ATP Synthase

Complex V "5"

- Phosphorylating enzyme

2 Subunits

- F_1 : protrudes into matrix
- F_o : presents in the memb.

- Synthesis of ATP by movement of protons Down electrochemical Gradient

"ATP Synthase"

↳ present in F_1 Subunit

↓ PH & electrochemical Gradient.

F_o : Stalk

- Proton pore
- 4 Subunits

F_1 : Knob

where ATP Synthase take place

$\alpha_3 \beta_3 \gamma \delta \varepsilon$ → 3 Active Sites

⇒ passage of $3H^+$ / ATP Synthased

Inhibition of

↳ III, IV & V

↳ Decreased electrochemical Gradient

normal electrochemical gradient but no influx.

Inhibitors

⇒ oligomycin → Binds Channel

→ Blocks H^+ passage → ATP Synthesis inhibited.

Proton Flow → C unit rotates → γ rotate Conformational Change → ATP Synthesized

ADP is essencial for electron flow

P:O ratio is 0 in uncouplers

* oligomycin ⇒ Binds the stalk (F_o) Prevents recentry
* 2,4 dinitrophenol ⇒ increases permeability of inner mitochondrial memb.
* Ca^{+2} & high doses of Aspirin ⇒ Causes fever.
* Ionophores

Valinomycin / Nigericin (make Complex with K)

Inhibit phosphorylation because of Both electrochemical & PH gradient

* high level of Thyroxine → thyrotoxicosis & bilirubin
* Snake venoms