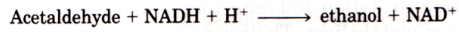
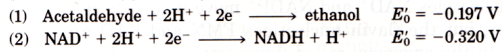


## 問題



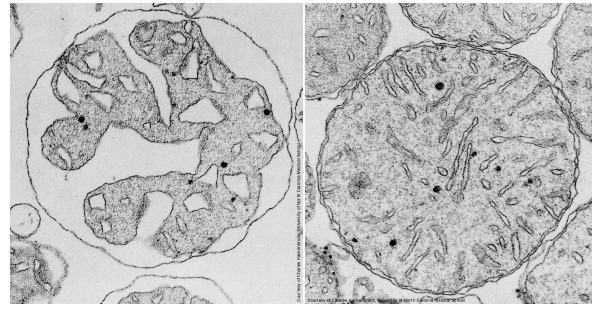
この反応を2つの半反応式に分けることができる



1) 上の式で全ての物質が一モル存在したときの自由エネルギー変化をもとめよ。ファラデー常数は96.5 kJ/V・molとせよ。

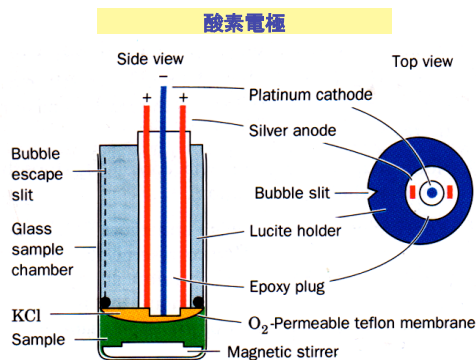
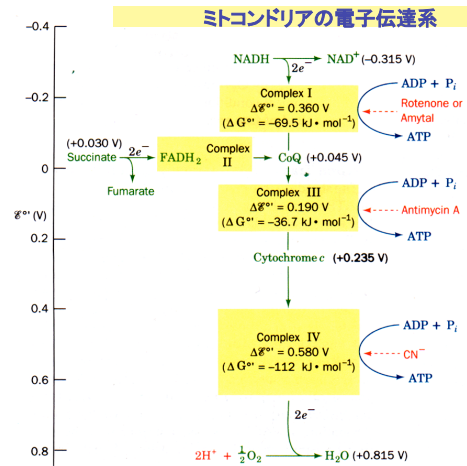
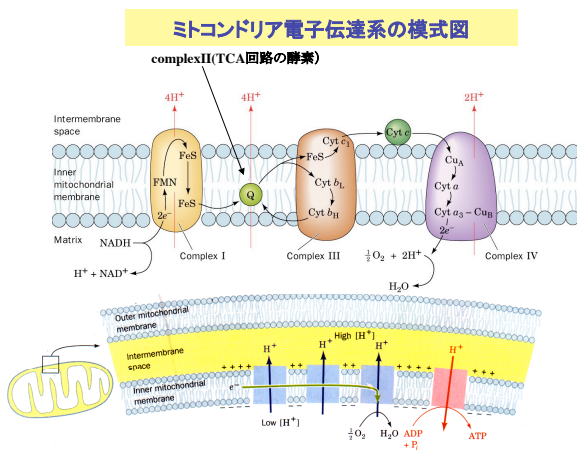
2) 膜蛋白質の性質について説明せよ。

答案用紙に名前を書くのを忘れないこと。

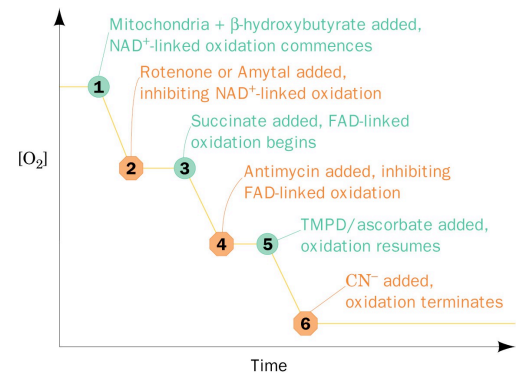


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Figure 22-12 Electron micrographs of mouse liver mitochondria. (a) In the actively respiring state. (b) In the resting state.

