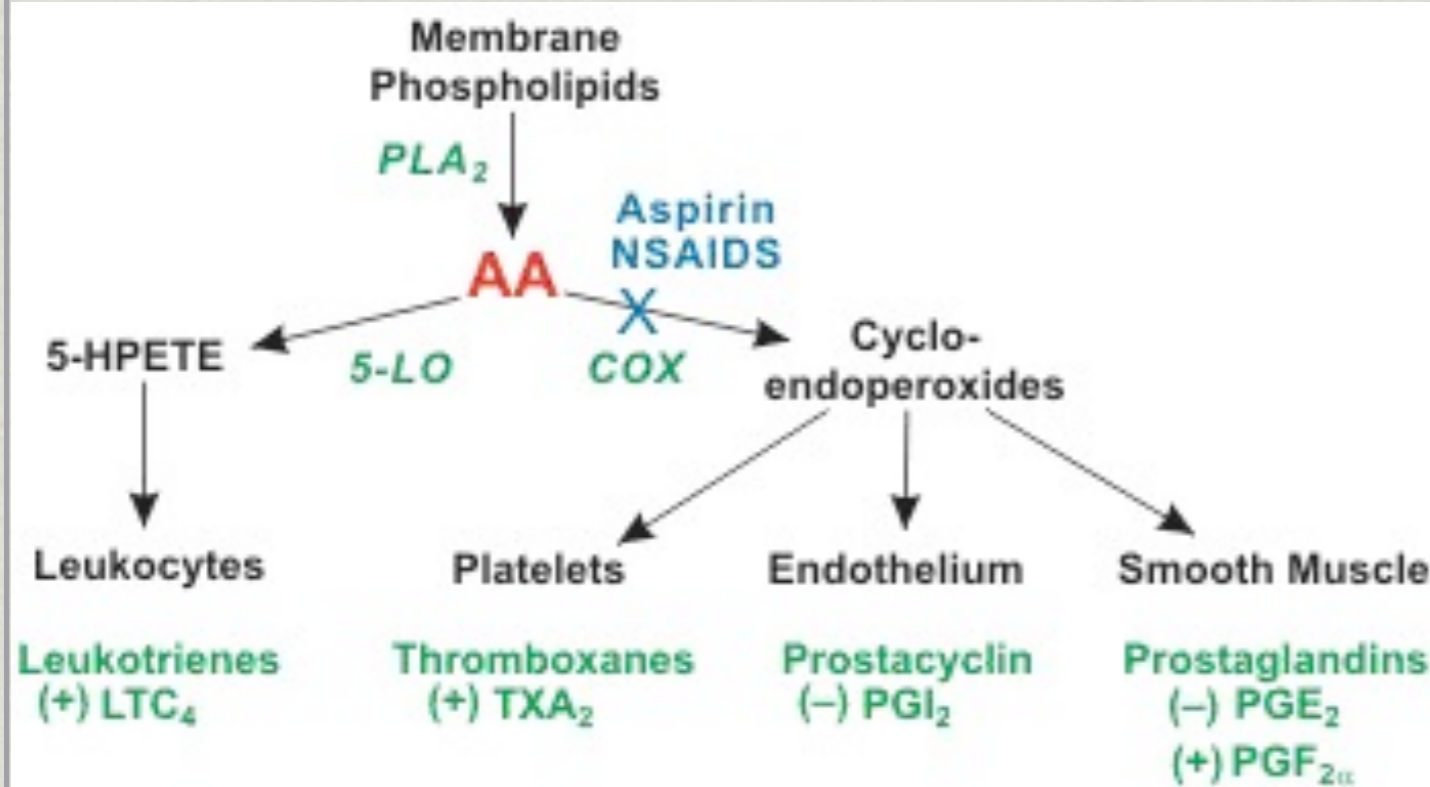


Renal prostaglandins



Abbreviations: AA, arachidonic acid; PLA₂, phospholipase A₂; PLC, phospholipase C; COX, cyclooxygenase; NSAIDs, non-steroidal anti-inflammatory drugs; +, vasoconstriction; -, vasodilation.

<http://cvphysiology.com/Blood%20Pressure/BP015.htm>

- Prostaglandins and related compounds (AKA prostanoids or eicosanoids) such as prostacyclin (PGI₂), leukotrienes (LTs) and thromboxanes (TXs) are produced by many different cells in the body from membrane phospholipids.

- Although their primary physiological actions are generally related to **inflammation** and **hemostasis**, by nature they all are vasoactive and can modulate cardiovascular function, particularly **vascular tone**.

- Their effects are very localized because they are **paracrine hormones**; that is, they are released by one cell and act on nearby cells.

- There are many different classes of prostaglandin present in the kidney, but **PGE₂** and **PGI₂** are the **most known**; part responsible for the **vasodilatation** of the **afferent arteriole** which increases blood flow to the glomerulus

- PGE₂ also is known to **inhibit ADH**-stimulated water permeability in the cortical collecting duct.

- Leukocytes** produce leukotrienes such as **LTC₄** in response to inflammation and tissue injury. Like TXA₂, it is a potent vasoconstrictor and acts through the **Gq-protein** pathway.

- Leukotrienes (and prostaglandins) can also make the vascular endothelium more "leaky" thereby promoting **edema formation during inflammation**.

	E2	F2@	I2	TXA2
Location	arteriolar smooth muscle	arteriolar smooth muscle	endothelium	platelet
Action	vasodilation	vasoconstriction	vasodil.	vasoconstr.
Pathway	Gs coupling	Gq coupling	Gs coupling	Gq coupl.
Special note			antithrombotic	thrombotic