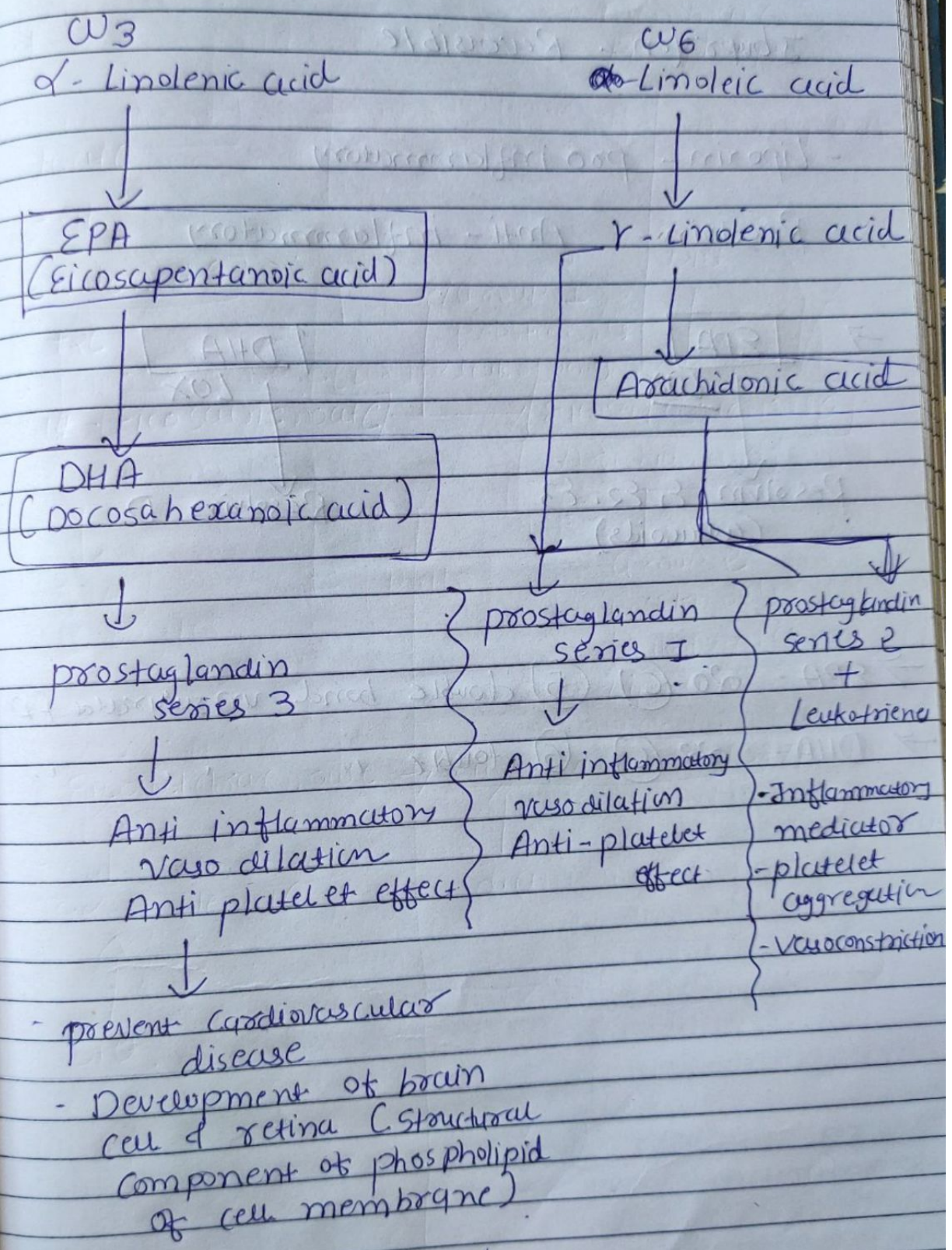


* EPA & DHA - Biochemical basis of their role in health



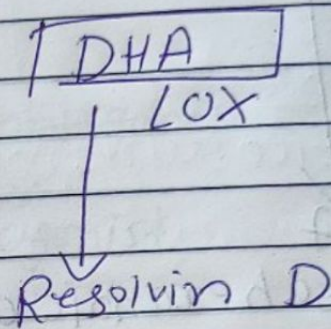
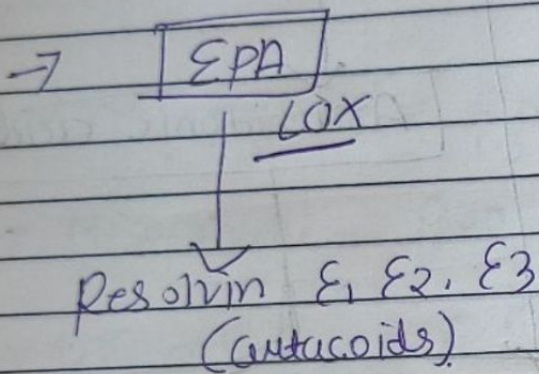
→ Source - cod liver oil
 fish liver oil
 walnut
 flax seed

Aspirin - Irreversible

Ibuprofen - Reversible

- Lipoxin - pro inflammatory

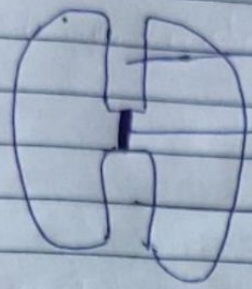
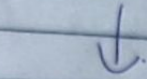
- Resolvin - Anti-inflammatory



→ EPA - 20 (C) (5) double bond - unsaturated FA

→ DHA - 22 (C) (6) double " " " "

COX enzyme



→ peroxidase domain (Heme containing)

→ tyrosine residue

→ cyclooxygenase domain

- peroxidase domain converts tyrosine to free radical

- tyrosine is part of cyclooxygenase active site

- At active site of COX domain - tyrosine is present.

- For ~~to~~ binding to COX site ~~is~~ possible if tyrosine is removed by activity of peroxidase domain
~~if will be removed~~

- Arachidonic acid → free radical intermediate



PGG₂

- At COX domain - Serine (OH) is ~~not~~ (active site)

But required for action of aspirin

as it will be acetylated by aspirin

(make ester bond $\text{OH} = \text{CH}_3$)

Not required for normal functioning of enzyme

→ ⊖ lipoxin production

→ Leukotrienes

↓
Antagonist

→ (R) antagonist - Montelukast
Zafirlukast
→ ^{Lox} Enzyme antagonist - Zileuton

Use - In asthma

→ Mifepristone - progesterone antagonist

→ Misoprostol - prostaglandin ^{even} agonist

→ prostatin - PGE₂