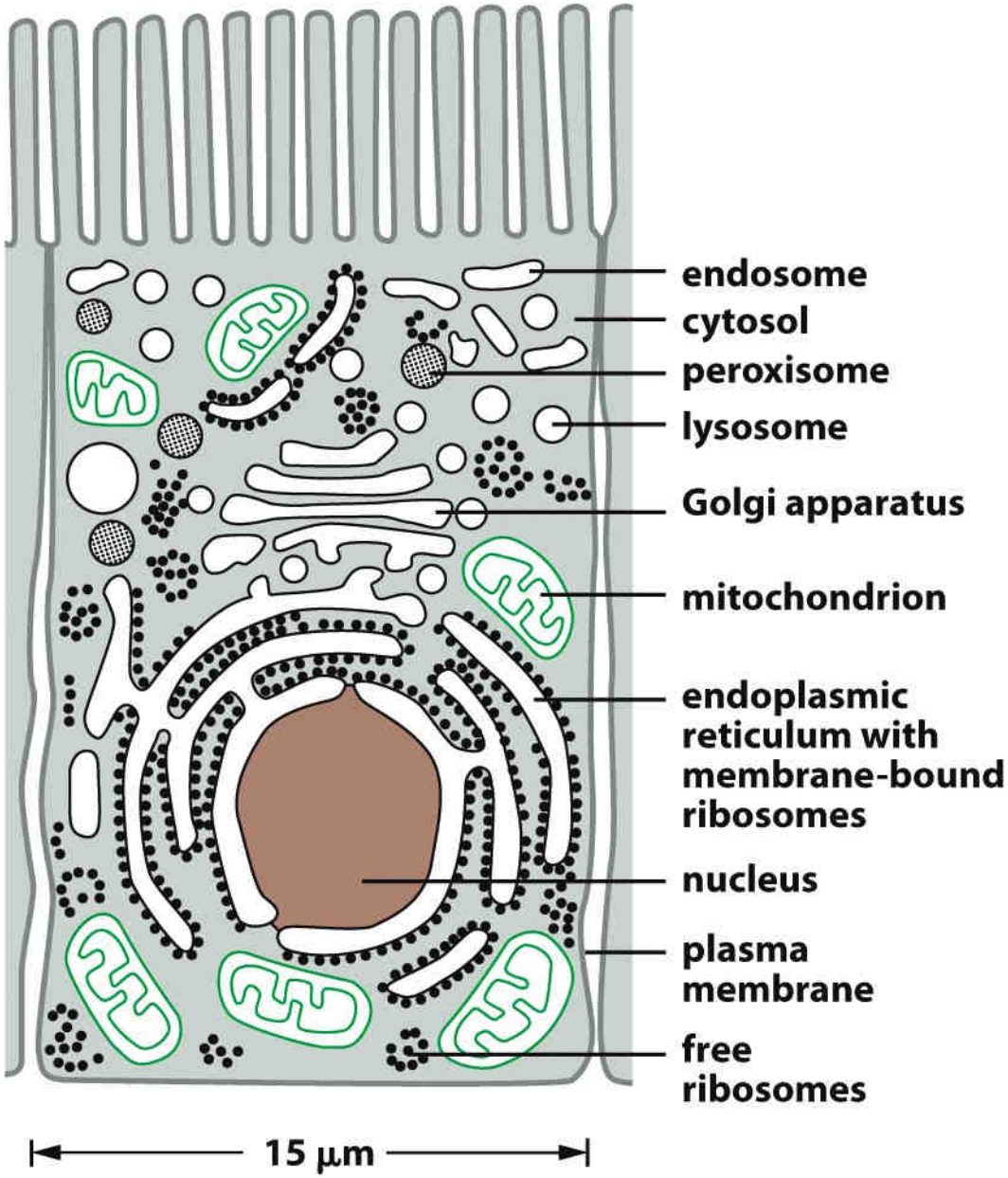

Figure 15-2 *Essential Cell Biology* (© Garland Science 2010)

TABLE 15–2 THE RELATIVE VOLUMES OCCUPIED BY THE MAJOR MEMBRANE-ENCLOSED ORGANELLES IN A LIVER CELL (HEPATOCYTE)

INTRACELLULAR COMPARTMENT	PERCENTAGE OF TOTAL CELL VOLUME	APPROXIMATE NUMBER PER CELL
Cytosol	54	1
Mitochondria	22	1700
Endoplasmic reticulum	12	1
Nucleus	6	1
Golgi apparatus	3	1
Peroxisomes	1	400
Lysosomes	1	300
Endosomes	1	200

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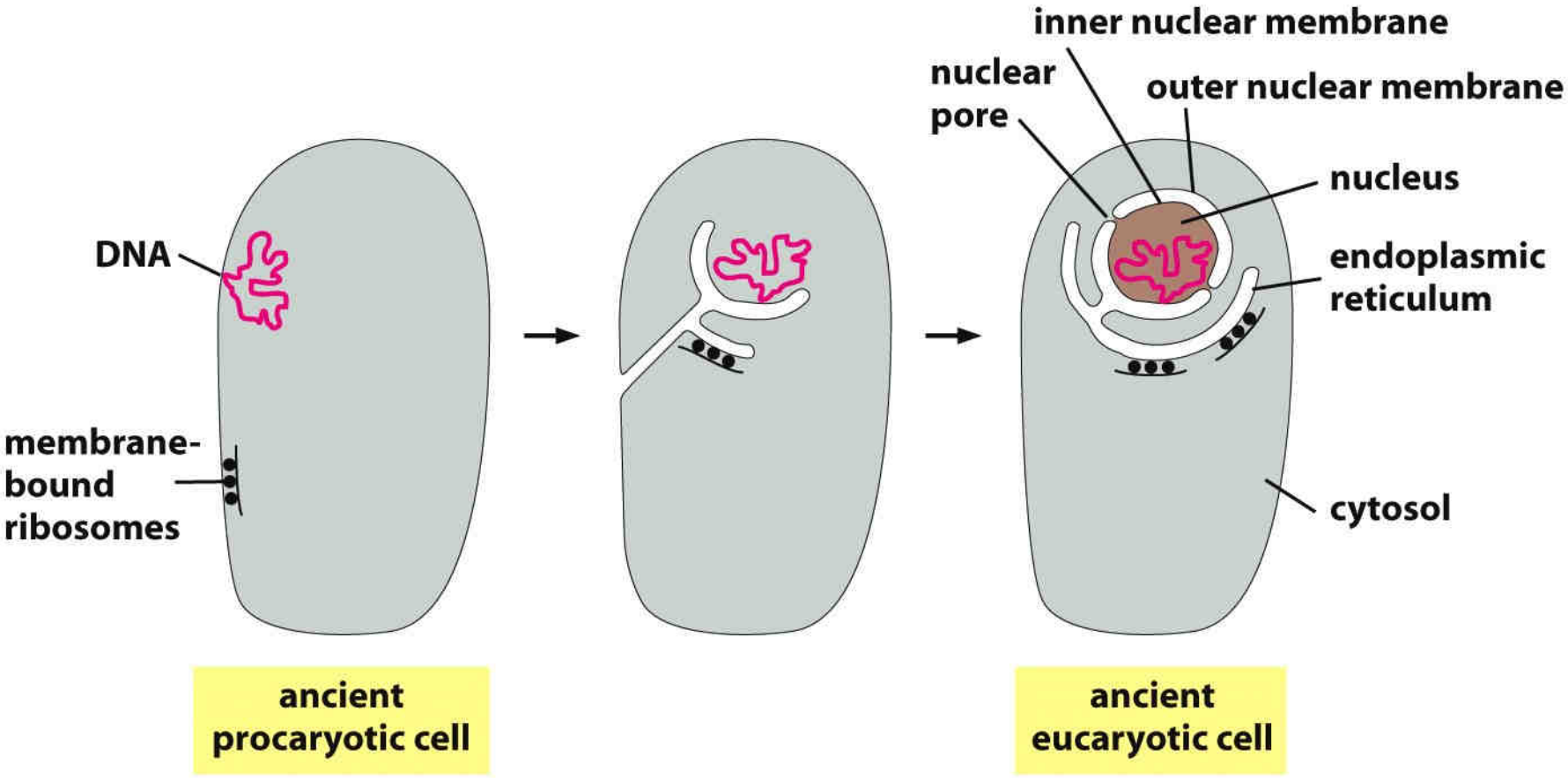

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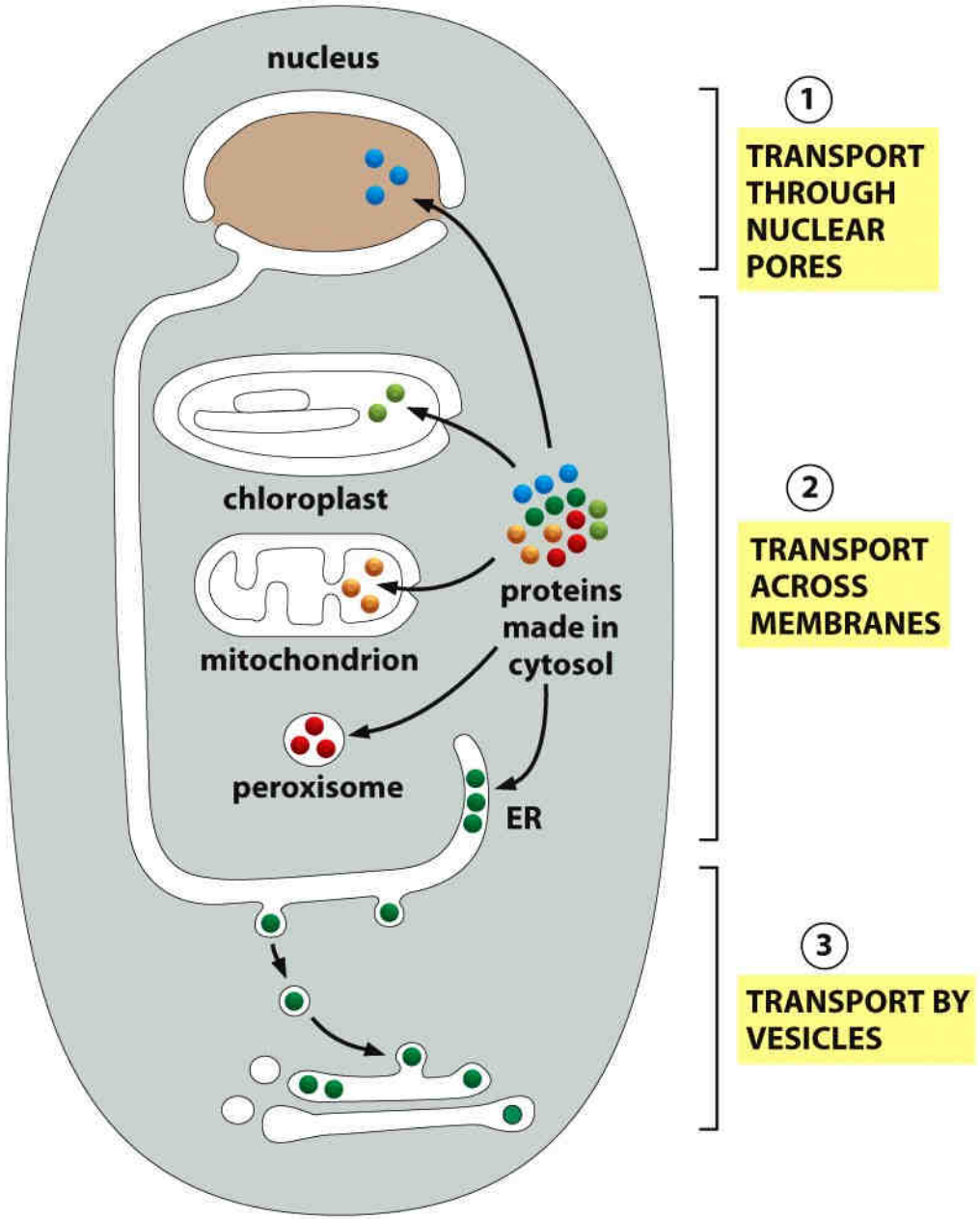

Figure 15-5 *Essential Cell Biology* (© Garland Science 2010)

TABLE 15–3 SOME TYPICAL SIGNAL SEQUENCES

FUNCTION OF SIGNAL	EXAMPLE OF SIGNAL SEQUENCE
Import into ER	$^{+}H_3N$-Met-Met-Ser-Phe-Val-Ser-Leu-Leu-Leu-Val-Gly-Ile-Leu-Phe-Trp-Ala-Thr-Glu-Ala-Glu-Gln-Leu-Thr-Lys-Cys-Glu-Val-Phe-Gln-
Retention in lumen of ER	-Lys-Asp-Glu-Leu-COO^{-}
Import into mitochondria	$^{+}H_3N$-Met-Leu-Ser-Leu-Arg-Gln-Ser-Ile-Arg-Phe-Phe-Lys-Pro-Ala-Thr-Arg-Thr-Leu-Cys-Ser-Ser-Arg-Tyr-Leu-Leu-
Import into nucleus	-Pro-Pro-Lys-Lys-Lys-Arg-Lys-Val-
Import into peroxisomes	-Ser-Lys-Leu-

Positively charged amino acids are shown in *red*, and negatively charged amino acids in *blue*. An extended block of hydrophobic amino acids is shown in *green*. $^{+}H_3N$ indicates the N-terminus of a protein; COO^{-} indicates the C-terminus. The ER retention signal is commonly referred to by its single-letter amino acid abbreviation, KDEL.

