

Coronary vascular dilators

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Ischemic heart disease

- when lumen of coronary artery is restricted (due to atherosclerotic changes, spasm or inflammatory reaction), supplying of myocard with oxygen and nutrients is insufficient
- primary symptom is **Angina pectoris** – sudden, severe pain originating in the chest and radiating to the left shoulder and arm

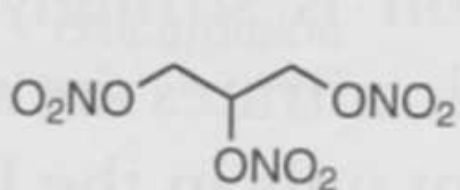
Ischemic heart disease therapy

- vasodilators – direct (NO releasing agents, xanthine derivatives, nicotinic acid, chromone derivatives, prostaglandines, trimetazidin)
indirect (Ca²⁺inhibitors, ACE inhibitors, angiotensin II receptor antagonists)
- drugs preventing myocardial infarction (anicoagulants, antithrombotics)

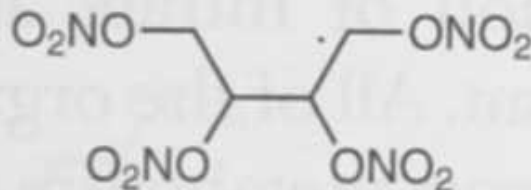
Organic nitrates

- prodrugs releasing NO
- NO is endothelial guanylatcyclase activator
- increased intracelular cGMP decrease Ca^{2+} levels → vessel wall smooth muscle relaxation → vasodilatation

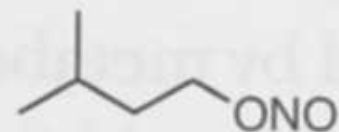
Organic nitrates



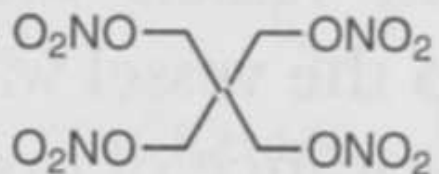
Glyceryl Trinitrate



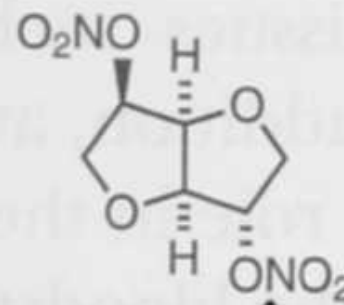
Erythrityl Tetranitrate



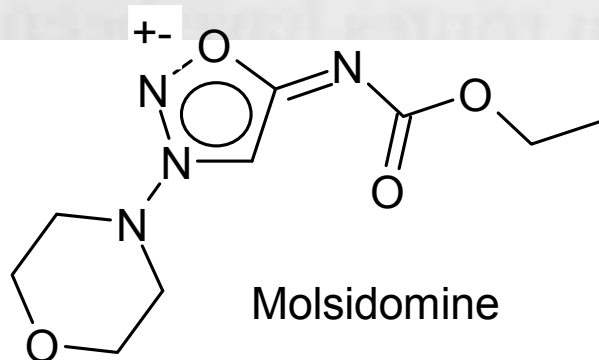
Amyl Nitrite



Pentaerythritol Tetranitrate



Isosorbide Dinitrate

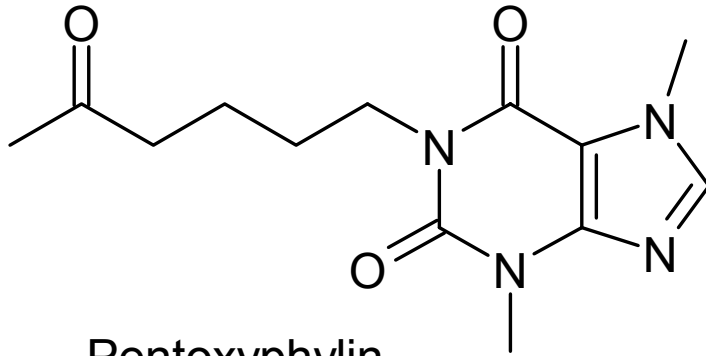


Molsidomine

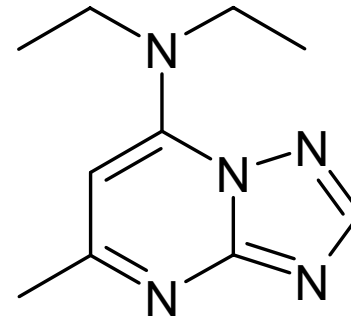
Xanthin derivatives

- nature xanthines – theophylin, theobromin, coffein
- all are central stimulants, vasodilators, bronchodilators, diuretics
- theophylin has enhanced smooth muscle relaxing activity
- synthetic analogues are vasodilators and bronchodilators

