

to draw:

- **Vit. A / retinal / retinol**
 - absorbing light
 - def: night blindness
 - carrots, tomatoes, etc.

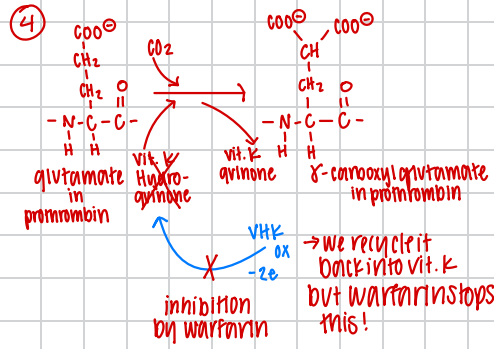
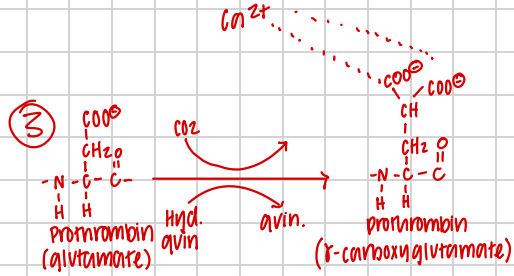
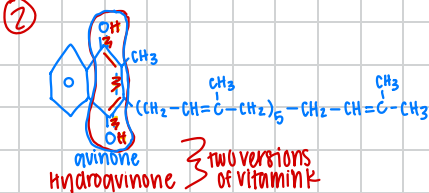
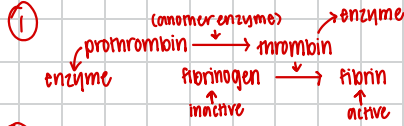


• **Vit. D**

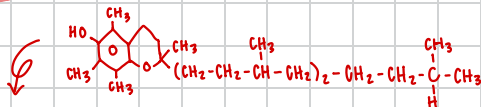


• **Vit. K**

- clot formation
- bacteria in our gut
- unable to clot if deficient

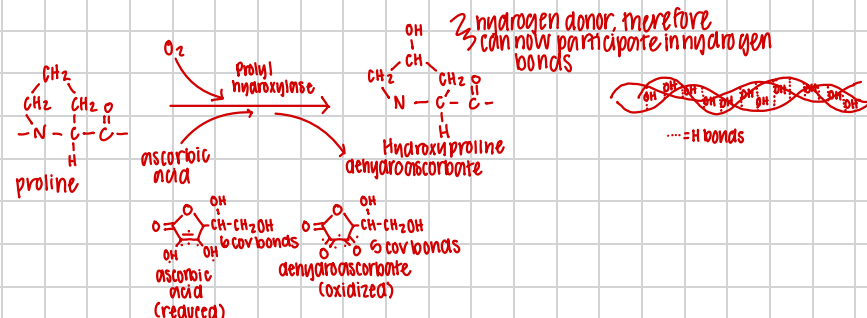
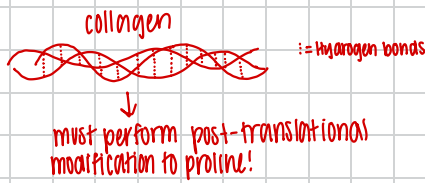


• **Vit. E**

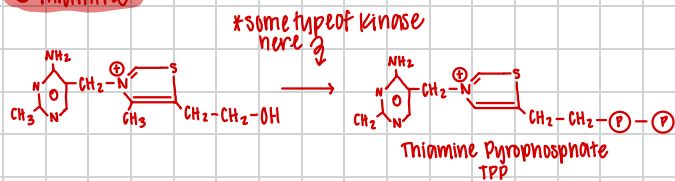


• **ascorbic acid / ascorbate**

- CT formation + collagen
- scurvy: CT loses its function



Thiamine



- decarboxylation: removal of a carboxyl group

decarboxylases need TPP for activity. (they bind to each other)

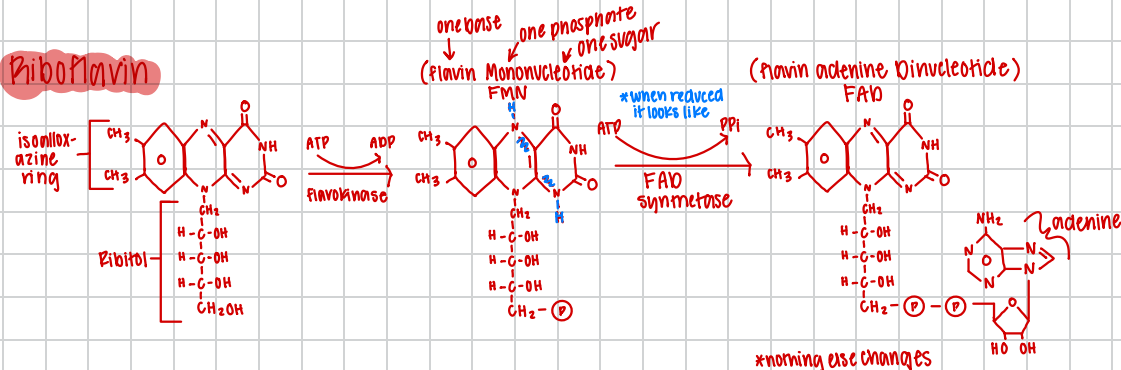
required for energy production & metabolism

really important in aerobic respiration

- B₂ deficiency: Beri-Beri

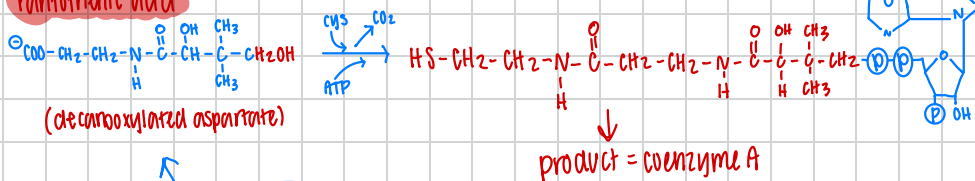
Wernicke's encephalopathy

Riboflavin



- impossible for deficiency b/c all organisms need them

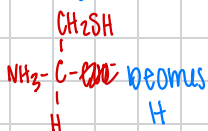
Pantoic acid



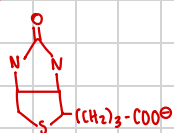
(decarboxylated aspartate)

add this there

decarboxylated cysteine



Biotin B7



no known deficiency

- carboxylase requires biotin

covalently linked to carboxyl groups as a prosthetic group