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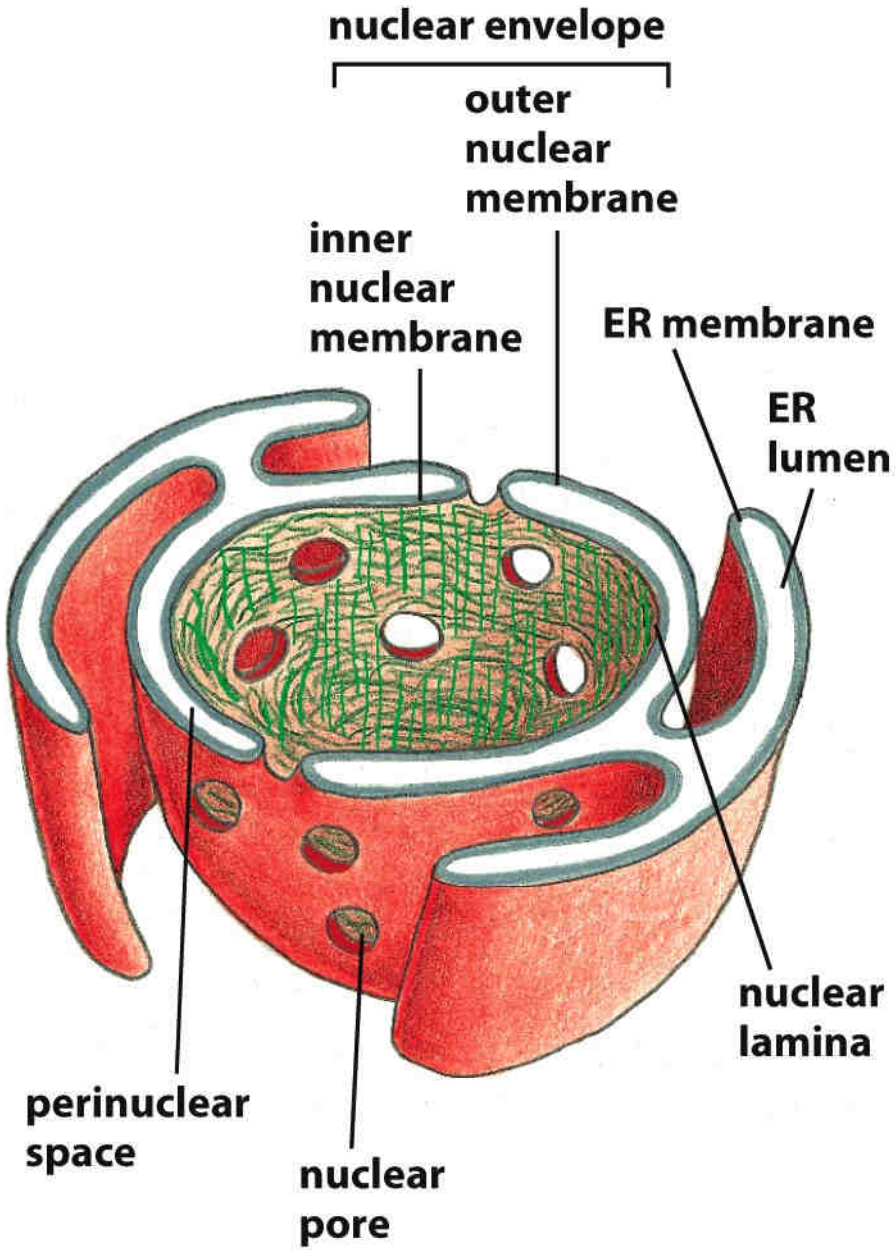

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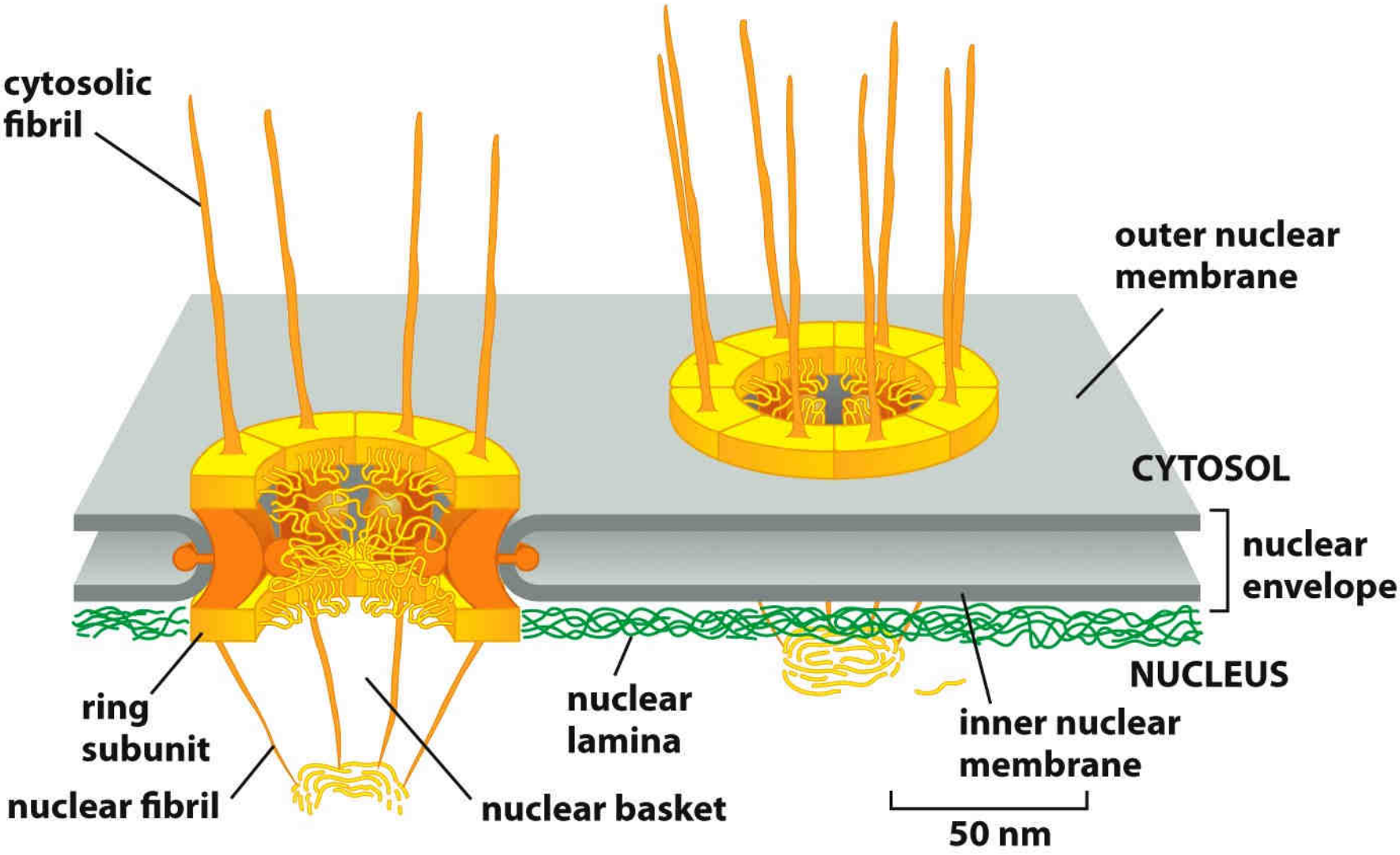

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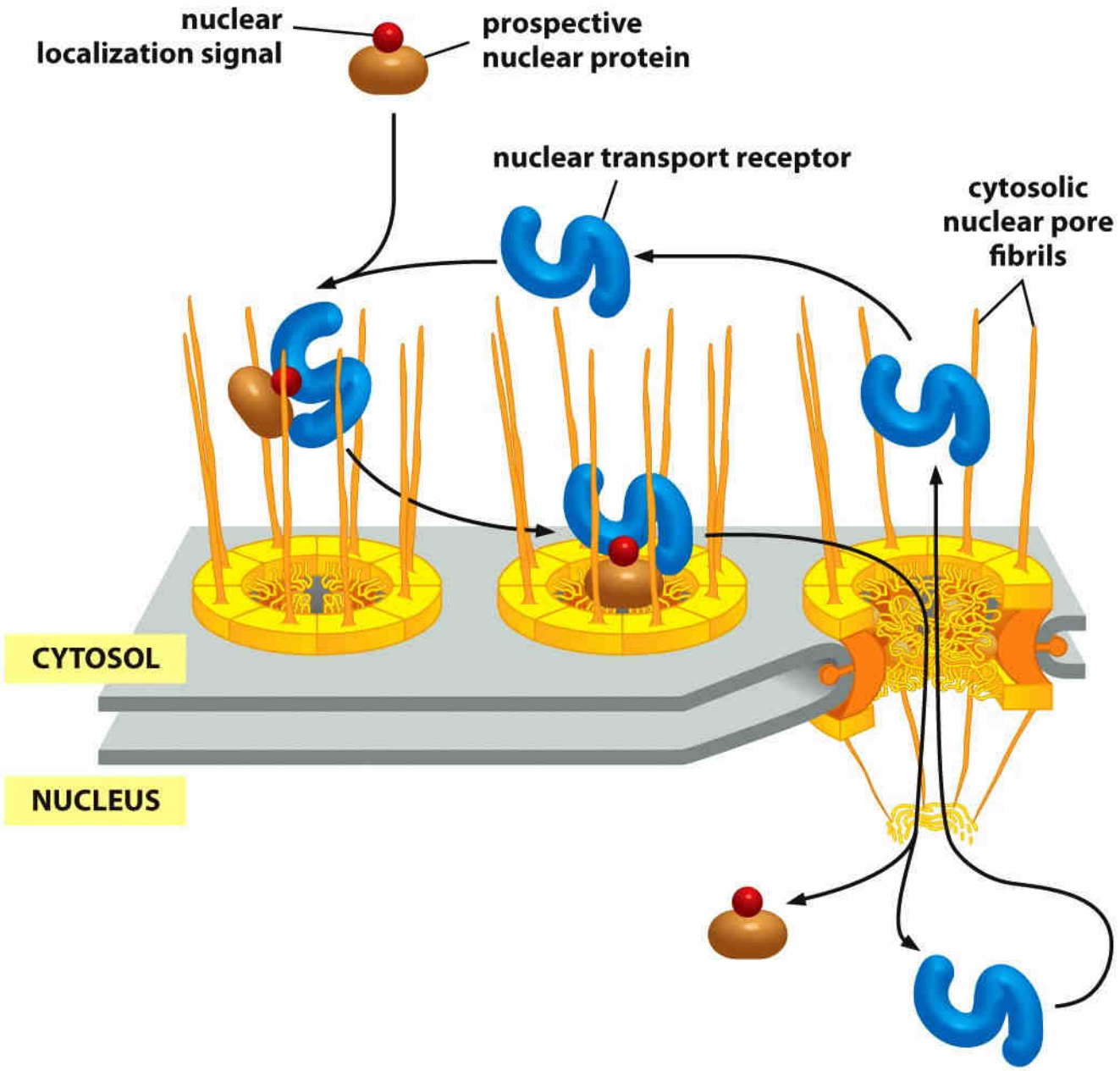

