TAG

Glycerol

FAs

Glucose

Glyceroneogenesis

Non-Glucose Precursors

Pyruvate → PC

OAA

PEP

G3P

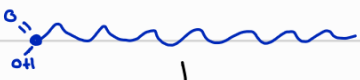
DHAP

Regulate FAs

→ DM. 2

acetyl CoA — CoA

Malonyl CoA — CoA



0-16 C

Elongation

16 -----

unsat.

Cytosol

Liver, adipose

FAS

SER, Mitochs.

Malonyl CoA

NADPH

Acetyl CoA

NADH

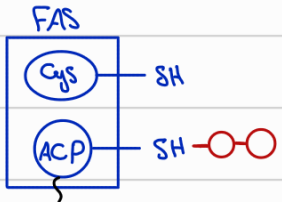
NADPH

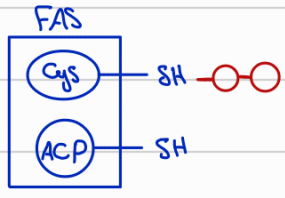
SER

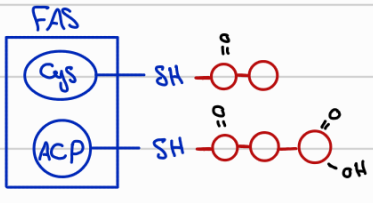
Desaturase

NADH

O_2, Cyt b5

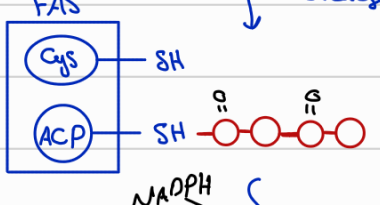






decarboxyl

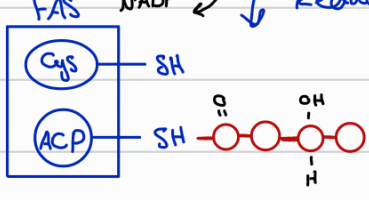
Condesation

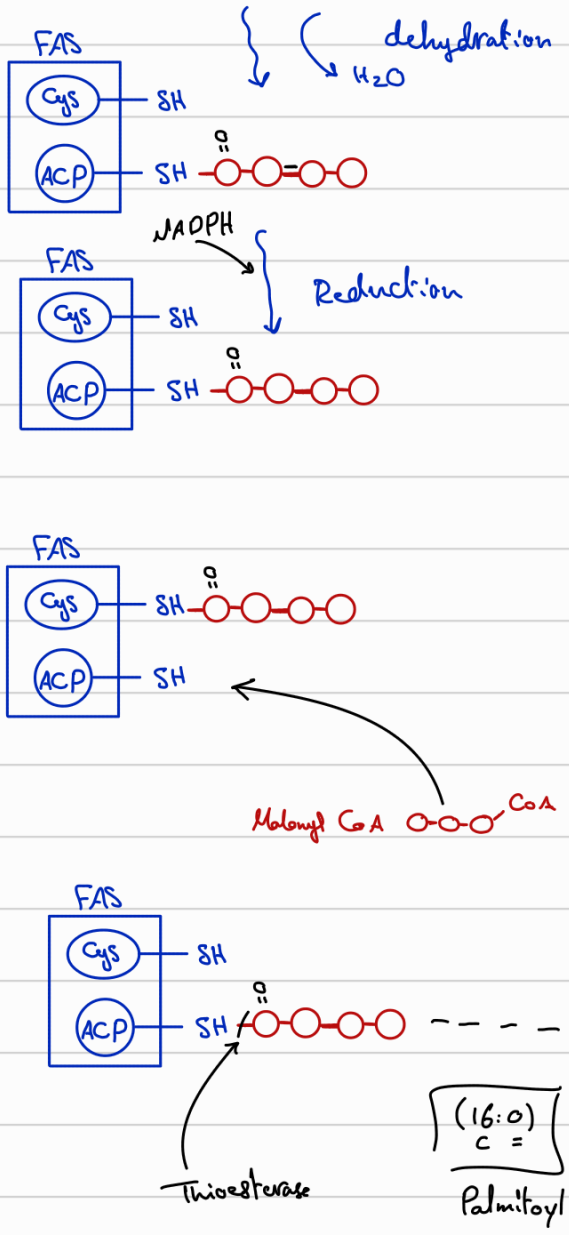


NADPH

$NADP^+$

Reduction





NADPH → PPP , Malate → Pyruvate

Acetyl CoA → Pyruvate Oxidation , Citrate

Malonyl CoA → acetyl CoA (2C) + CO_2 (1C) = (3C)

