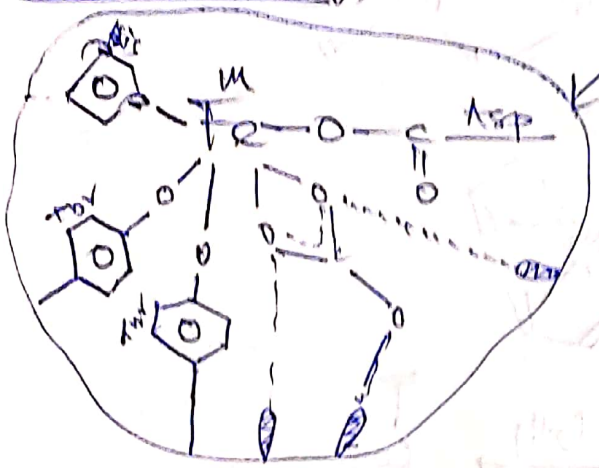
PR Name - 24.02.18.

Transferrin:⇒



Proteinchain.

Fe(III) → oh

At pH = 7 → stable
acidic →

Ceruplasmin:⇒ Cu Containg Protein.

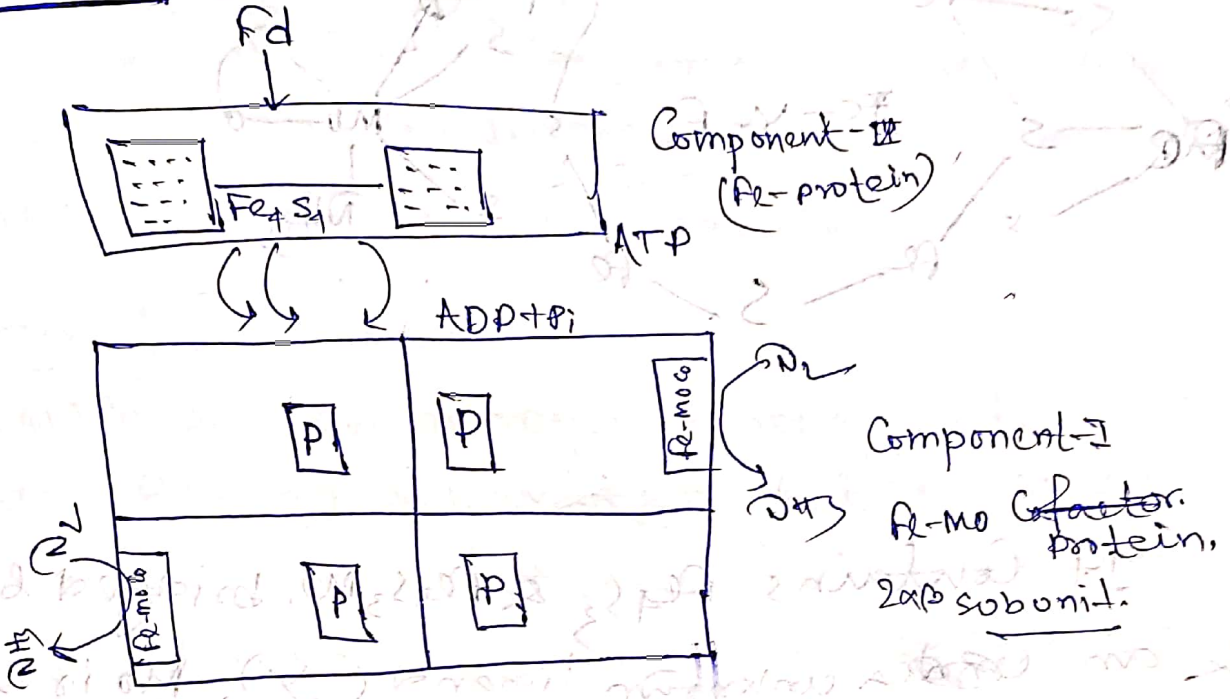
Cu is mainly found in brain, heart & liver where it is stored as Cu-thiosyl & released as ceruloplasmin. Ceruplasmin is a blue coloured protein & it is responsible for circulation of Cu in the blood. Human Ceruloplasmin is found to consist of four peptide chain & seven to eight Cu atom per molecule. This protein probably contains 2 type 1 copper, 1 type 2 Cu, & 4 type 3 Cu. This Cu protein is synthesised in liver. This is responsible for storage & transport of Cu.

