

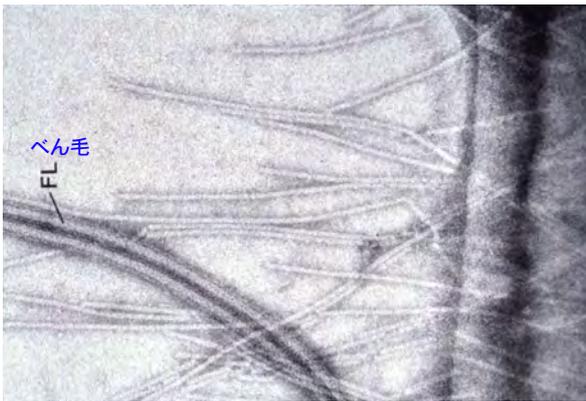
14. 大腸菌のF線毛



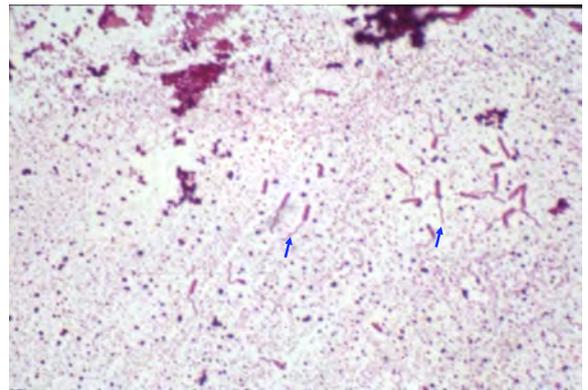
15. 毒素原性大腸菌のもつ線毛CFA/I



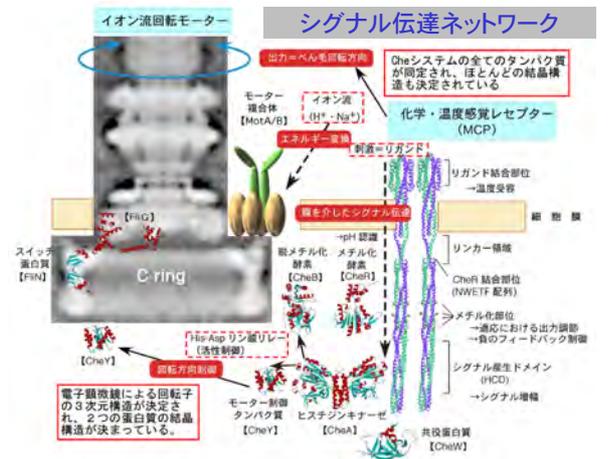
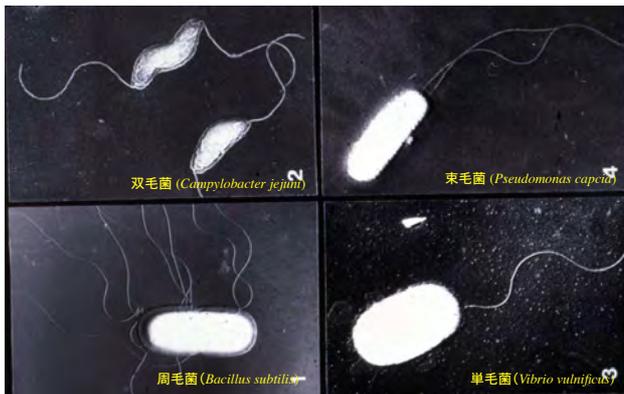
16. 大腸菌のtype I線毛



17. 緑膿菌のべん毛染色(戸田法)

