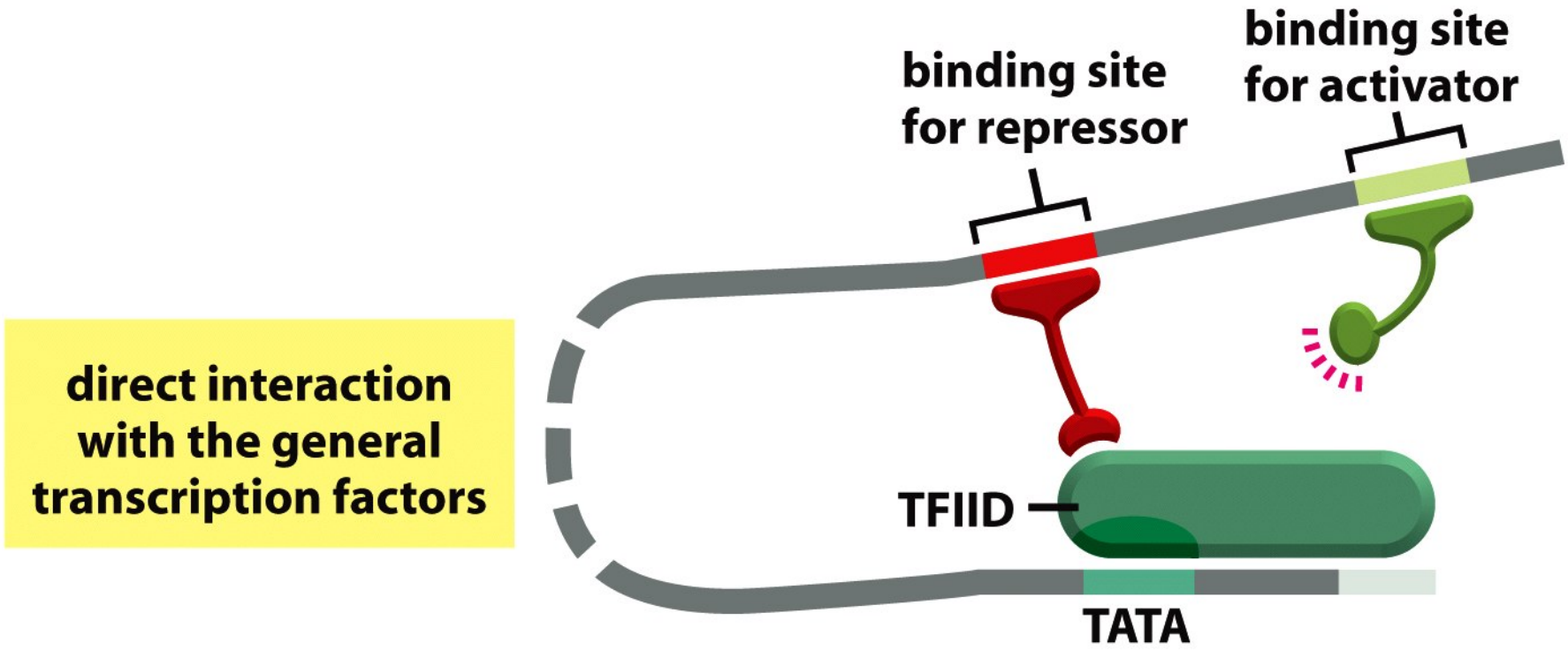
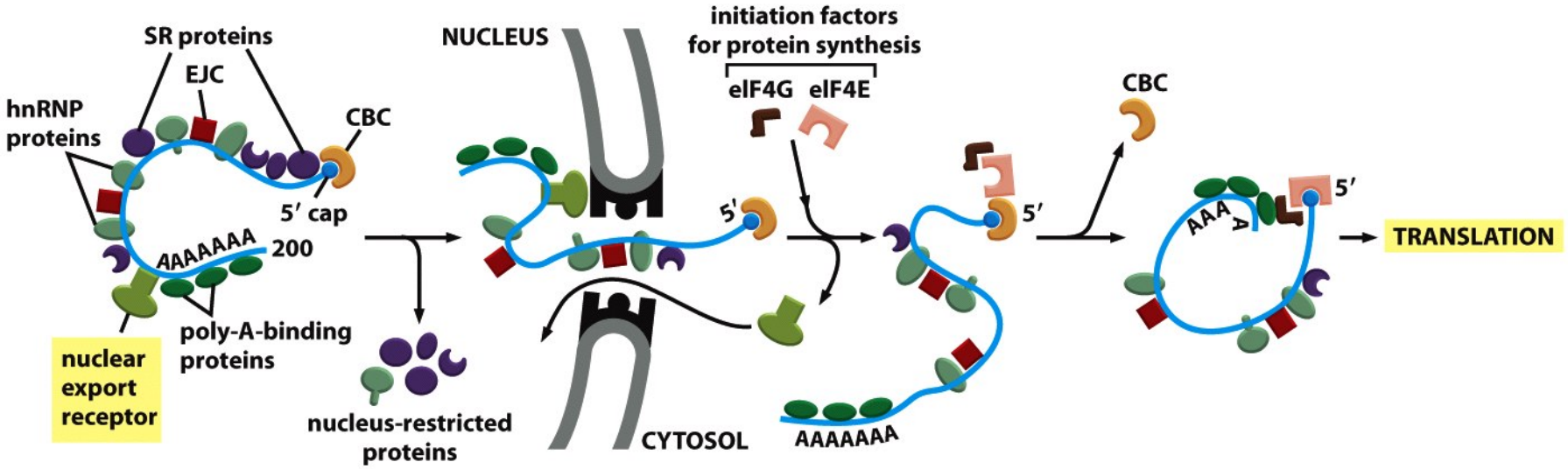


Figure 7-50c *Molecular Biology