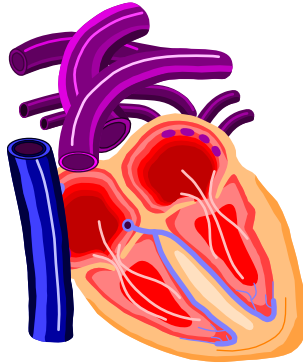


Antihypertensive Drugs

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Assoc. Professor
Centurion University of Technology and
Management

- **Hypertension (HTN)** – Condition of BP such that systolic is > 140 mm/hg & diastolic > 90 mm/hg on 2 or more occasions after initial screening
- **Essential HTN** = most common. About 90% of clients.
 - * Exact Origin - unknown. Contributing Factors - family hx, hyperlipidemia, diabetes, obesity, aging, stress, excessive ETOH & smoking.
- **Secondary HTN** is about 10% of HTN, related to endocrine or renal disorders Pheochromocytoma, Renal artery stenosis

Arterial blood
pressure >>>
120/80 mm Hg
at rest



- Increased: peripheral vessel resistance, cardiac output, tone of sympathetic nervous system, synthesis of AII, aldosterone, ETs.
- Inhibited synthesis of NO, kinins, PGE, PGI₂.

Main complications of persistent
High blood pressure

Brain:

- Cerebrovascular accident (*strokes*)
- Hypertensive encephalopathy:
 - confusion
 - headache
 - convulsion

Retina of eye:

- Hypertensive retinopathy

Heart:

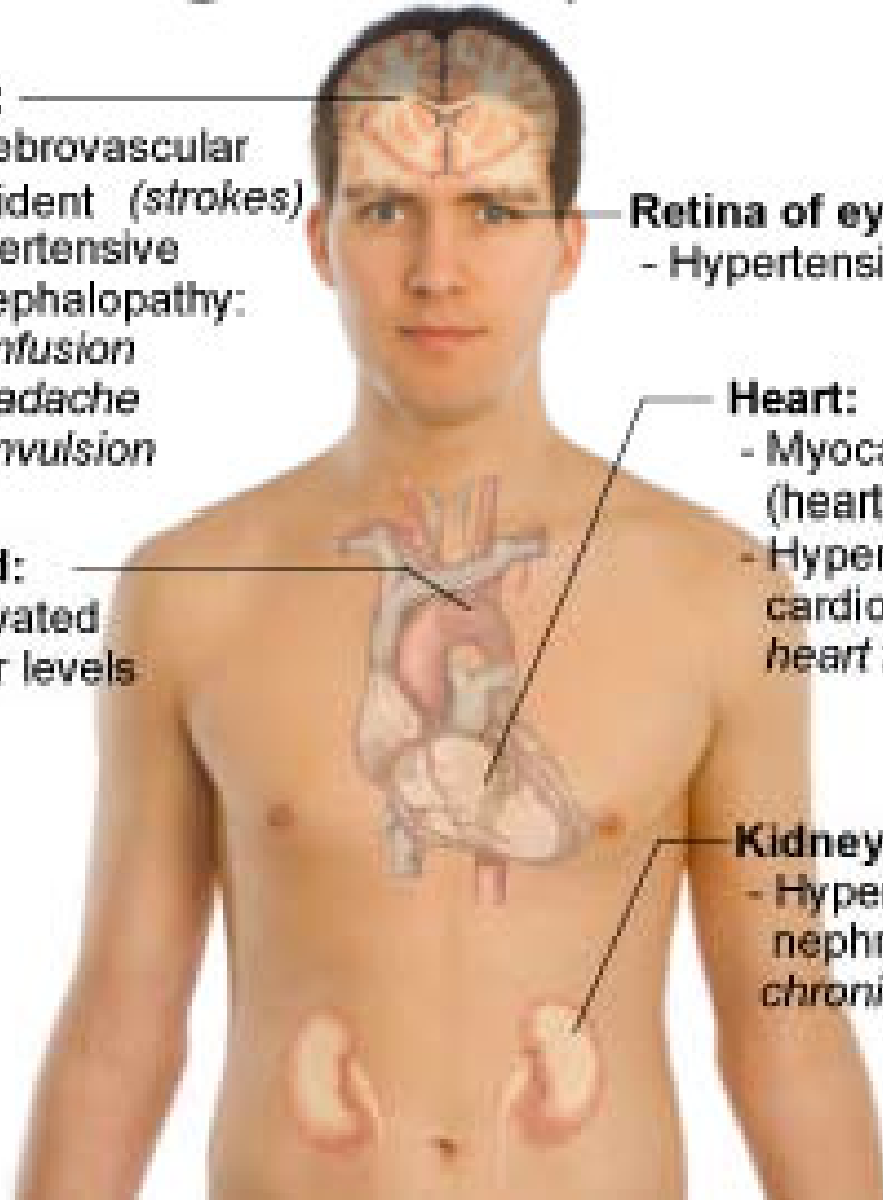
- Myocardial infarction (*heart attack*)
- Hypertensive cardiomyopathy:
heart failure