Carboxylase (ACC)

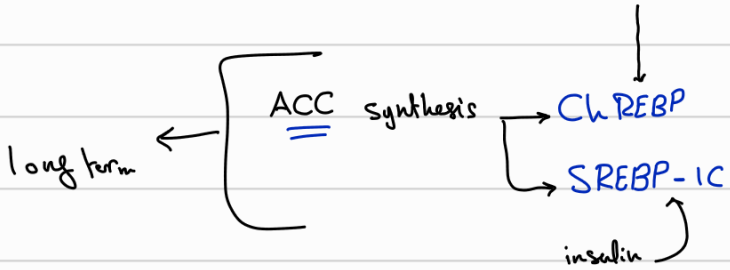
B7

Rate limiting step

Short term — ACC

(+) high energy state insulin , Phosphatase , Citrate

(−) low energy state Glucagon , AMPK , Palmitoyl CoA , Epinephrine

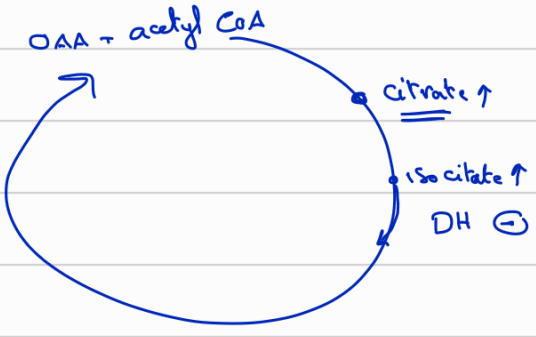


Metphormin

↓ TAGs

↓ Glucose

ACC 2 inhibitors ⇝ weight loss



Citrate (6C)