Ceruloplasmin also catalyses oxidation of Fe(II) → Fe(III) then Fe(III) binds with the transferrin. So it is important for iron transport & consequent for Hb Syntheis.

Wilson's disease is caused by deficiency of Ceruloplasmin in this disease excess Cu is accumulated in brain & liver which leads to damage in central nervous system & different neurogical problem.

To remove this Cu deficiency, different chelating drug like D-penicilamine are suggested.

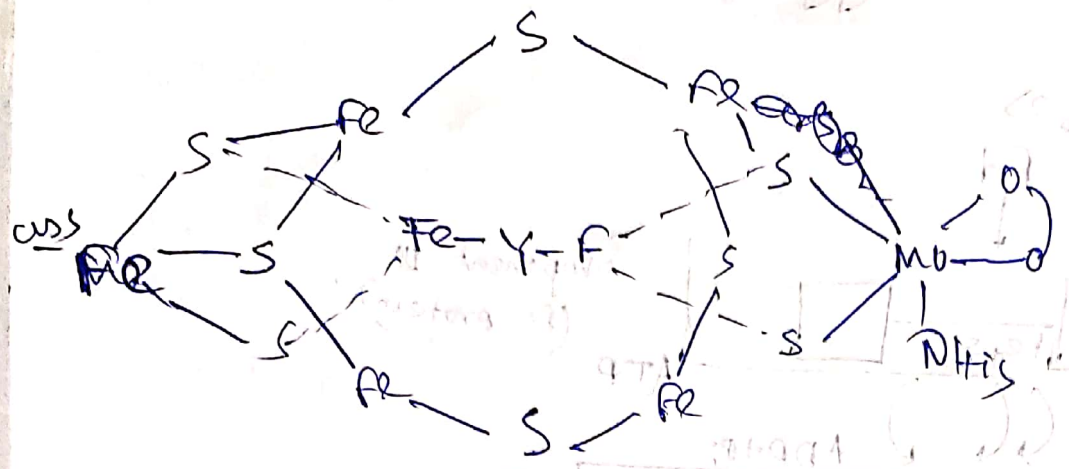
Nitrogenase [2]



Composition [2]

It Consist of 2 different Protein Component larger Protein Component Called Component-1 (Mo & Fe) it is Called Fe-Mo Co-factor. Smaller part is called as Component two (iron-protein) in terms of protein chain. The Component-1 is the dimer of $\alpha\beta$. Each unit Contains one Fe-Mo Co & two p clusture. Component two Consist of two identical Subunit, 1 Fe_4S_4 Clusture bridges their two Subunit the Fe-protein Can bind ATP in order to delivered one electron to Fe-Mo Co

Fe-MO Co :2).



It Contains Fe_4S_3 & Fe_3S_3Mo. bridged by & an unknown ligand (Y). Mo is six Co-ordinated & it is not likely to accomodate nitrogen. So the y is the site nitrogen binding function of different units in the activity of nitrogenase.

ATP hydrolysis :) The overall reduction of N_2 to NH_3 is thermodynamically allowed but the process passes through the formation of several unfavorable intermediate like N_2H_2, N_2H_4 to overcome this kinetic barrier ATP hydrolysis is required.

$$ATP \longrightarrow ADP + Pi$$

Ferridoxin :→ To transport e^- from source to Fe-protein

Fe protein (Component-II) :→

It acts on ATP binding site to deliver electron to Fe-Mo Co. In one e^- transfer process. it carries e^- from Fd to Fe-Mo Co

P-cluster :→

Fe-MoCo act as nitrogen binding site. two Fe-MoCo unit are widely separated but Fe-MoCo unit & P cluster are closely positioned & P cluster are the electron reorder so the overall e^- flow can be expressed as

Photosynthesis → Fd → Fe protein → P cluster → Fe-MoCo → N_2

Photosynthesis

P.R
12/04/19.

Dark Phase.

$CO_2 \longrightarrow C_6H_{12}O_6$

$NADPH^+ \longrightarrow NADP^+$

$ATP \longrightarrow ADP$

light phase.