Blood:

- Elevated sugar levels

Kidneys:

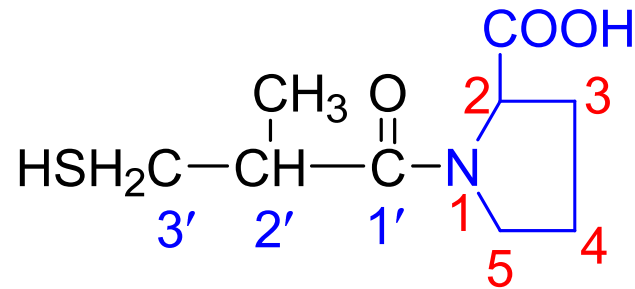
- Hypertensive nephropathy:
chronic renal failure



Classification

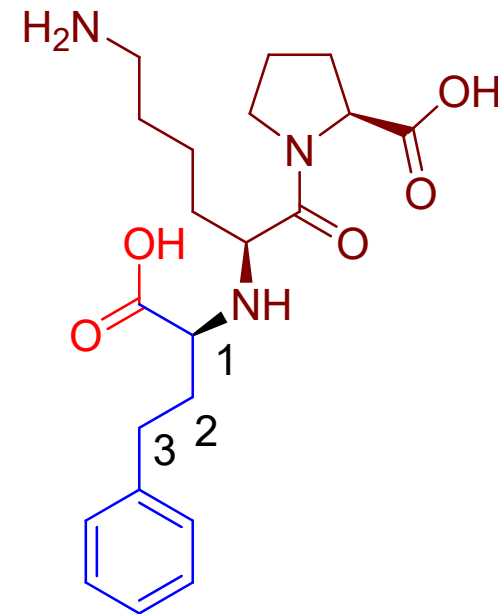
Angiotensin converting enzyme (ACE) inhibitors:

Captopril



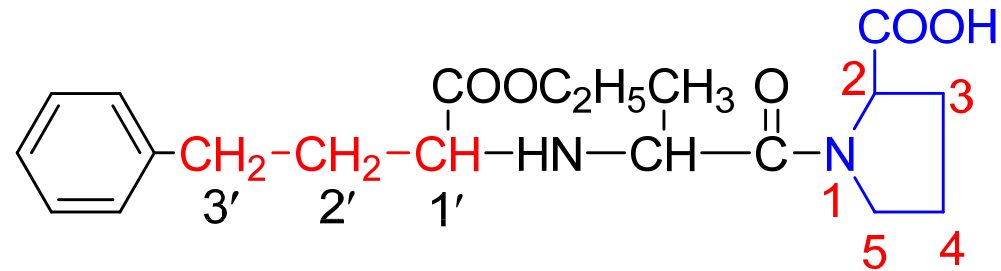
IUPAC: (2S)-1-[(2S)-2'-methyl-3'-sulfanylpropanoyl]pyrrolidine-2-carboxylic acid

Lisinopril



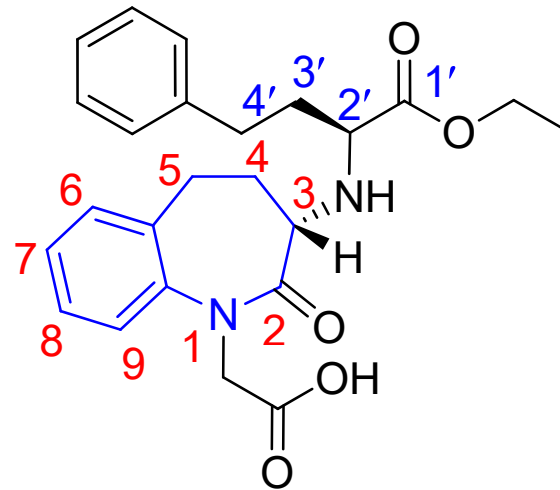
IUPAC: (S)-1-(N(2)-(1-Carboxy-3-phenylpropyl)-L-lysyl)-L-proline