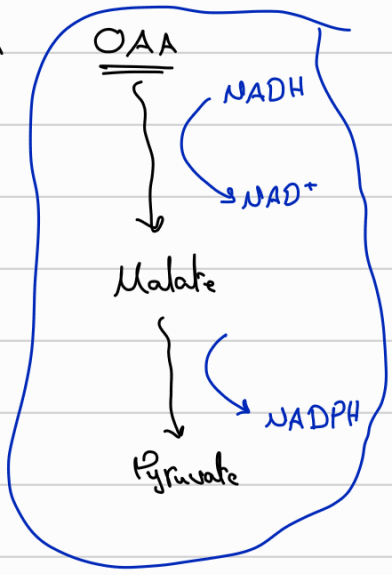
ATP citrate lyase

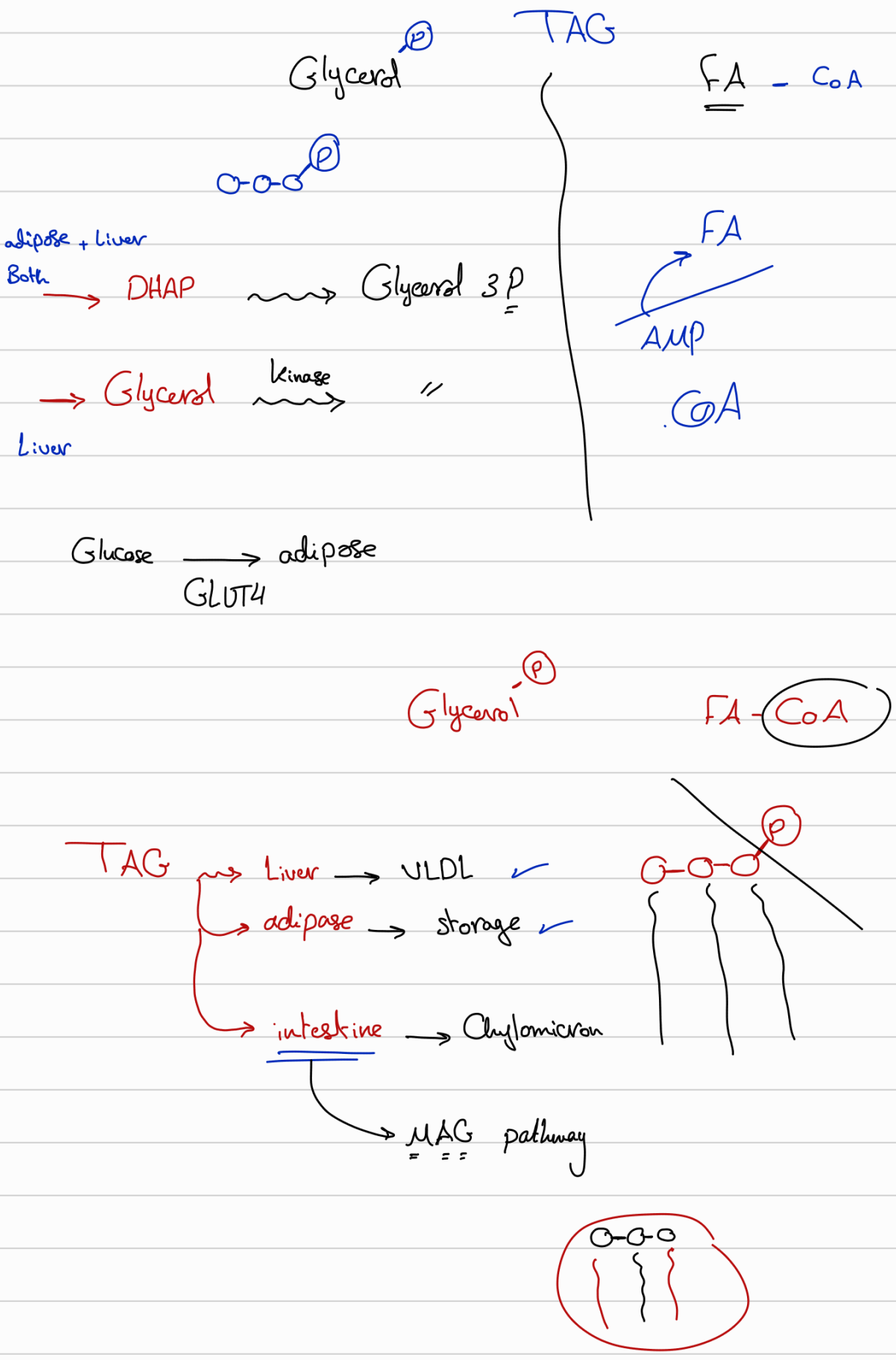
(2C) (4C)

