

7月13日小テスト

- 1) F型ATPaseのサブユニット構成を書き、構造の模式図を書け。
- 2) F型ATPaseのサブユニットβの役割を記せ。
- 3) 牛ミトコンドリアの複合体IIIのサブユニット構成と構造的特徴を記せ。

答案用紙に名前を書くのを忘れないこと。

ATPase回転アニメ

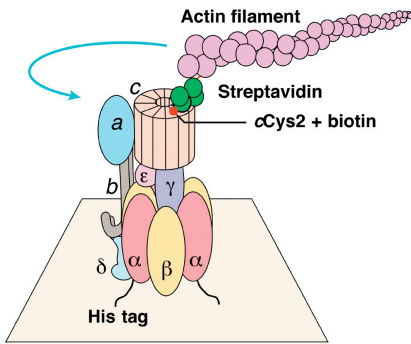
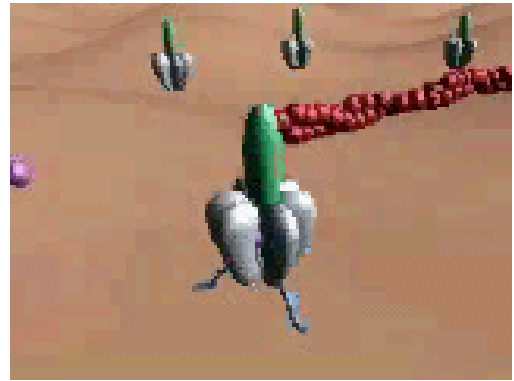


Figure 22-44a Rotation of the c-ring in *E. coli* F<sub>1</sub>F<sub>0</sub>-ATPase. (a) The experimental system used to observe the rotation.

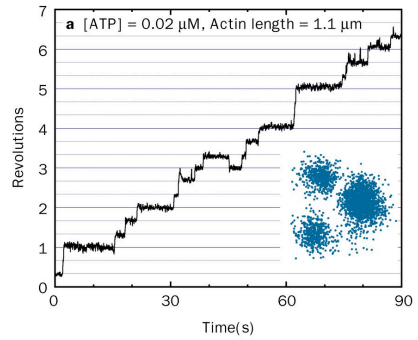
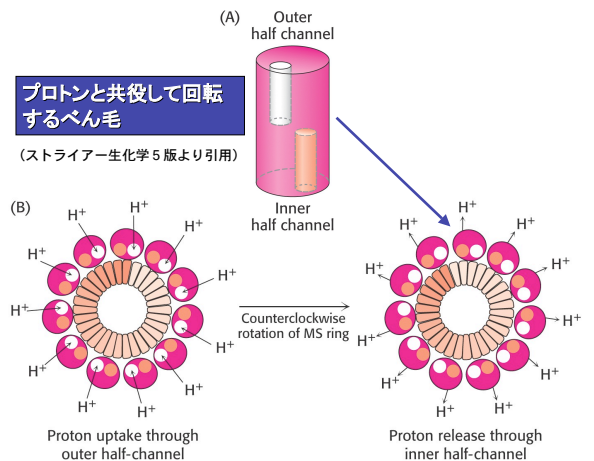
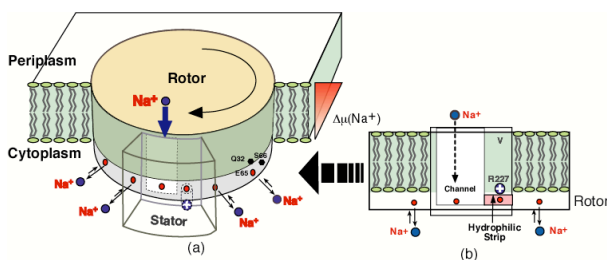


Figure 22-45 Stepwise rotation of the γ subunit of F<sub>1</sub> relative to an immobilized α<sub>3</sub>β<sub>3</sub> unit at low ATP concentration as observed by fluorescence microscopy.