of the Cell* (© Garland Science 2008)



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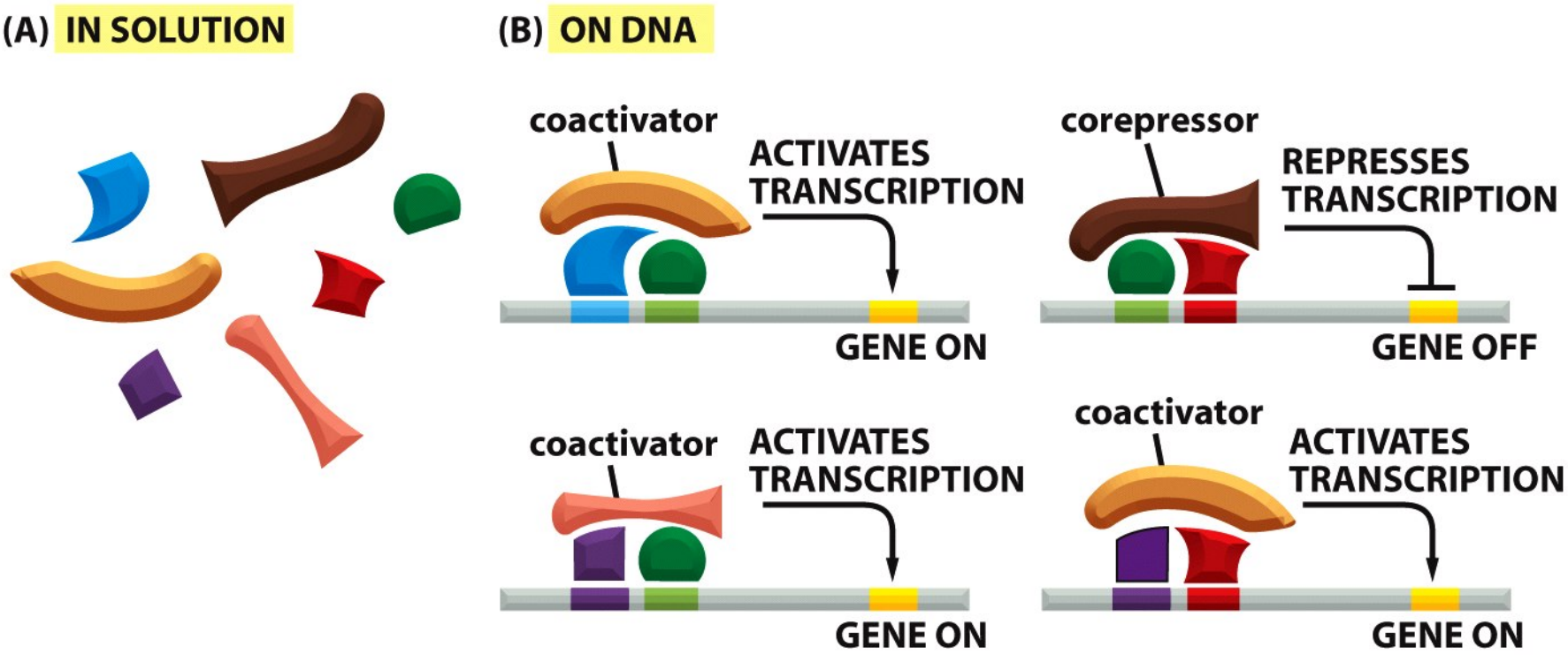

