Mitochondrial dysfunction in ME/CFS

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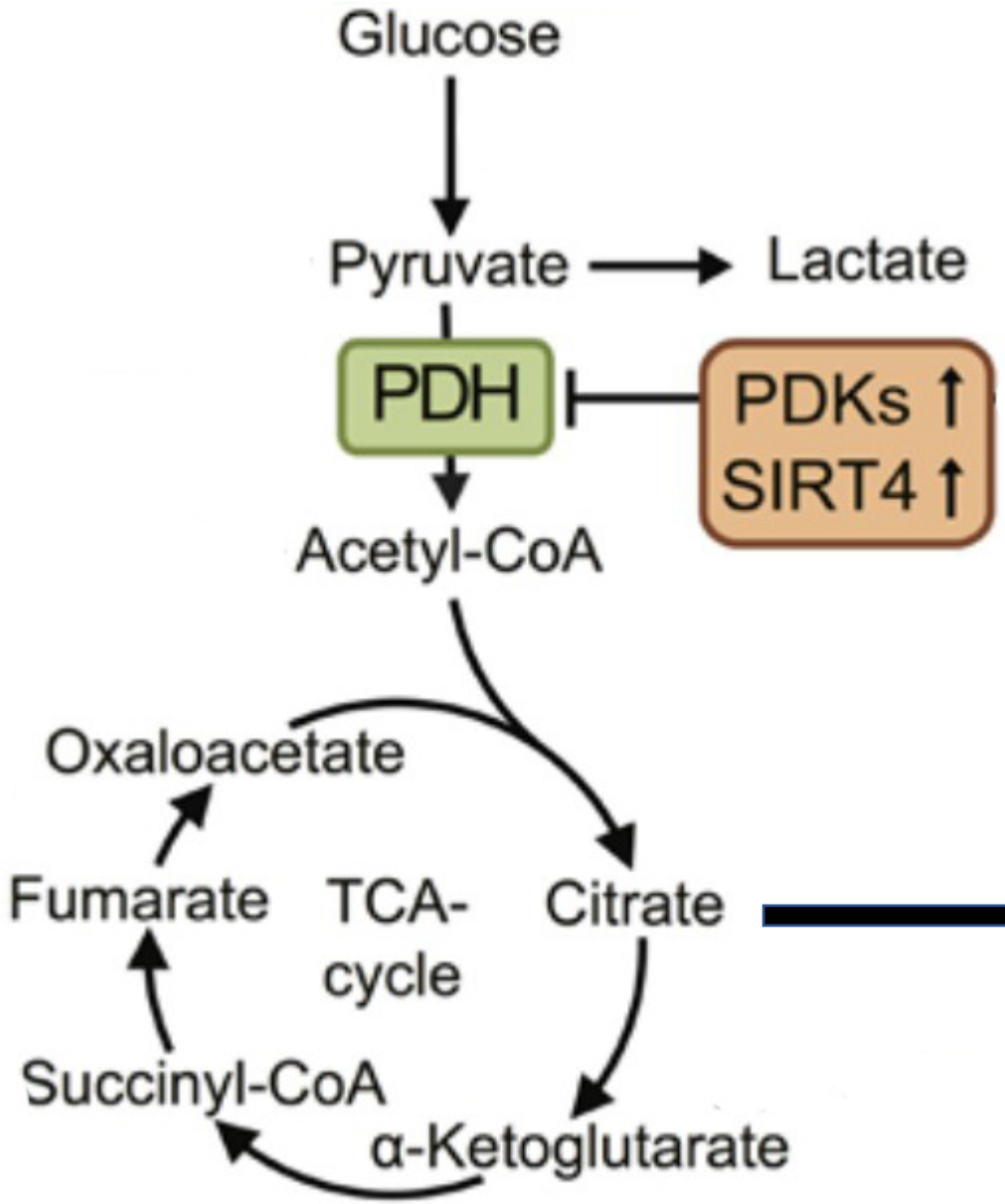
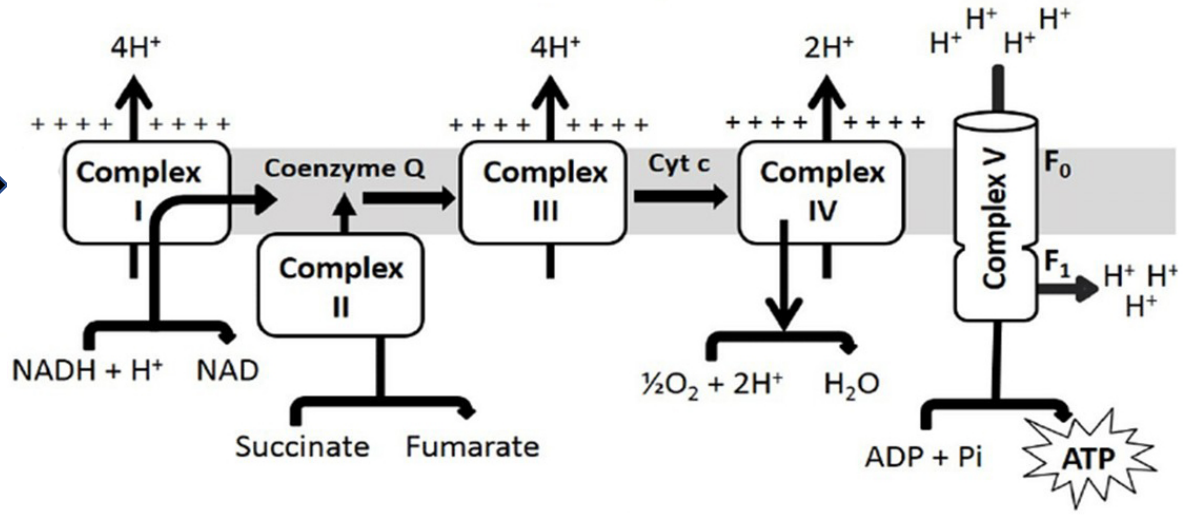
Do you know?

