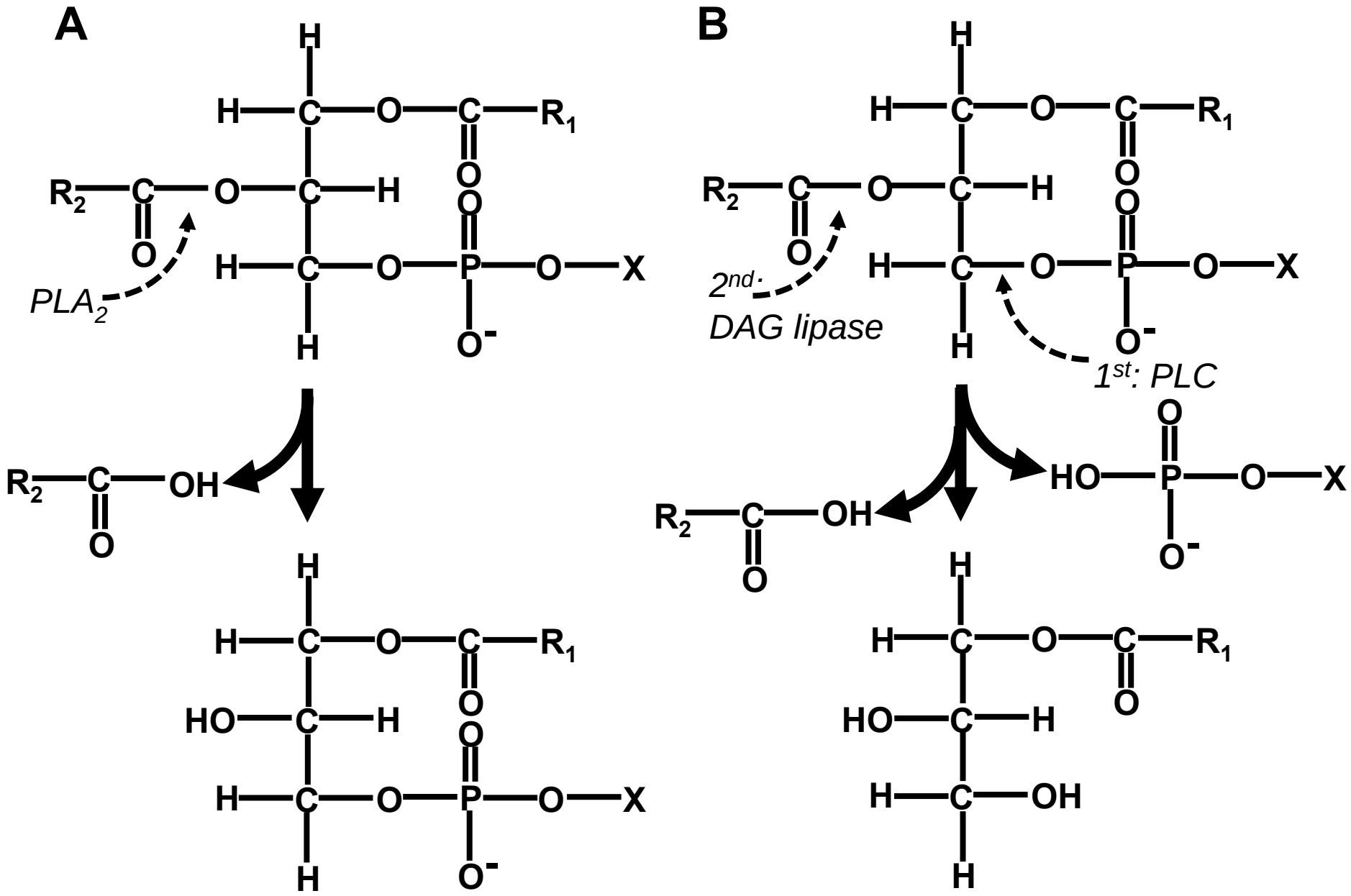
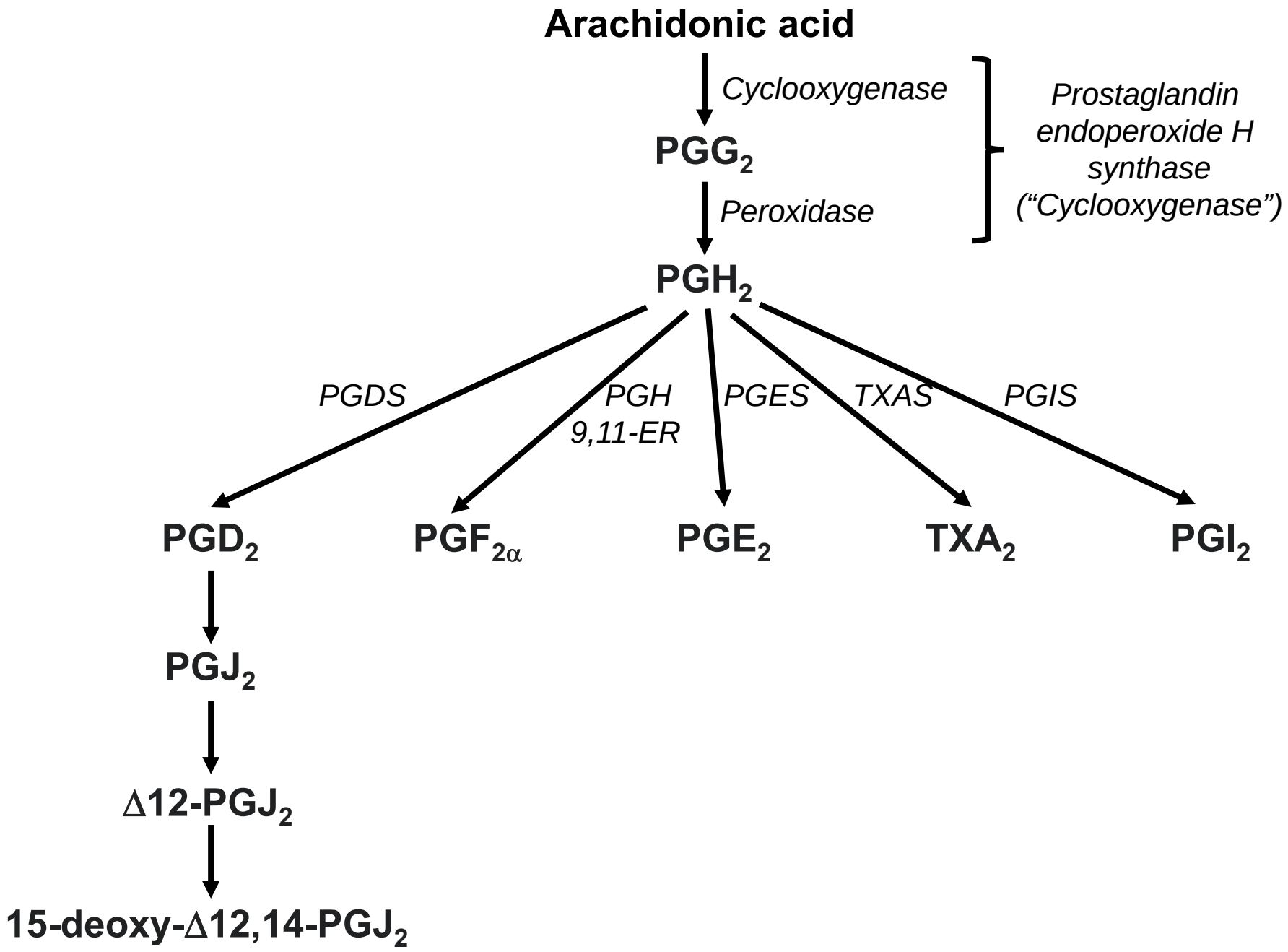
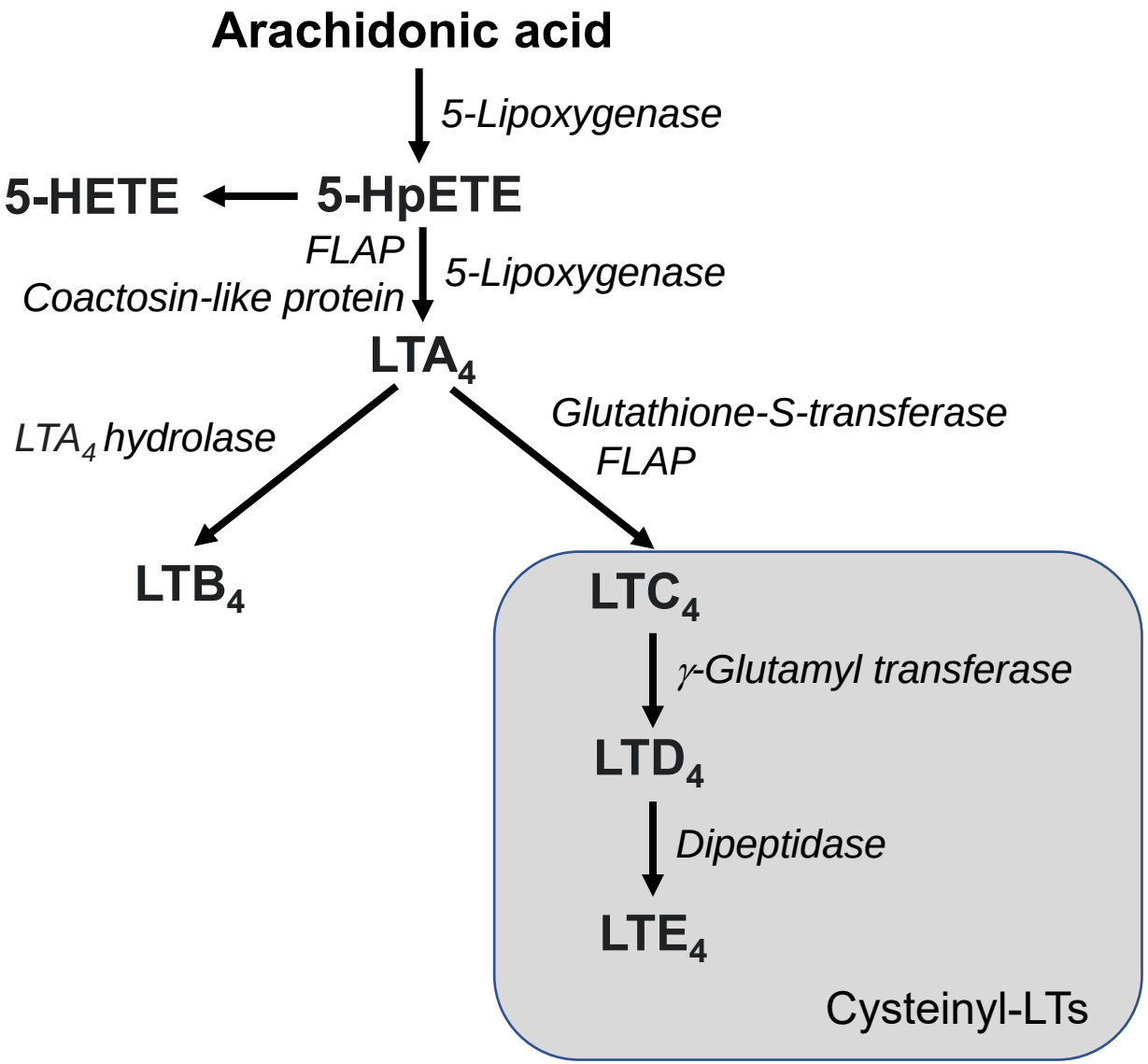
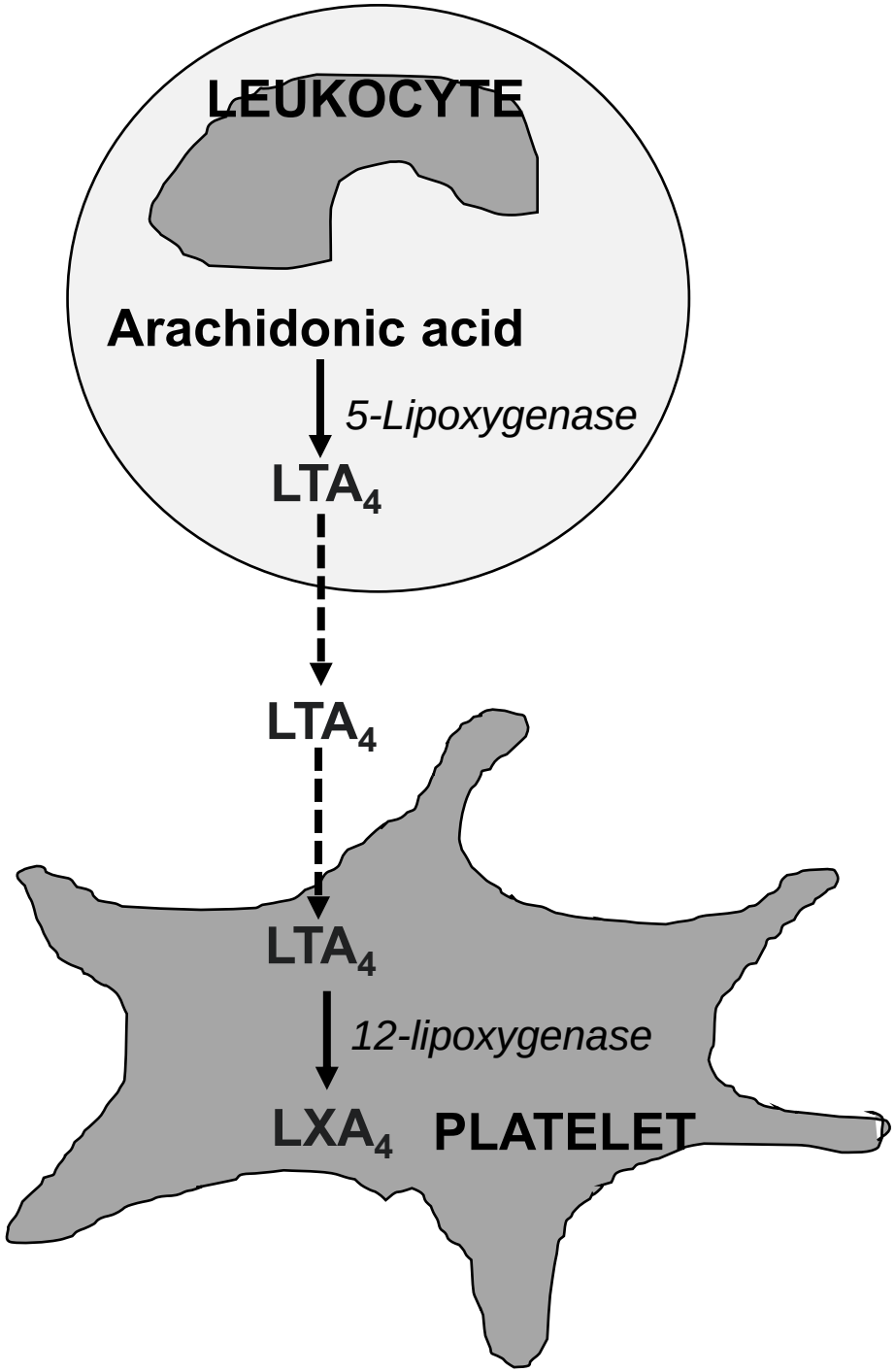
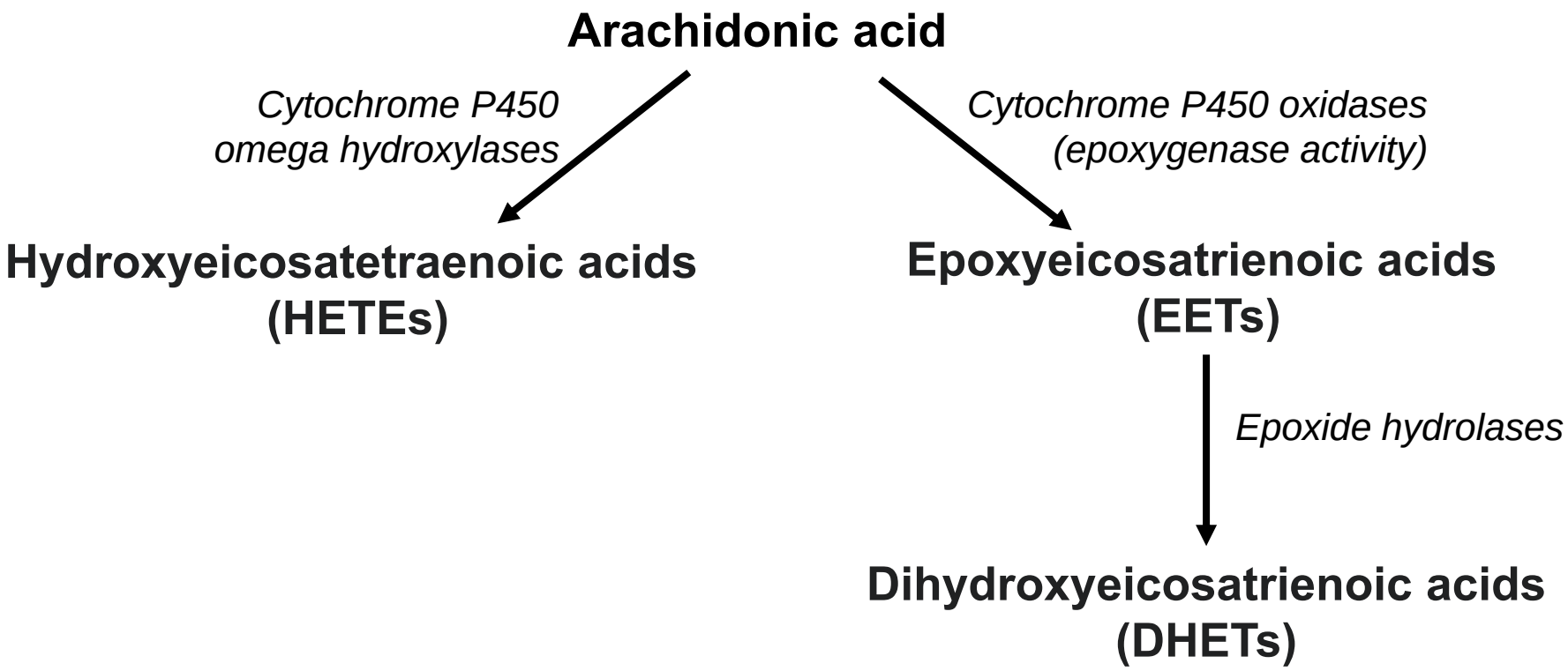
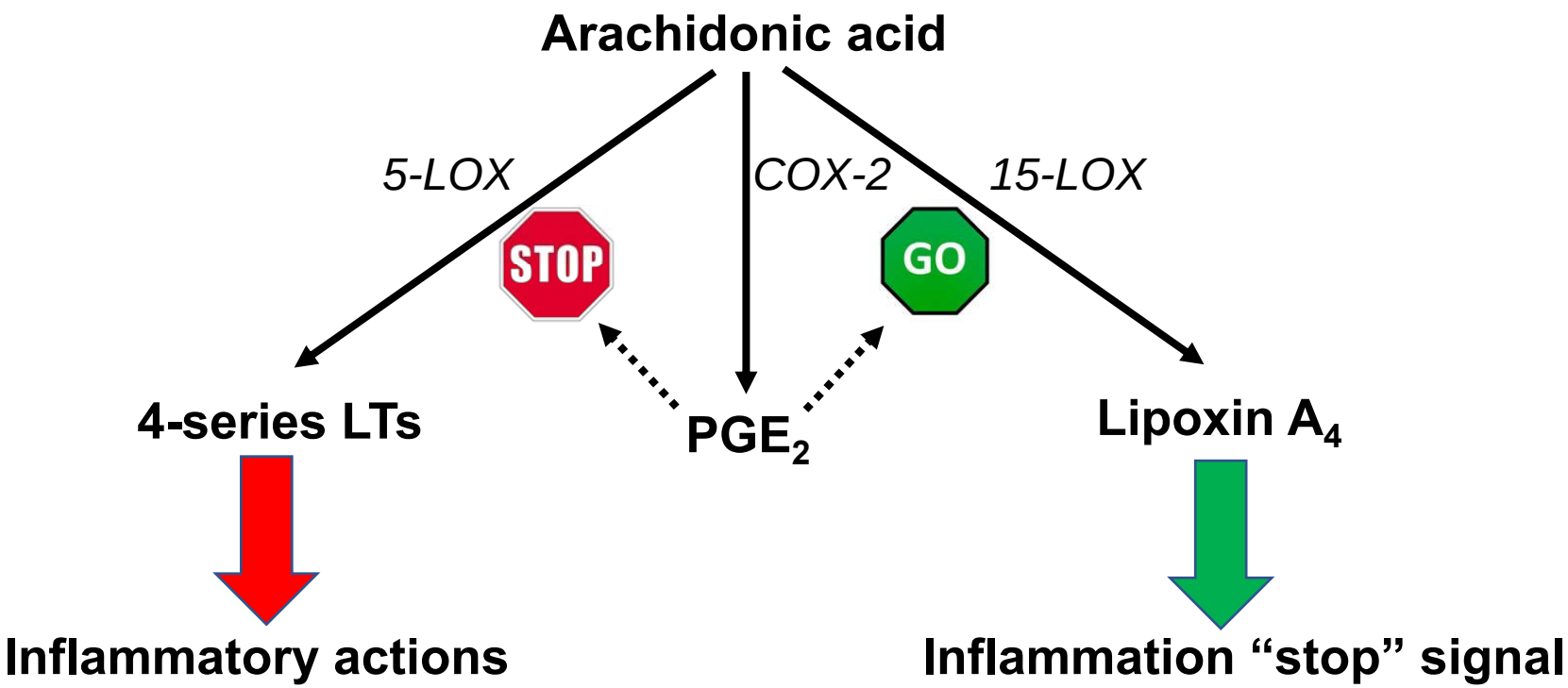

A
B
PLA2
2nd: DAG lipase