Enalapril



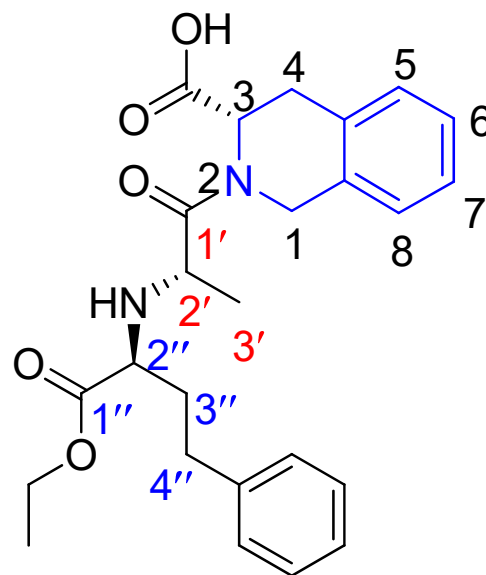
IUPAC: (S)-1-(N-(1-(ethoxycarbonyl)-3-phenylpropyl)-L-alanyl)-L-proline

Benazepril hydrochloride



IUPAC: 2-[(3S)-3-{[(2'S)-1'-ethoxy-1'-oxo-4'-phenylbutan-2'-yl]amino}-2-oxo-2,3,4,5-tetrahydro-1H-1-benzazepin-1-yl]acetic acid

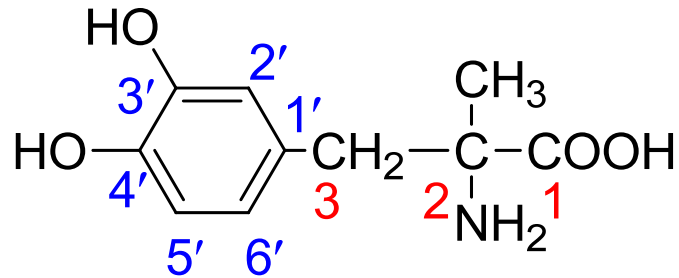
Quinapril hydrochloride



IUPAC: (3S)-2-[(2S)-2'-{[(2''S)-1''-ethoxy-1''-oxo-4''-phenylbutan-2''-yl]amino}propanoyl]-1,2,3,4-tetrahydroisoquinoline-3-carboxylic acid