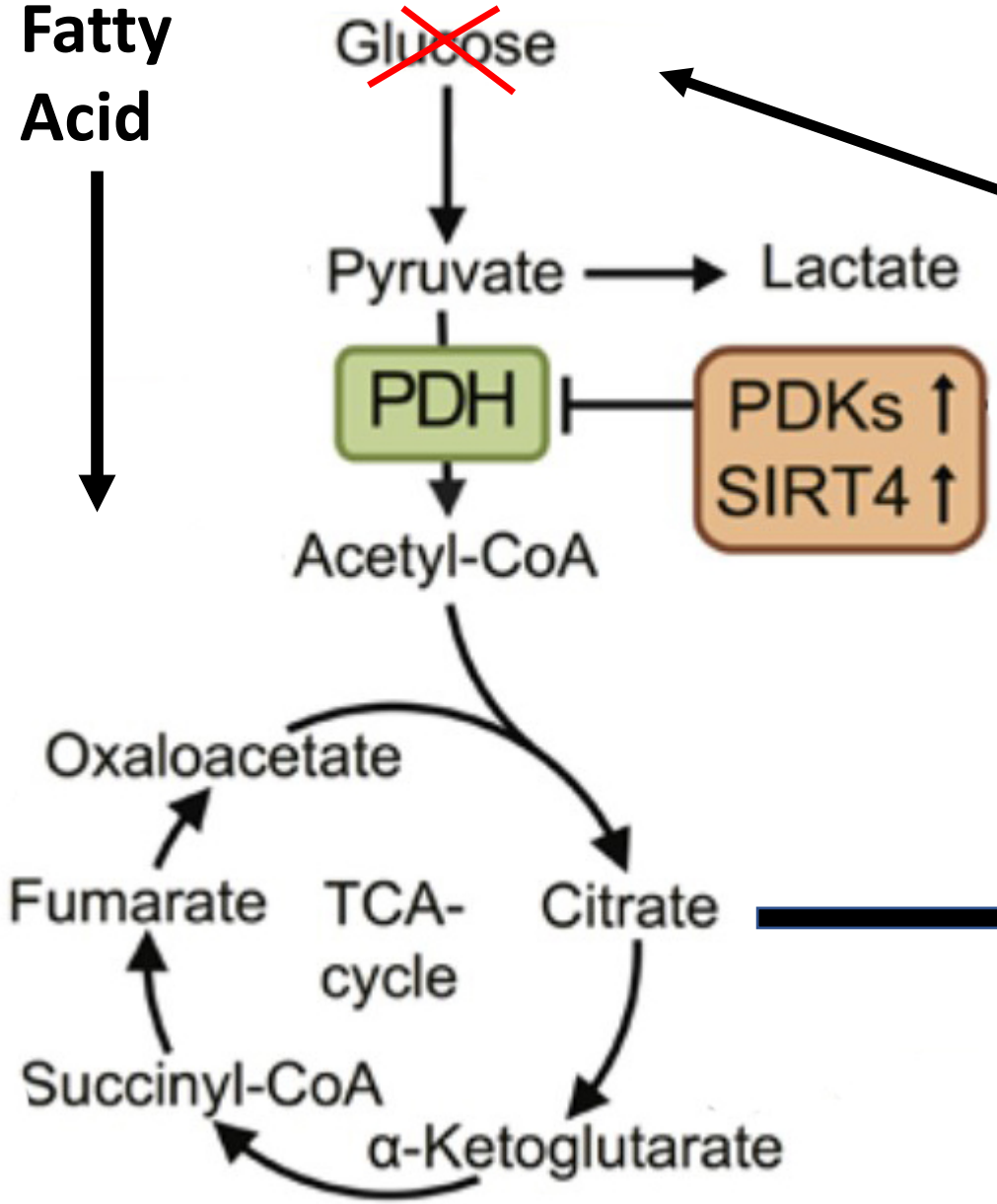
Man with the hammer?
Hunger knock?