$4H_2O \longrightarrow O_2$

$NADP^+ \longrightarrow NADPH$

$ADP + Pi \longrightarrow ATP$

chl a, b

680nm

P.S-II

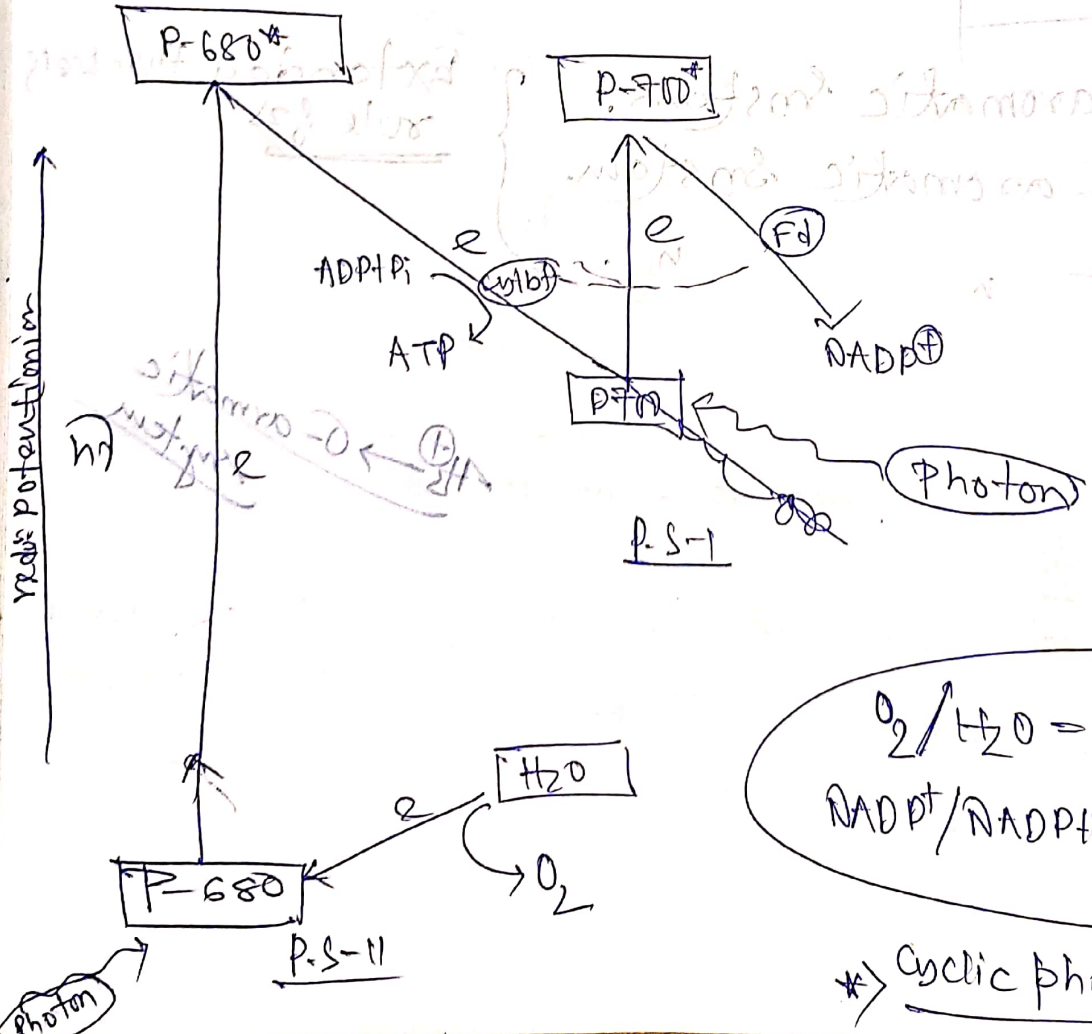
chl-b

700nm

P.S-I

$H_2O \xrightarrow{e} NADP^+$

the flow of e^- from H_2O to $NADP^+$ looks like Z plot or this is called **Z-scheme.**

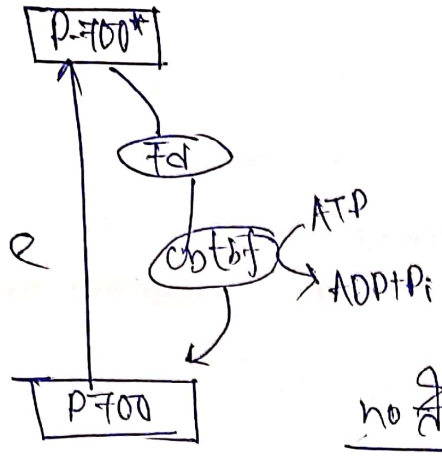


$O_2/H_2O = +0.82V$

$NADP^+/NADPH = -0.34V$

*) Cyclic photophosphorila

cyclic photophosphyralation O_2



no formation of O_2 & carbohydrate.

Electron flow in P.S-II O_2