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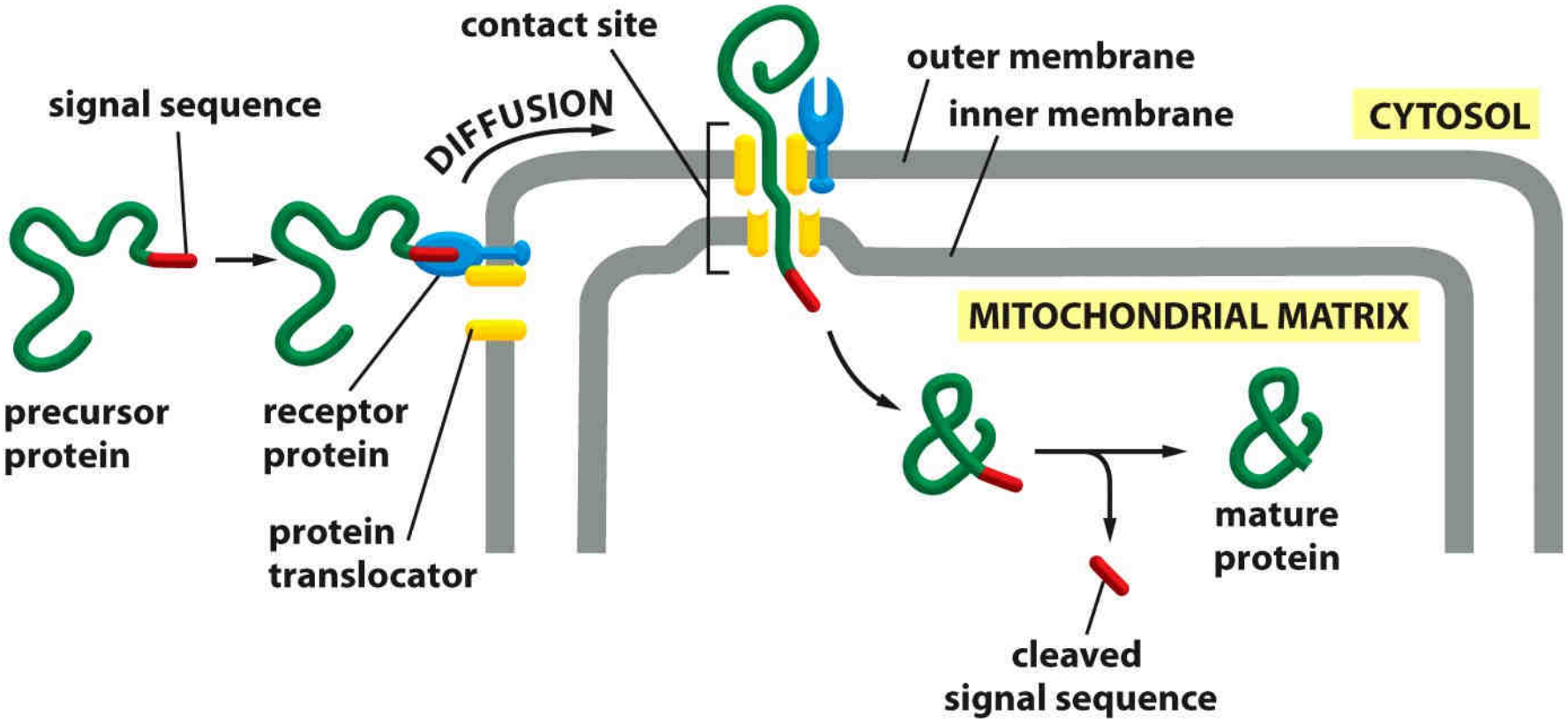

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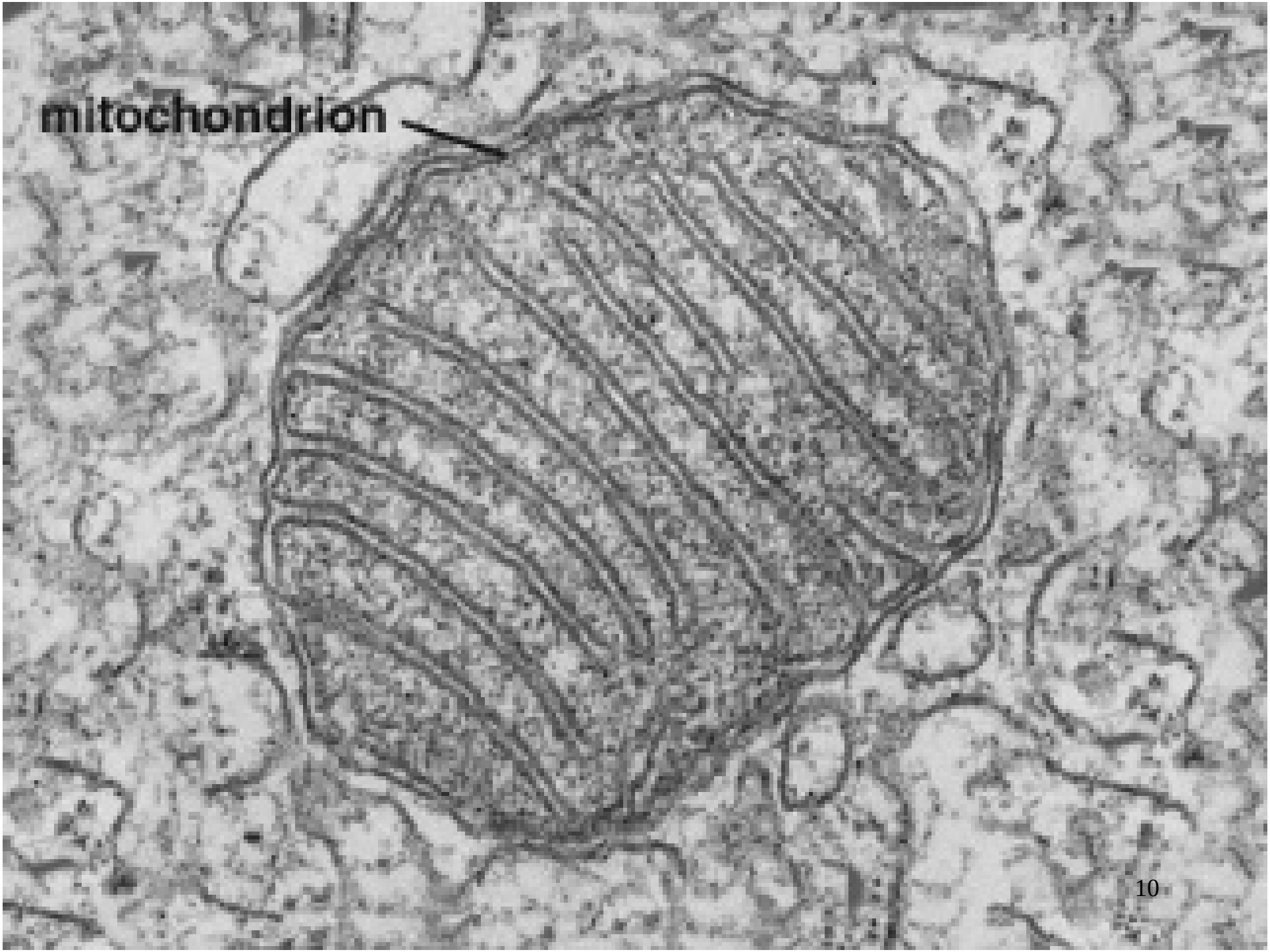
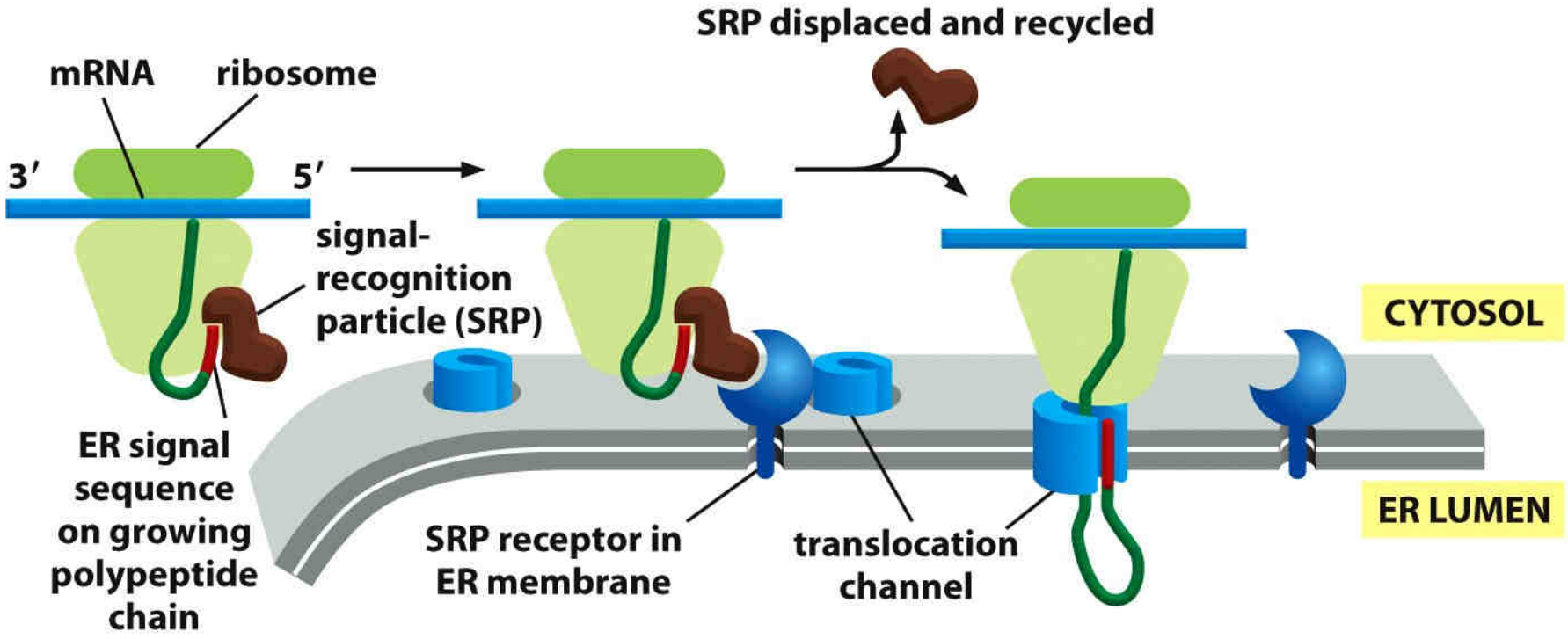

mitochondrion



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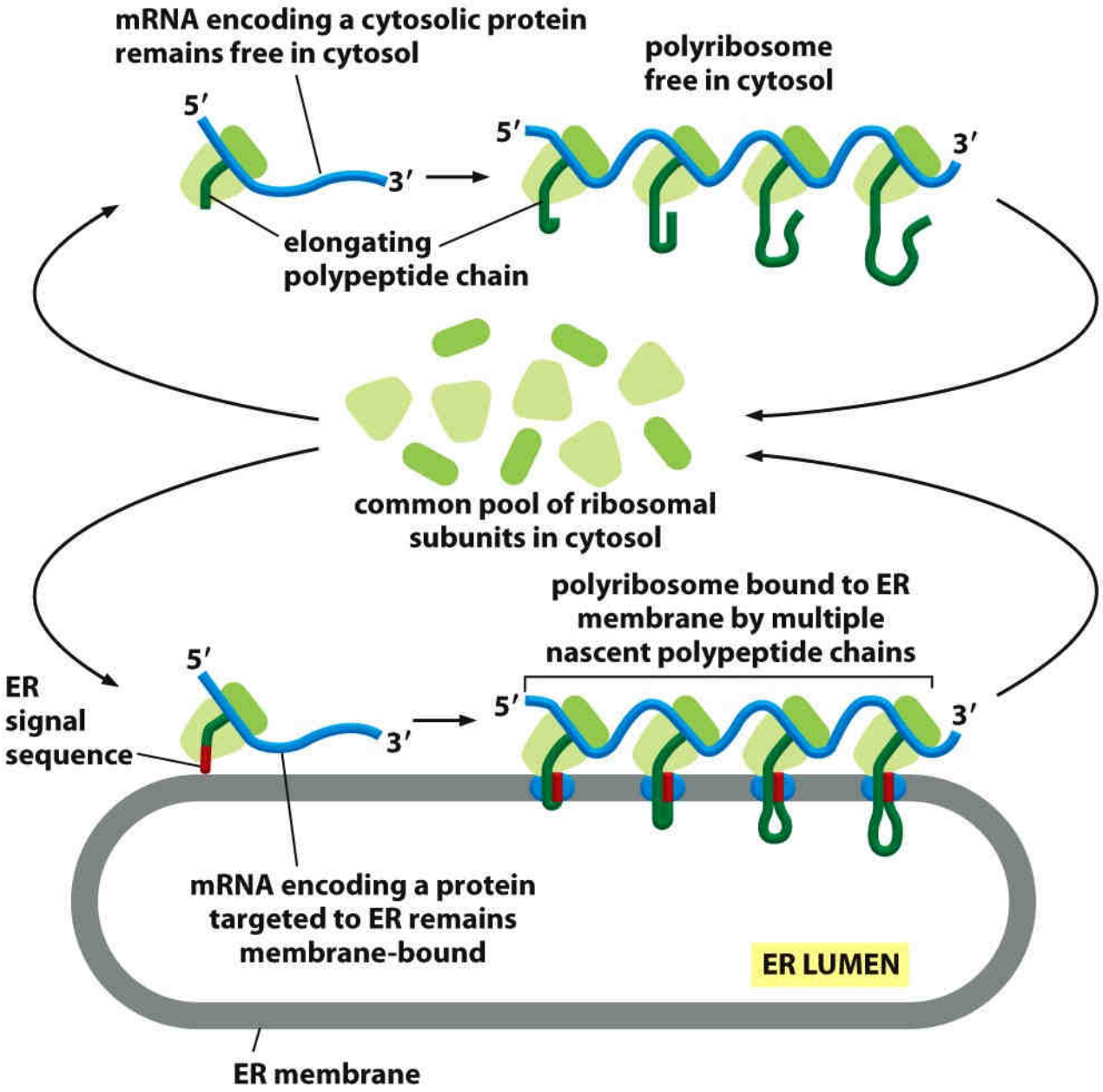