“Man with the hammer”
“Hunger knock”



Fatty Acid



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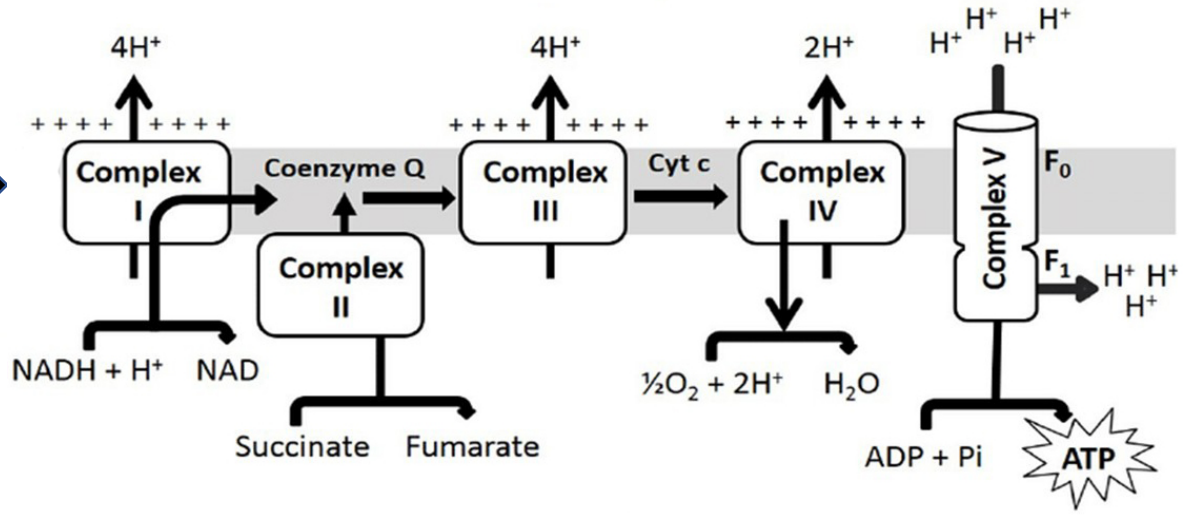

