

Ankara University, Faculty of Agriculture , Department of Fisheries and Aquaculture, Programme of Fisheries and Aquaculture

# AQS104: Biochemistry

Reference: Nelson, D. L., Lehninger, A. L., & Cox, M. M. (2008). ***Lehninger Principles of Biochemistry (5<sup>th</sup> edition)***. Macmillan.

# AQS104 BIOCHEMISTRY: Weekly Programme

**1. Week:**

- The foundations of biochemistry
- Water

**2. Week:**

- Amino acids, peptides, and proteins
- The three-dimensional structure of proteins

**3. Week:**

- Protein function
- Enzymes

**4. Week:**

- Carbohydrates and Glycobiology
- Nucleotides and Nucleic Acids

**5. Week:**

- DNA-based information technologies
- Lipids

**6. Week:**

Biological membranes and transport  
Biosignaling

**7. Week:**

Bioenergetics and biochemical reaction types  
Glycolysis, gluconeogenesis, and the pentose phosphate pathway

**8. Week:**

Principles of metabolic regulation  
The citric acid cycle

**9. Week:**

Fatty acid catabolism  
Aino acid oxidation and the production of urea

**10. Week:**

Oxidative phosphorylation and photophosphorylation  
Carbohydrate biosynthesis in plants and bacteria

**11. Week:**

Lipid biosynthesis  
Biosynthesis of amino acids, nucleotides, and related molecules

**12. Week:**

Hormonal regulation and integration of mammalian metabolism  
Genes and chromosomes

**13. Week:**

DNA metabolism  
RNA metabolism

**14. Week:**

Protein metabolism  
Regulation of gene expression

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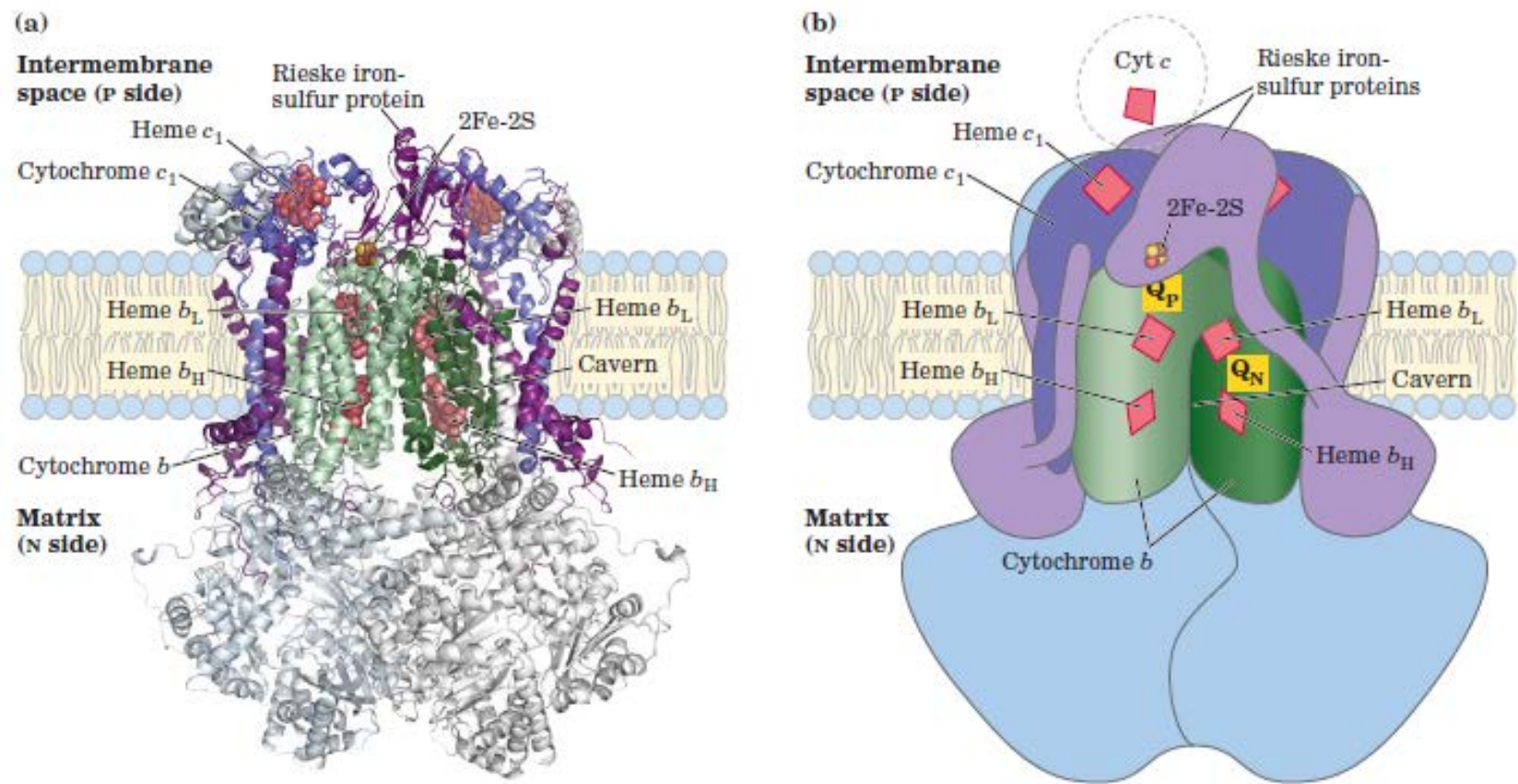
## AQS104: Biochemistry

