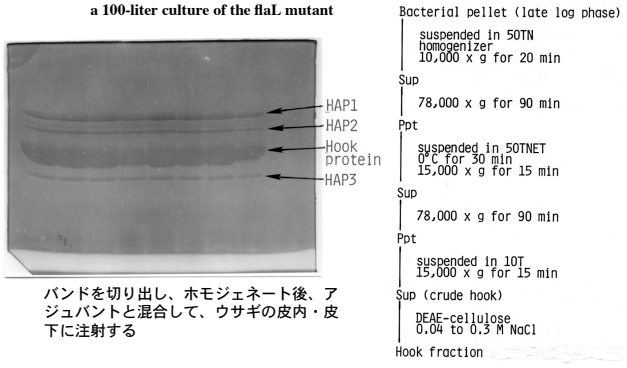
Locations of hook-associated proteins in flagella

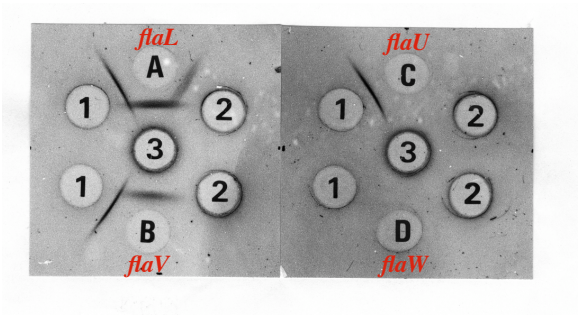
Locations of hook-associated proteins in flagellar

Preparation of the antibody against each HAP

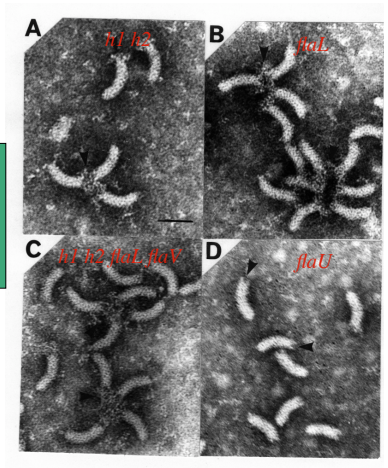


バンドを切り出し、ホモジェネート後、アジュバントと混合して、ウサギの皮内・皮下に注射する

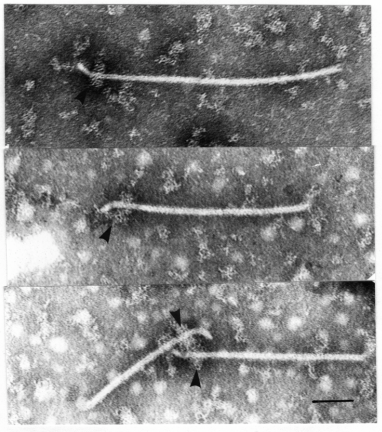
Reaction specificity of antibody against each HAP.



AntiHAP3 antibody binding profiles in hook structures.



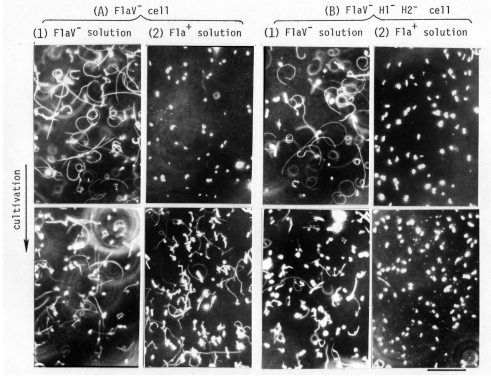
Electron micrographs of hook-filament complexes treated with antiHAP1 antibody and the second antibody.



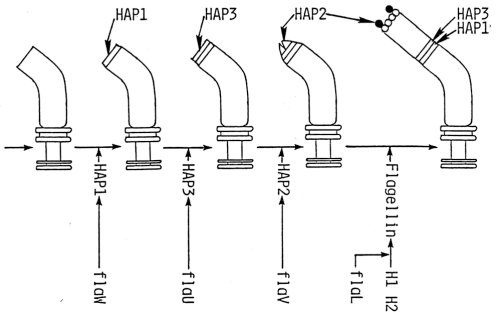
Preparation of filament-reconstructive solutions in the filamentless mutants.