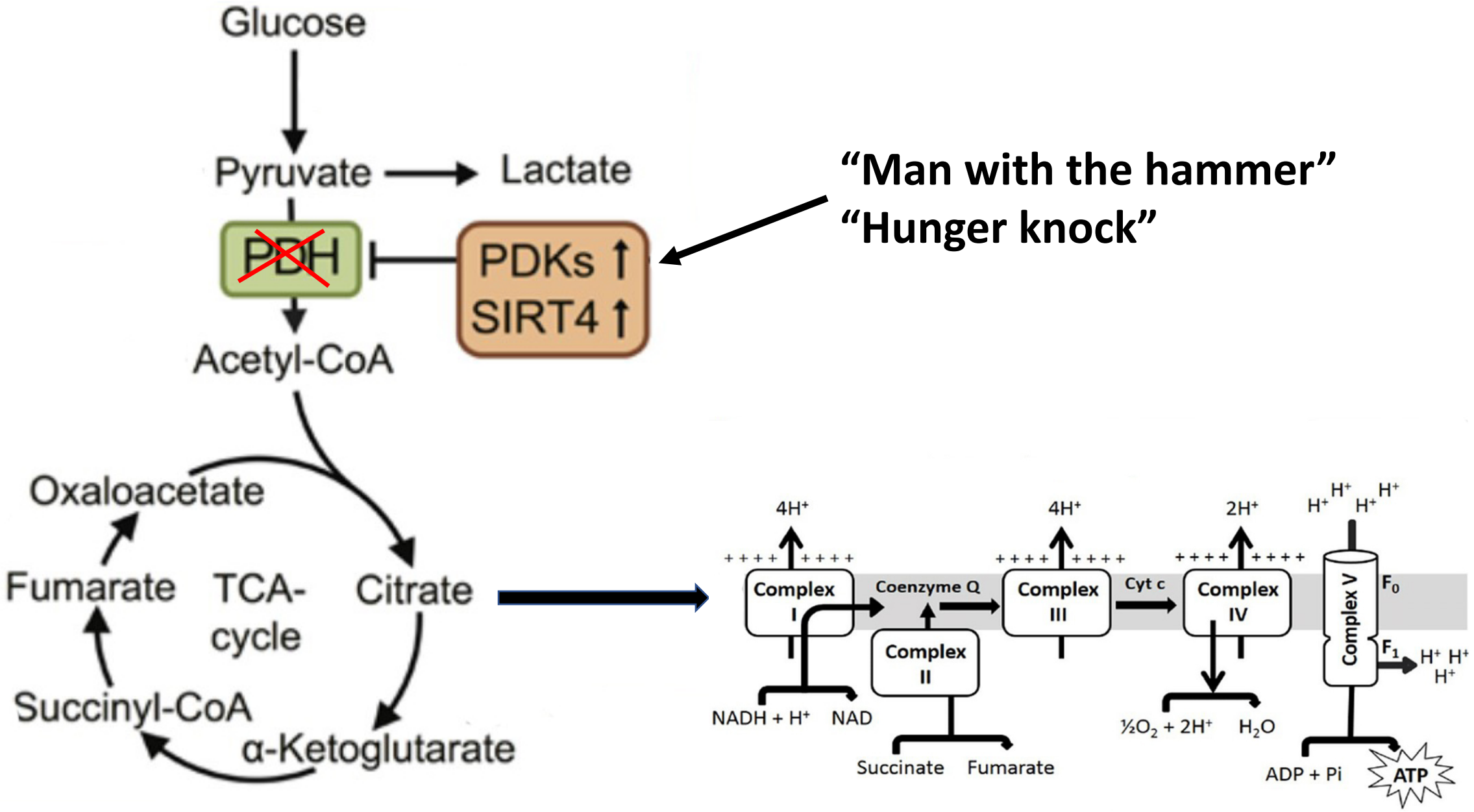

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