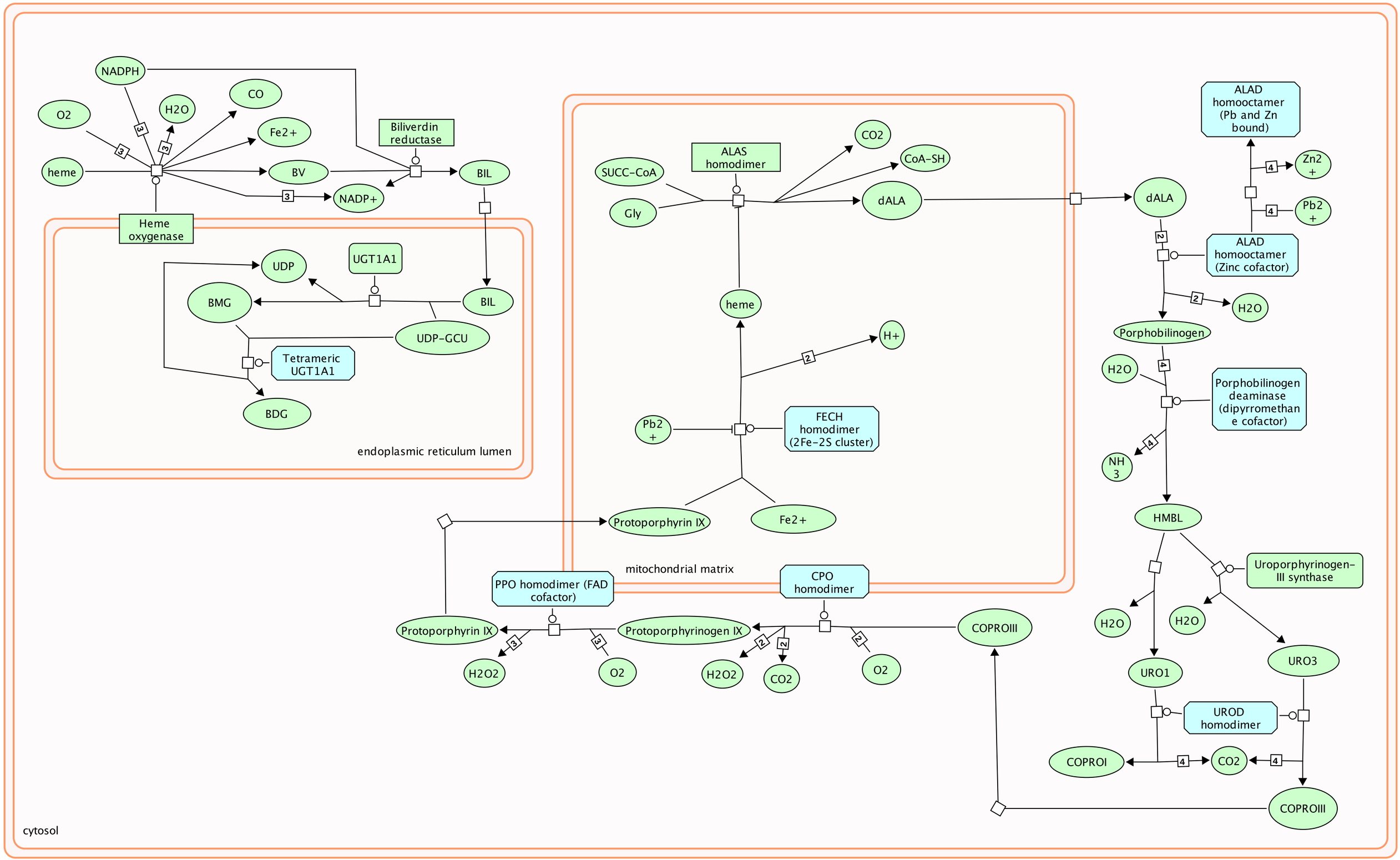
NADPH
O2
H2O
CO
Fe2+
Biliverdin reductase
heme
BV
BIL
NADP+
Heme oxygenase
UDP
UGT1A1
BMG
BIL
UDP-GCU
Tetrameric UGT1A1
BDG
endoplasmic reticulum lumen
ALAS homodimer
CO2
CoA-SH
SUCC-CoA
Gly
dALA
heme
H+
Pb2+
FECH homodimer (2Fe-2S cluster)
Protoporphyrin IX
Fe2+
mitochondrial matrix
PPO homodimer (FAD cofactor)
CPO homodimer
Protoporphyrin IX
Protoporphyrinogen IX
COPROIII
H2O2
O2
H2O2
CO2
O2
ALAD homooctamer (Pb and Zn bound)
Zn2+
Pb2+
dALA
ALAD homooctamer (Zinc cofactor)
H2O
Porphobilinogen
H2O
Porphobilinogen deaminase (dipyrromethane cofactor)
NH3
HMBL
Uroporphyrinogen-III synthase
H2O
H2O
URO1
URO3
UROD homodimer
COPROI
CO2
COPROIII
cytosol