Late-log culture
30,000 x g for 20 min
Sup (culture medium)
Dialysis tube
PEG 20,000
4°C for 2 days
Concentrated culture
pH 2.4 by 1 N HCl
30 min
pH 7.2 by 1 N KOH
120,000 x g for 1 hr
Sup
$(NH_4)_2SO_4$ precipitation
20,000 x g for 20 min
Ppt
suspended in PBS
dialysis
Solution for reconstruction

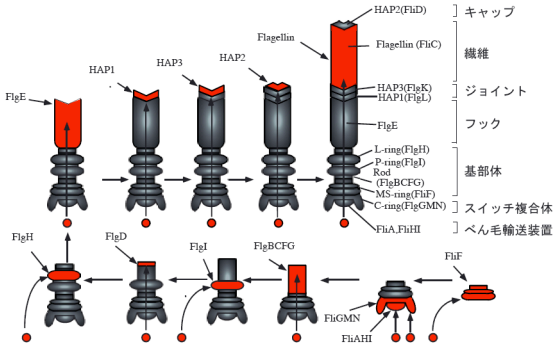
25. Motility recovery after treatment with filament-reconstructive solutions in the filamentless mutants.



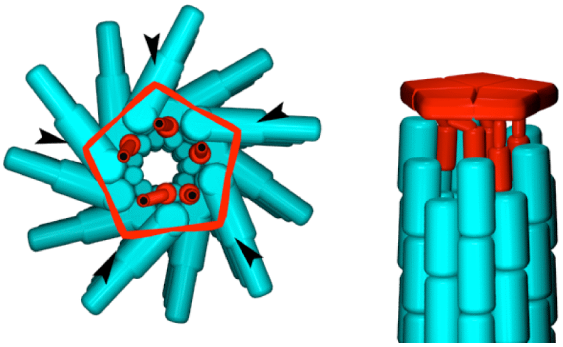
Hypothetical process of flagellar filament formation.