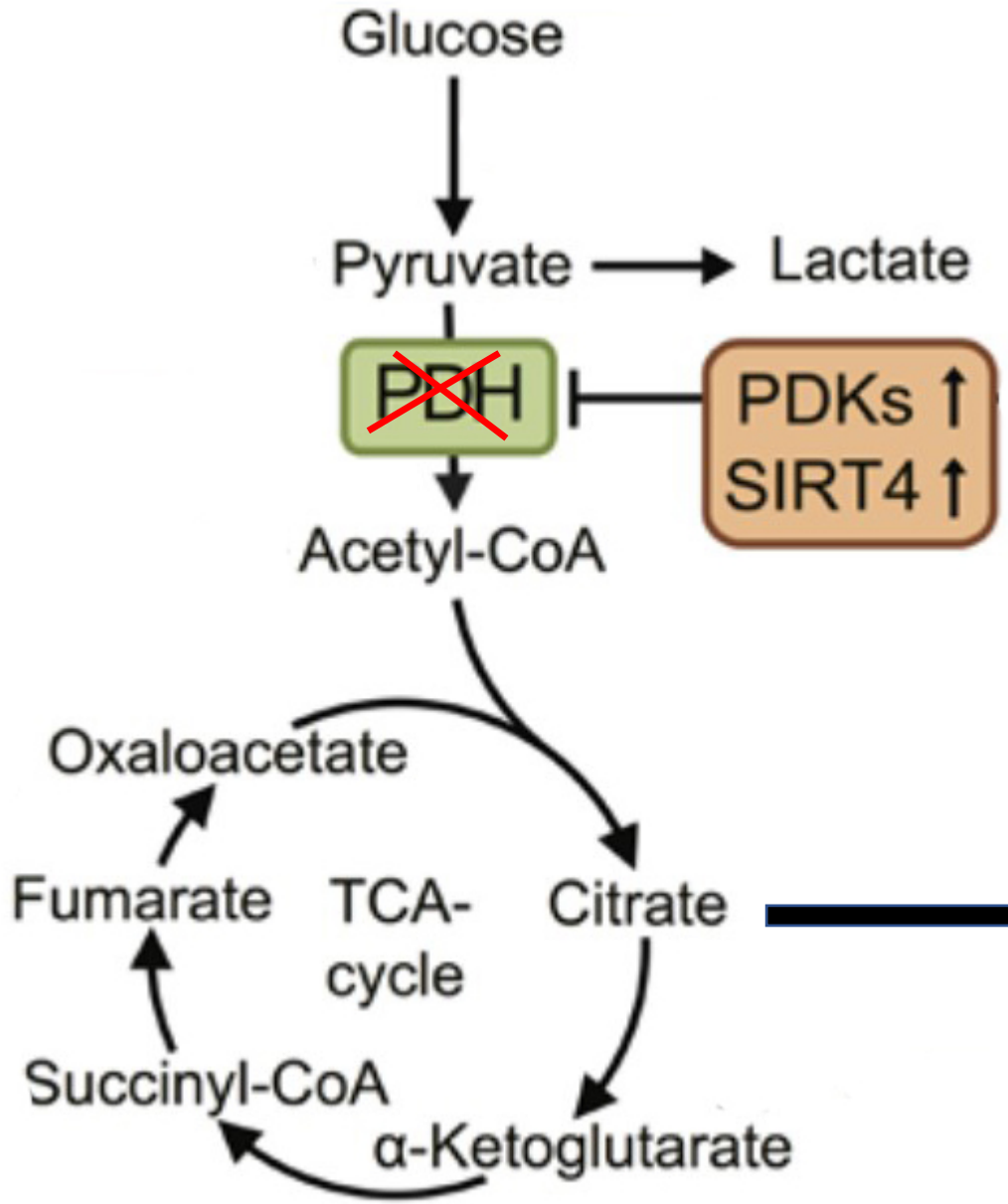
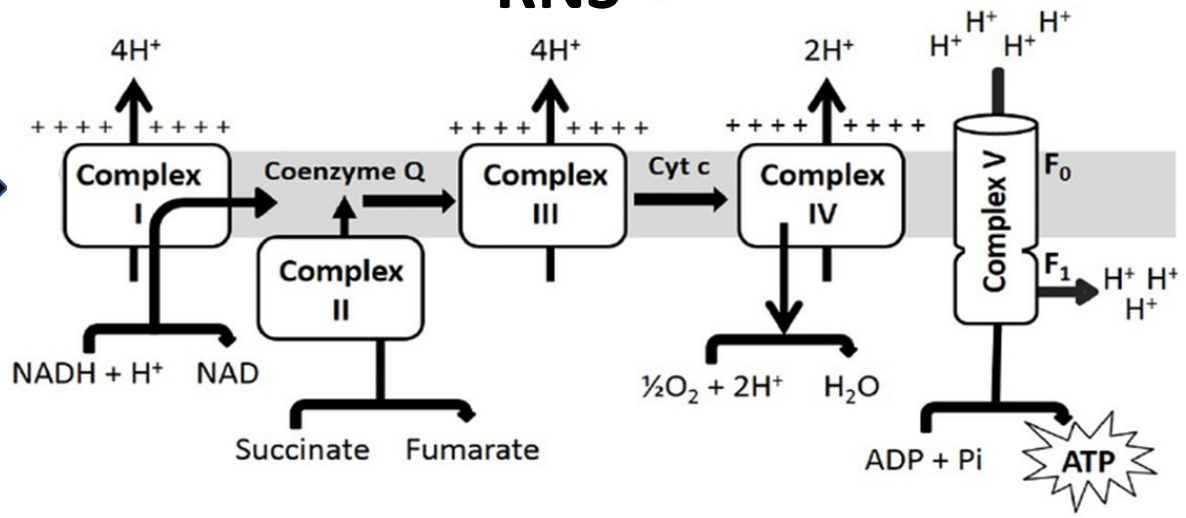
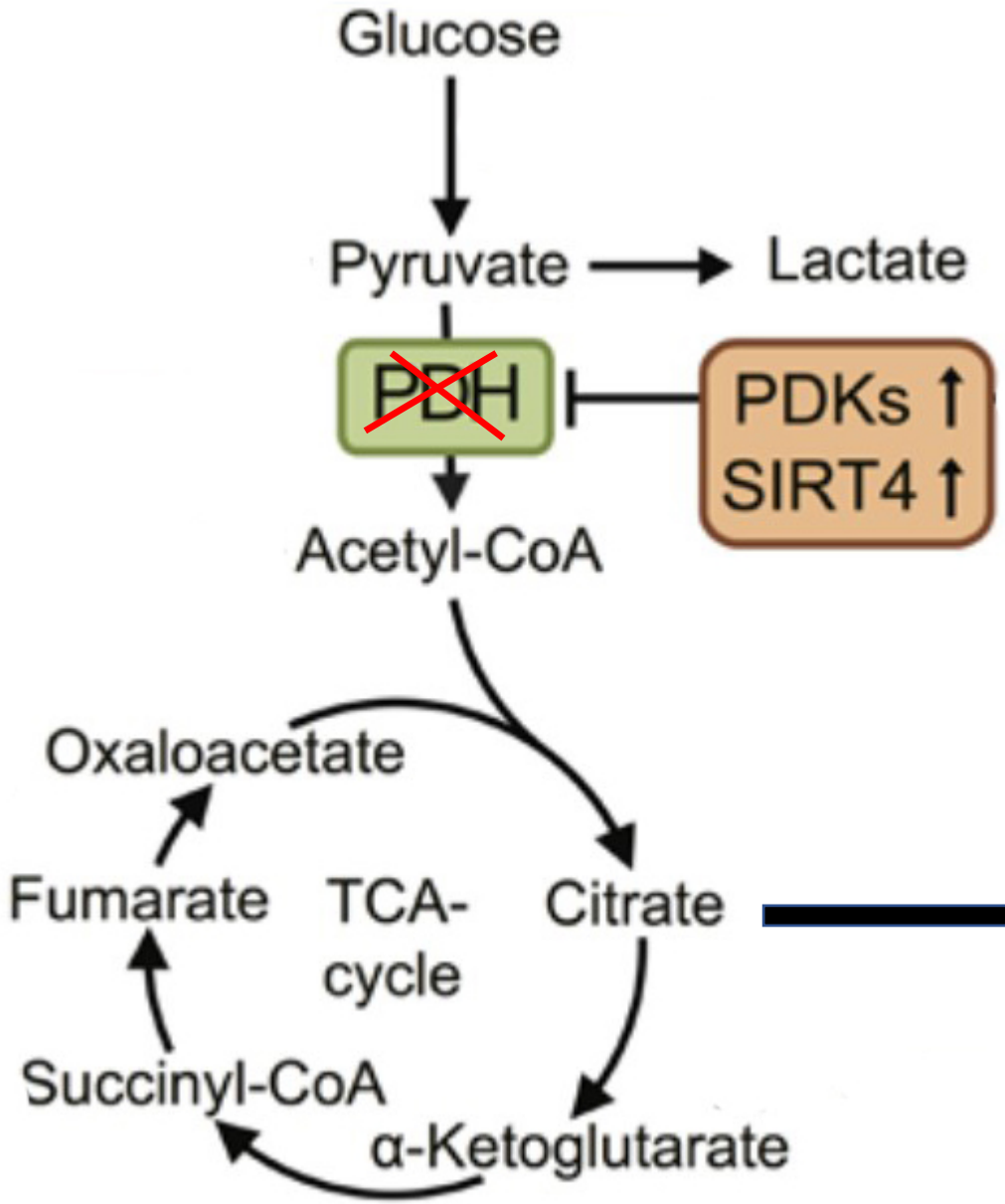