Figure 15-13 *Essential Cell Biology* (© Garland Science 2010)

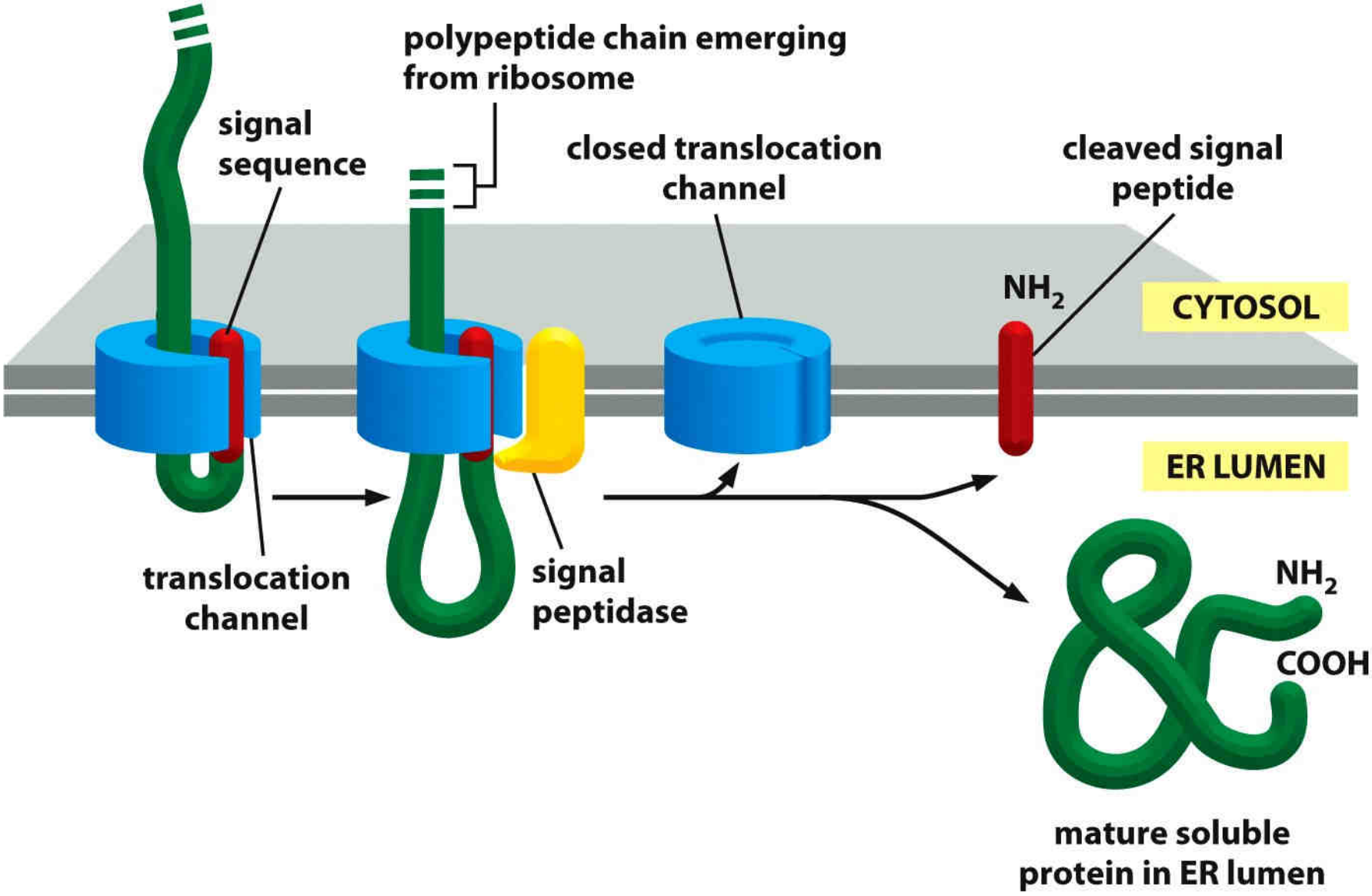
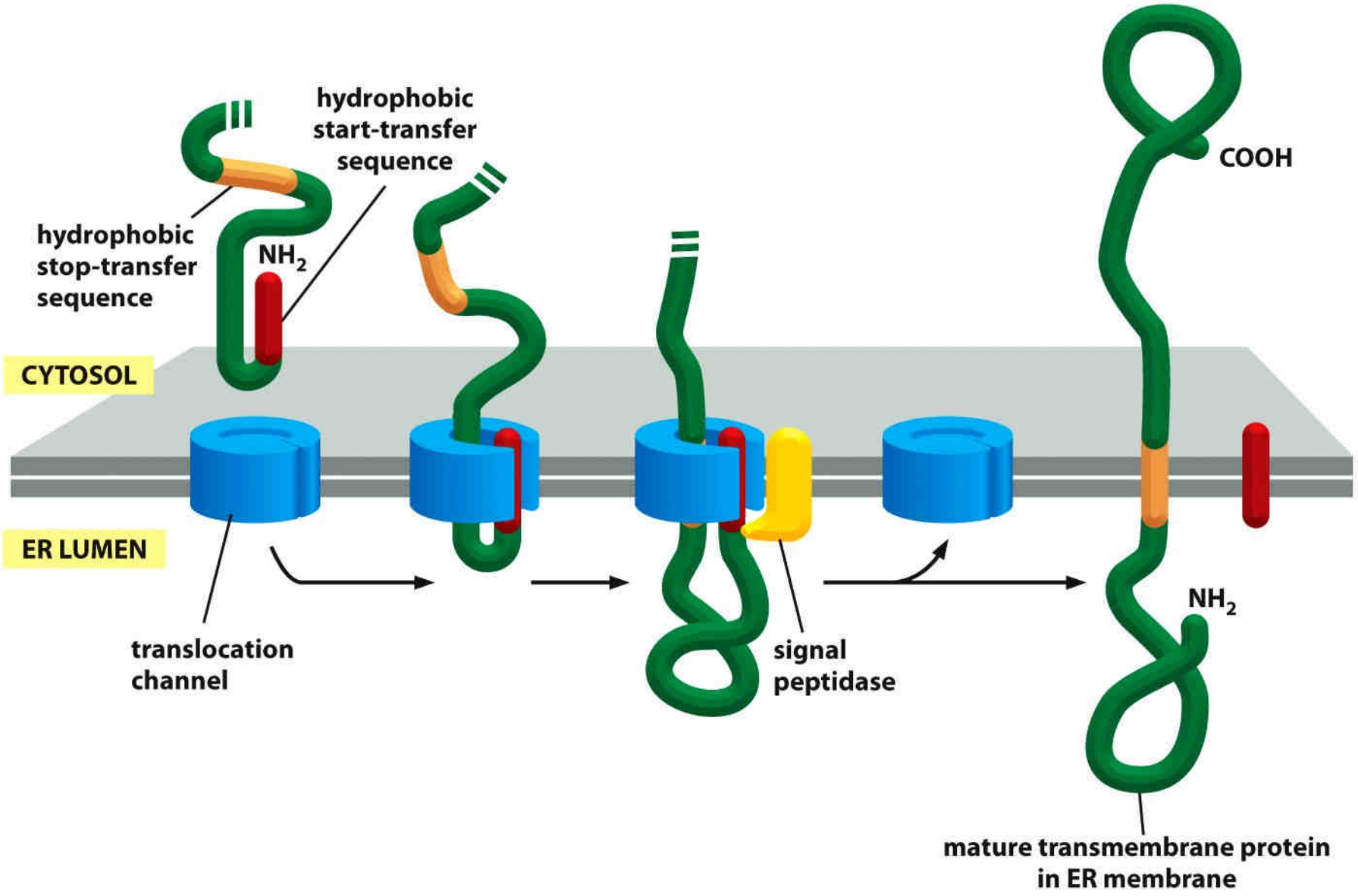


Figure 15-15 *Essential Cell Biology* (© Garland Science 2010)