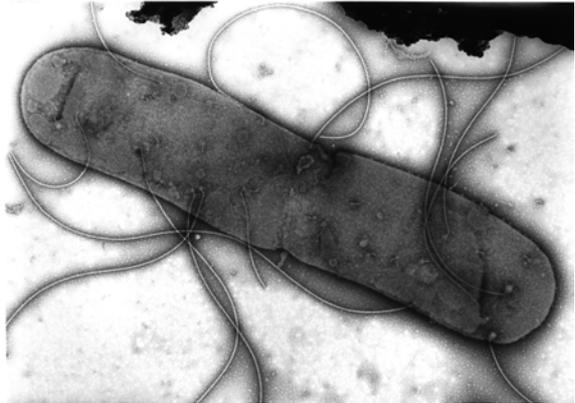


18. 菌体へのべん毛のつきかた

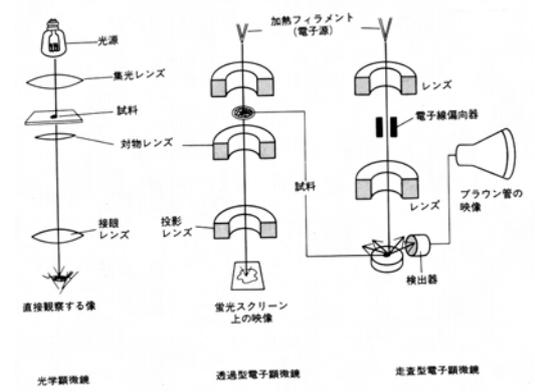




Electron micrograph of Salmonella cell

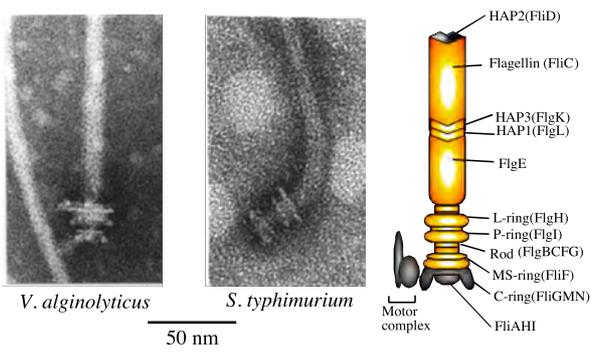


電子顕微鏡模式図



最新の電子顕微鏡  
安いもので、  
5000万円くらい

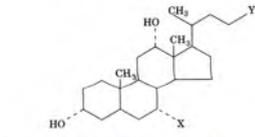
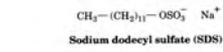
Flagellar Structure Observed by Electron Microscopy



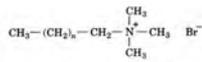
べん毛の単離プロトコール

- 1) 菌体の回収(低速遠心)
- 2) ショ糖を含む緩衝液に入れる
- 3) リゾチーム処理+ EDTA
- 4) トリトンX-100処理
- 5) MgSO<sub>4</sub>+DNase
- 6) EDTA
- 7) 低速遠心
- 8) 10万gで遠心
- 9) 沈殿をバッファーに懸濁

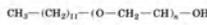
生化学で用いられる界面活性剤



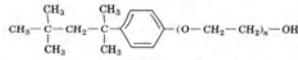
X = H, Y = COO<sup>-</sup>Na<sup>+</sup> Sodium deoxycholate  
 X = OH, Y = COO<sup>-</sup>Na<sup>+</sup> Sodium cholate  
 X = OH, Y = CO-NH-(CH<sub>2</sub>)<sub>2</sub>-N<sup>+</sup>(CH<sub>3</sub>)<sub>2</sub>-SO<sub>3</sub><sup>-</sup> CHAPS



n = 10 Dodecyltrimethylammonium bromide (DTAB)  
 n = 15 Cetyltrimethylammonium bromide (CTAB)

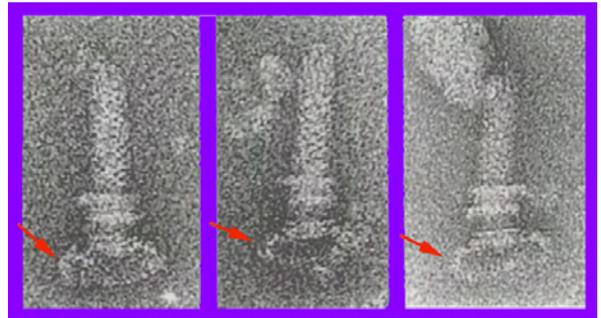


Polyoxyethylenelauryl ether  
 n = 4 Brij 30  
 n = 25 Brij 35

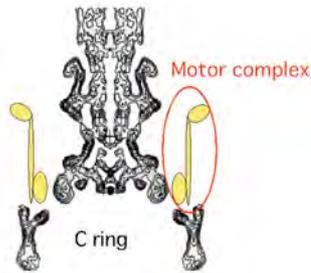
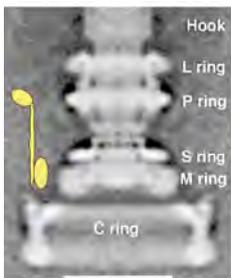


Polyoxyethylene-p-isoctylphenyl ether  
 n = 5 Triton X-20  
 n = 10 Triton X-100

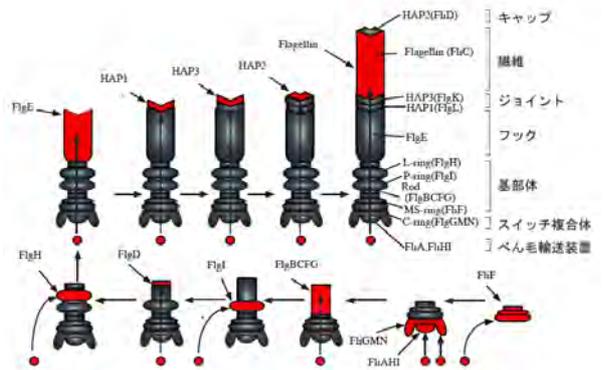
Electron micrographs of hook-basal body and C-ring structure (red arrows)



