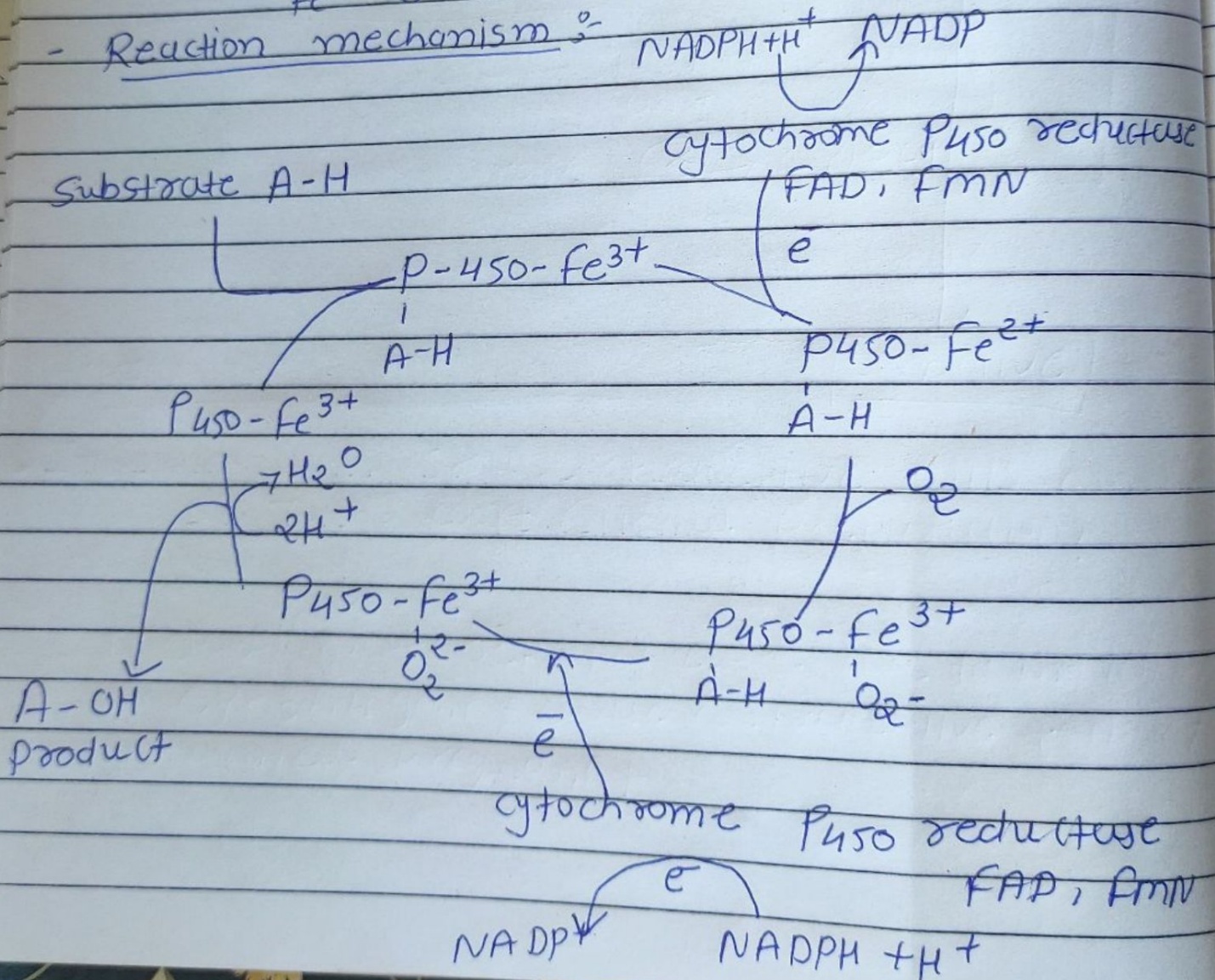


Hydrolysis

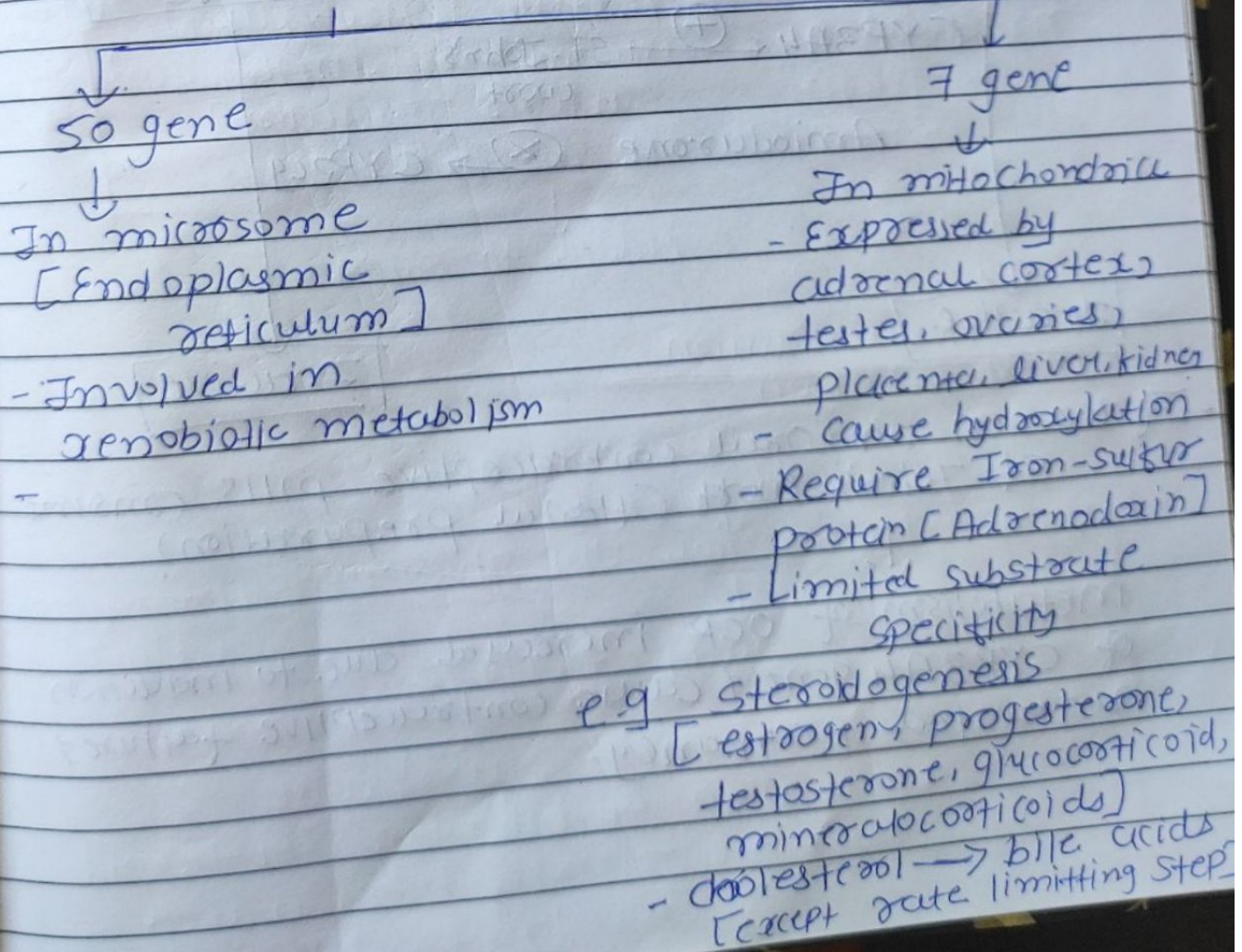
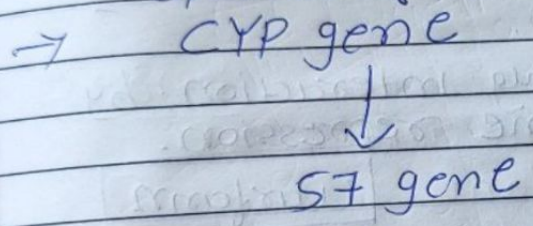
* Cytochrome P450 (CYP) Superfamily :-