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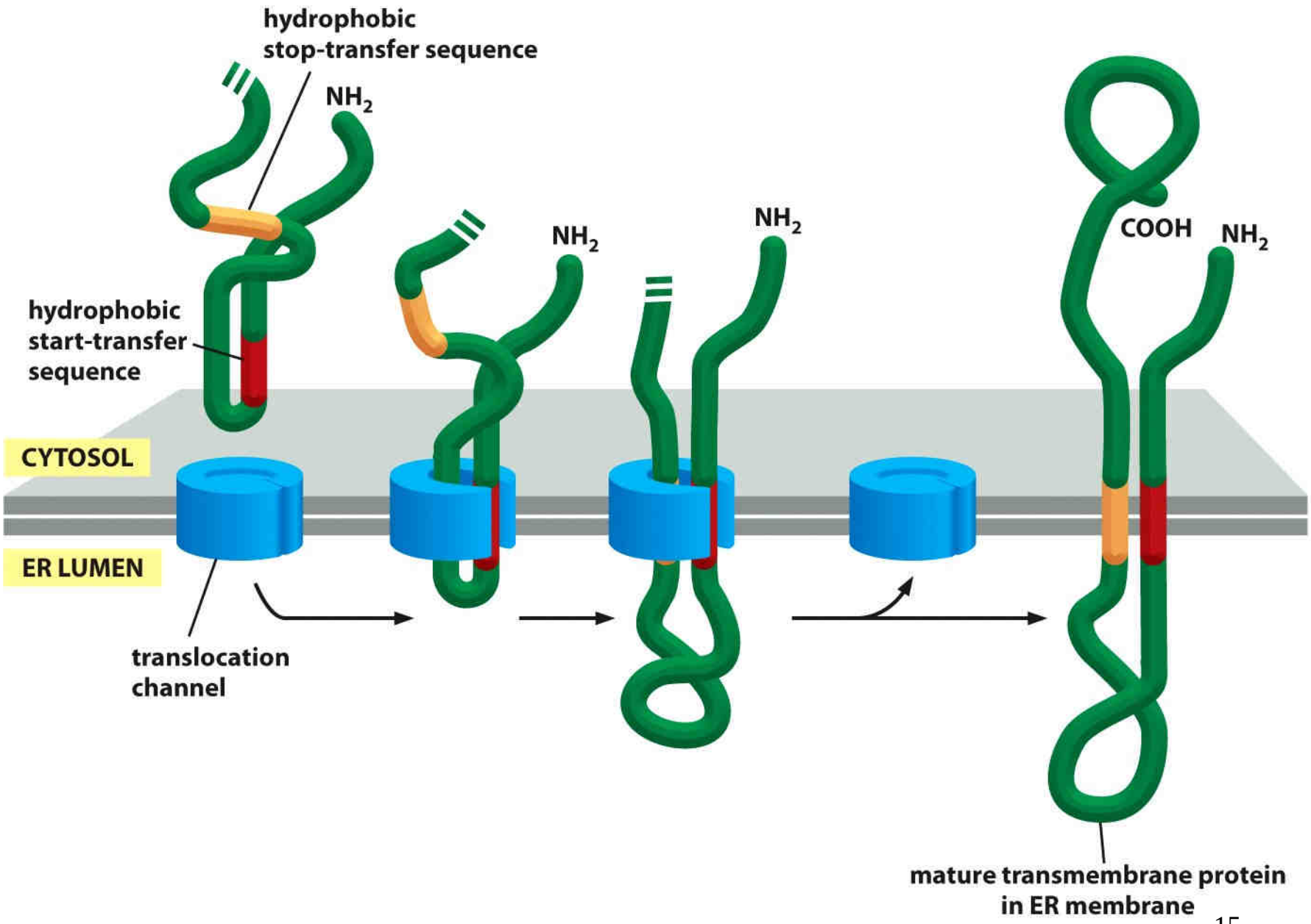
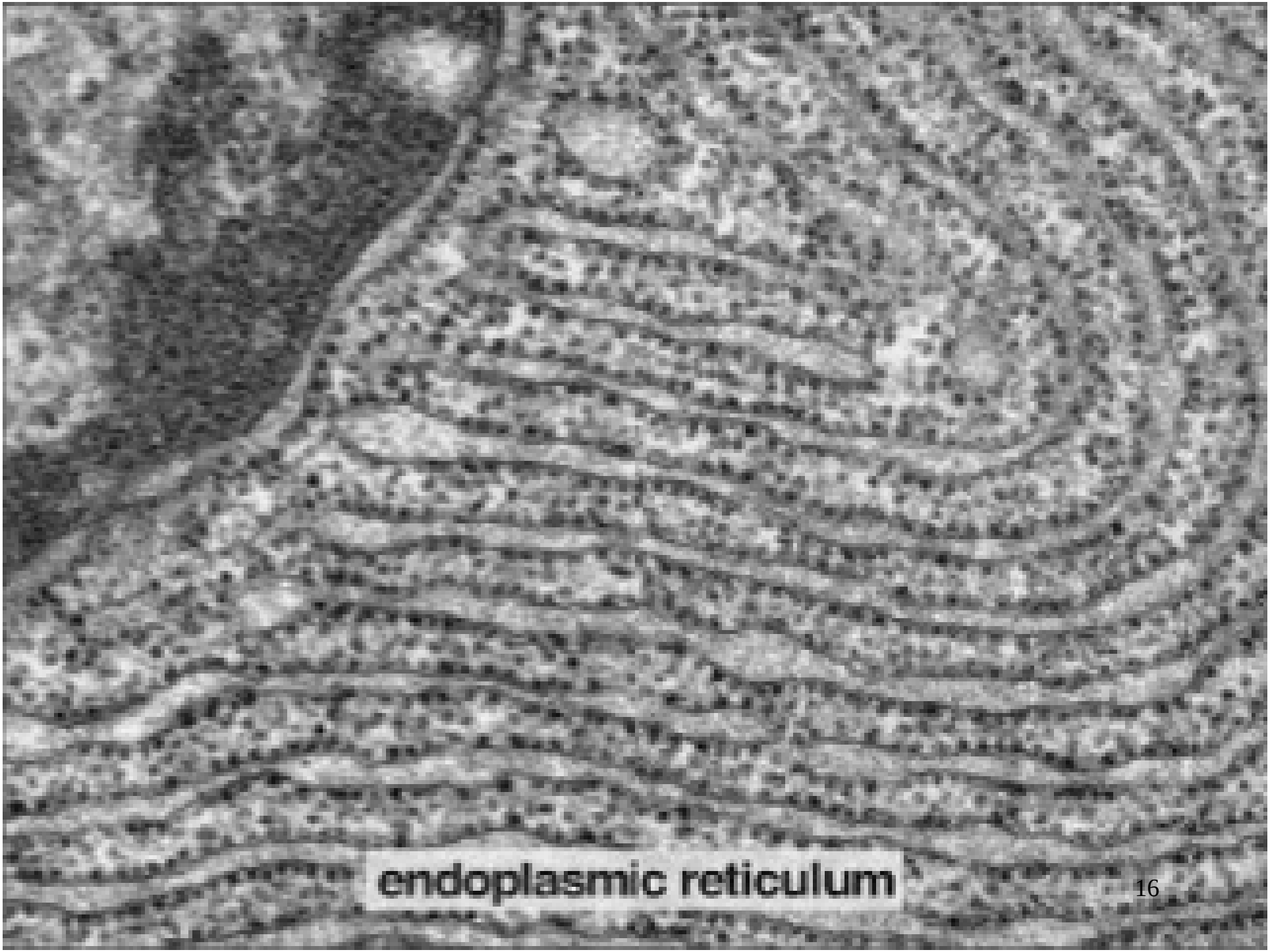
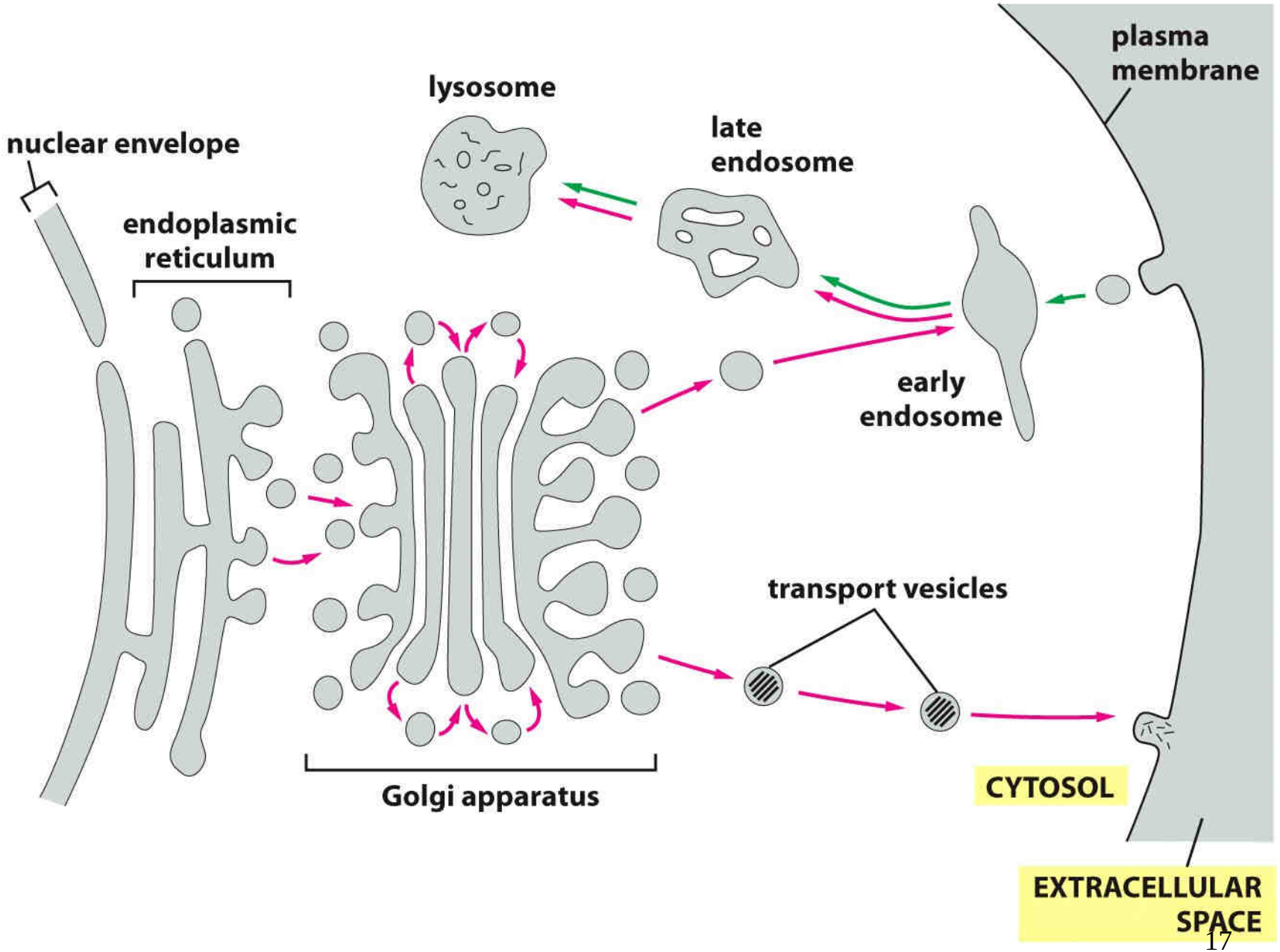


Figure 15-17 *Essential Cell Biology* (© Garland Science 2010)


endoplasmic reticulum



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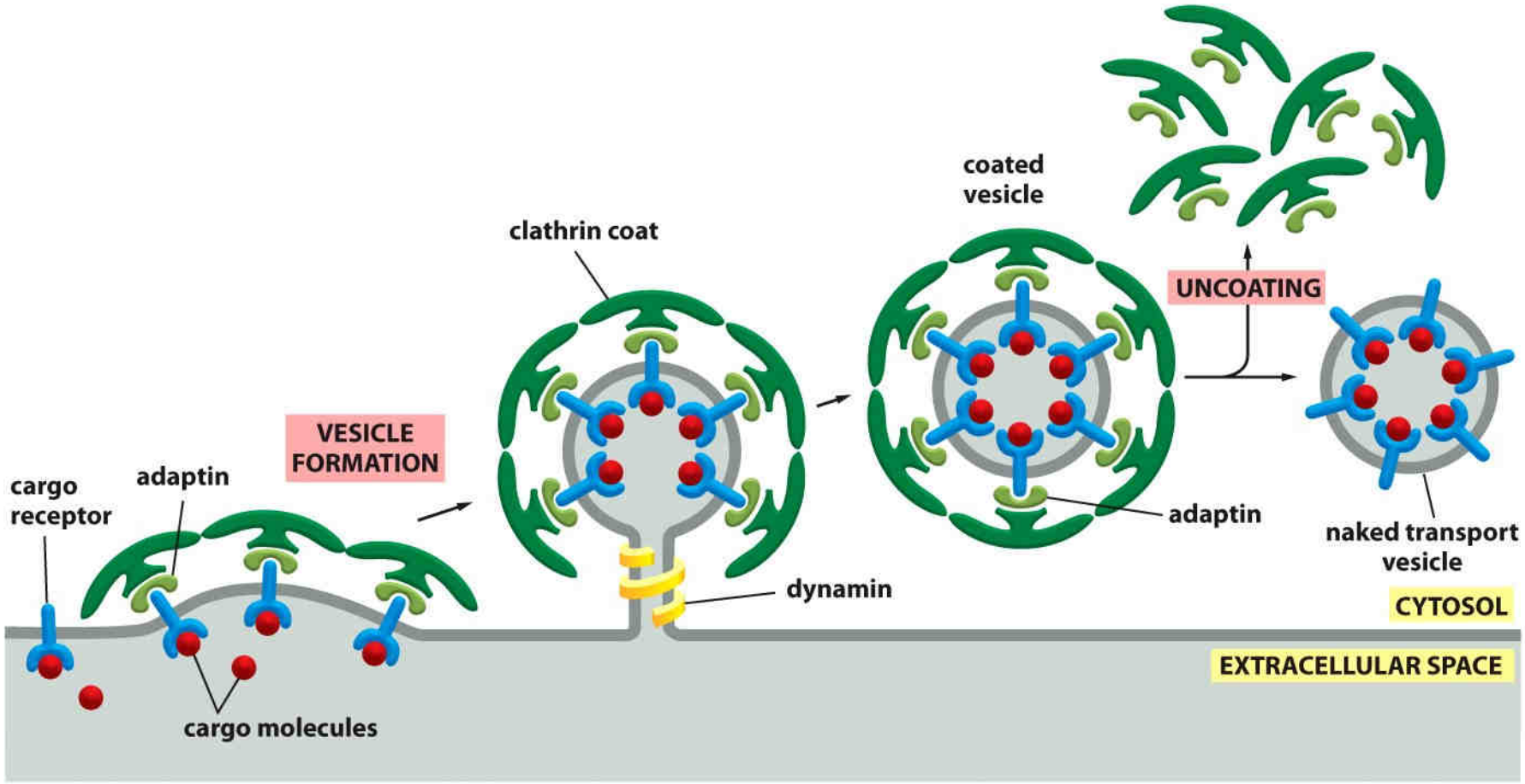
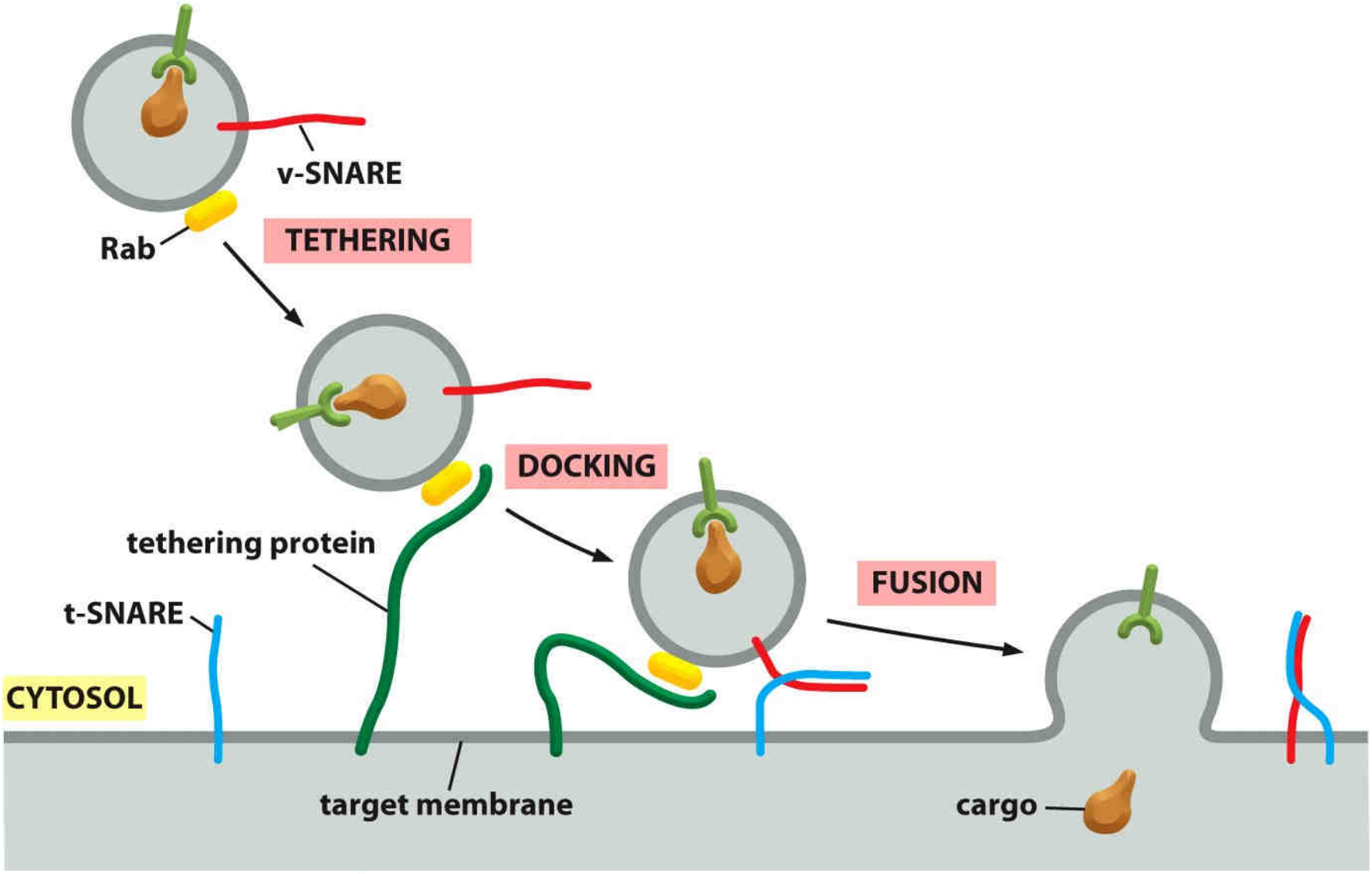