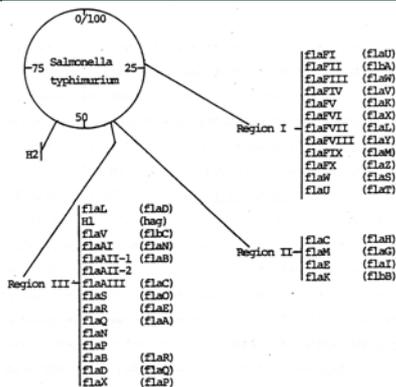
Motor Structure of flagella



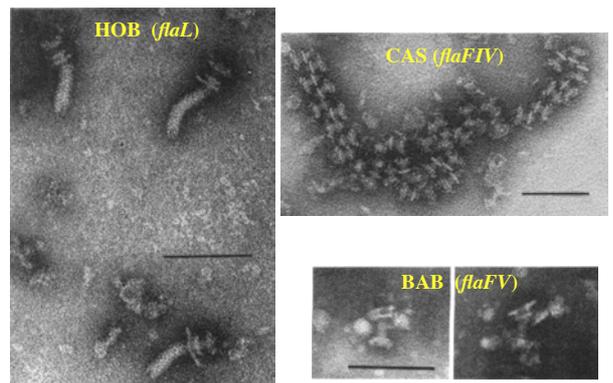
べん毛形成過程のモデル



Chromosomal map of the genes essential for flagellar formation in *Salmonella typhimurium*.

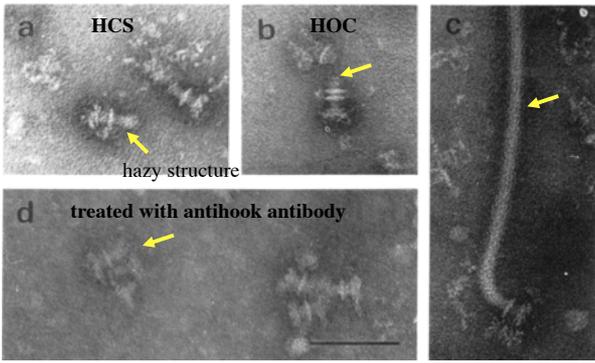


Flagellar partial structures I



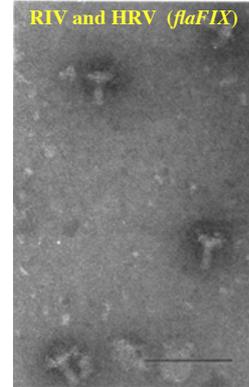
Suzuki et al., J. Bacteriol. (1978)

Flagellar partial structures II: from a *flaFVIII* mutant



Suzuki et al., J. Bacteriol. (1978)

Flagellar partial structures III



Suzuki et al., J. Bacteriol. (1978)

Frequencies of flagellar structures detected in nonflagellate mutants\*

Determination	Structural entity								
	IF	HOB	BAB	CAS	RIV	RCT	HCS	HRV	HOC
Flagellate parent	+++	+	+	+	+	+	-	-	-
H1, H2	-	++	+	+ or - <sup>d</sup>	+	+ or -	-	-	-
<i>flaL</i>	-	++	+	+ or -	+	-	-	-	-
<i>flaU</i>	-	++	+	+ or -	+	-	-	-	-
<i>flaR</i>	-	++	+	+ or -	+	-	-	-	-
<i>flaFV</i>	-	+	+	+	++	++	-	-	-
<i>flaFVIII</i>	-	-	-	+	+	-	++	+ or -	+
<i>flaFT</i>	-	-	-	-	++	-	-	++	-
<i>flaFIX</i>	-	-	-	-	++	-	-	++	-
<i>flaFIV</i>	-	-	-	++	+	-	-	-	-
<i>flaAI</i>	-	-	-	-	-	-	-	-	-
<i>flaAII</i>	-	-	-	-	-	-	-	-	-
<i>flaAIII</i>	++ <sup>f</sup>	+	+	+ or -	+	-	-	-	-
<i>flaB</i>	-	-	-	-	-	-	-	-	-
<i>flaC</i>	-	-	-	-	-	-	-	-	-
<i>flaD</i>	-	-	-	-	-	-	-	-	-
<i>flaE</i>	-	-	-	-	-	-	-	-	-
<i>flaFII</i>	-	-	-	-	-	-	-	-	-
<i>flaFIII</i>	-	-	-	-	-	-	-	-	-
<i>flaFVI</i>	-	-	-	-	-	-	-	-	-
<i>flaFVII</i>	-	-	-	-	-	-	-	-	-
<i>flaFX</i>	-	-	-	-	-	-	-	-	-
<i>flaK</i>	-	-	-	-	-	-	-	-	-
<i>flaM</i>	-	-	-	-	-	-	-	-	-

\*The frequencies of IF and flagellar basal structures detected in fraction BMII of flagellate parents and nonflagellate mutants are shown.

+++ The count of each structural entity from 1/5 to 5x the count of IF in its flagellate parent.

++ The count of each structural entity from 1/20 to 1/5 the count of IF in its flagellate parent.

+ The count of each structural entity less than 1/200 the count of IF in its flagellate parent.

<sup>d</sup> Polyhook basal body complexes were detected.

<sup>f</sup> Paralyzed flagella, which were not discriminated morphologically from the IF of their flagellate parent.

Suzuki et al., J. Bacteriol. (1978)

Stepwise process of flagellar morphogenesis in *Salmonella* inferred from the flagellar structures detected on nonflagellate mutants.