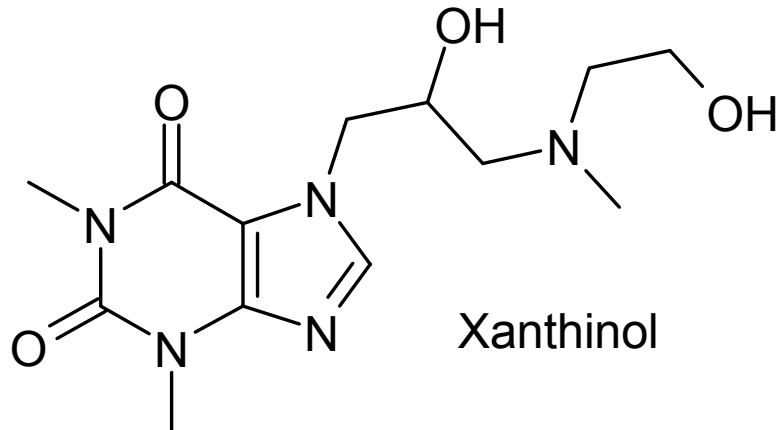
Xanthin derivatives



Pentoxifylin



Trapidil



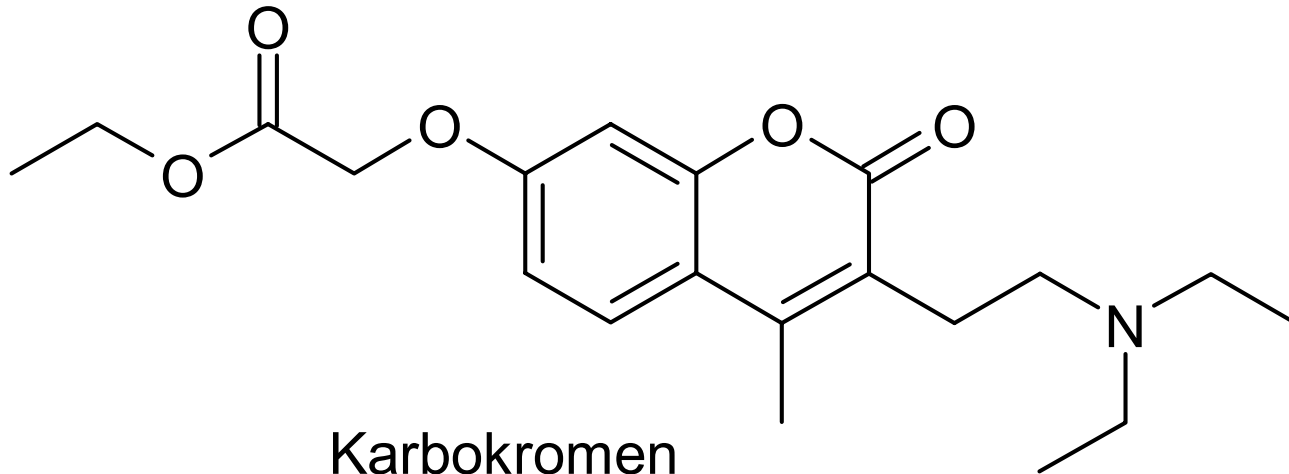
Xanthinol

Nicotinic acid

- low dosis – vasodilating effect on upper part of body
- higher dosis – antihyperlipidemic effect

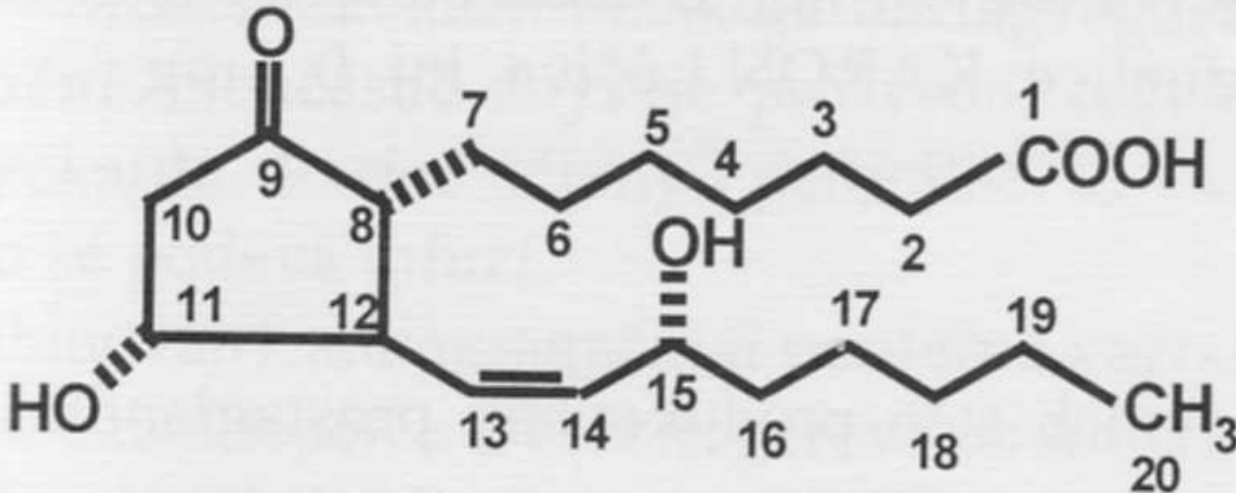
Chromone derivatives

- PDE inhibitor, enhances anaerobic glycolysis
- 2X increased coronary flow without affecting blood pressure



Prostaglandines

- various prostaglandines has vasodilating effect
- Alprostadiil is used in some heart insufficiencies



alprostadiil

Trimetazidine

- decreases intracellular ATP

