

**Autacoids
AND
INFLAMMATION**

AUTACOIDS (self-care)

Histamine

Bradykinin

5-HT

Eicosanoids

Platelet Activating Factor (PAF)

NO: hormones, NO: somatostatin, gastrin (paracrine hormones)

Physical trauma

Chemical substances

Microorganisms

Agent inducing autoimmune response (asthma, arthritis)

Inflammatory response

Histamine

5-HT

Prostaglandin

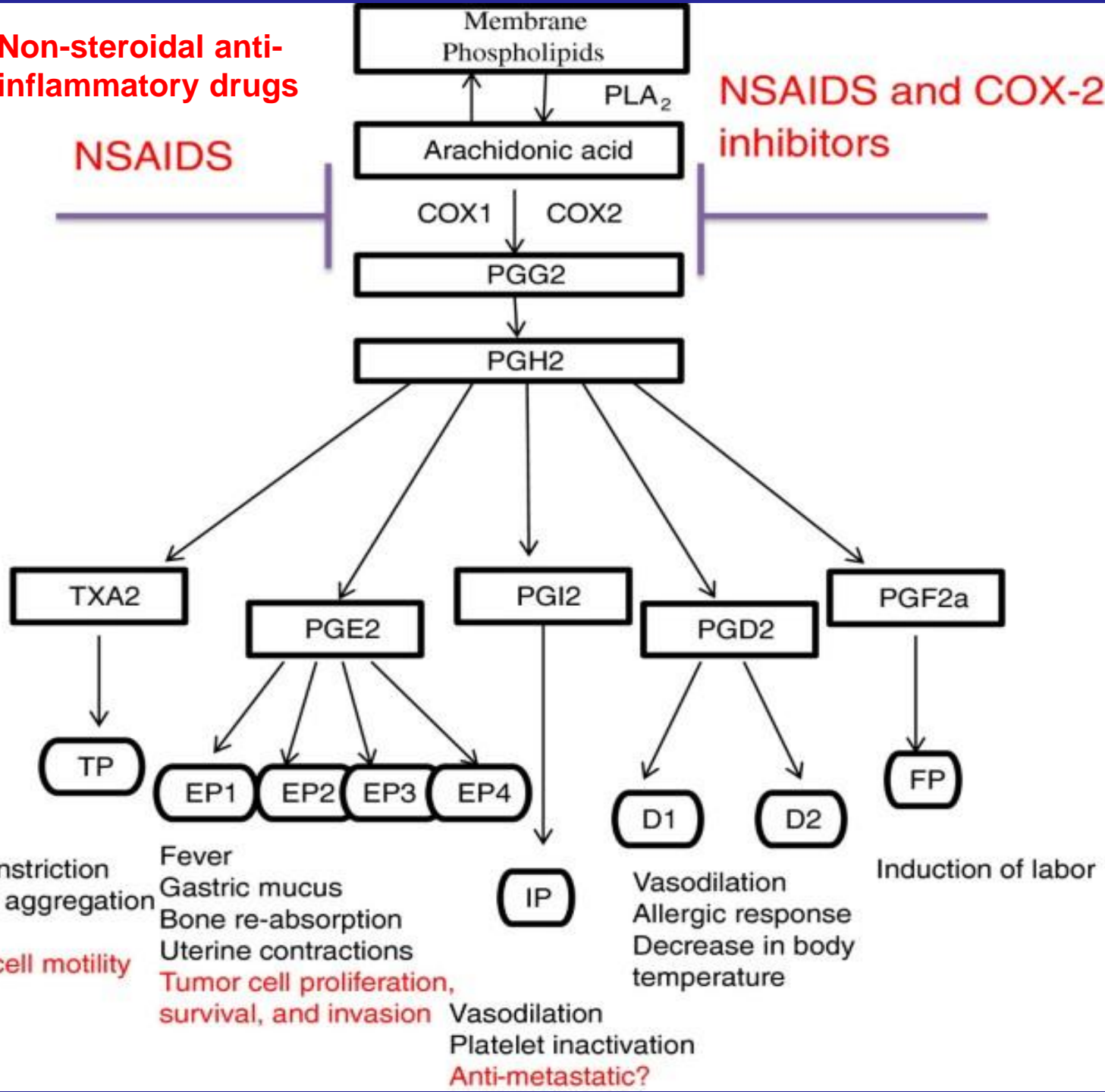
IL-1

Bradykinin

Cyclooxygenase and
lipoxygenase pathways (1)