1st: PLC

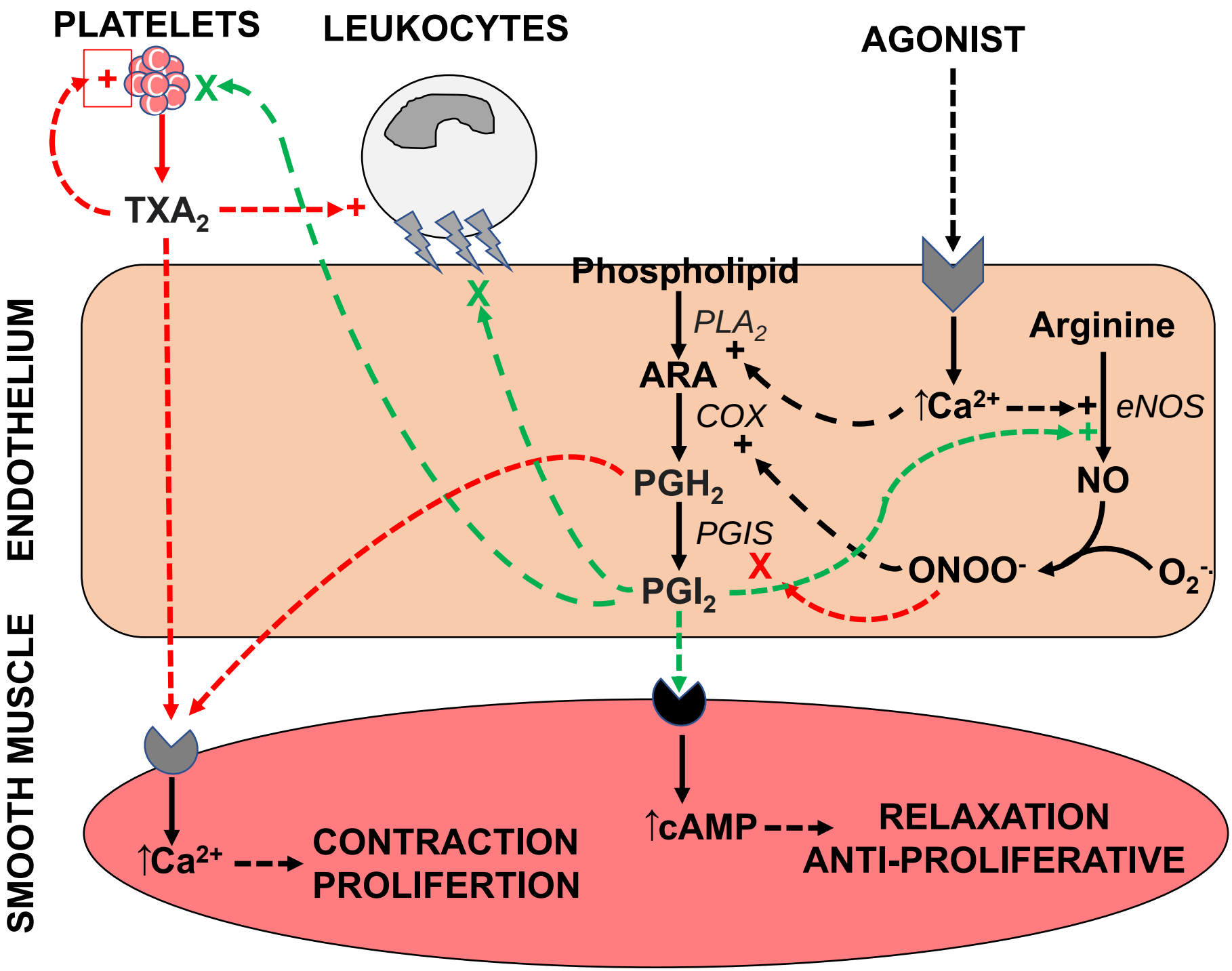

Arachidonic acid
Cyclooxygenase
PGG2
Peroxidase
Prostaglandin endoperoxide H synthase ("Cyclooxygenase")
PGH2
PGDS
PGH 9,11-ER
PGES
TXAS
PGIS
PGD2
PGF2α
PGE2
TXA2
PGI2
PGJ2
Δ12-PGJ2
15-deoxy-Δ12,14-PGJ2