Glucose
Pyruvate
Lactate
PDH
PDKs ↑
SIRT4 ↑
Acetyl-CoA
Oxaloacetate
Fumarate
TCA-cycle
Citrate
Succinyl-CoA
α-Ketoglutarate

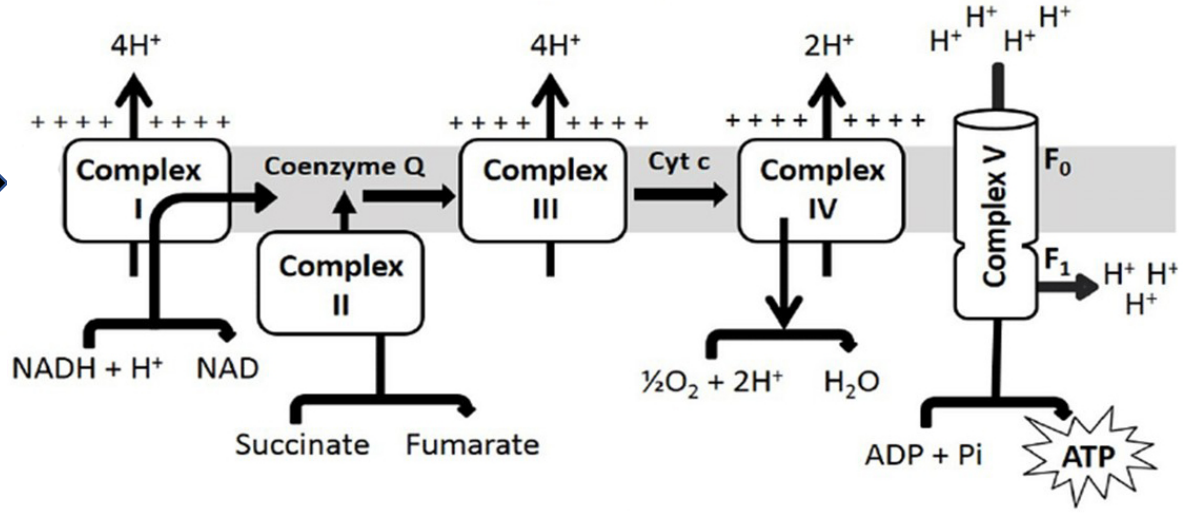
ROS
RNS


4H+
4H+
2H+
H+ H+ H+
Complex I
Coenzyme Q
Complex III
Cyt c
Complex IV
Complex V
F0
F1
H+ H+ H+
Complex II
NADH + H+
NAD
½O2 + 2H+
H2O
Succinate
Fumarate
ADP + Pi
ATP