### 10. Week:

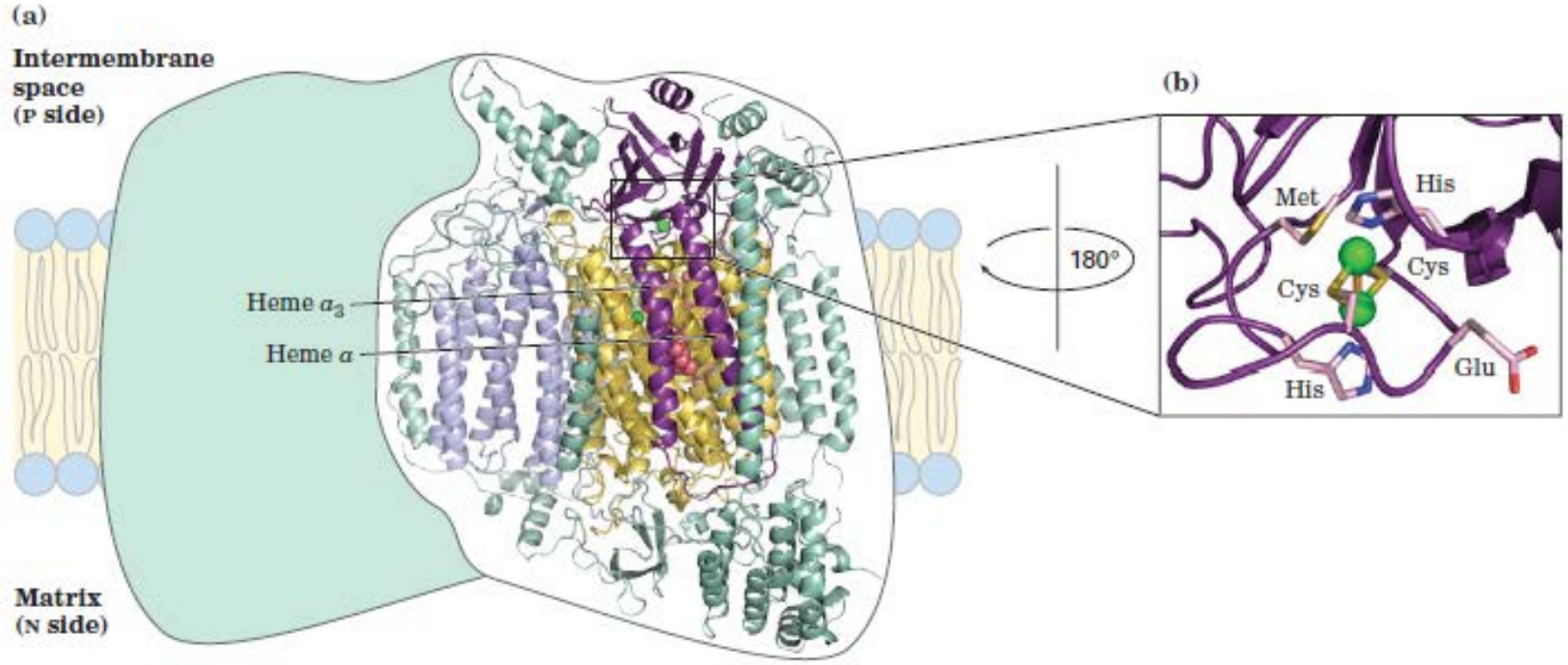
Oxidative Phosphorylation and  
Photophosphorylation

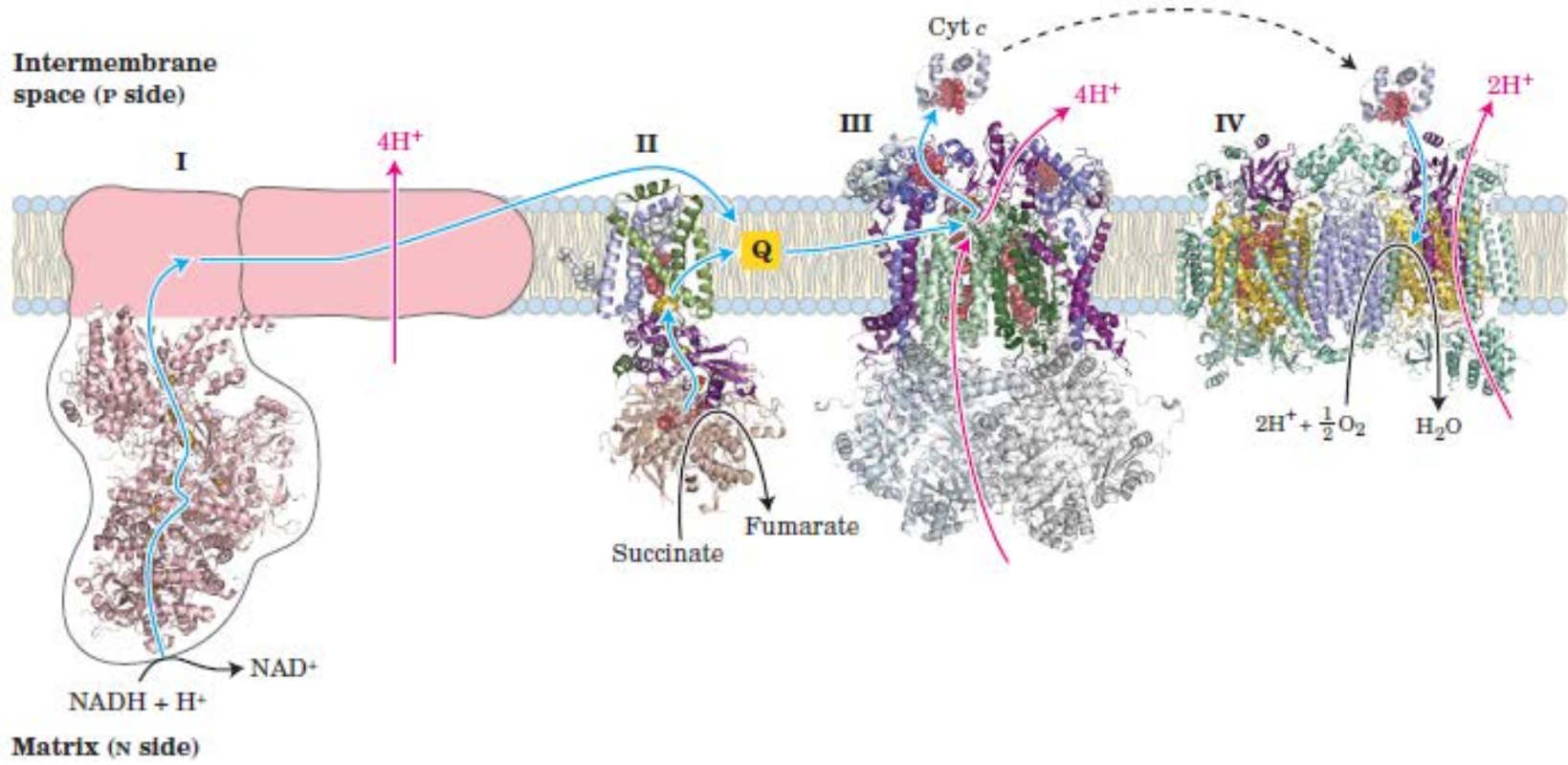
Carbohydrate Biosynthesis In Plants and Bacteria