イオン流入と回転共役のモデル



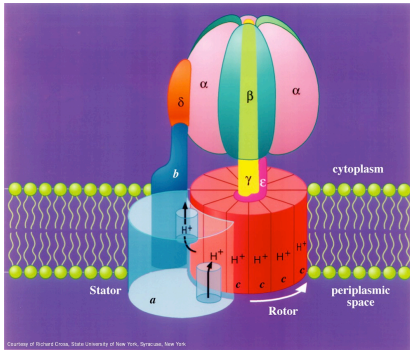


Figure 22-43 Model of the *E. coli* F<sub>1</sub>F<sub>0</sub>-ATPase.

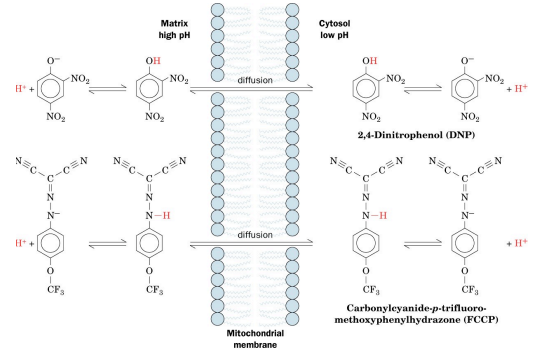


Figure 22-46 Uncoupling of oxidative phosphorylation.

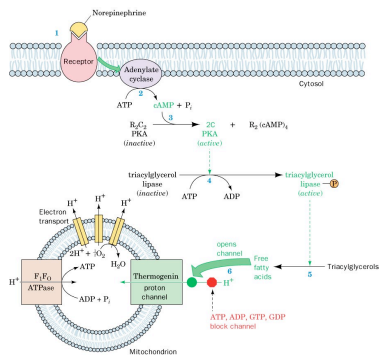


Figure 22-47 Mechanism of hormonally induced uncoupling of oxidative phosphorylation in brown fat mitochondria.

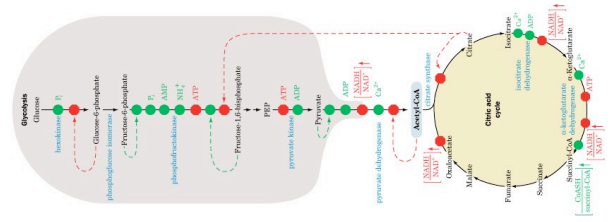
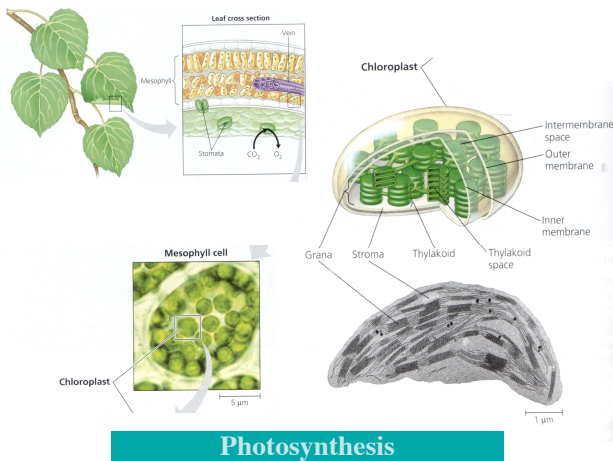


Figure 22-48 Diagram depicting the coordinated control of glycolysis and the citric acid cycle by ATP, ADP, AMP, P<sub>i</sub>, Ca<sup>2+</sup>, and [NADH]/[NAD<sup>+</sup>].