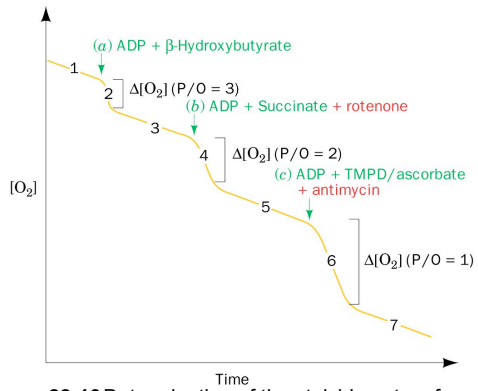


pt電極でO<sub>2</sub>がH<sub>2</sub>Oに還元される電位により、O<sub>2</sub>濃度を測定

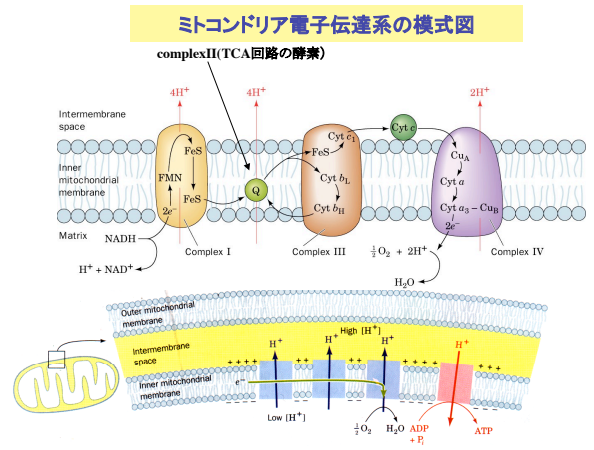


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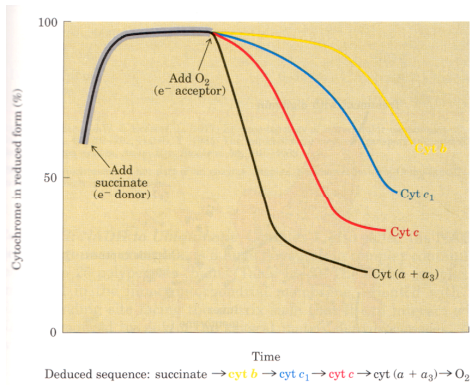
Figure 22-11 Effect of inhibitors on electron transport.



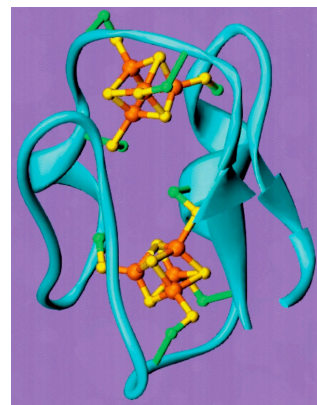
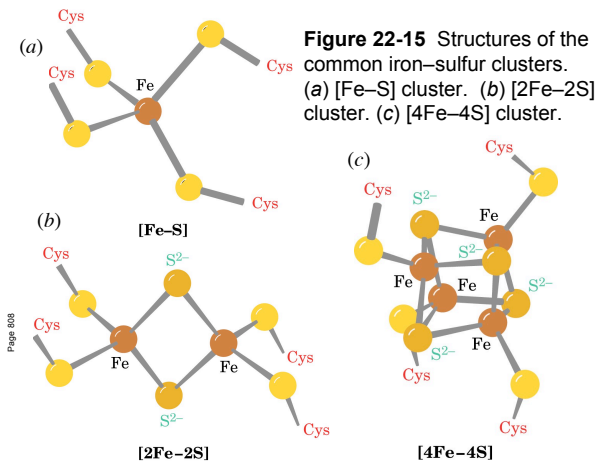
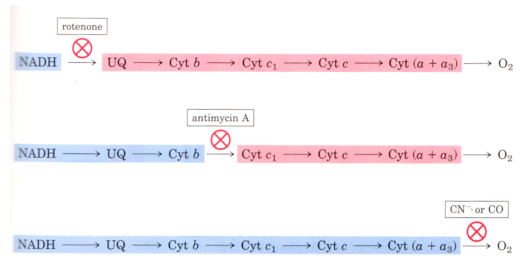
**Figure 22-13** Determination of the stoichiometry of coupled oxidation and phosphorylation (the P/O ratio) with different electron donors.