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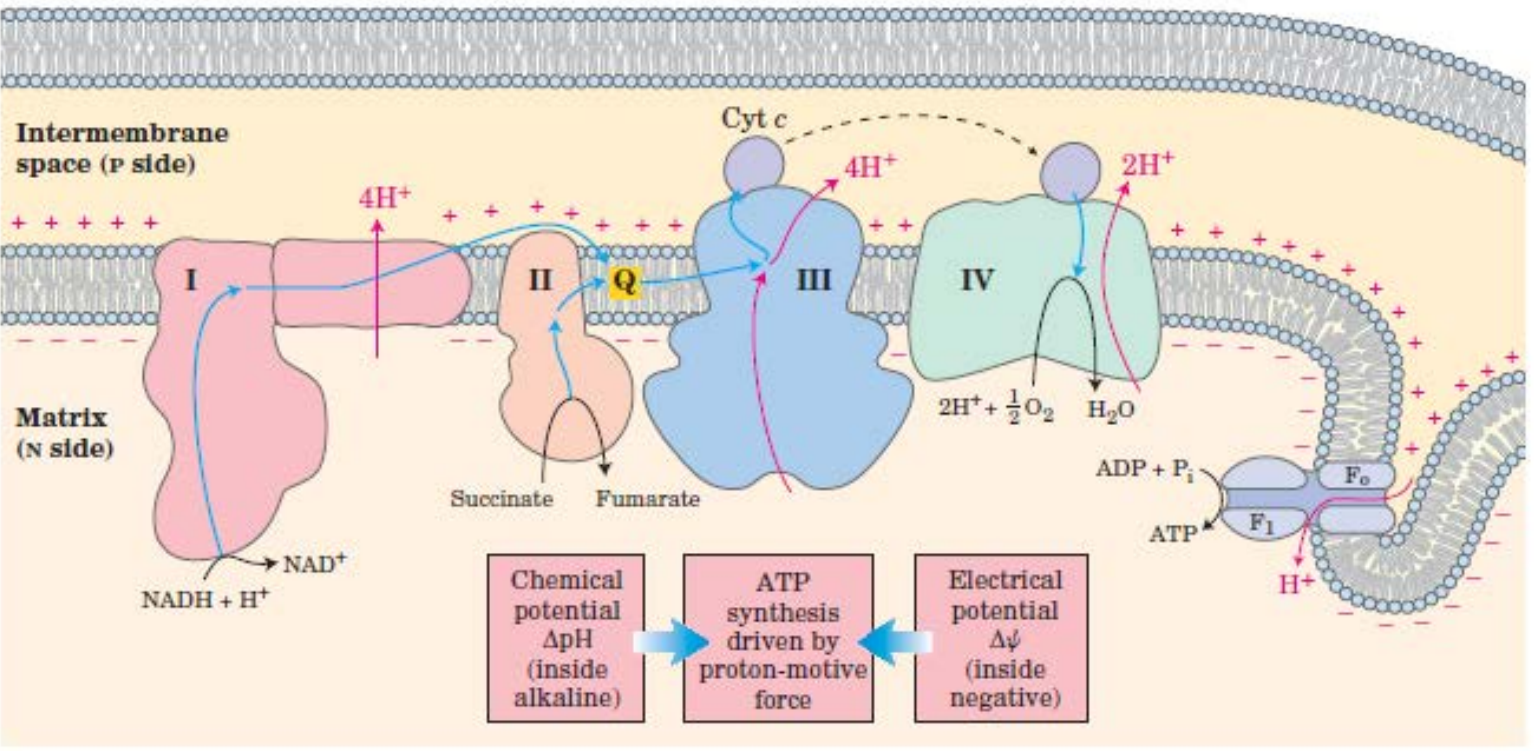
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