Acetyl CoA

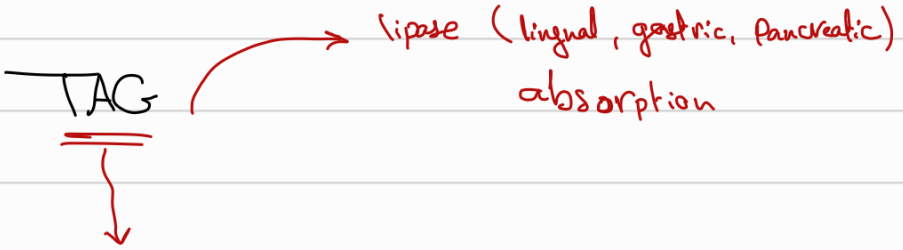
↓

FAs

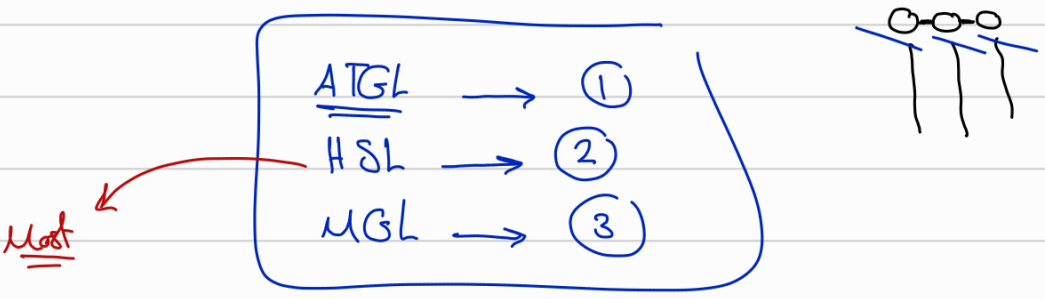


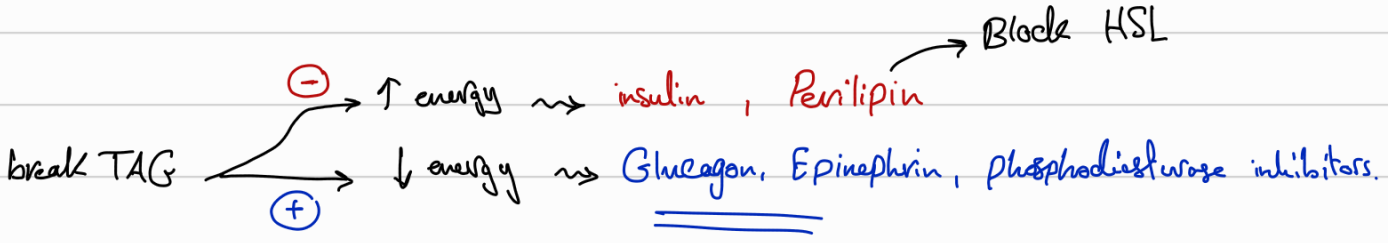

Glycerol
P
TAG
FA - CoA
O-O-O
P
adipose + Liver
Both
DHAP
Glycerol 3P
FA
AMP
CoA
Glycerol
Kinase
Liver
Glucose
adipose
GLUT4

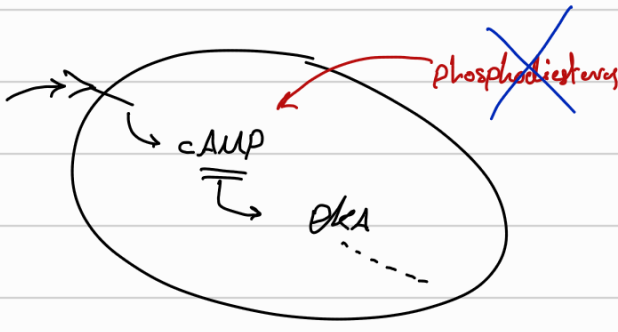
Glycerol
P
FA - CoA
TAG
Liver
VLDL
adipose
storage
intestine
Chylomicron
MAG pathway
O-O-O
P
O-O-O