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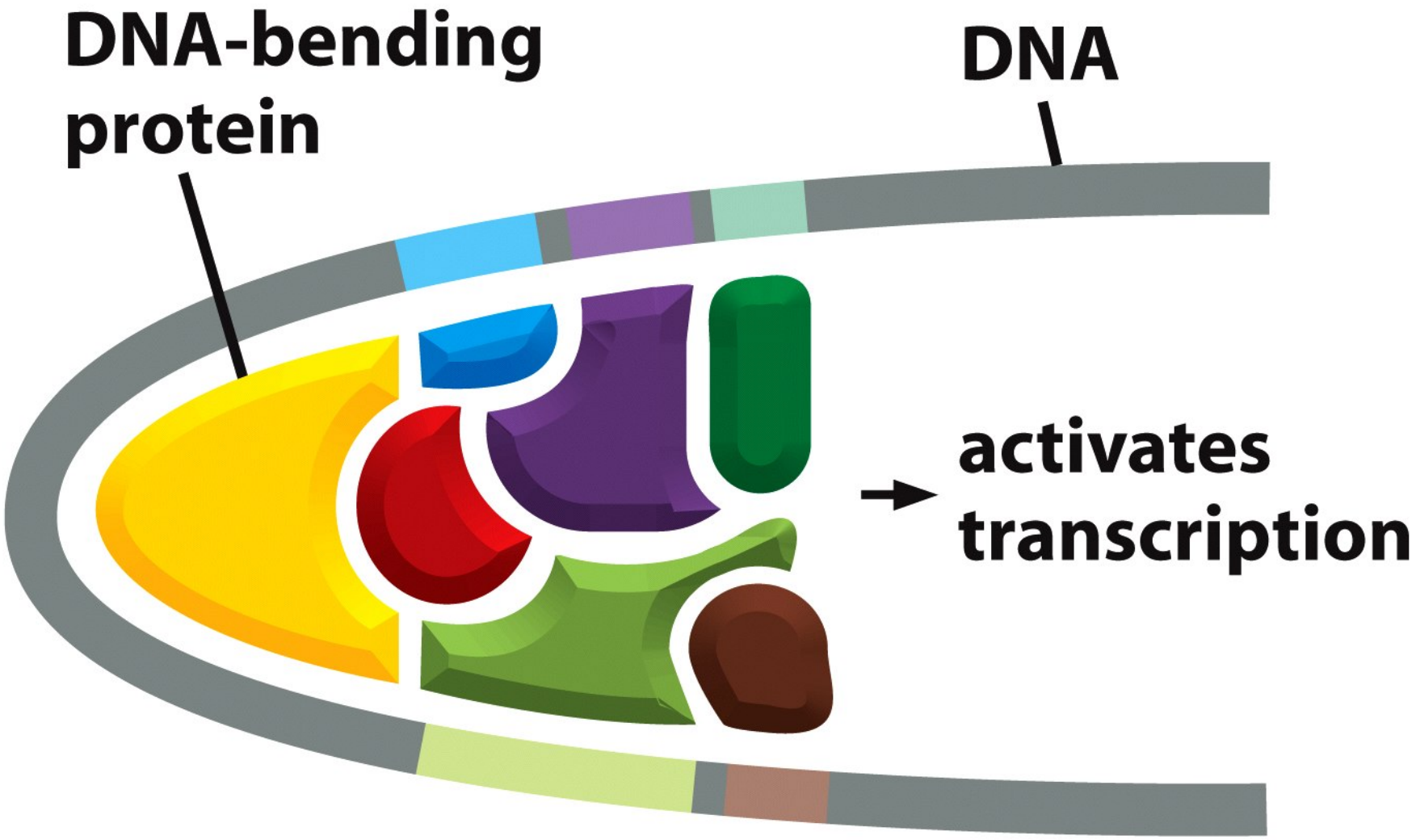


