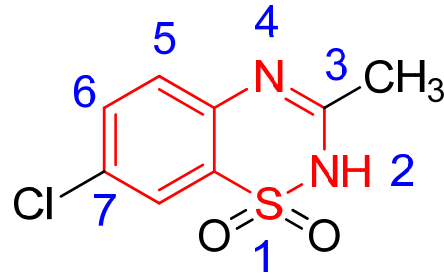


Vasodialators

Diazoxide

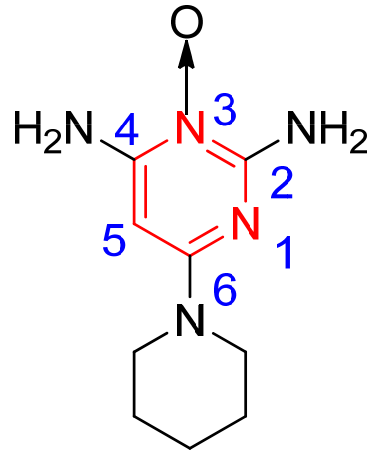


IUPAC: 7-chloro-3-methyl-4H-1,2,4-benzothiadiazine-1,1-dione

MOA: Diazoxide is chemically related to thiazide diuretics but does not inhibit carbonic anhydrase and does not have chloriuretic or natriuretic activity. It exhibits hypotensive activity by reducing arteriolar smooth muscle and vascular resistance.

Uses: Used parentally to treat hypertensive emergencies. Also used to treat hypoglycemia secondary to insulinoma.

Minoxidil

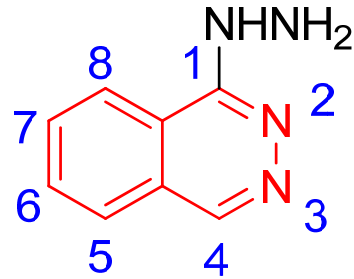


IUPAC: 2,4-Diamino-6-piperidinopyrimidine 3-oxide

MOA: Minoxidil, when used as a vasodilator, acts by opening adenosine triphosphate sensitive potassium channels in vascular smooth muscle cells. Activation of K⁺ channel increases efflux of K⁺ ion, which hyperpolarize the smooth muscle and causes relaxation. This vasodilation may also improve the viability of hair cells or hair follicles.

Uses: For the treatment of severe hypertension and in the topical treatment (regrowth) of androgenic alopecia in males and females and stabilisation of hair loss in patients with androgenic alopecia.

Hydralazine



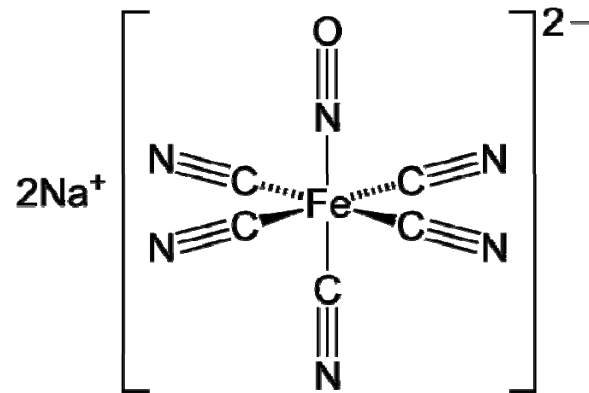
IUPAC: 1-Hydrazinophthalazine

MOA: Hydralazine may interfere with calcium transport in vascular smooth muscle by an unknown mechanism to relax arteriolar smooth muscle and lower blood pressure.

The interference with calcium transport may be by preventing influx of calcium into cells, preventing calcium release from intracellular compartments.

Uses: Hydralazine is indicated alone or adjunct to standard therapy to treat essential hypertension.

Sodium Nitroprusside



MOA: Sodium nitroprusside is further broken down in the circulation to release nitric oxide (NO), which activates guanylate cyclase in the vascular smooth muscle. This leads to increased production of intracellular cGMP, which stimulates calcium ion movement from the cytoplasm to the endoplasmic reticulum, reducing the level of available calcium ions that can bind to calmodulin. This ultimately results in vascular smooth muscle relaxation and vessel dilation.

Uses: For immediate reduction of blood pressure of patients in hypertensive crises, reduce bleeding during surgery, and for the treatment of acute congestive heart failure.