Figure 15-20 *Essential Cell Biology* (© Garland Science 2010)



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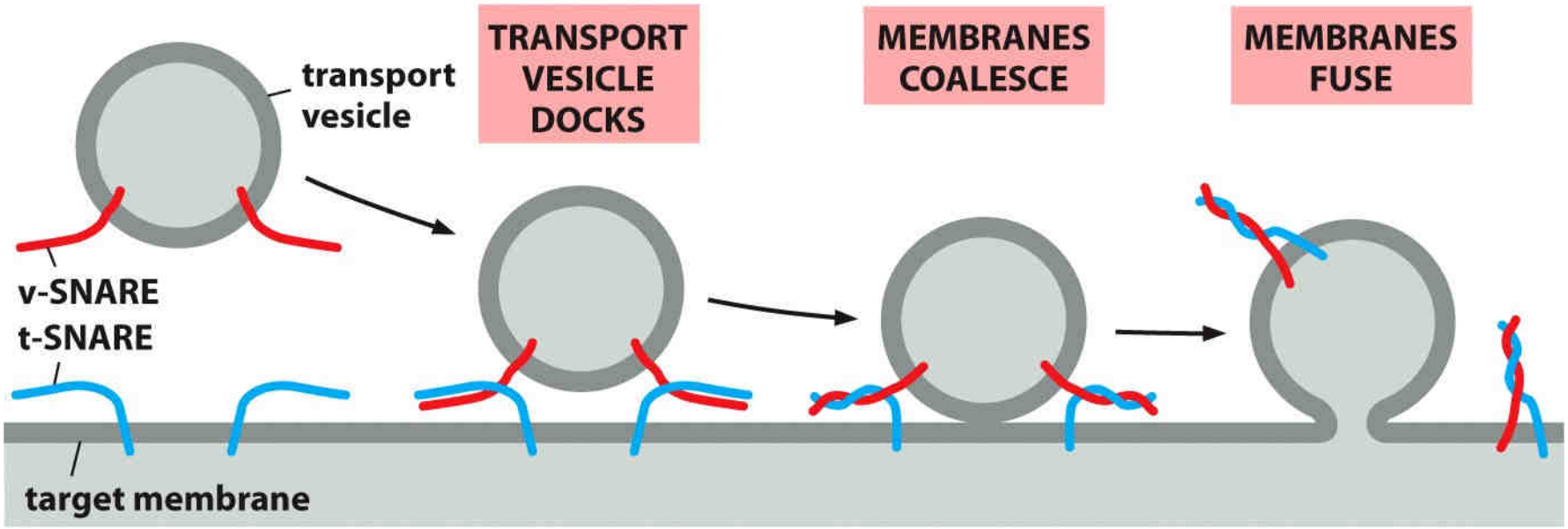

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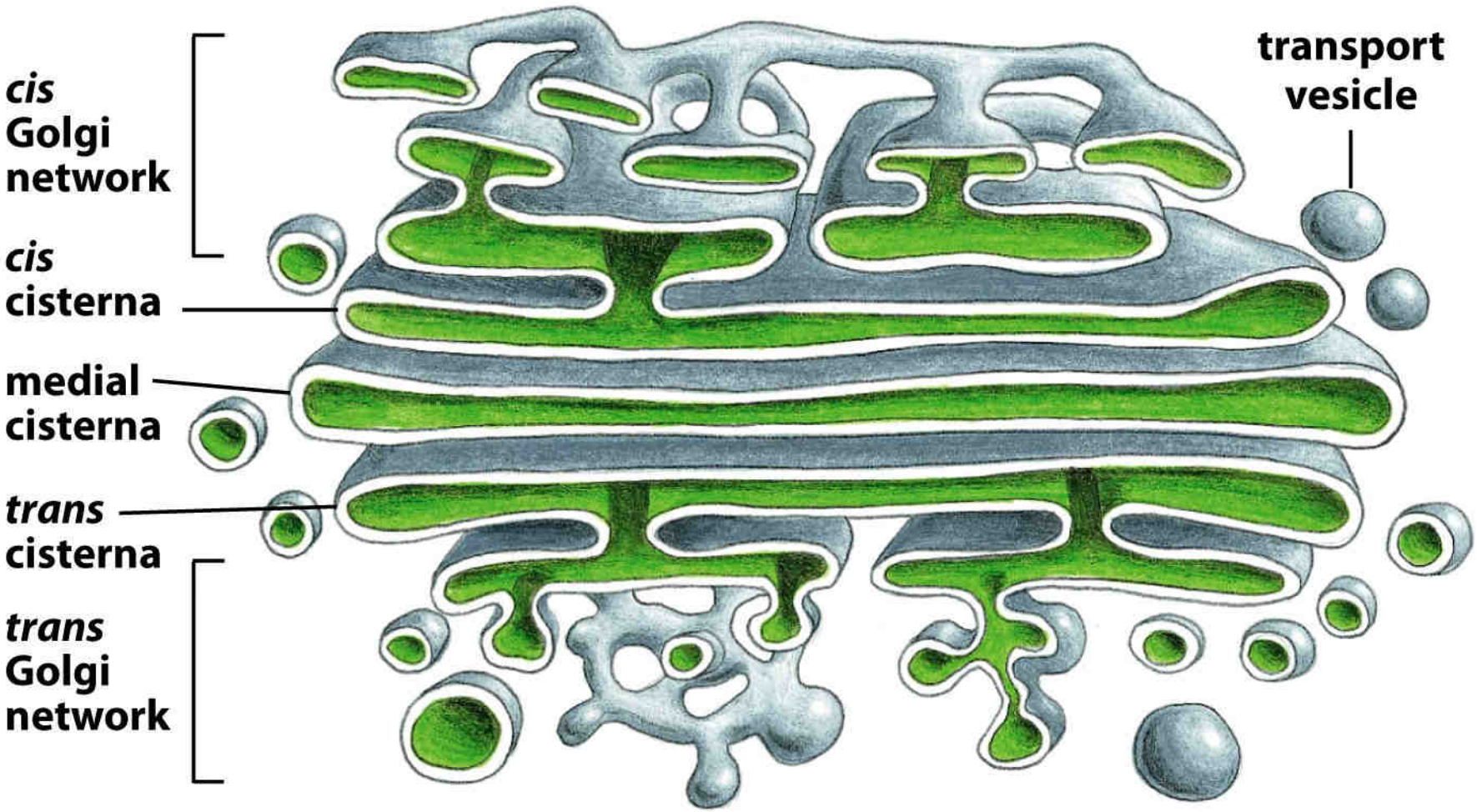

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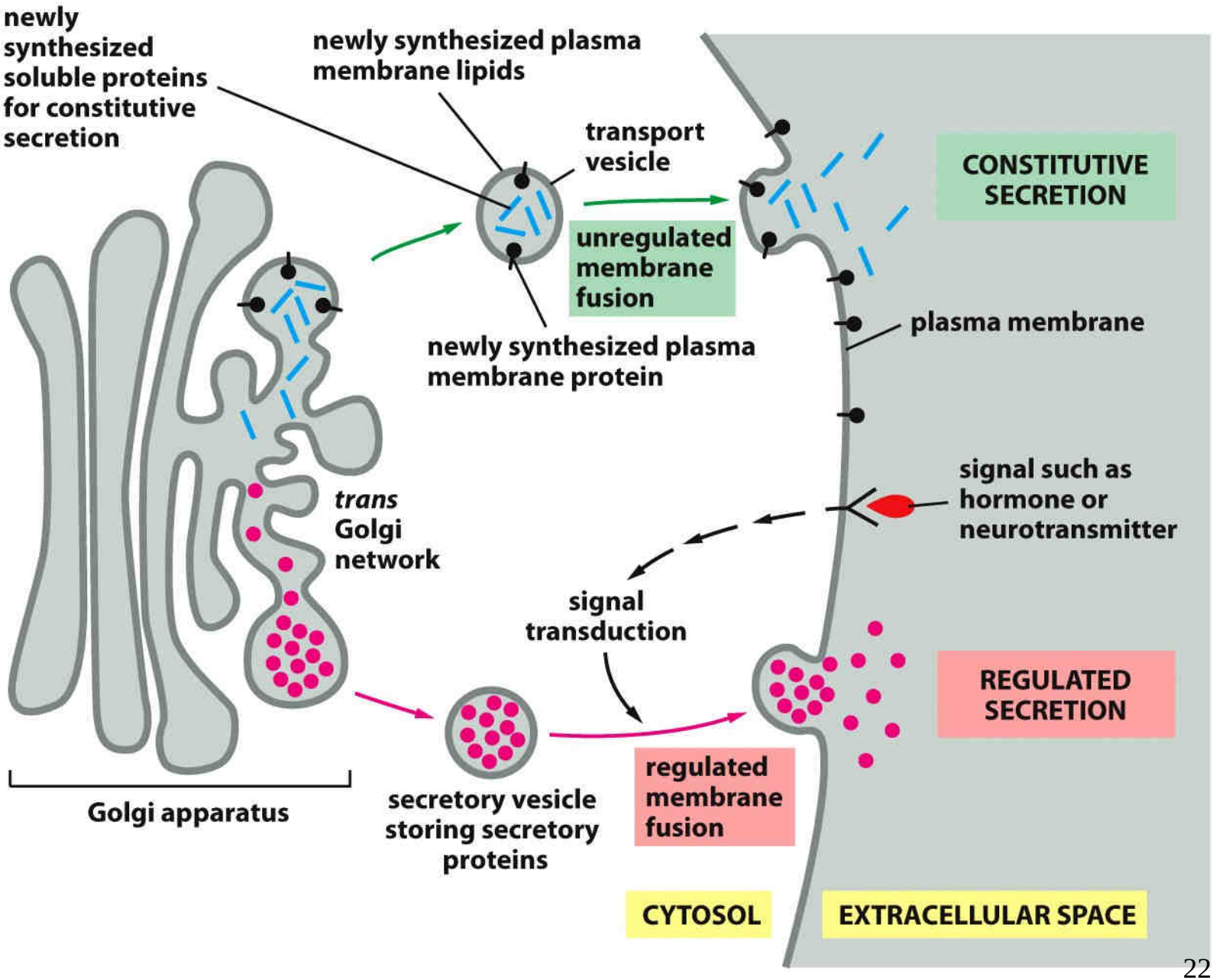