Non-steroidal anti-inflammatory drugs

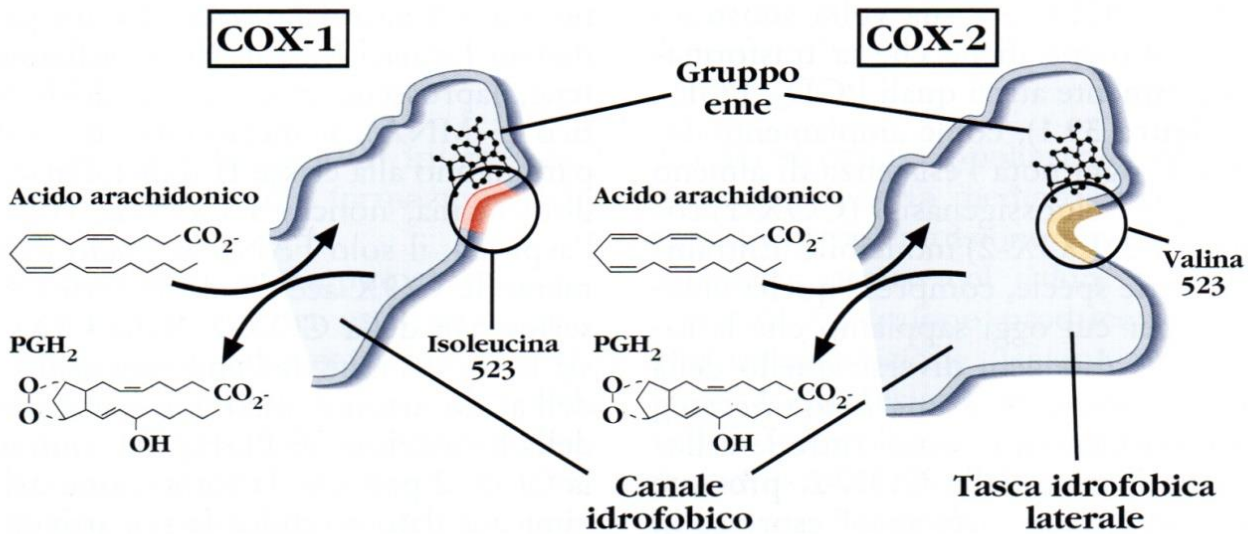
NSAIDs and COX-2 inhibitors



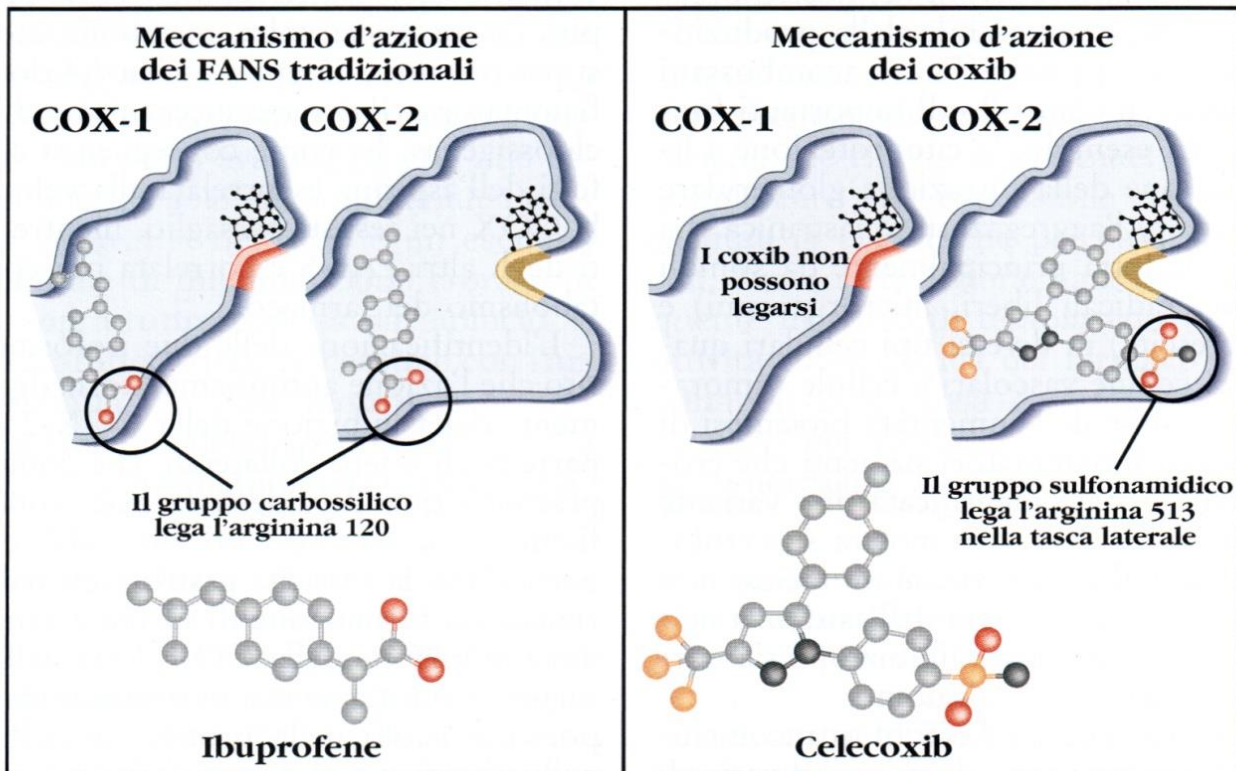
The cyclooxygenase (COX) enzymes



- There are two COX enzymes: COX-1 and COX-2.
- COX-1 is a constitutive, housekeeping enzyme involved in tissue homeostasis. **Chromosome 9**