Figure 7-52 *Molecular Biology of the Cell* (© Garland Science 2008)

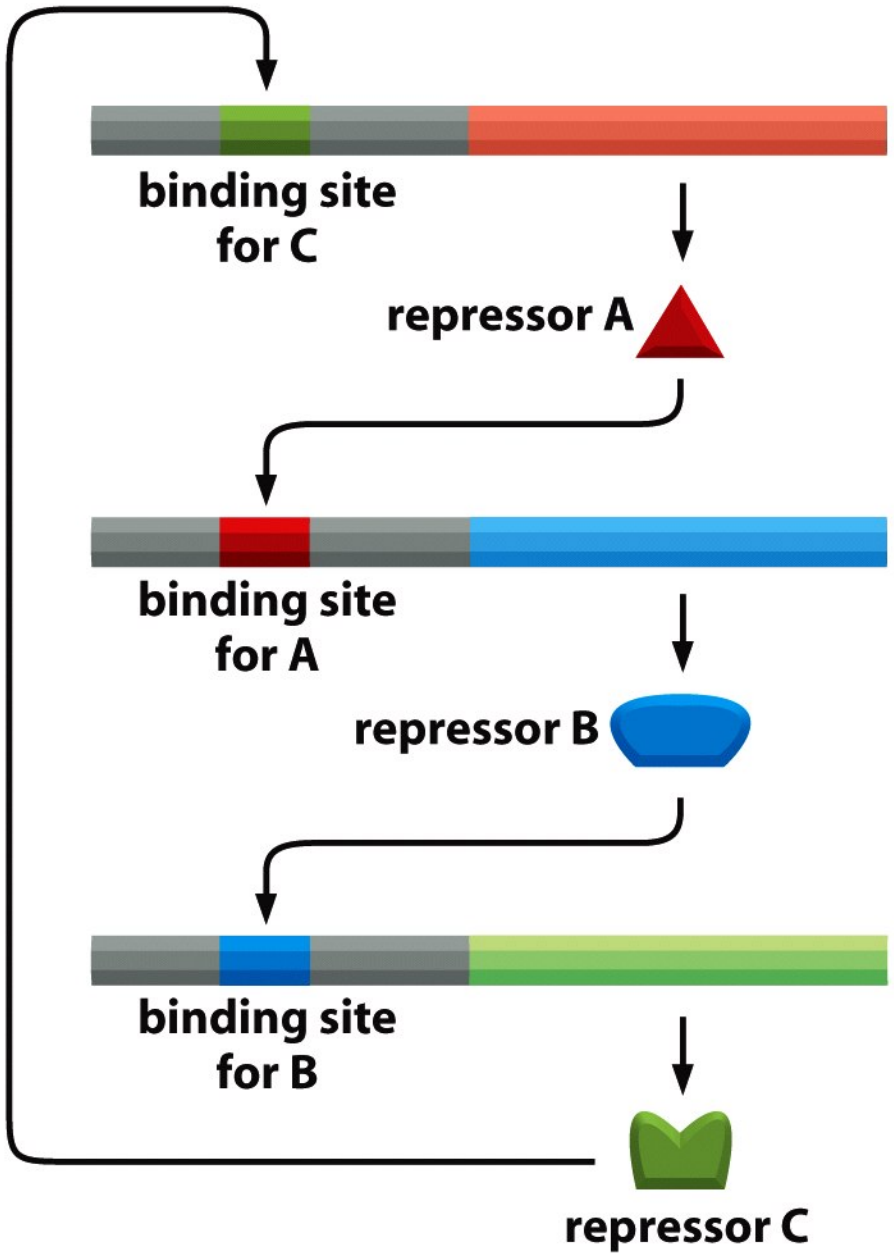