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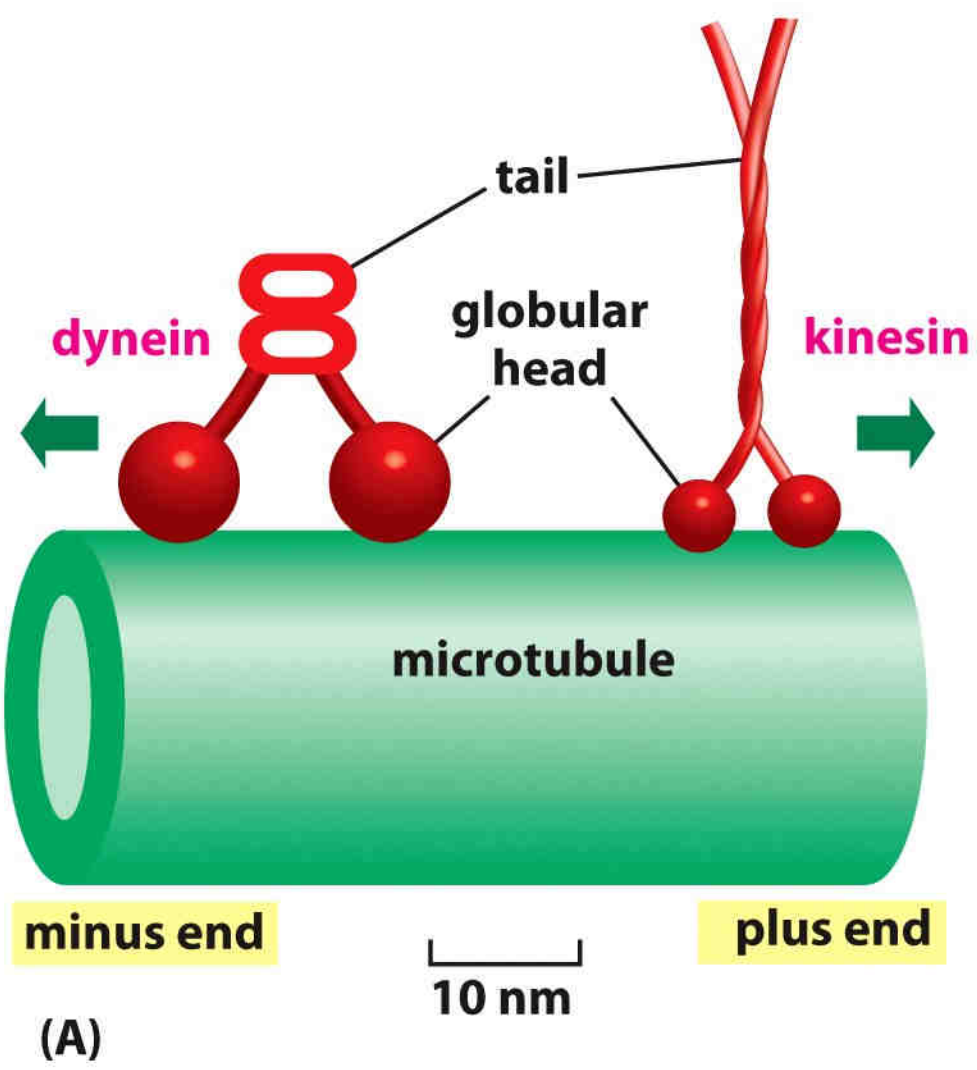

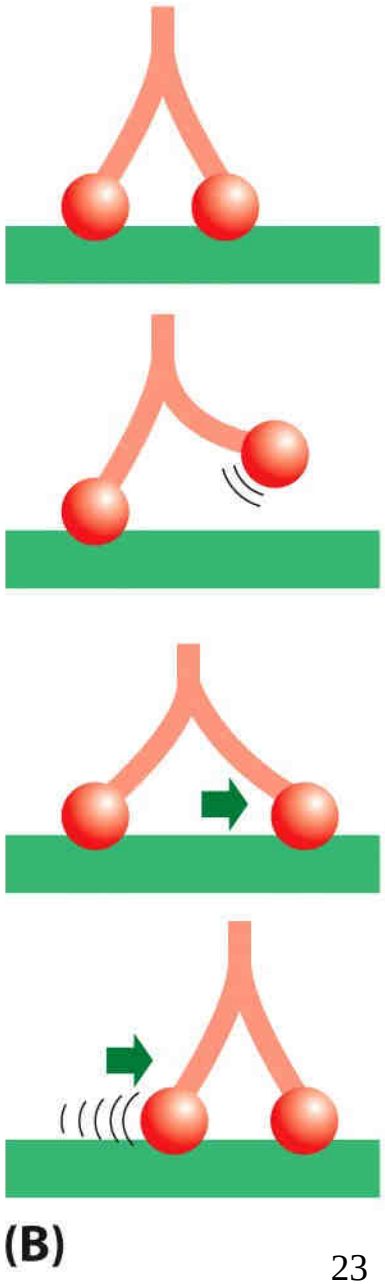

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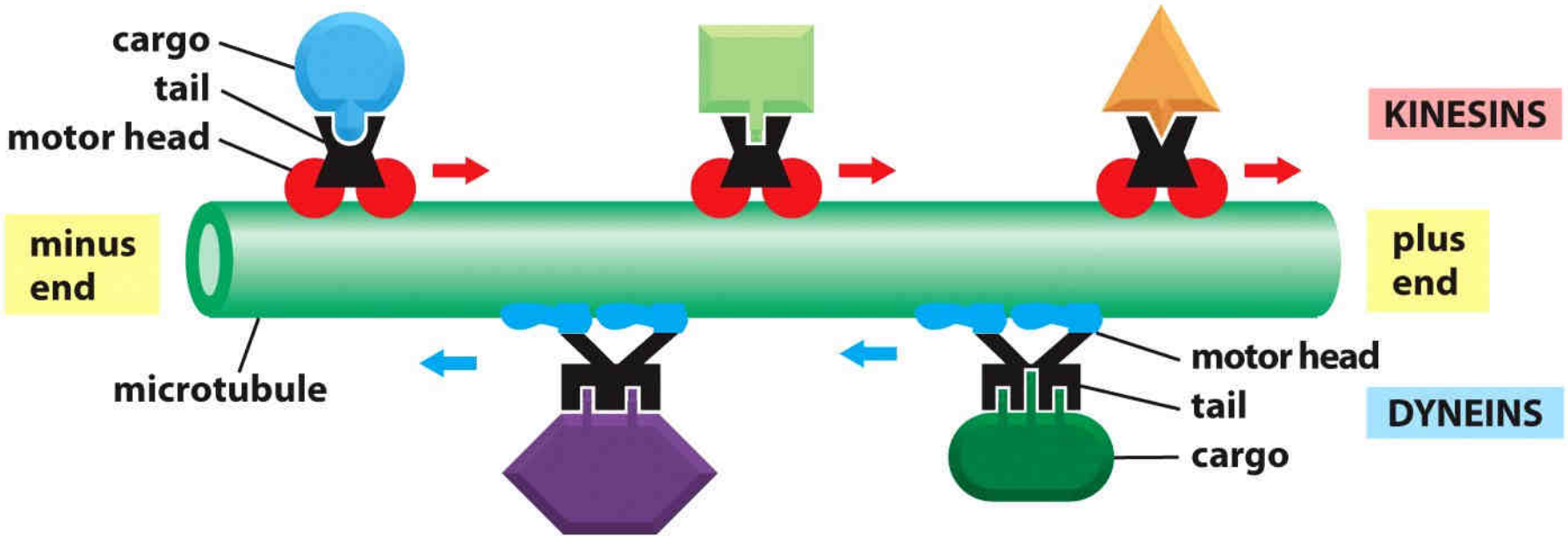

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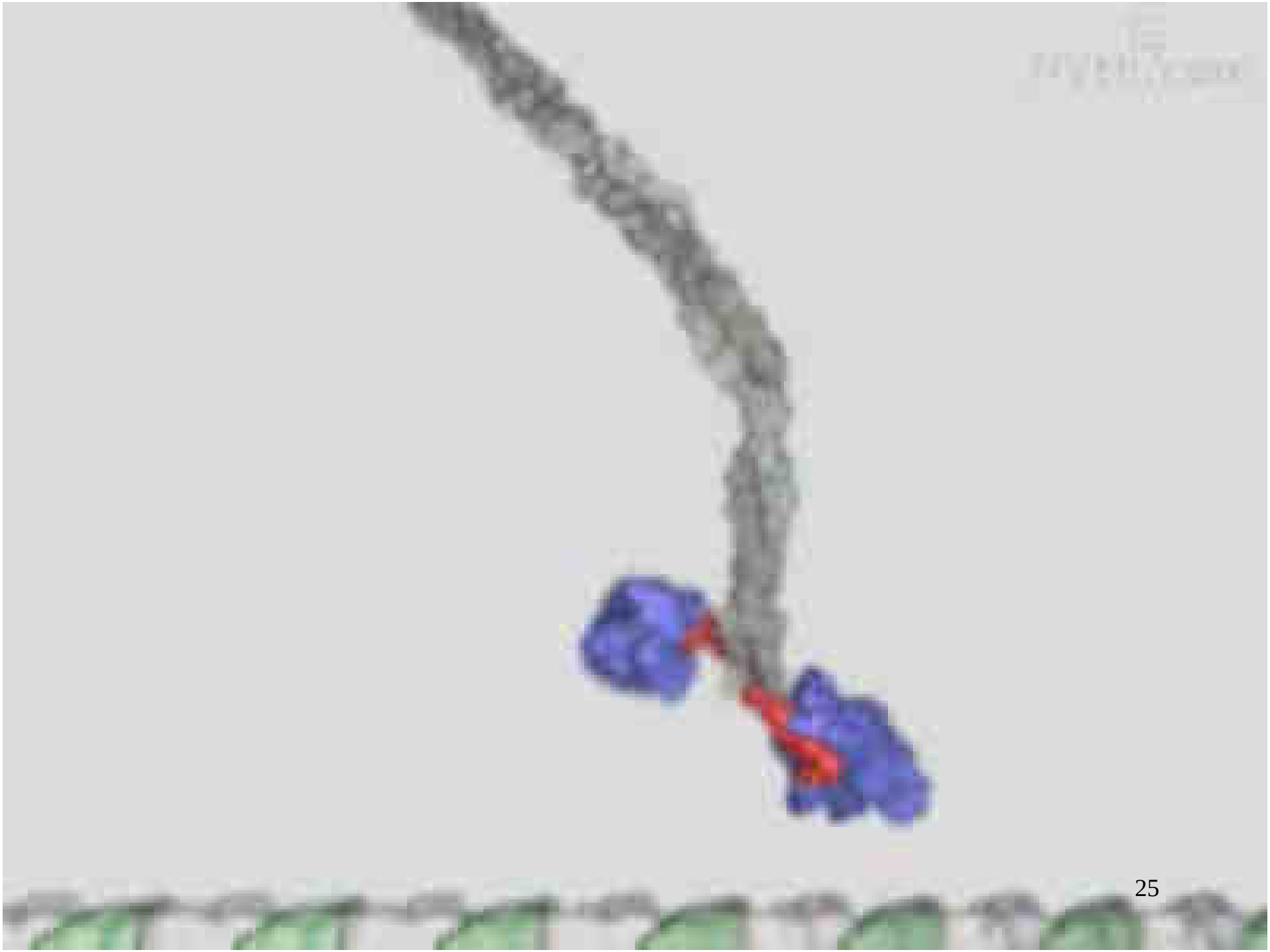

