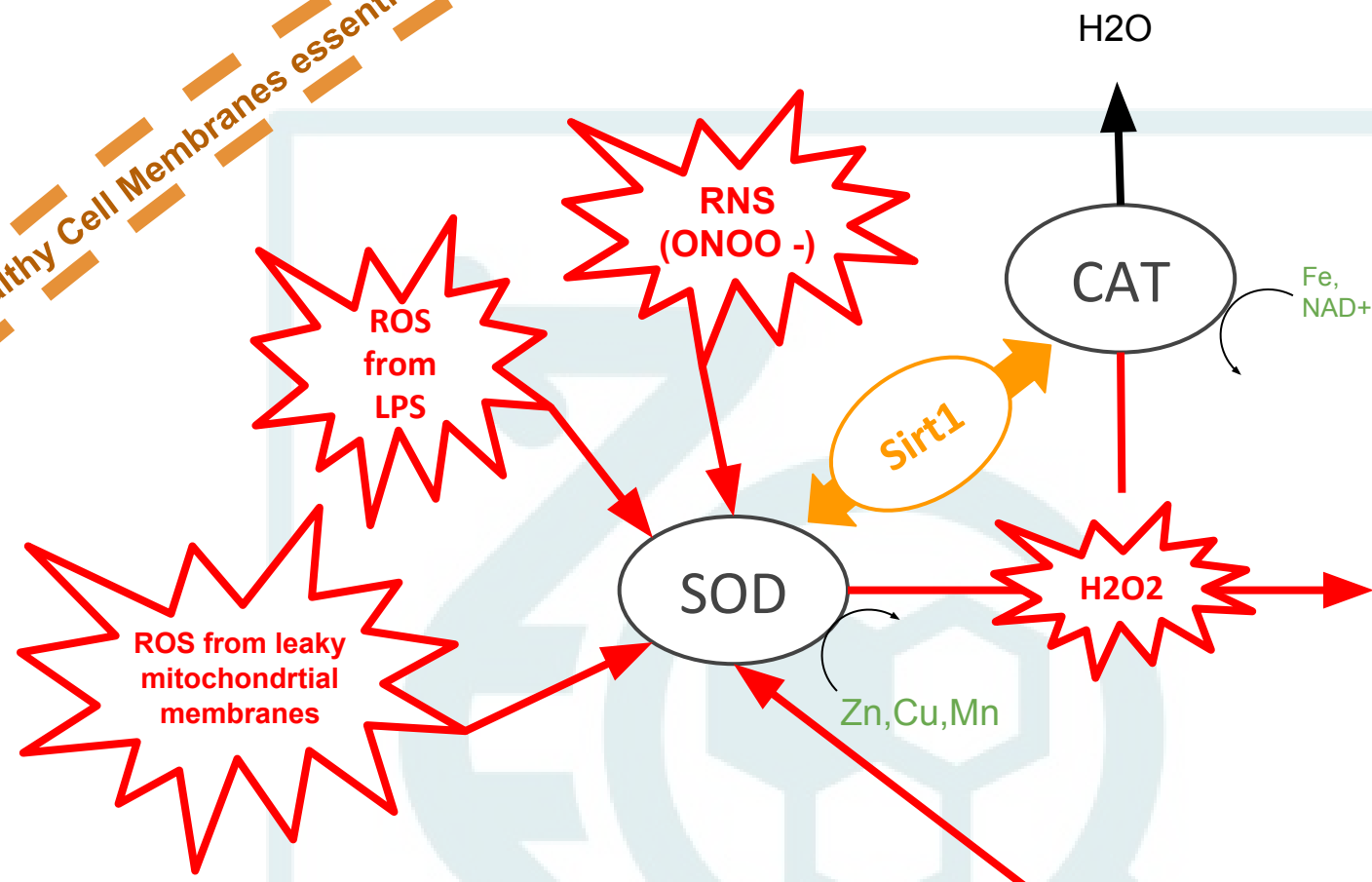


CHEMOPROTECTION: Phases of Detoxification

Healthy Cell Membranes essential



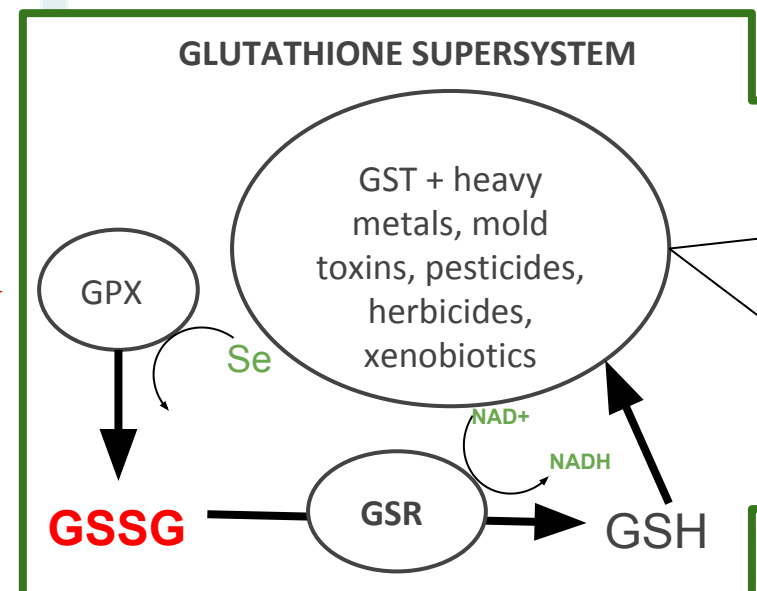
PHASE I (ACTIVATION)

Hormones
Pharmaceutical drugs
PCB's
Fat soluble metabolites

CYP 450
CYP19A1
CYP1A1
CYP1A2
CYP1B1 (sex organs)
CYP21A1
CYP2481
CYP26A1
CYP27B1
CYP2A13
CYP2A6
CYP2B6
CYP2C19
CYP2C9
CYP2D6
CYP3A4

ROS

B2, B3, B6, B9, B12, GSH, Leucine, Isoleucine, Valine



PHASE II (CONJUGATION)

CONJUGATION

ACETHYLATION (NAT1, NAT2)
GLUCURONIDATION (UGT1, UGT2)
SULFATION (SULT1A1, SULT1A2)
METHYLATION (MTHFR, MTR, MTRR, MAT, COMT)
PEPTIDE CONJUGATION (Glycine, Taurine)



BILE > GUT > STOOL

LYMPH (EXTRACELLULAR MATRIX) > BLOOD > KIDNEY (PROXIMAL TUBULES) > URINE

PHASE III - DRAINAGE (TRANSPORT OF TOXIC CONJUGATES FOR EXCRETION)

THIS PHASE CAN BE INHIBITED BY GUT INFLAMMATION AND LEAKY GUT - THIS WILL PUT MORE STRESS ON KIDNEYS. SLOWER PHASE III WILL ALSO INHIBIT PHASE II BUT WON'T SLOW DOWN PHASE I AND THUS WE WILL SEE MORE ROS AND ENDOTOXIC METABOLITES. FIX GUT AND SUPPORT KIDNEYS FIRST! SUPPORT BILE FLOW AND LYMPHATIC DRAINAGE BEFORE DETOXYING!