Figure 7-72a *Molecular Biology of the Cell* (© Garland Science 2008)

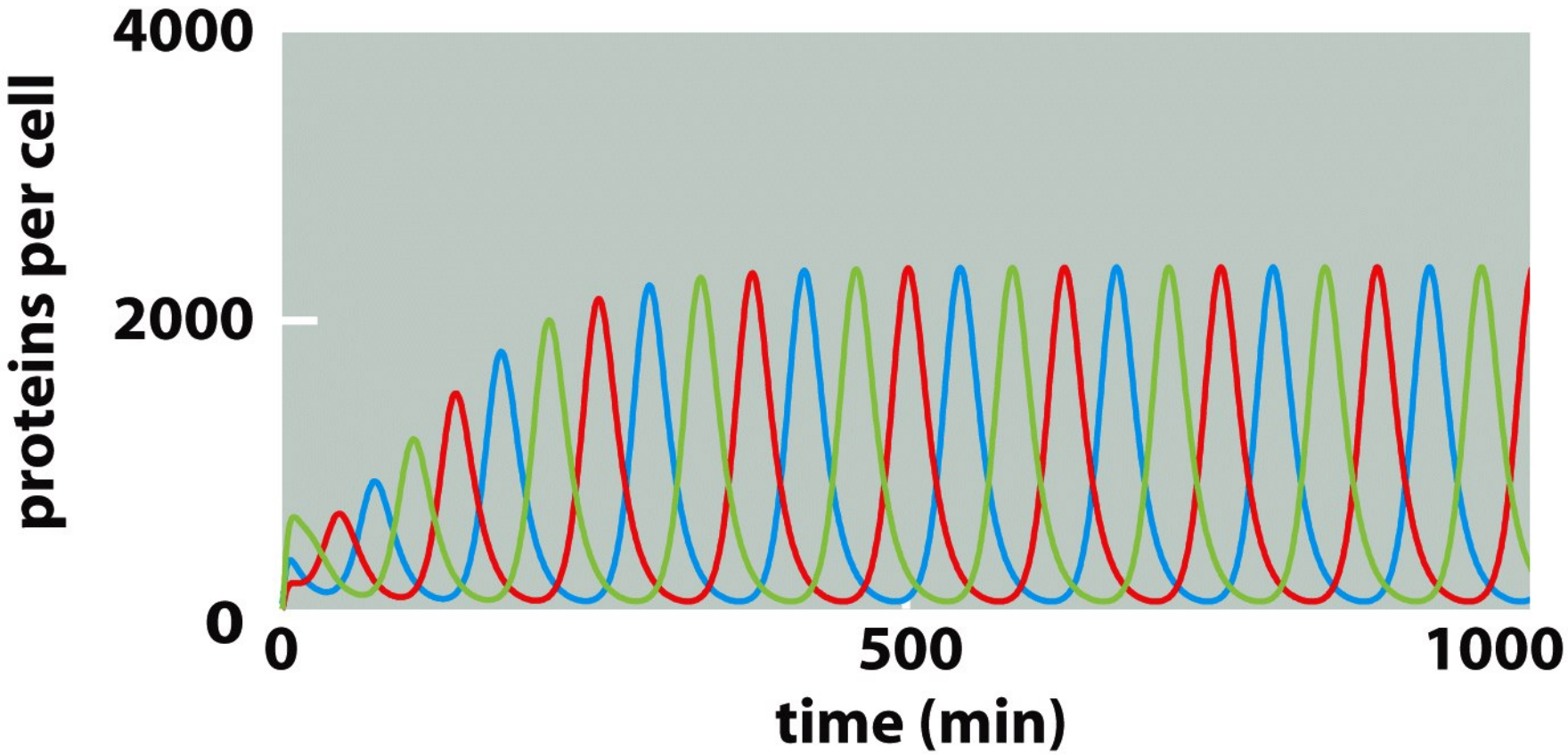
