

Hyperglycemia

Pathways

Polyol

Diacylglycerol

Advanced glycation endproducts

\downarrow iNOS - eNOS

\nearrow uncouplet
eNOS

\nearrow mitochondria
respiratory chain

\nearrow xanthine
oxidoreductase

\nearrow NAD(P) H
oxidase

+ Ang II

\downarrow $\cdot\text{NO}$

ONOO⁻

Peroxynitrite
ONO₂H

O_2^-

Cu/Zn-SOD

Mn-SOD

$\nearrow \text{H}_2\text{O}_2$

Catalases

Fe
Cu

$\cdot\text{OH}$

$\text{H}_2\text{O} + \text{O}_2$

Cytosol

Proteins

Enzymes

DNA

Lipids

Oxidative damages

Trx 1
oxidised

Trx 1
reduced

Reduced
Prx 3
or 5

Reduced
Trx 2

Oxidised
Prx 3
or 5

Oxidised
Trx 2

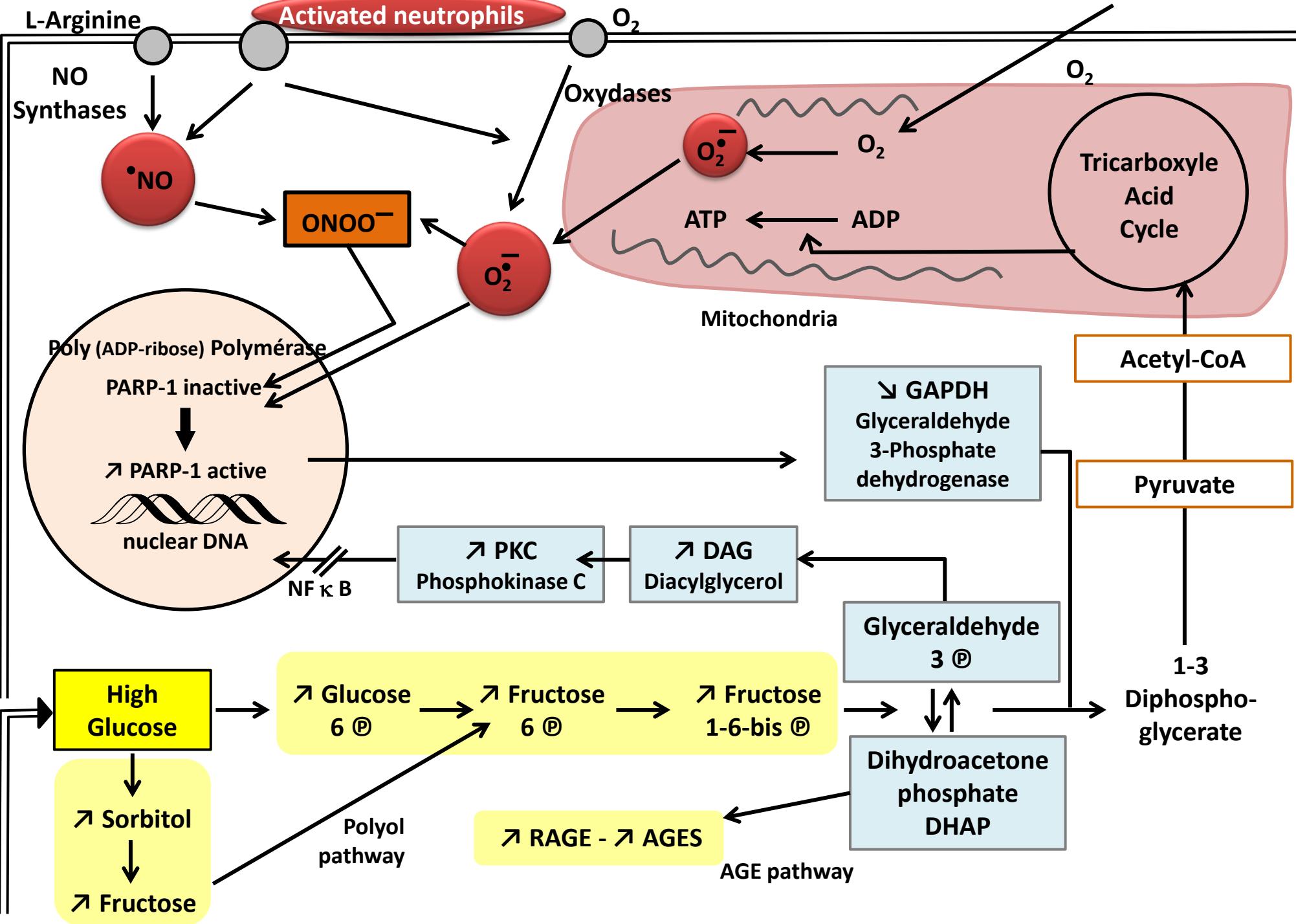
Mitochondria
GSH
Glutathione
Peroxidase
GSSG