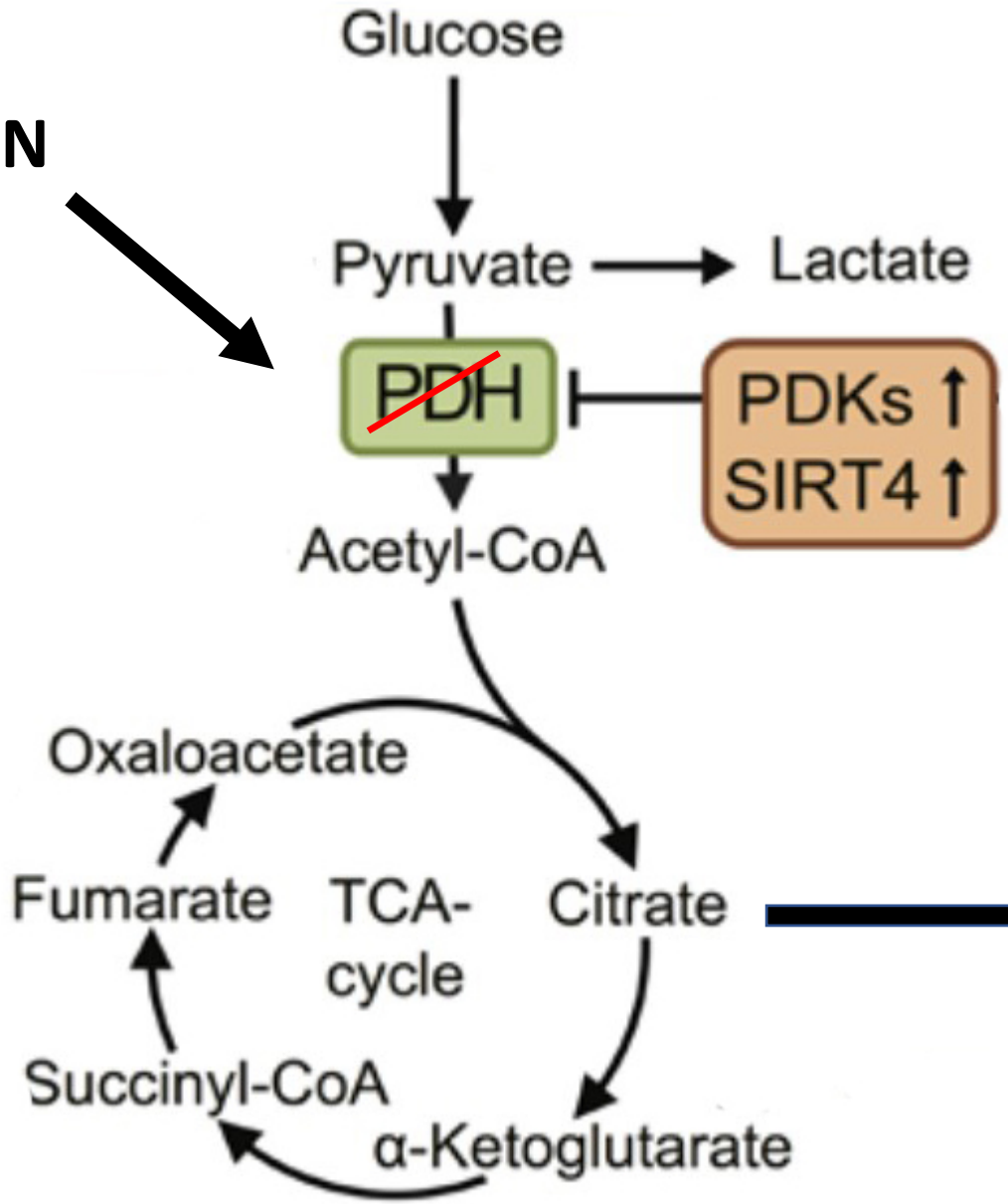


CoQ / mitoQ
A-lipoic acid
L-carnitine

ROS
RNS



LDN



CoQ / mitoQ
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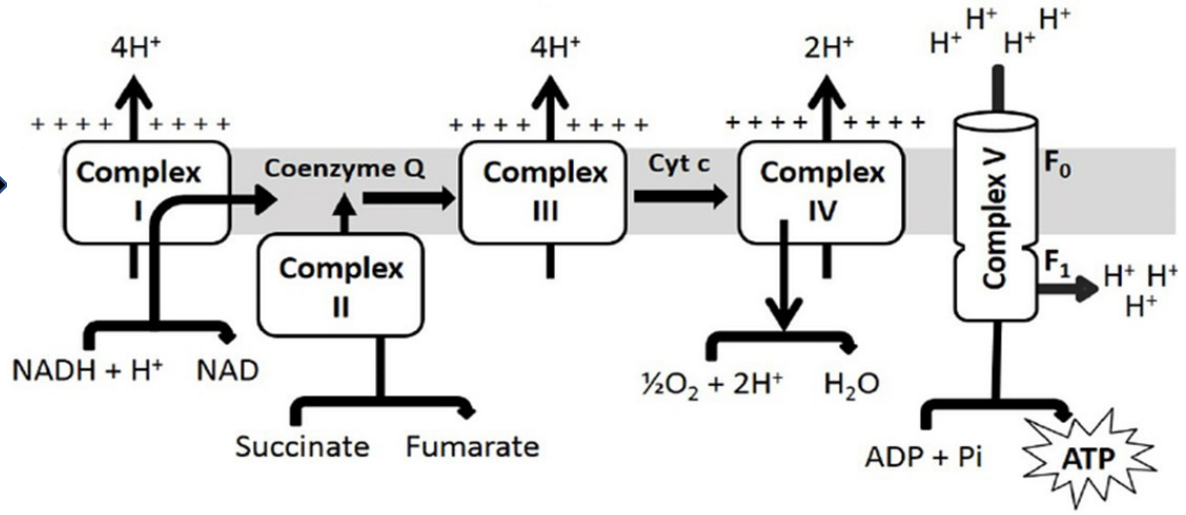
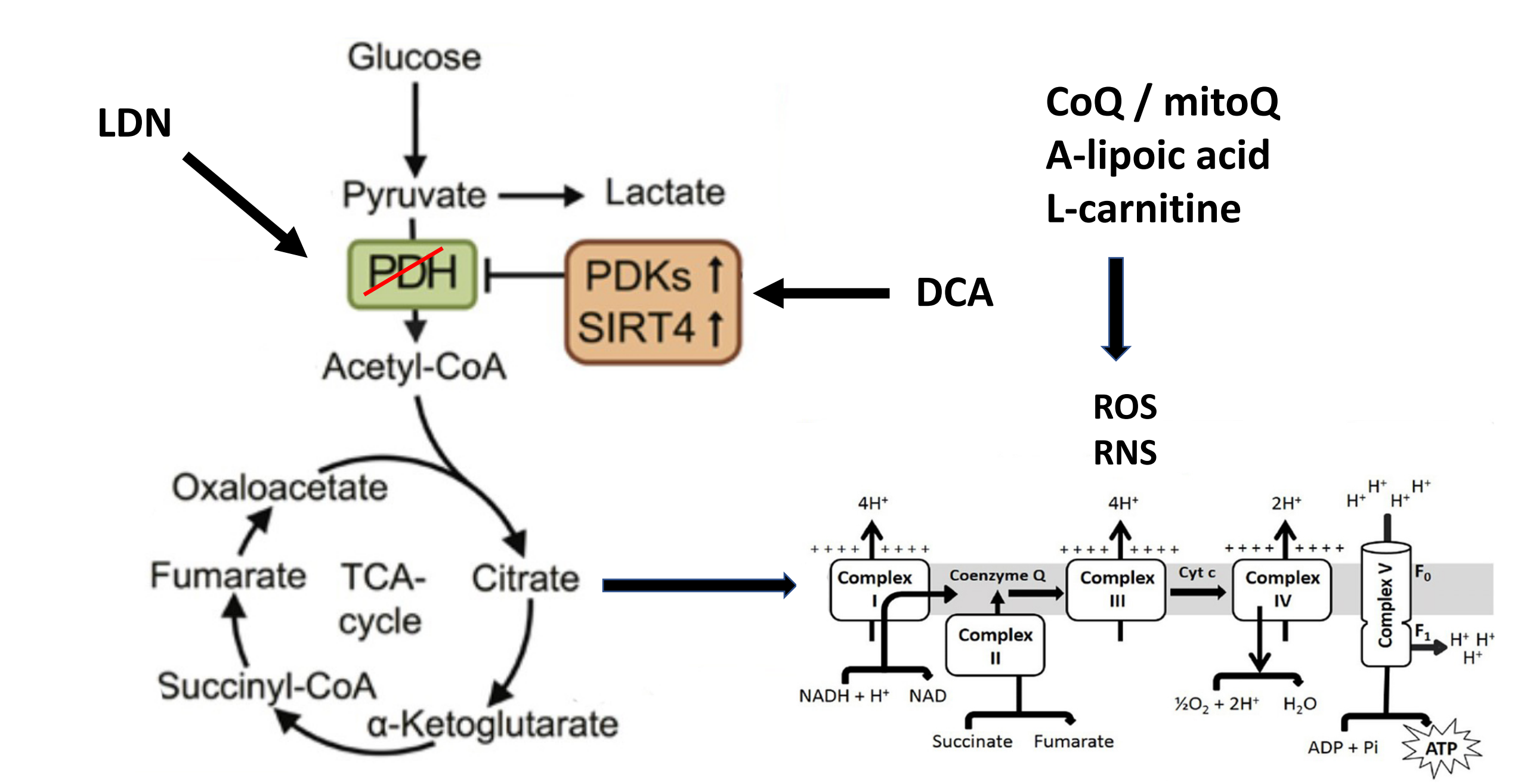
ROS
RNS

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Pyruvate
Lactate
PDH
PDKs ↑
SIRT4 ↑
Acetyl-CoA
DCA
CoQ / mitoQ
A-lipoic acid
L-carnitine
ROS
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Oxaloacetate
Fumarate
TCA-cycle
Citrate
Succinyl-CoA
α-Ketoglutarate
4H+
4H+
2H+
H+ H+ H+
Complex I
Coenzyme Q
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F0
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H+ H+ H+
Complex II
NADH + H+
NAD
½O2 + 2H+
H2O
Succinate
Fumarate
ADP + Pi
ATP

1. Reduce the ROS and RNS with
    a. CoQ/MitoQ 200 mg / 20 mg
    b. A-lipoic acid 200 – 400 mg
    c. L-carnitine 2 – 4 g
    d. Etc.

2. Reduce the activity of microglia / immune system
    a. Low dose naltrexone 0,5 - 4,5 mg
    b. Azithromycin 250 mg
    c. UVB
    d. Rituximab
    e. Methotrexate
    f. (Alternative: H1 and H2 blocker).

3. Block pyruvaat dehydrogenase kinase
    a. Dichloroacetate 500-1000 mg