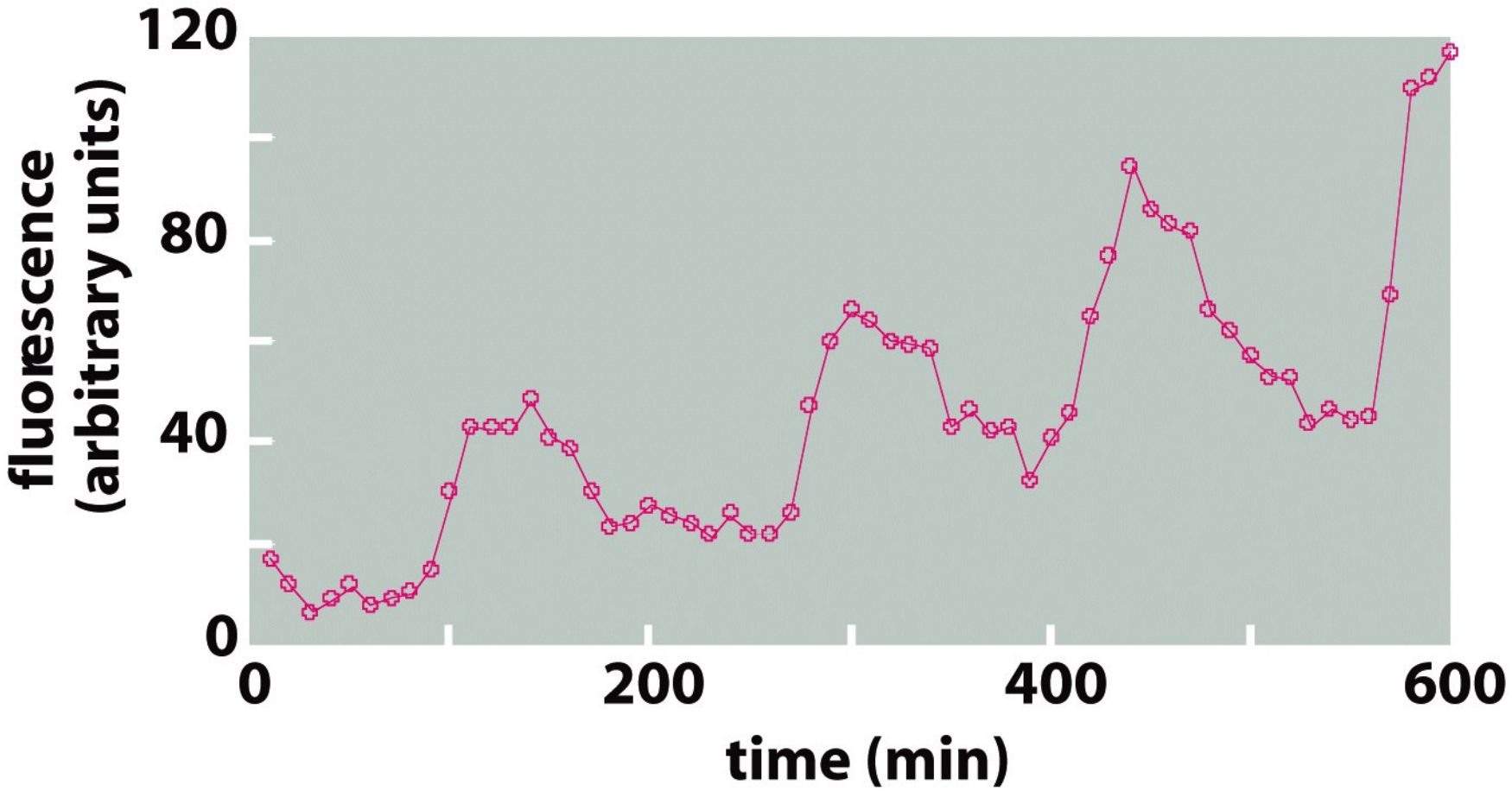


Figure 7-72b *Molecular Biology of the Cell* (© Garland Science 2008)