- COX-2 is induced in inflammatory cells and produces the prostanoid mediators of inflammation. **Chromosome 1**
- Cox-3 has recently been described (dog)

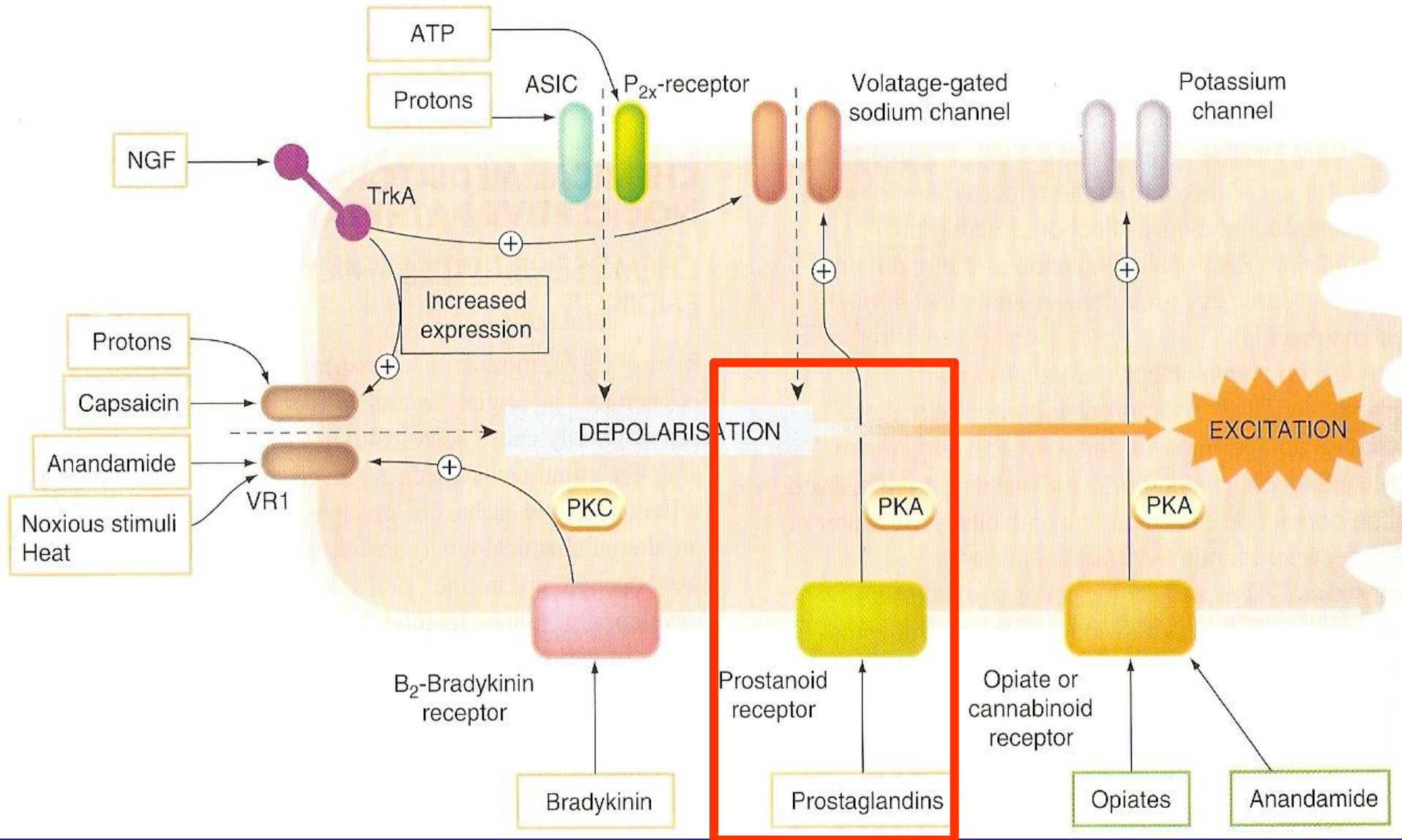


Structural differences between COX-1 and COX-2



Non-steroidal anti-inflammatory drugs (NSAID) act on PG synthesis, not on nociceptors of PGs