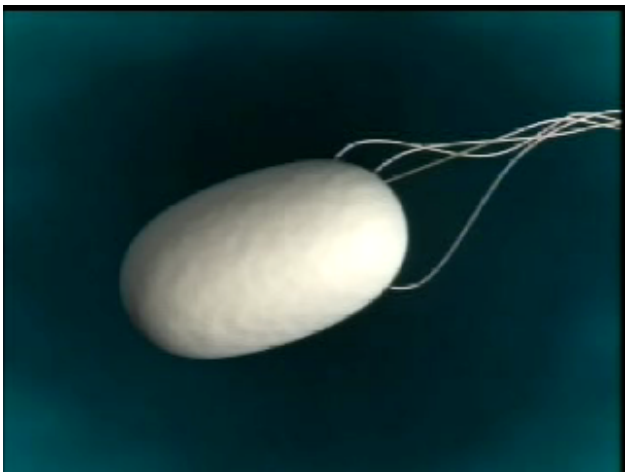


べん毛形成過程のモデル

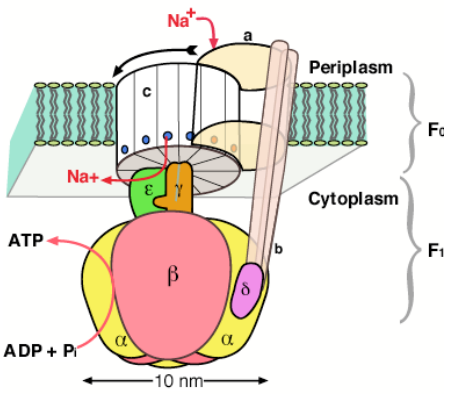


HAP2先端成長動画

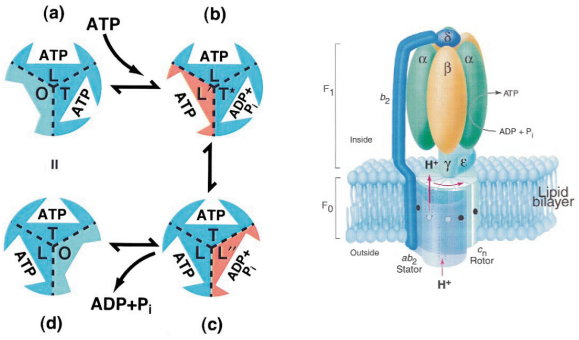




F型ATPaseモーターの構造

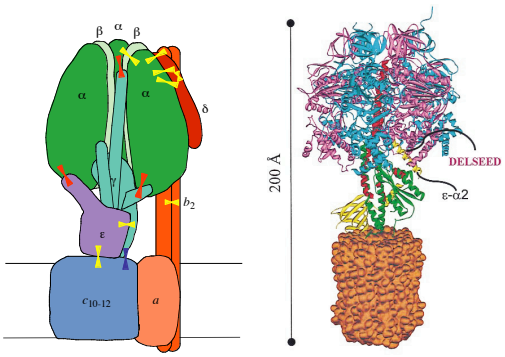


ATPaseの構造変化と触媒活性モデル

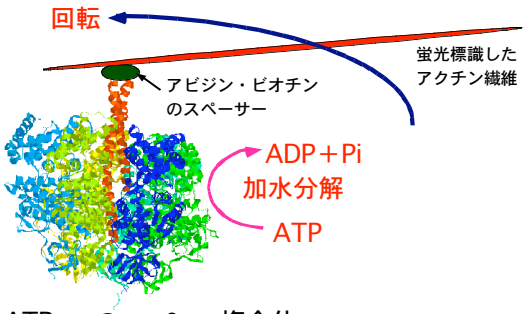


O(オープン）型：触媒不活性で基質・生成物に親和性なし
L(ルーズ）型：弱い親和性をもつが、触媒活性なし
T(タイト）型：強い親和性をもち、触媒活性をもつ

F型ATPase



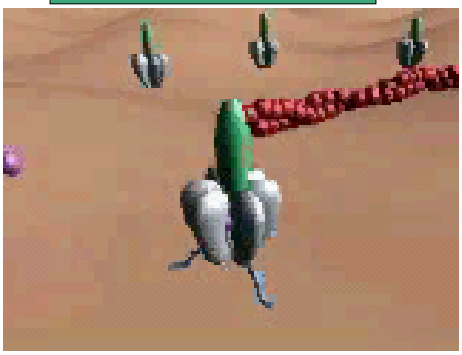
F型ATPase回転実証の実験系



ATPaseのα　β　γ複合体

Noji et al. (1997) Nature

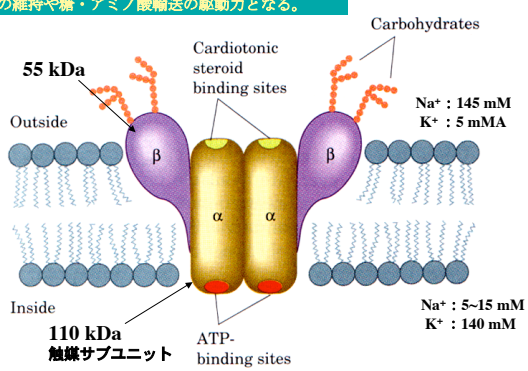
ATPase回転アニメ



Na⁺・K⁺-ATPase （P型ATPase）

1957年 Jens Skouにより発見
1997年にノーベル賞

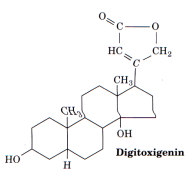
Na⁺・K⁺-ATPase： Na⁺勾配による浸透圧を作り、細胞体積の維持や糖・アミノ酸輸送の駆動力となる。



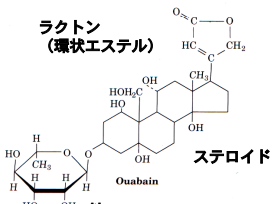
ジギタリス
（ムラサキキツネノテブクロ，ゴマノハグサ科）

ウワバイン＝ステロイド配糖体
↓
強心剤として使用
↓
Na^+濃度が上昇し、Na^+/Ca^{2+}アンチポート系が活性化し、Ca^{2+}濃度が上昇し、その結果、筋肉収縮が起こる。