- Hemoproteins enzyme
- present in all nucleated cell of body
- Highest concentration - Liver >>> Intestine > kidney
- P450 - wavelength 450 - maximum light absorb
- Fe^{2+} bound with carbon monoxide [CO]
- Reaction mechanism :-



- also called monooxygenases - one oxygen atom is added to substrate
- also called as mixed function oxidases
 - Oxygen atom - incorporated into substrate
 - getting protonated & form water
- CYP gene show polymorphism
- Broad substrate specificity - catalyze metabolism of more than one xenobiotic
- Reaction mechanism :- Hydroxylation

- N-Demethylation
- Deamination
- S-oxidation
- N-oxidation
- Dehalogenation
- Epoxide formation



- Hydroxylation of vitamin D in liver by 25-Hydroxylase to form 25-Hydroxycholecalciferol.

→ Nomenclature of enzyme:

Cytochrome P450
superfamily

CYP 2 D 6 [1*/1*]

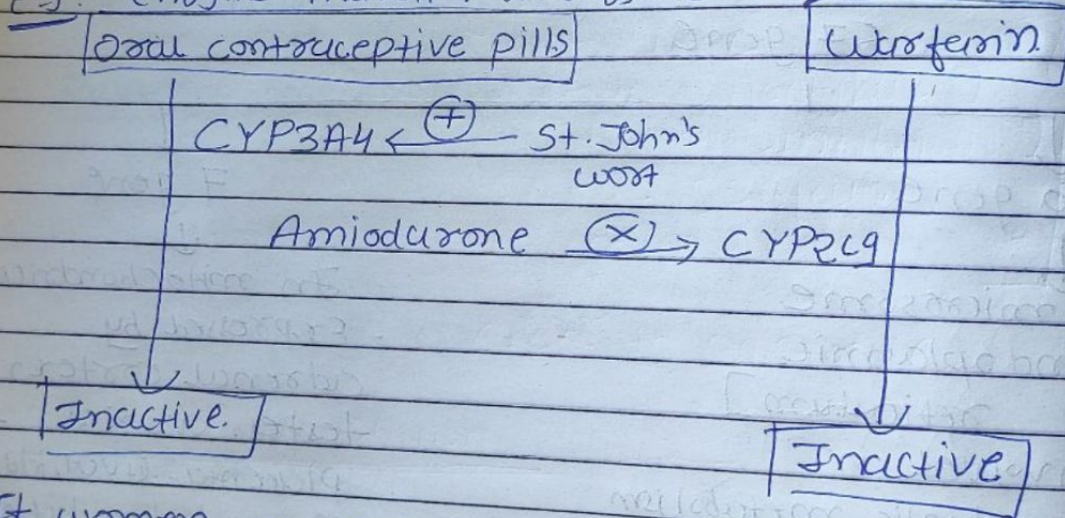
↓ alleles

↓ Individual enzyme

Family: >40% amino acid sequence similarity

Subfamily: >55% amino acid sequence similarity

→ Responsible for drug-drug interaction by e.g. enzyme induction or enzyme repression.



- If women on oral contraceptive pills consume St. John's wort (Herbal preparation)

↓
metabolism of OCP increased due to induction of CYP3A4 gene & cause contraceptive failure & unwanted pregnancy.

- ~~if (0.8)~~

- Amiodarone (antiarrhythmic drug)



⊖ metabolism of warfarin by ⊖ CYP2C9 enzyme & cause increased chances of bleeding tendencies