To produce energy







FA

① β-Oxidation → Mitochondrial Matrix

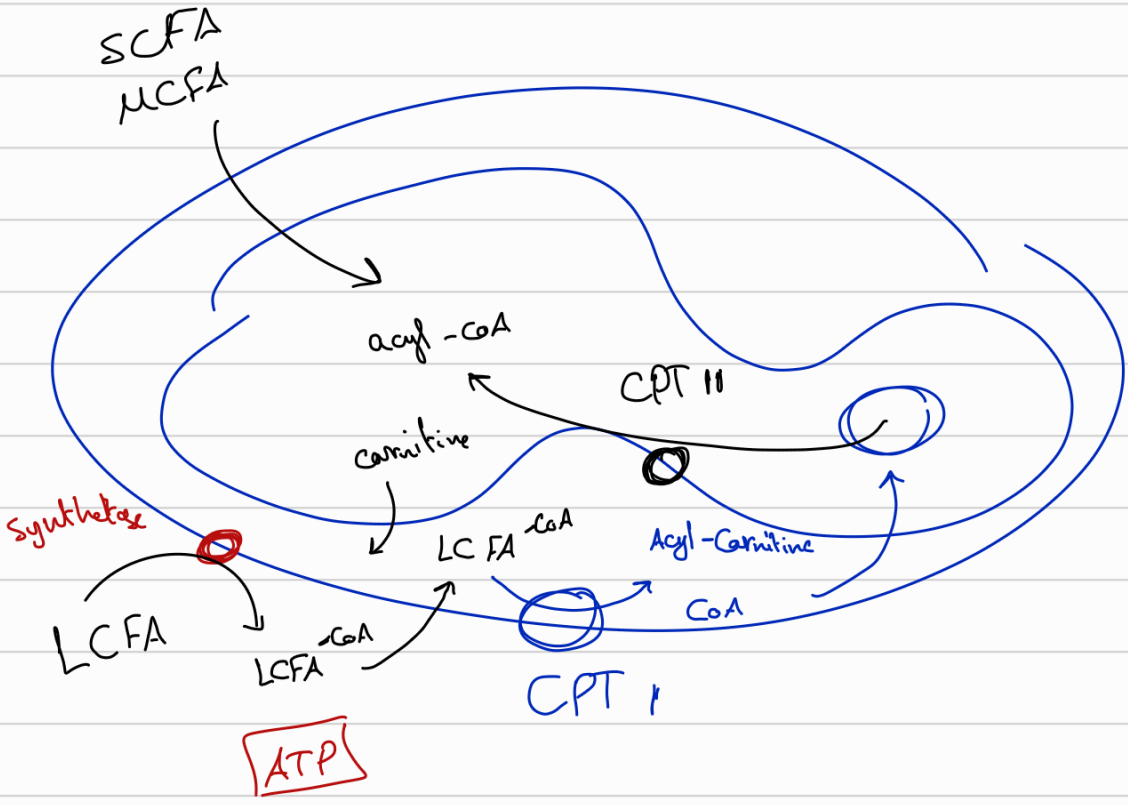
(2) ODD

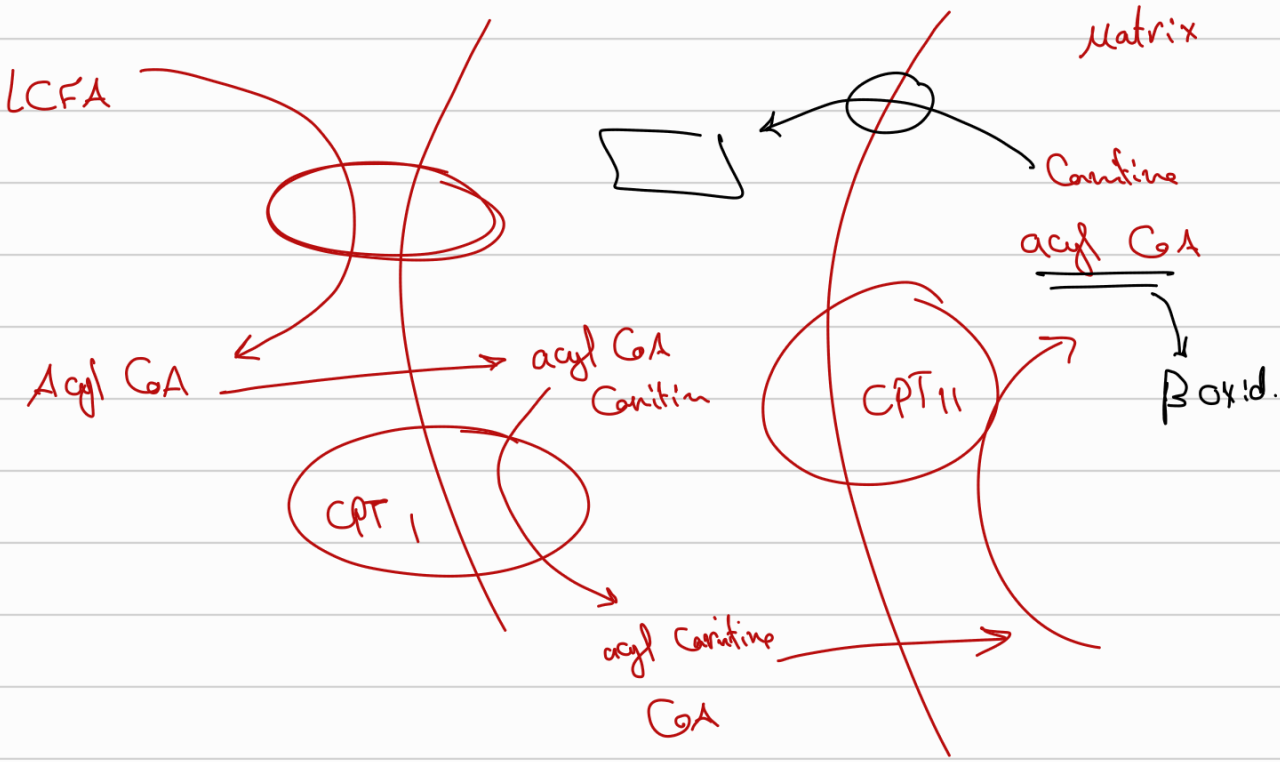
(3) unsaturated

(4) Peroxisome β-oxid.

(5) α-oxida.

(6) ω-oxidation


SCFA
MCFA
acyl -CoA
CPT II
carnitine
synthetase
LC FA
CoA
Acyl-Carnitine
LCFA
LCFA
CoA
CoA
CPT I
ATP


Matrix
LCFA
Carnitine
acyl CoA
Acyl CoA
acyl CoA
Carnitin
CPT II
β oxid.
CPT I
acyl Carnitine
CoA