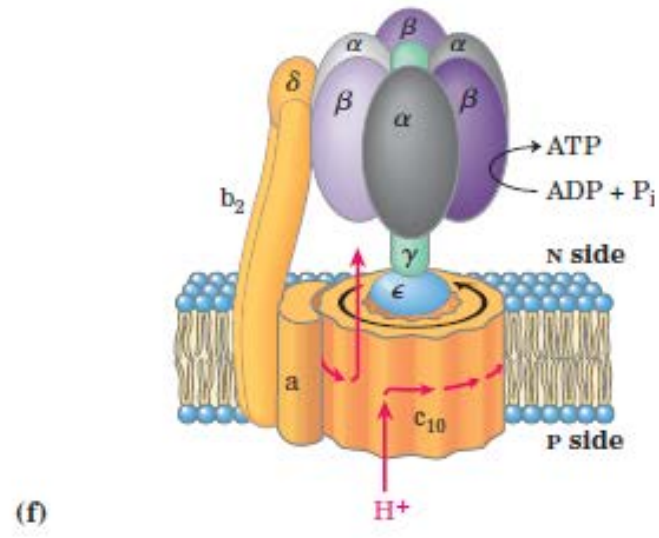
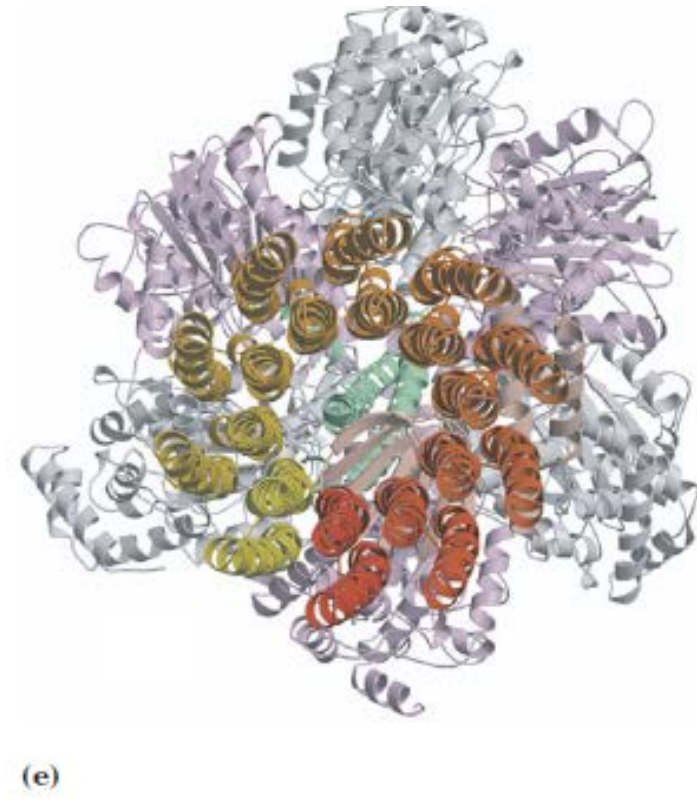
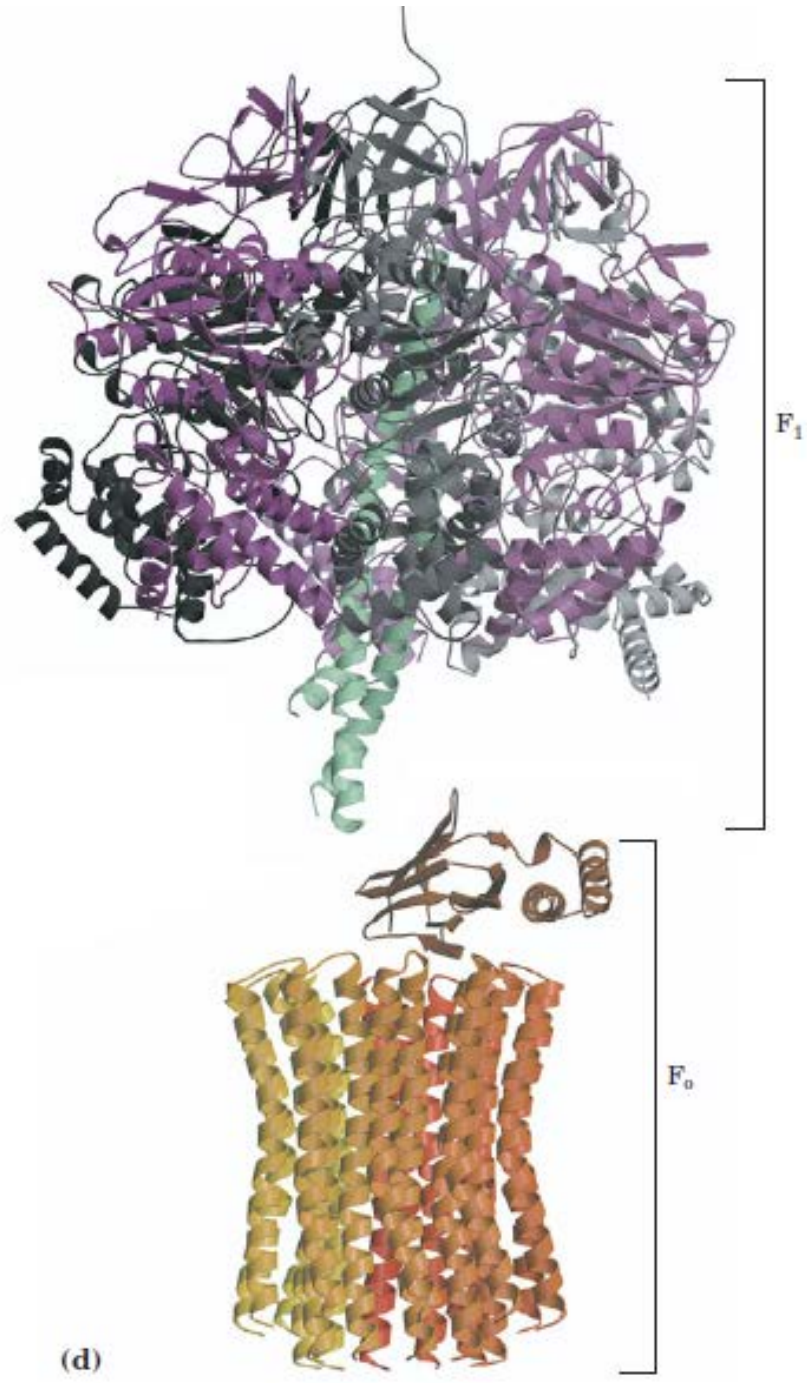