P型ATPase阻害剤



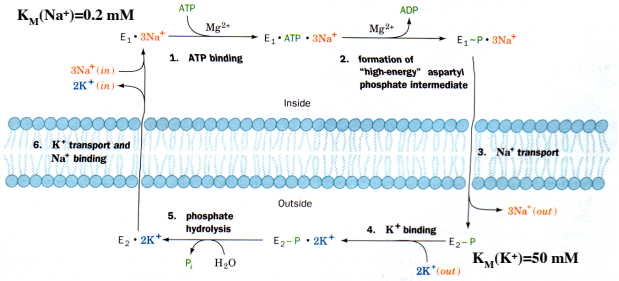
ラクトン
（環状エステル）



ステロイド

(b) 糖

Na⁺/K⁺ ATPaseの能動輸送機構



１ATPaseあたり毎秒１００分子のATPを分解

⇩

細胞の作る約１／３（７０％？）のATPが消費される

リン酸化アミノ酸の決定

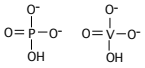
P型ATPase

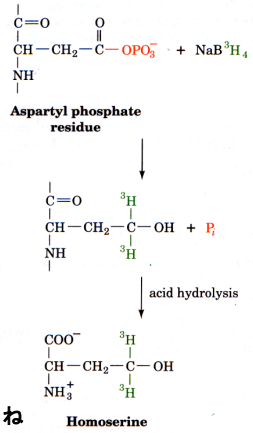
↓

リン酸化中間体を触媒過程で形成するカチオン輸送ATPase

バナデイト感受性

似ている



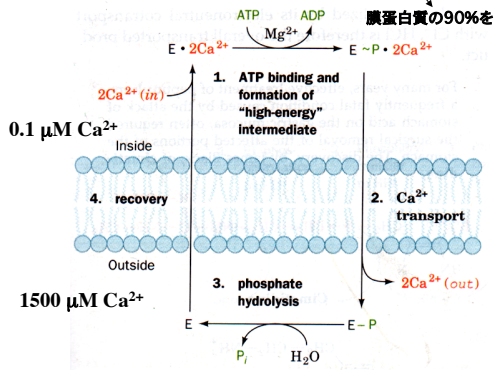


今ならマスで決めるでしょうね

ii) Ca^{2+}ATPase

Na・K-ATPaseと類似（筋小胞体に存在するものがよく分かっている）

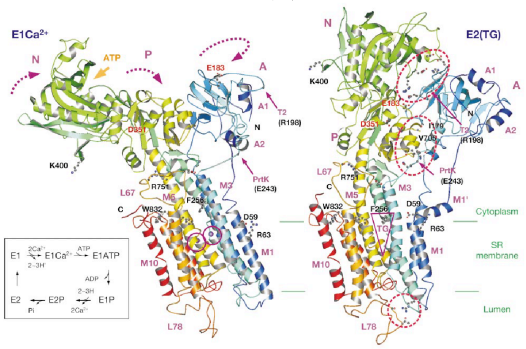
膜蛋白質の90%をしめる



Ca^{2+}はcAMPのようなセカンドメッセンジャーとして使われる

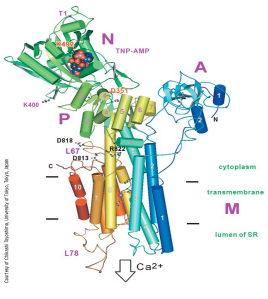
Ca^{2+}-ATPaseの結晶構造

ウサギの筋小胞体より試料調製

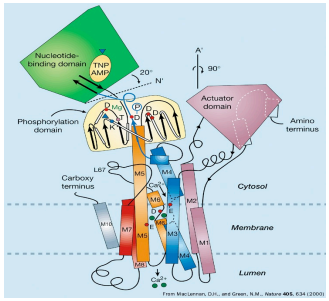


Toyoshima & Nomura (2002) Nature

X-Ray structure of the Ca^{2+}–ATPase from rabbit muscle sarcoplasmic reticulum.



(*a*) A tube-and-arrow diagram.



(*b*) A schematic diagram of the structure