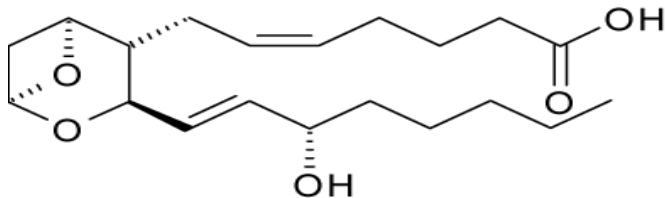


# Thromboxane

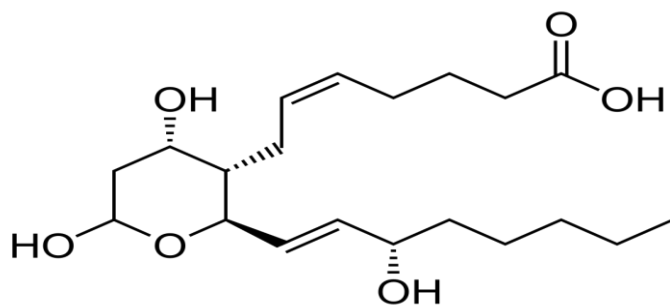
---

**Thromboxane** is a member of the family of [lipids](#) known as [eicosanoids](#). The two major thromboxanes are [thromboxane A2](#) and [thromboxane B2](#). The distinguishing feature of thromboxanes is a 6-membered [ether](#)-containing ring.

Thromboxane is named for its role in clot formation ([thrombosis](#)).



Thromboxane A2



Thromboxane B2

## Biological Role

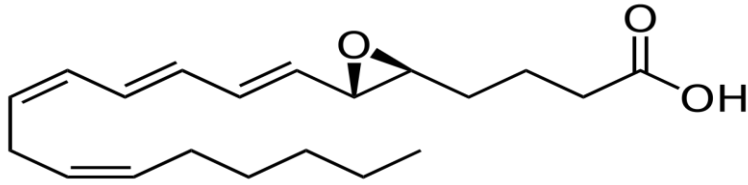
Thromboxane is a [vasoconstrictor](#) and a potent hypertensive agent, and it facilitates platelet aggregation.

It is in [homeostatic](#) balance in the [circulatory system](#) with [prostacyclin](#), a related compound. The mechanism of secretion of thromboxanes from platelets is still unclear. They act in the formation of blood clots and reduce blood flow to the site of a clot.

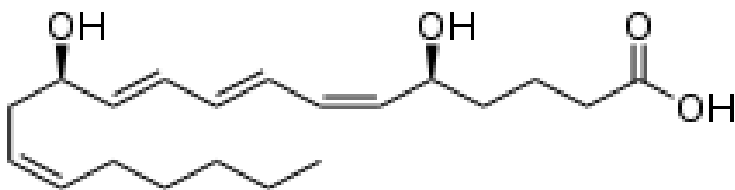
If the cap of a vulnerable plaque erodes or ruptures, as in [myocardial infarction](#), platelets stick to the damaged lining of the vessel and to each other within seconds and form a plug. These "Sticky platelets" secrete several chemicals, including thromboxane A2 that stimulate vasoconstriction, reducing blood flow at the site.

# Leukotriene

**Leukotrienes** are a family of [eicosanoid inflammatory mediators](#) produced in [leukocytes](#) by the [oxidation](#) of [arachidonic acid](#)(AA) and the [essential fatty acid eicosapentaenoic acid](#) (EPA) by the [enzyme arachidonate 5-lipoxygenase](#) .



Leukotriene A4



Leukotriene B4

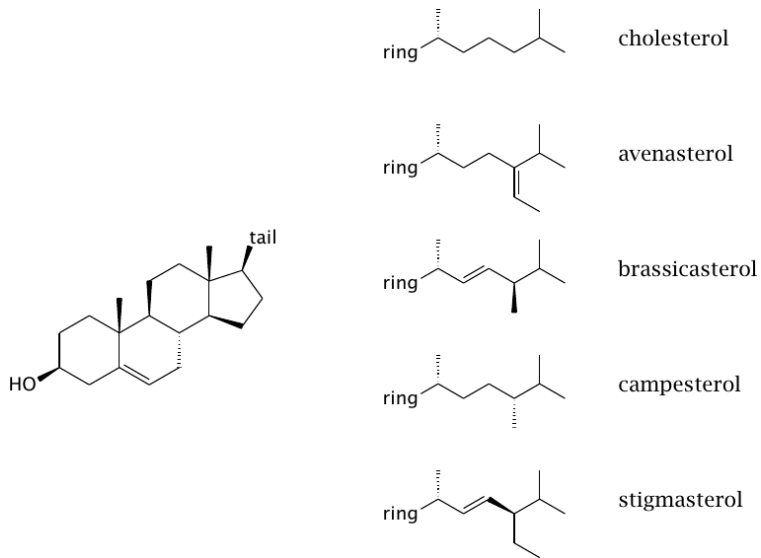
## Biological Role

Leukotrienes act principally on a subfamily of [G protein-coupled receptors](#). They may also act upon [peroxisome proliferator-activated receptors](#). Leukotrienes are involved in asthmatic and allergic reactions and act to sustain inflammatory reactions. Several [leukotriene receptor antagonists](#) such as [montelukast](#) and [zafirlukast](#) are used to treat [asthma](#). Recent research points to a role of 5-lipoxygenase in cardiovascular and neuropsychiatric illnesses.

Leukotrienes are very important agents in the [inflammatory](#) response. Some such as LTB<sub>4</sub> have a [chemotactic](#) effect on migrating neutrophils, and as such help to bring the necessary cells to the tissue. Leukotrienes also have a powerful effect in [bronchoconstriction](#) and increase [vascular permeability](#).

## Plant sterol

### Structures



Plants contain very little cholesterol but instead contain a variety of structurally similar sterols. The sterol ring is the same as with cholesterol in all sterols shown, but the tails are somewhat different.

Plant sterols compete with cholesterol for “space” inside the cytoplasmic membrane of intestinal cells, and therefore reduce the rate of cholesterol absorption by endocytosis. Dietary application of sitosterol or other plant sterols is a moderately effective strategy to reduce cholesterol absorption.