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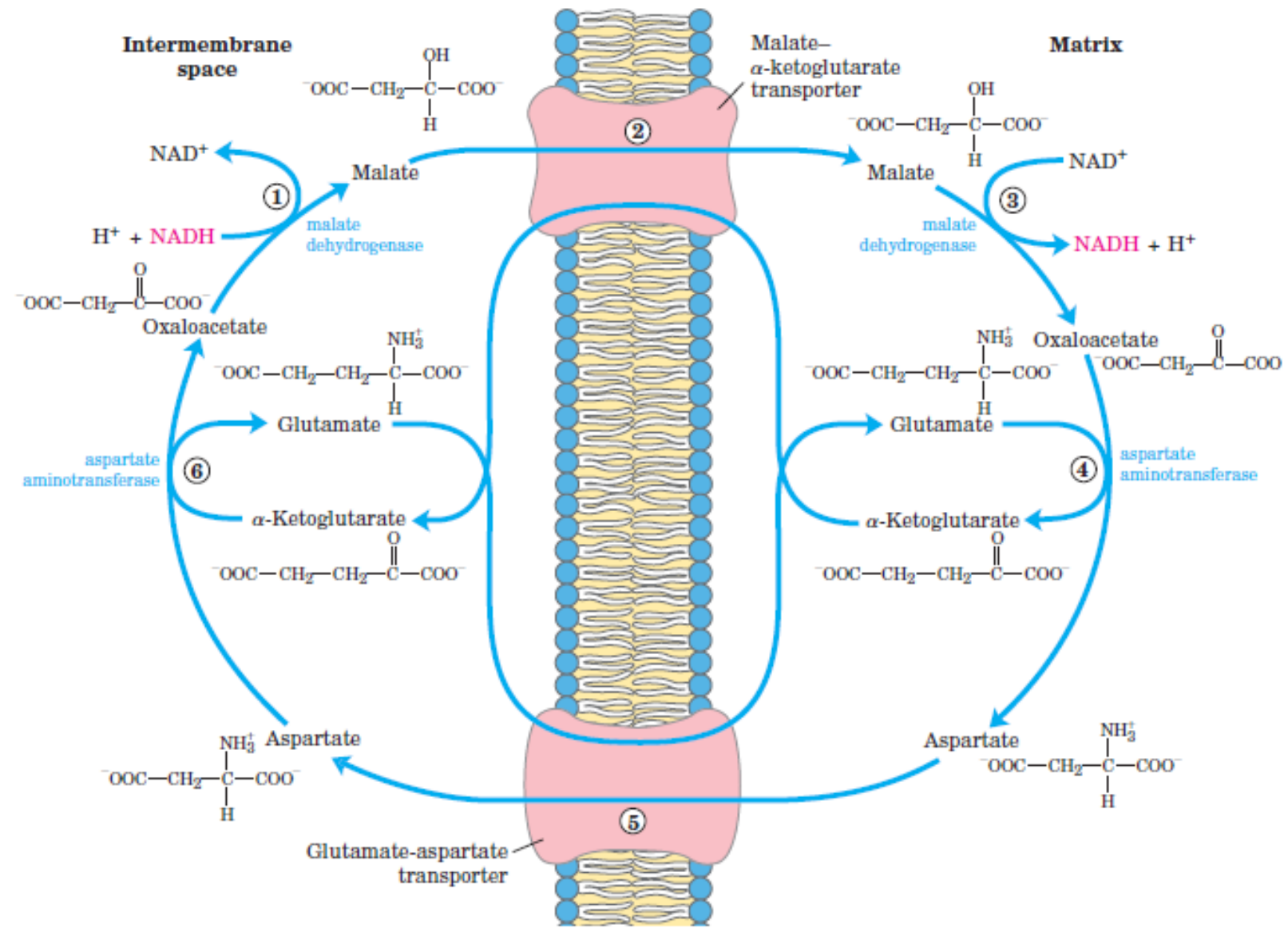
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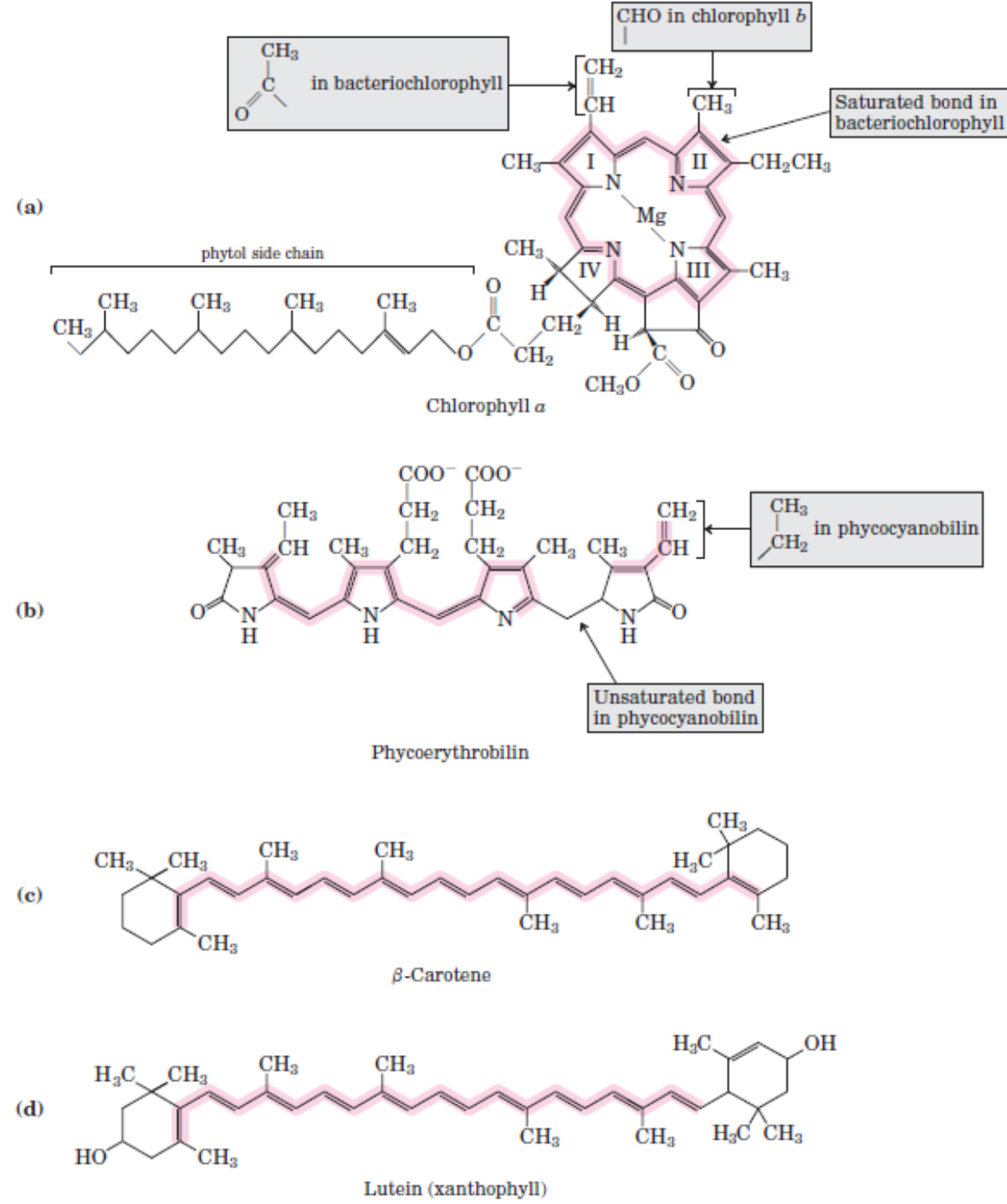