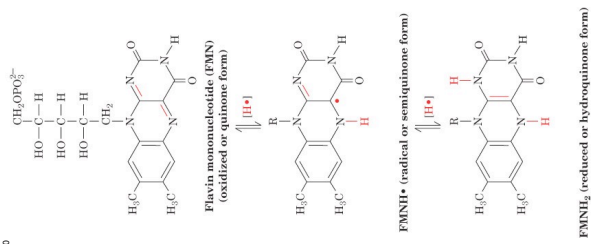
**Cytochromeの電子の流れの順序**



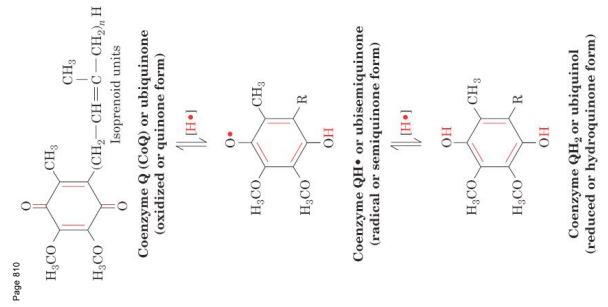
**阻害剤と電子の流れ**



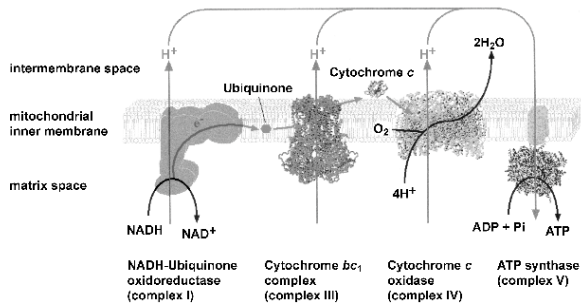
**Figure 22-16** X-Ray structure of ferredoxin from *Peptococcus aerogenes*.



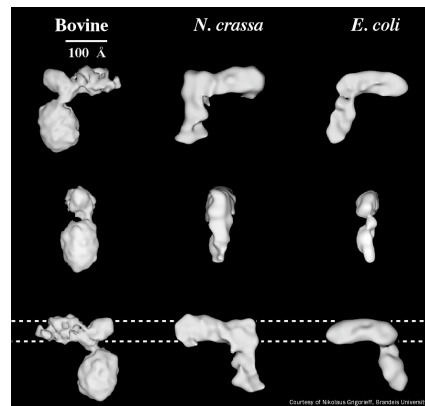
**Figure 22-17a** Oxidation states of the coenzymes of complex I. (a) FMN.



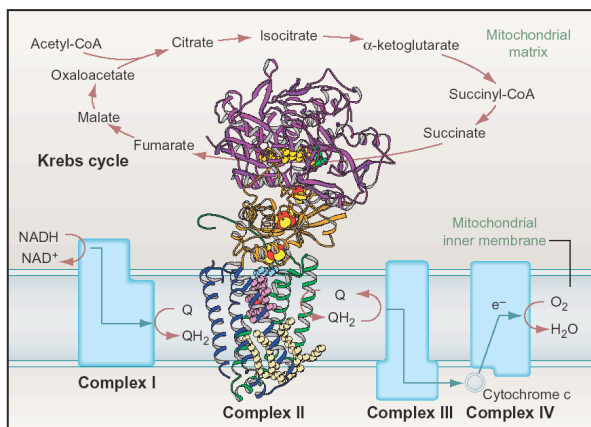
**Figure 22-17b** Oxidation states of the coenzymes of complex I. (b) CoQ.



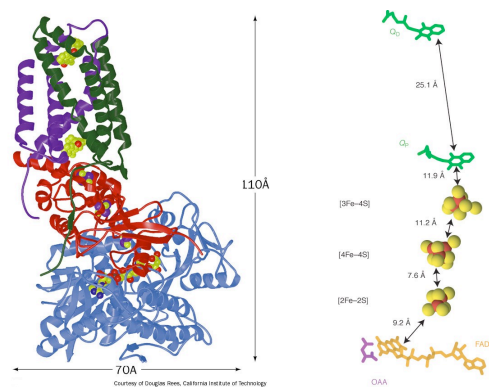
最新の呼吸鎖構造図



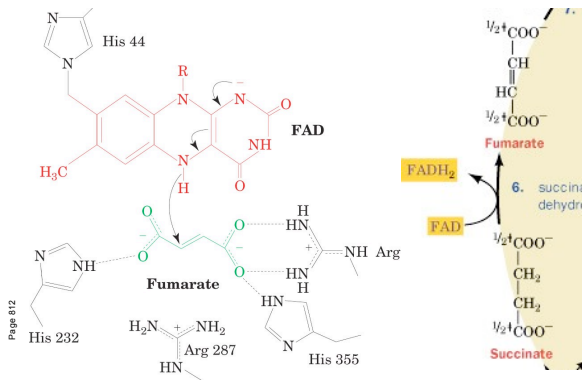
**Figure 22-18** Electron microscopy-based three-dimensional structures of Complex I.



The intricacies of complex II



**Figure 22-19** X-Ray structure of *E. coli* quinol-fumarate reductase (QFR) in complex with its inhibitor oxaloacetic acid (OAA). (a) Ribbon diagram. (b) edge-to-edge distances.



**Figure 22-20** Active site interactions in the proposed mechanism of the QFR-catalyzed reduction of fumarate to succinate.