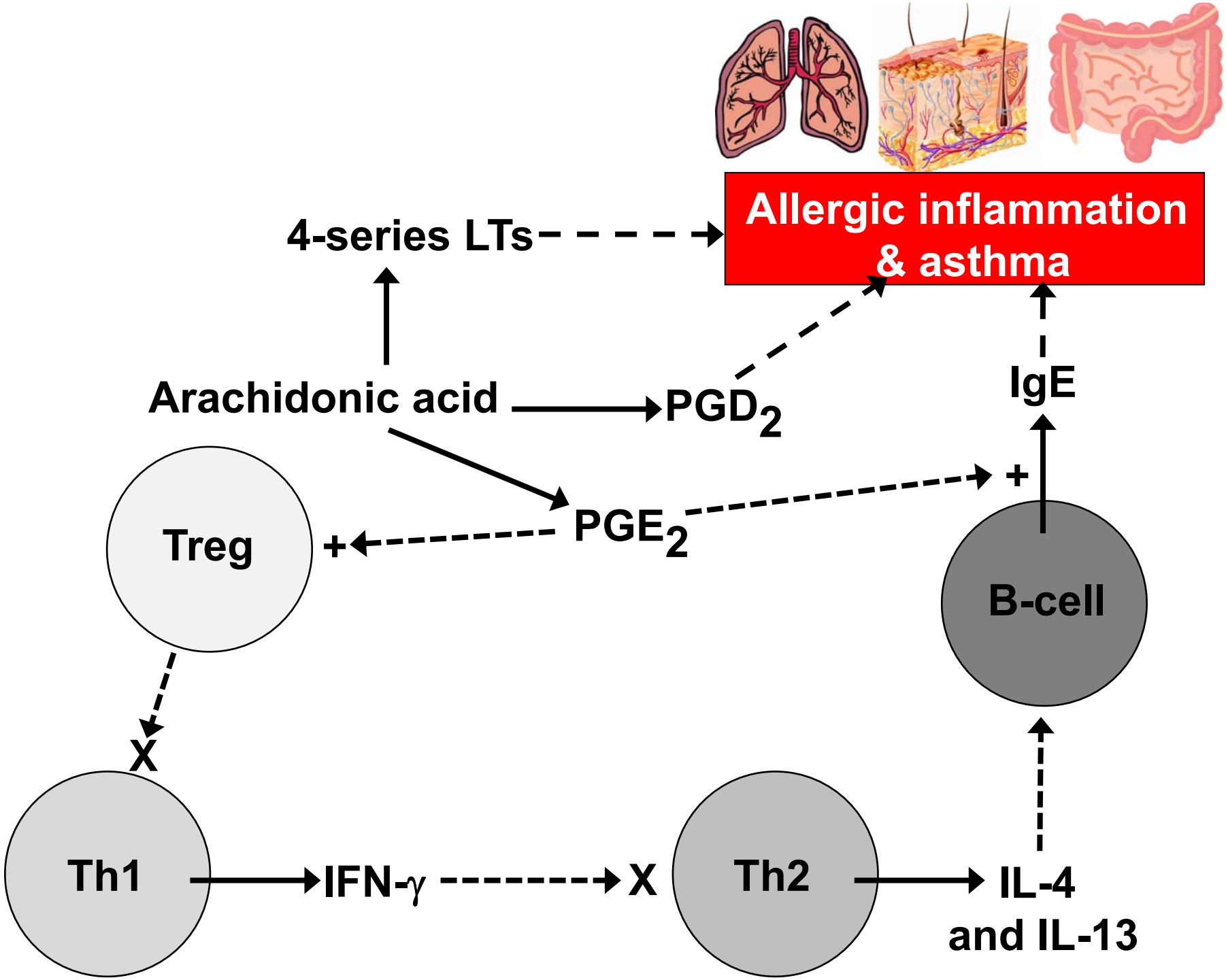

Arachidonic acid
5-Lipoxygenase
5-HETE
5-HpETE
FLAP
Coactosin-like protein
5-Lipoxygenase
LTA4
LTA4 hydrolase
Glutathione-S-transferase
FLAP
LTB4
LTC4
γ-Glutamyl transferase
LTD4
Dipeptidase
LTE4
Cysteinyl-LTs

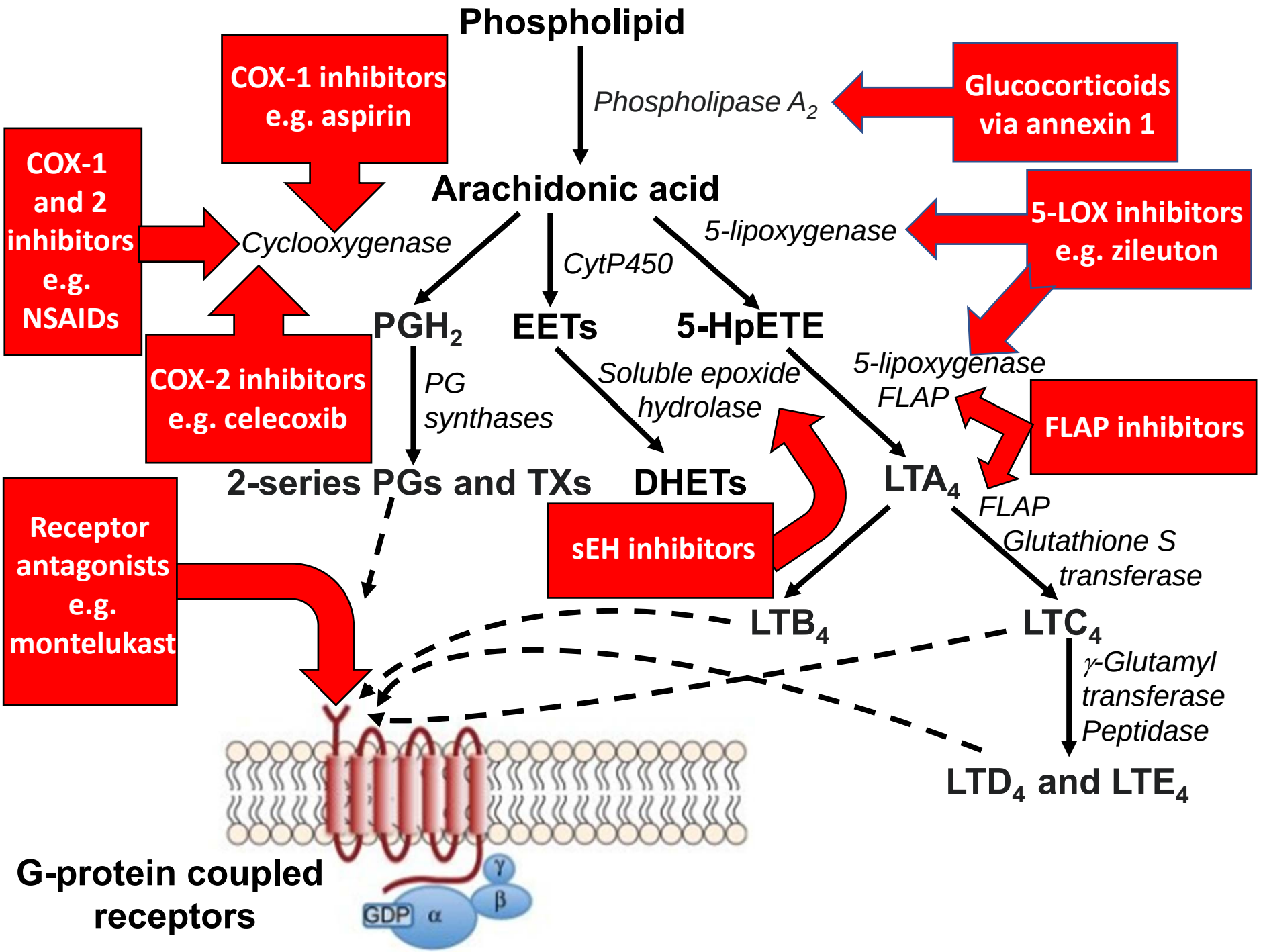