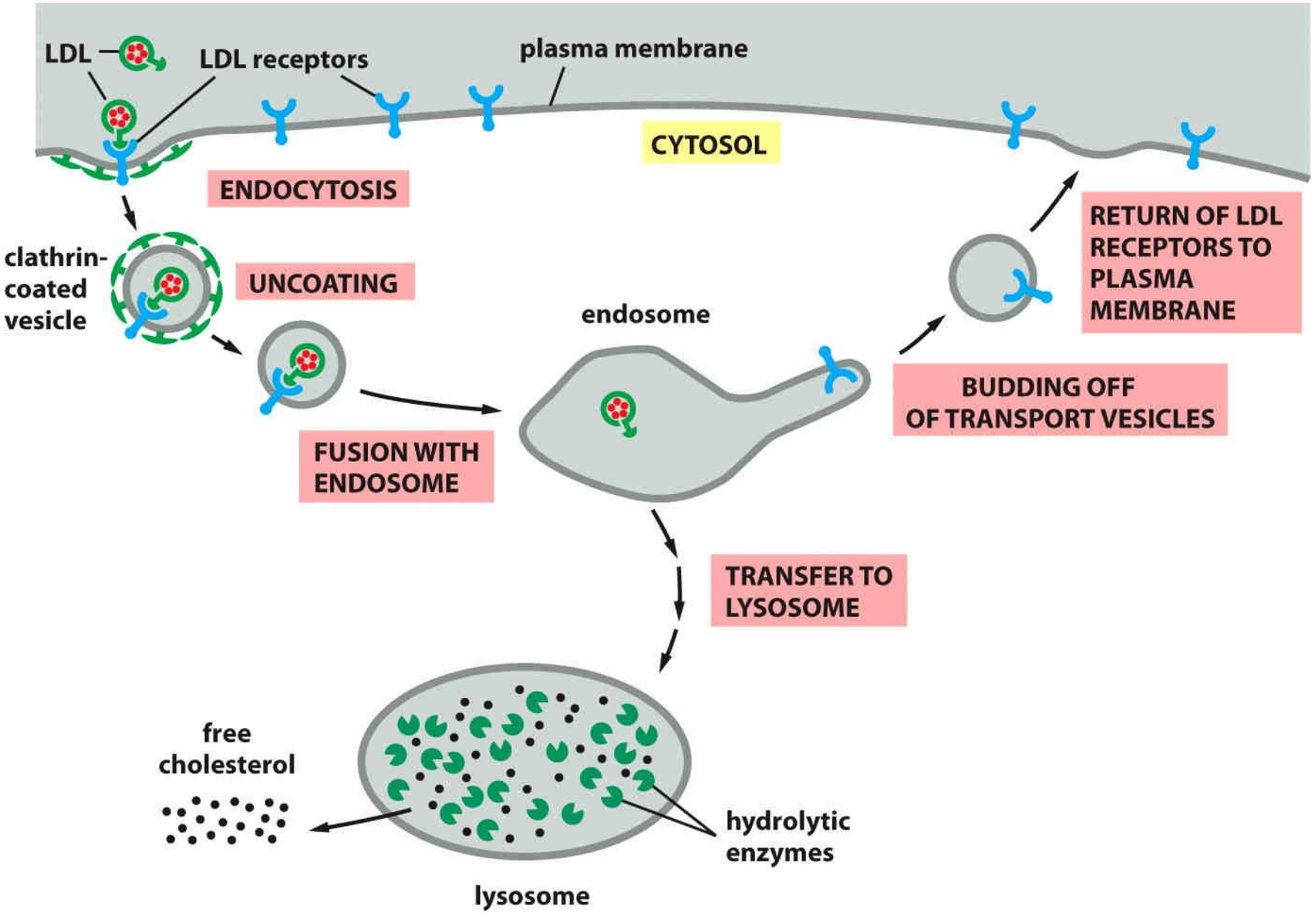

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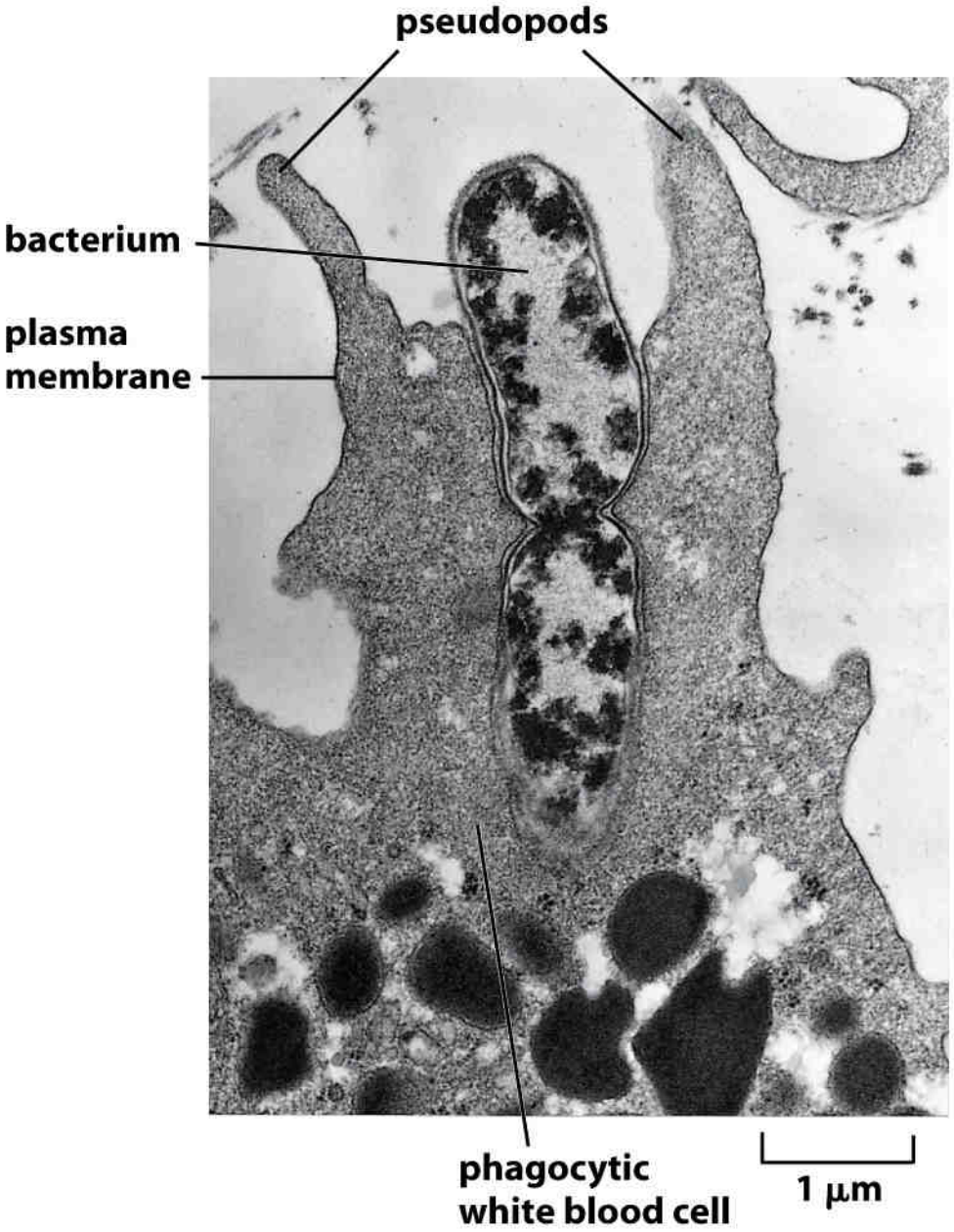

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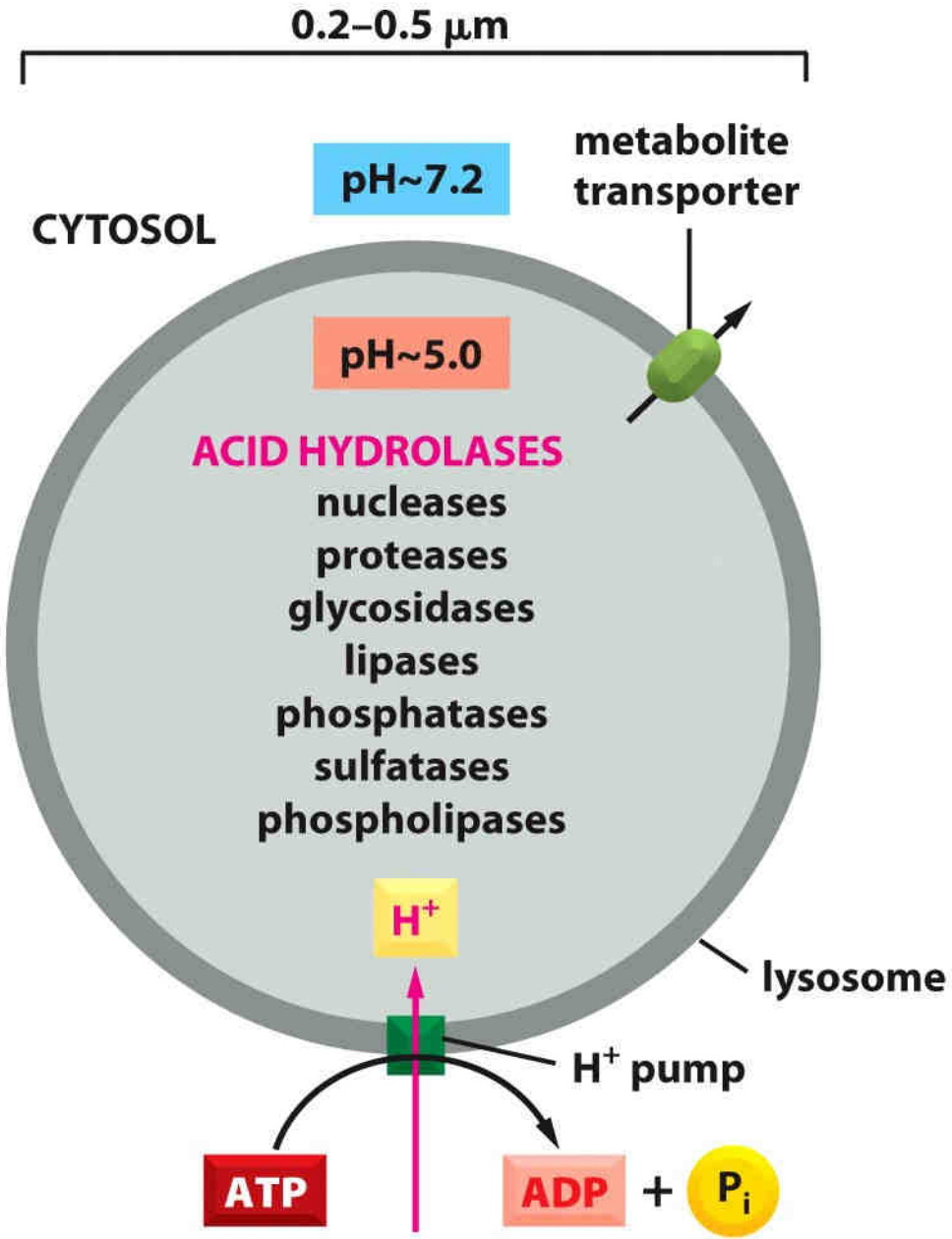

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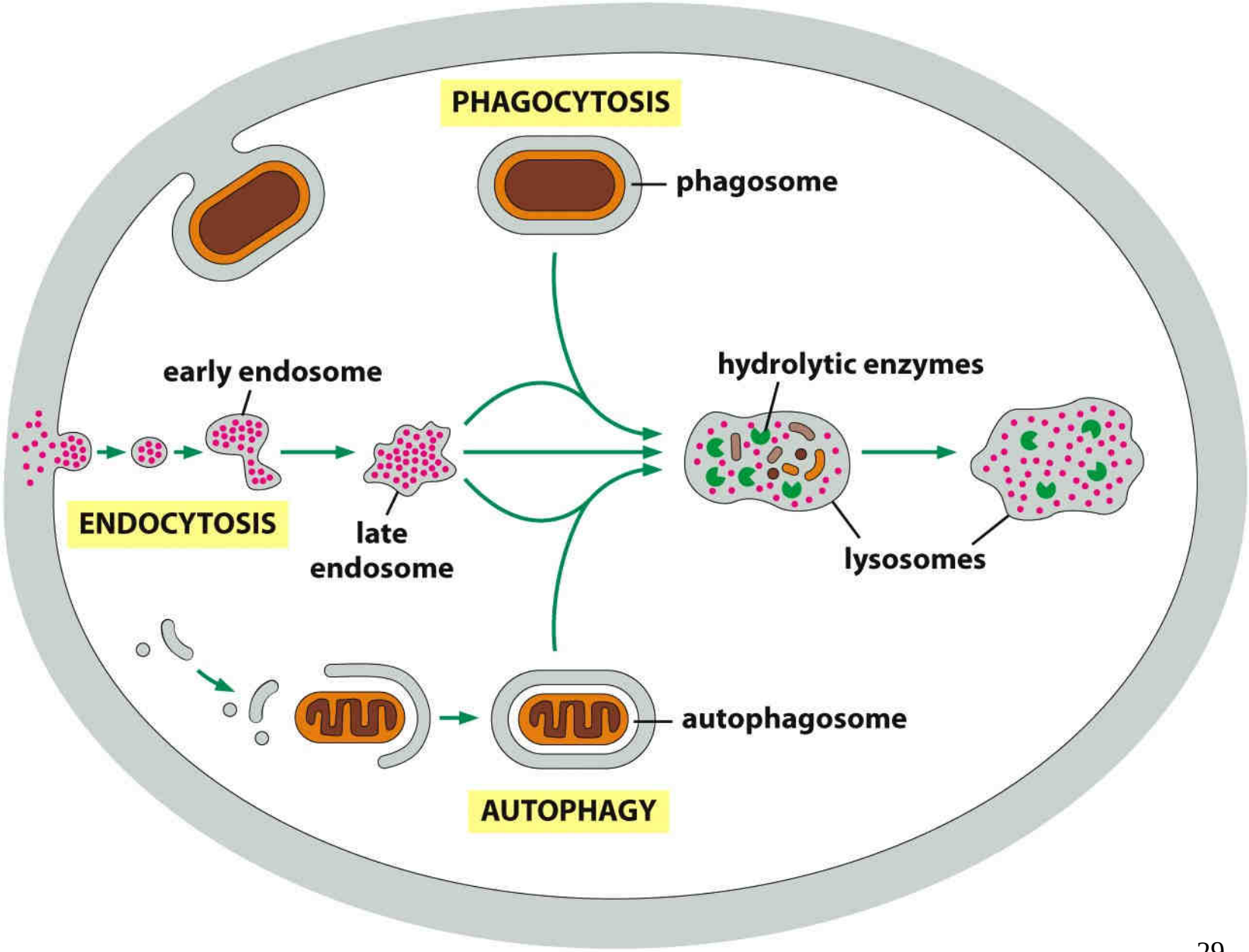

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