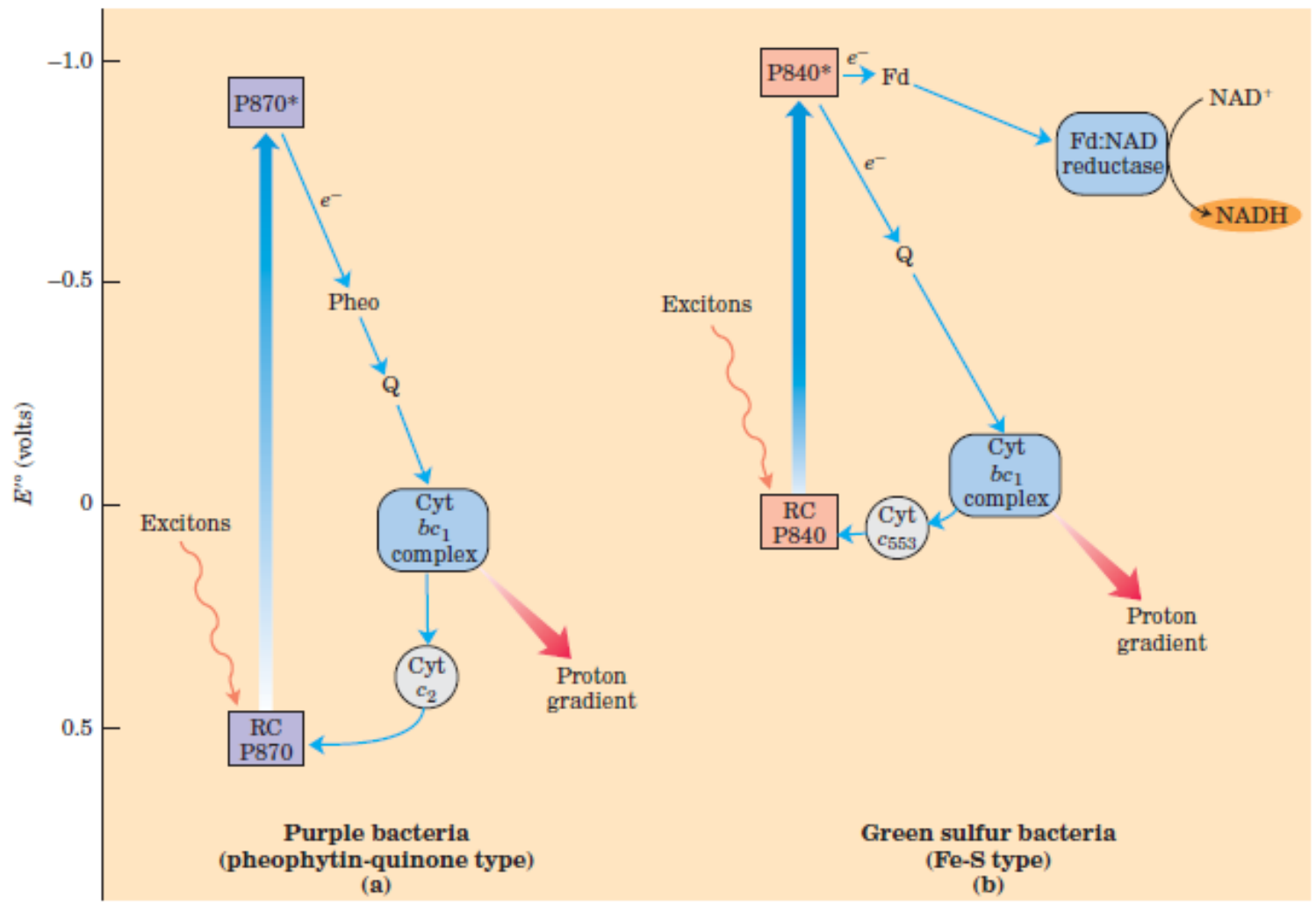


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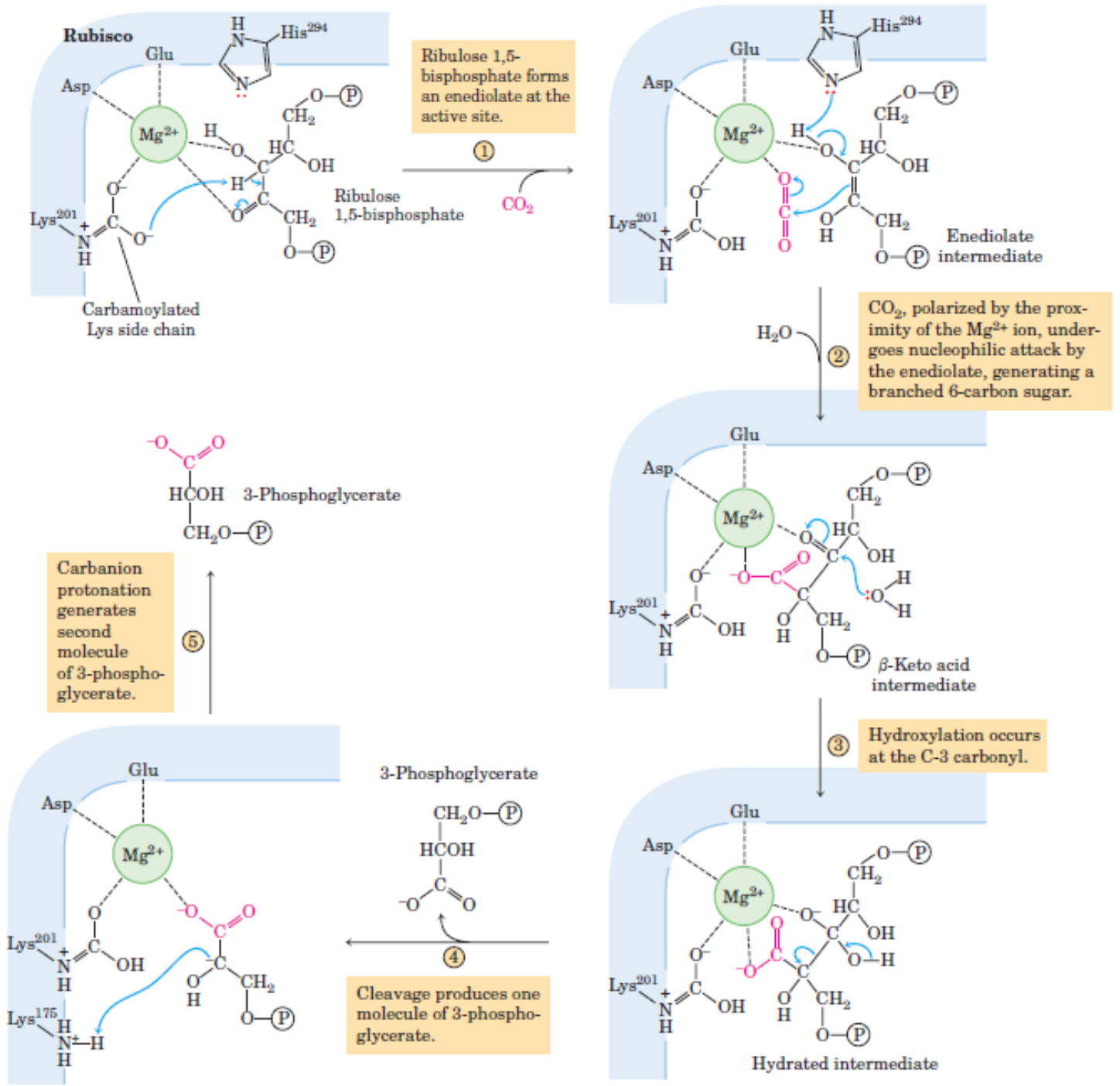