LEUKOCYTE
Arachidonic acid
5-Lipoxygenase
LTA4
LTA4
LTA4
12-lipoxygenase
LXA4
PLATELET


Arachidonic acid
Cytochrome P450
omega hydroxylases
Cytochrome P450 oxidases
(epoxygenase activity)
Hydroxyeicosatetraenoic acids
(HETEs)
Epoxyeicosatrienoic acids
(EETs)
Epoxide hydrolases
Dihydroxyeicosatrienoic acids
(DHETs)


Arachidonic acid
5-LOX
COX-2
15-LOX
STOP
GO
4-series LTs
PGE2
Lipoxin A4
Inflammatory actions
Inflammation "stop" signal


PLATELETS
LEUKOCYTES
AGONIST
TXA2
Phospholipid
PLA2
ARA
COX
PGH2
PGIS
PGI2
Arginine
↑Ca2+
eNOS
NO
ONOO-
O2-
ENDOTHELIUM
SMOOTH MUSCLE
↑Ca2+
CONTRACTION
PROLIFERTION
↑cAMP
RELAXATION
ANTI-PROLIFERATIVE


Allergic inflammation & asthma
4-series LTs
Arachidonic acid
PGD2
IgE
+
PGE2
+
Treg
B-cell
X
Th1
IFN-γ
X
Th2
IL-4 and IL-13


Phospholipid
Phospholipase A_2
Glucocorticoids via annexin 1
COX-1 inhibitors e.g. aspirin
COX-1 and 2 inhibitors e.g. NSAIDs
Arachidonic acid
Cyclooxygenase
CytP450
5-lipoxygenase
5-LOX inhibitors e.g. zileuton
PGH_2
EETs
5-HpETE
COX-2 inhibitors e.g. celecoxib
PG synthases
Soluble epoxide hydrolase
5-lipoxygenase FLAP
FLAP inhibitors
2-series PGs and TXs
DHETs
LTA_4
FLAP
Receptor antagonists e.g. montelukast
sEH inhibitors
Glutathione S transferase
LTB_4
LTC_4
γ-Glutamyl transferase Peptidase
LTD_4 and LTE_4
G-protein coupled receptors
GDP
α
β
γ