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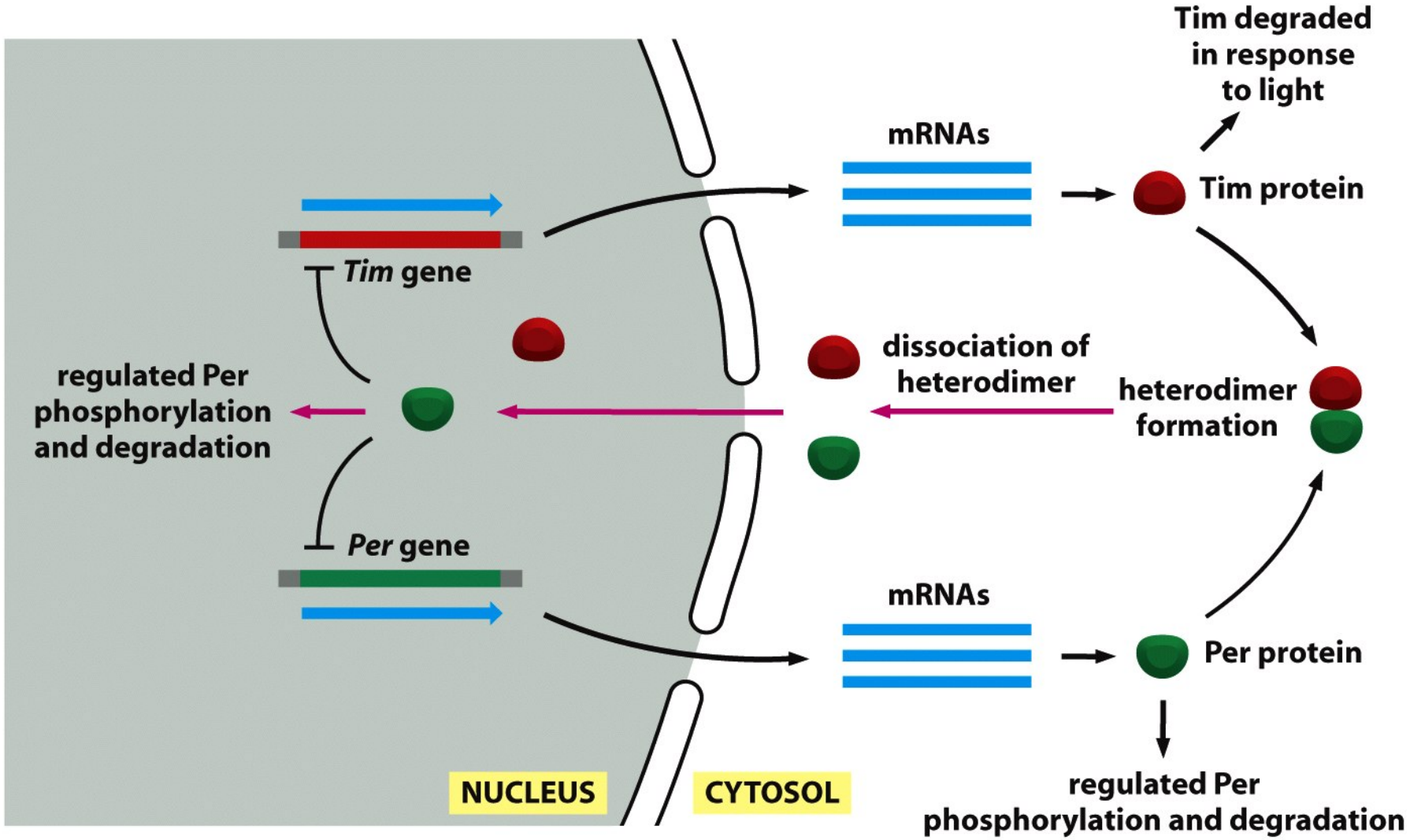

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