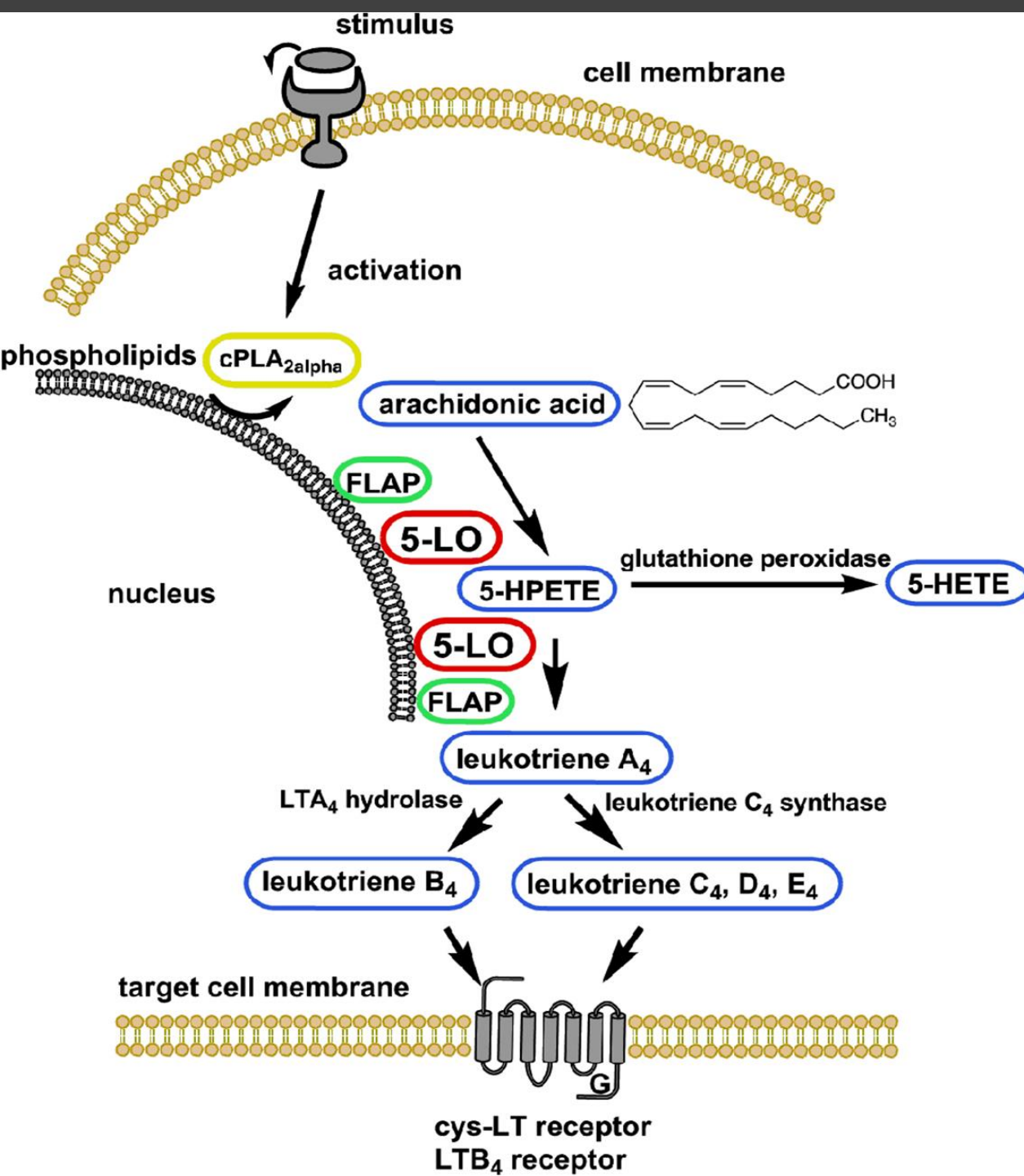
Prostaglandins and pain effects



VR1 = capsaicin sensitive channel

ASIC: acid-sensing ion channel

Cyclooxygenase and lipoxygenase pathways (2)



Biosynthesis of leukotrienes from arachidonic acid

- FLAP = helper protein 5-LO activating protein
- 5-LO= 5-lipoxygenase
- 5-HETE= 5-hydroxy-eicosatetraenoic acid