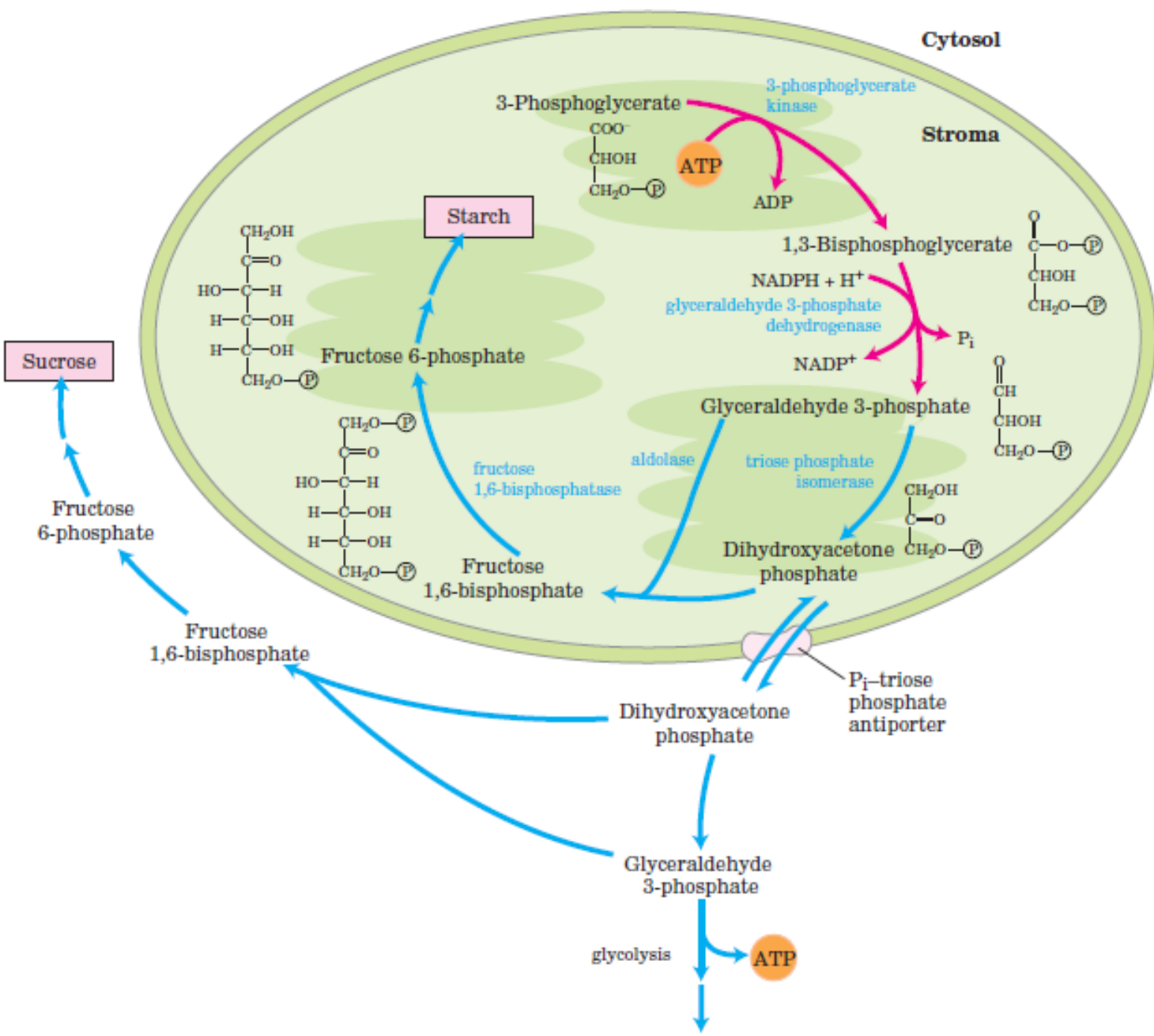
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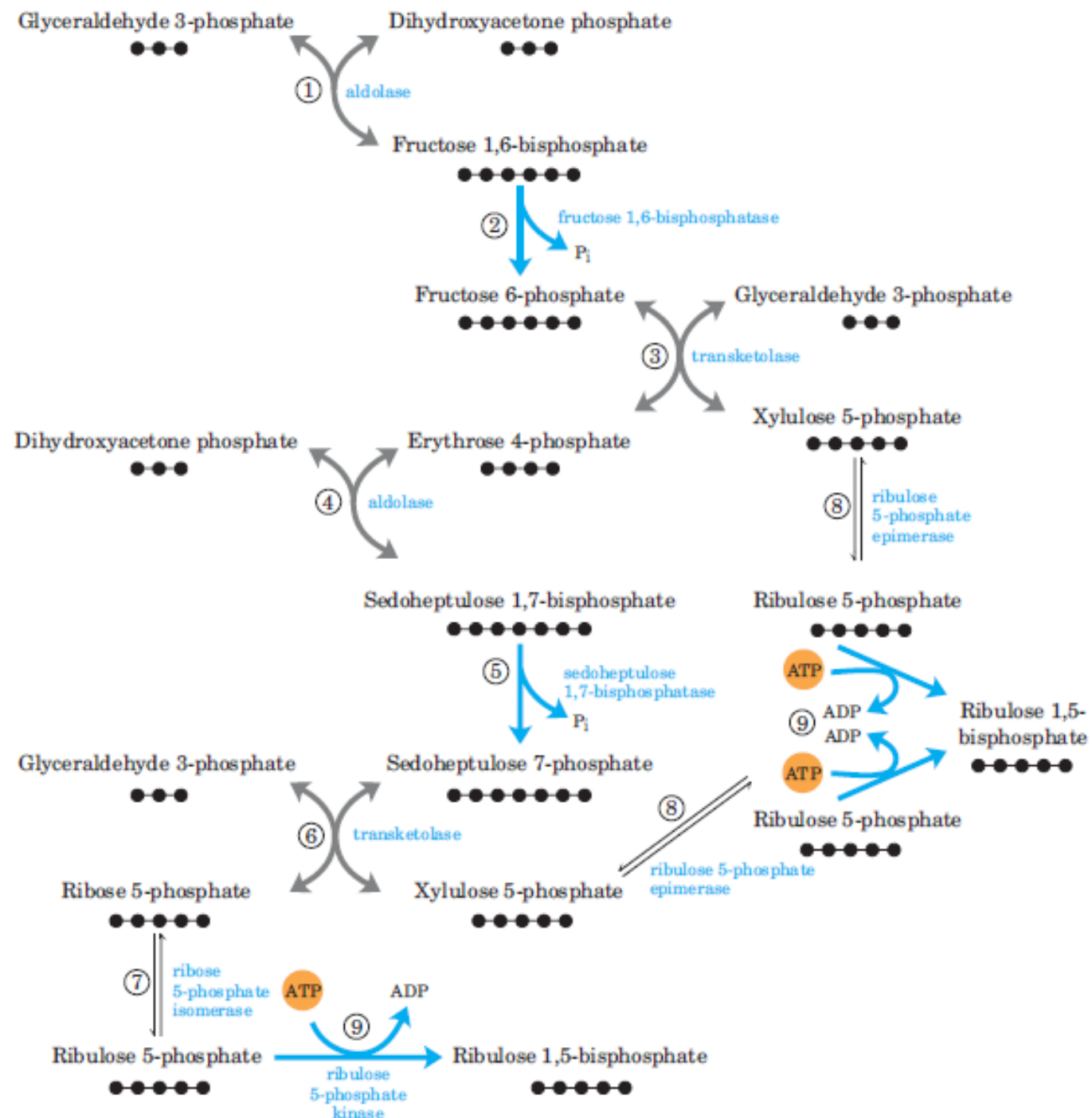
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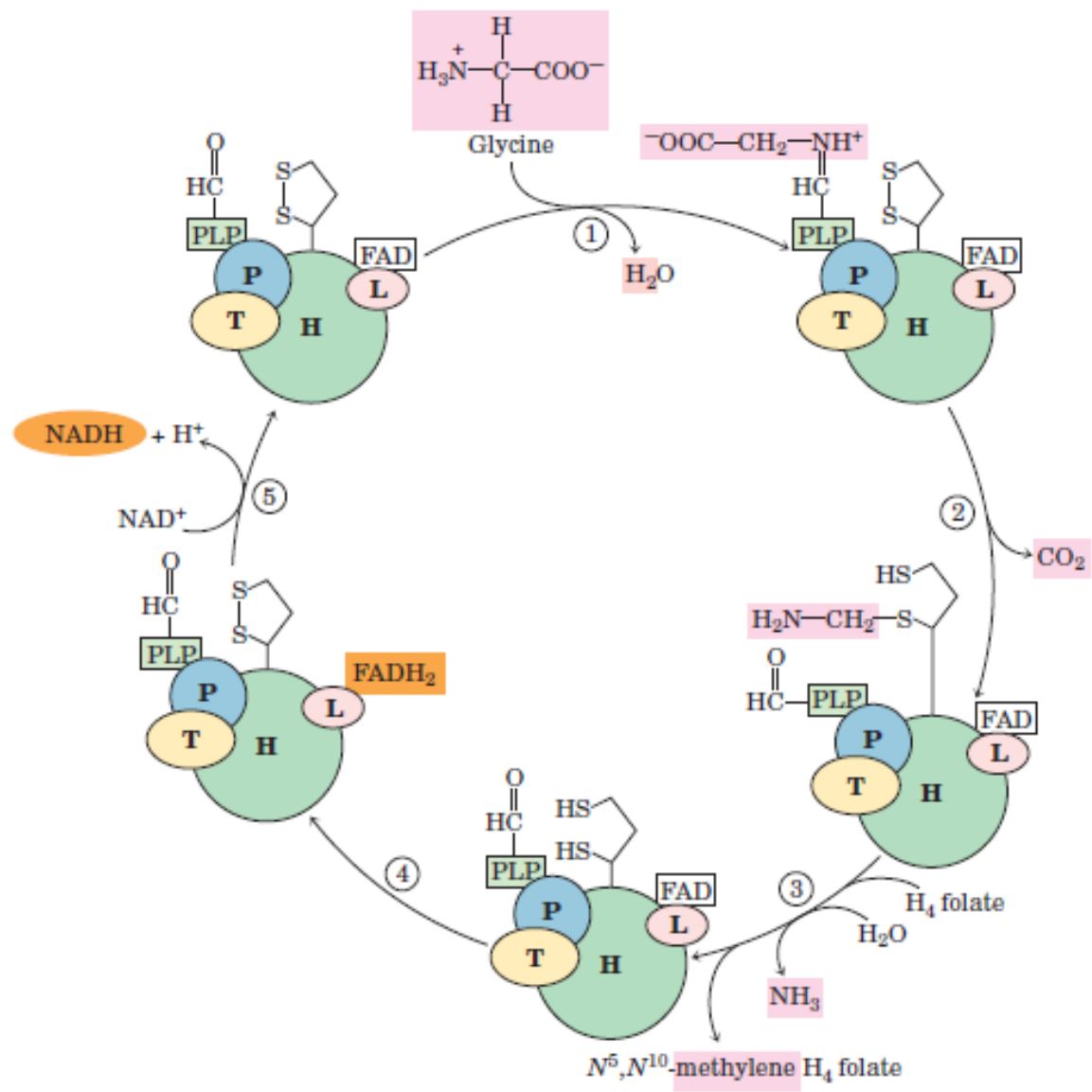
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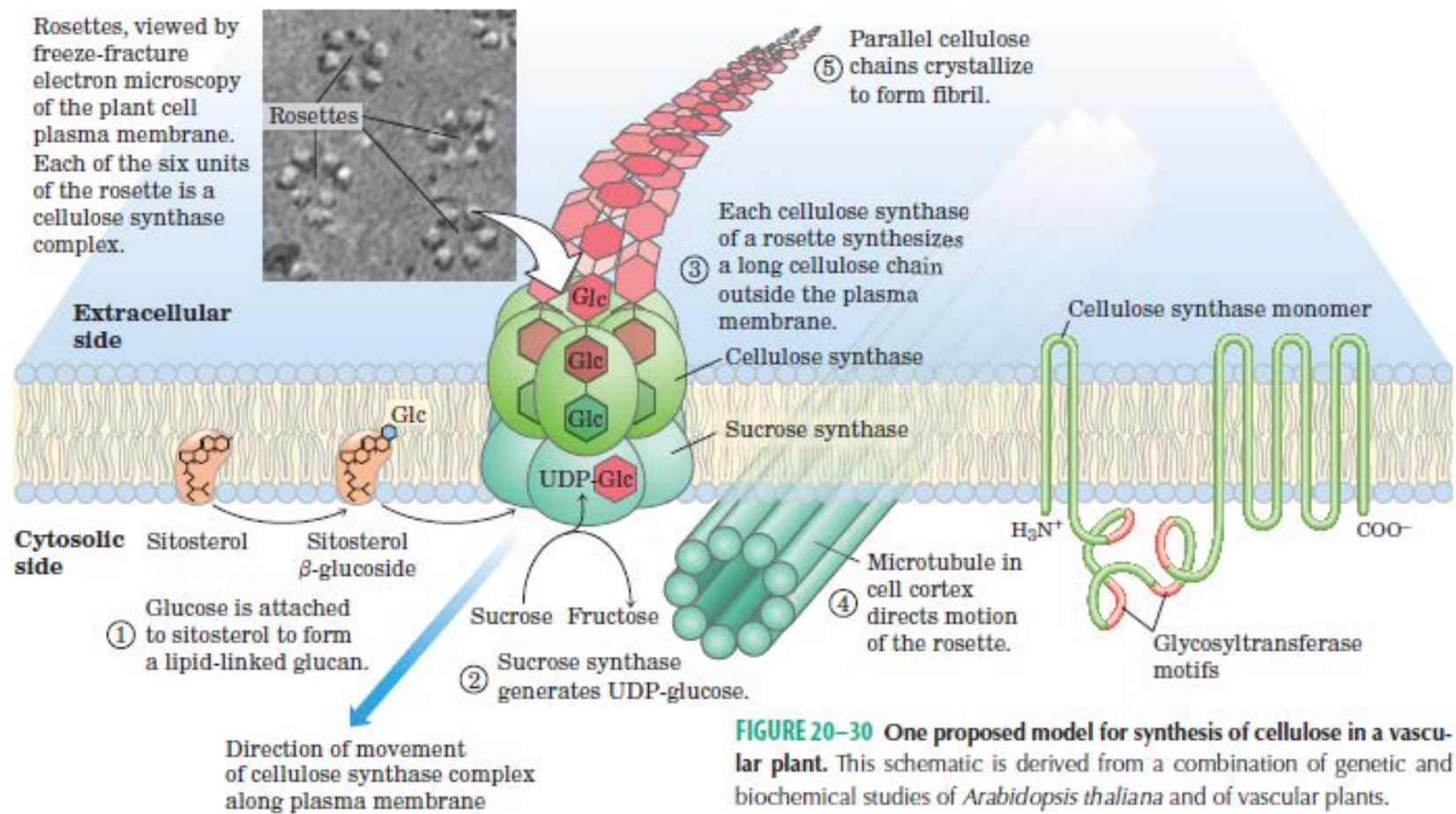


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**FIGURE 20-30** One proposed model for synthesis of cellulose in a vascular plant. This schematic is derived from a combination of genetic and biochemical studies of *Arabidopsis thaliana* and of vascular plants.