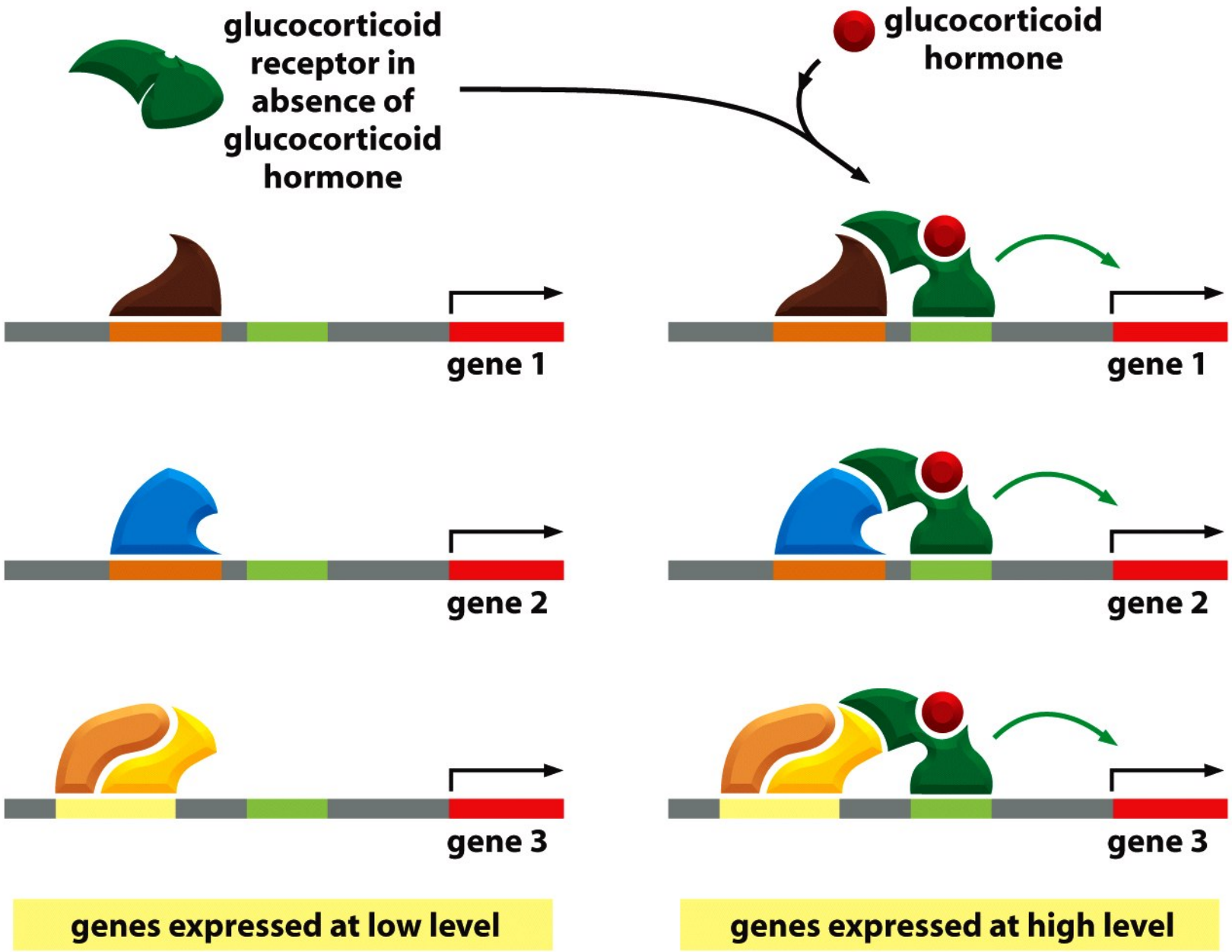

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