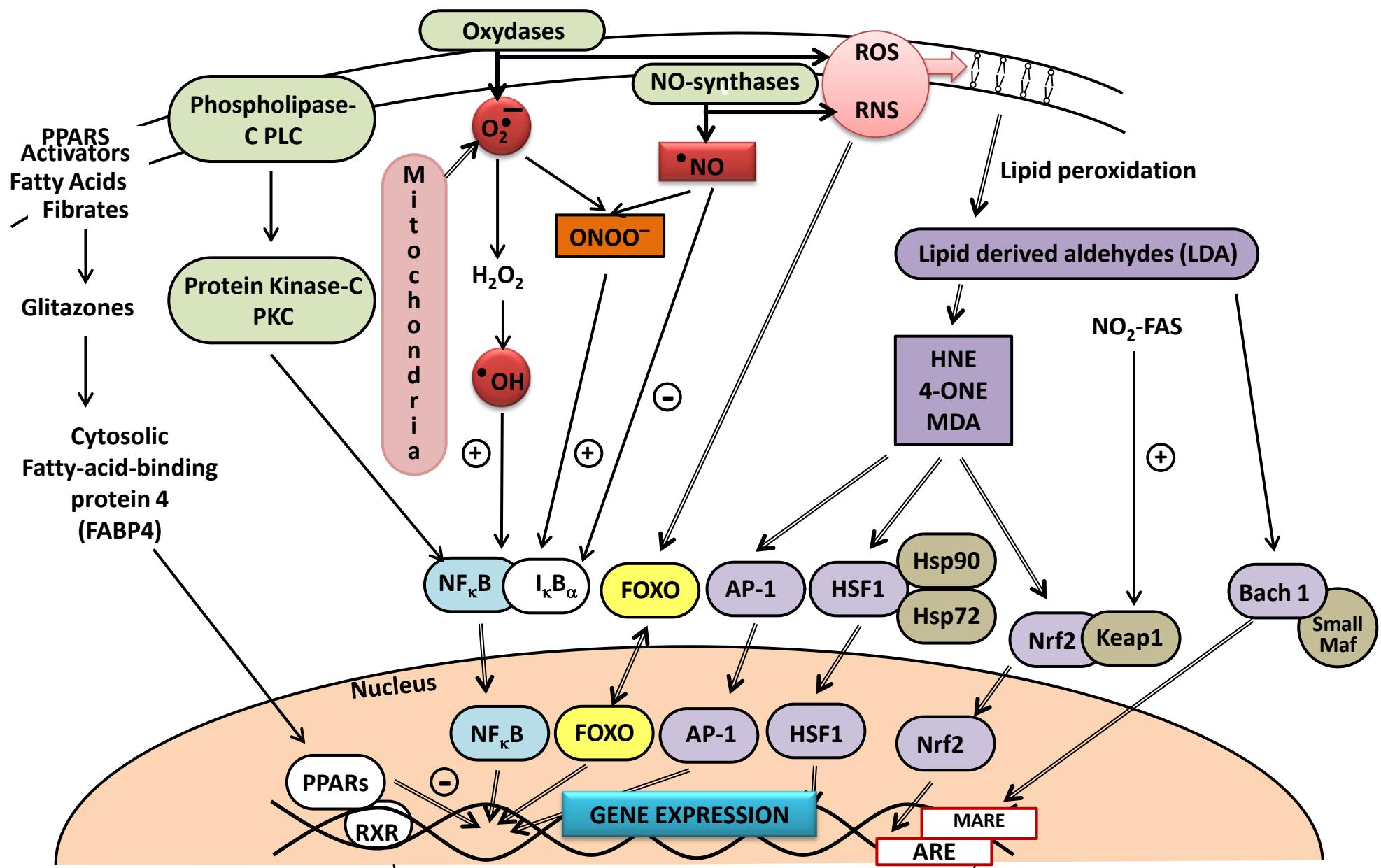
Proteins

Enzymes

Proteins

Enzymes





- Up-regulated environmental (inflammation)
- Stress response
- Cell survival