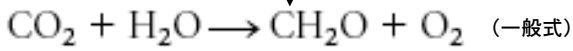
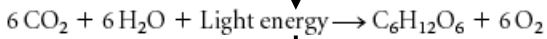
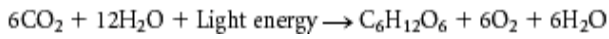


Photosynthesis



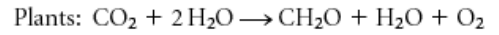
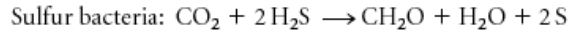
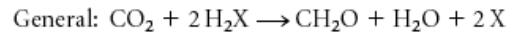
Figure 24-2 Electron micrograph of a section through the purple photosynthetic bacterium *Rhodospira rubra*.

**The chemical equation of photosynthesis**



(古い仮説) Step 1:  $\text{CO}_2 \rightarrow \text{C} + \text{O}_2$   
 Step 2:  $\text{C} + \text{H}_2\text{O} \rightarrow \text{CH}_2\text{O}$

1930年代にVan Nielが緑色嫌気細菌の光合成硫化水素を水の代わりに使いイオウを作ることからヒントを得た。

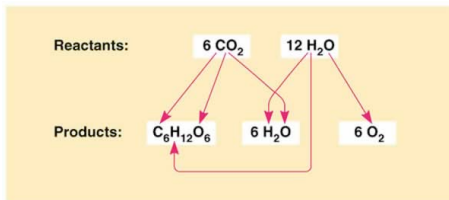
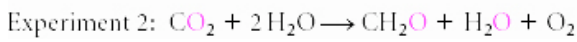
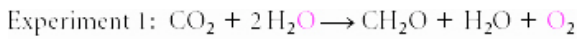


Van Nielの実験

Van Nielの仮説の証明

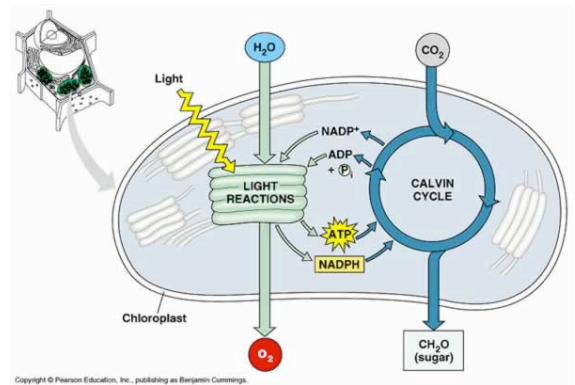
**The splitting of water**

同位体(<sup>18</sup>O)をトレーサーとして用いる



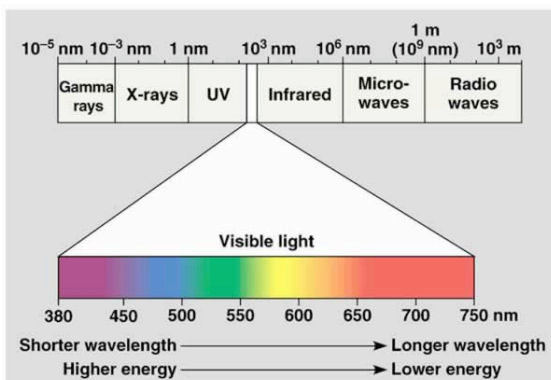
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**An overview of photosynthesis (Fig. 10-4)**



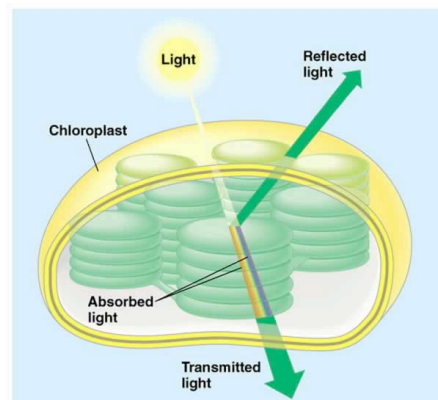
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**The electromagnetic spectrum (Fig. 10-5)**



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**Why leaves are green: interaction of light with chloroplasts.**



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