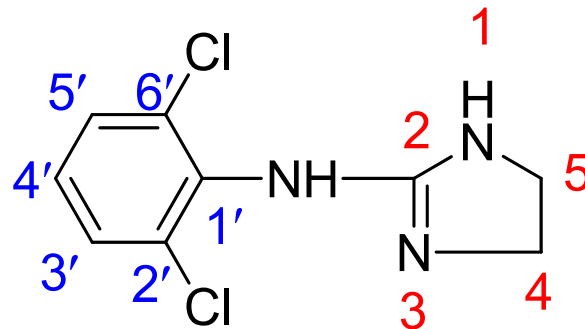
Central Sympatholytics

Methyldopa



IUPAC: (2*S*)-2-amino-3-(3',4'-dihydroxyphenyl)-2-methylpropanoic acid

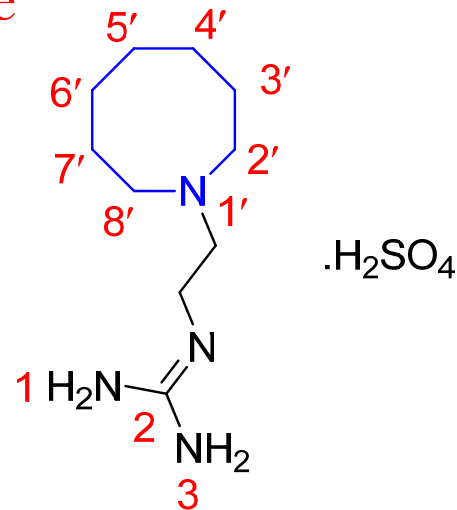
Clonidine



IUPAC: 2-((2',6'-Dichlorophenyl)imino)imidazolidine

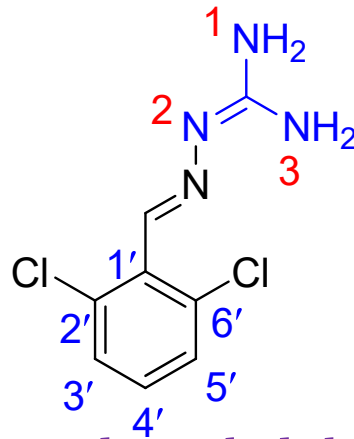
Adrenergic Neuron blockers

Guanethidine monosulphate



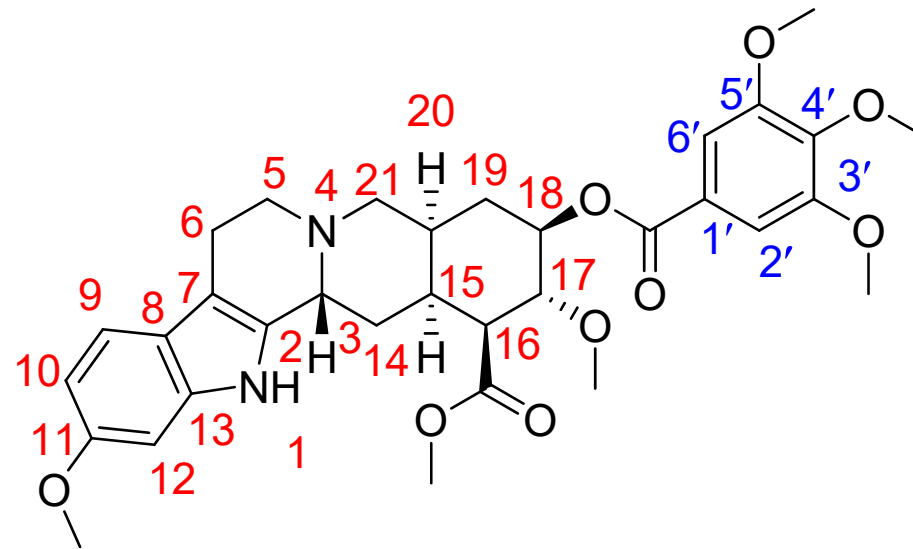
IUPAC: (2-(Octahydro-1'-azocinyl)ethyl)guanidine

Guanabenz acetate



IUPAC: 2-{[(2,6-dichlorophenyl)methylidene]amino} guanidine

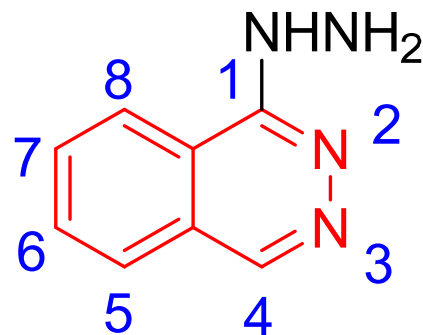
Reserpine



IUPAC: (3beta,16beta,17alpha,18beta,20alpha)-11,17-Dimethoxy-18-[(3',4',5'-trimethoxybenzoyl)oxy]yohimban-16-carboxylic acid methyl ester

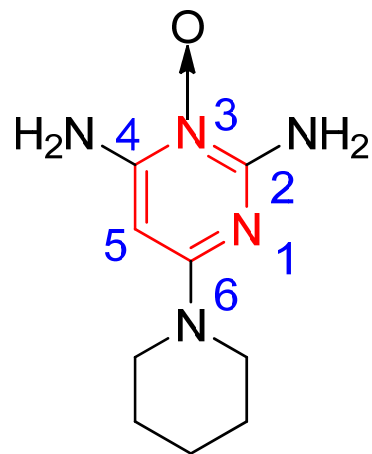
Vasodialators:

Hydralazine



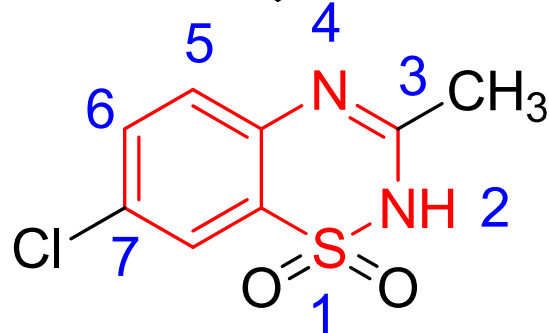
IUPAC: 1-Hydrazinophthalazine

Minoxidil



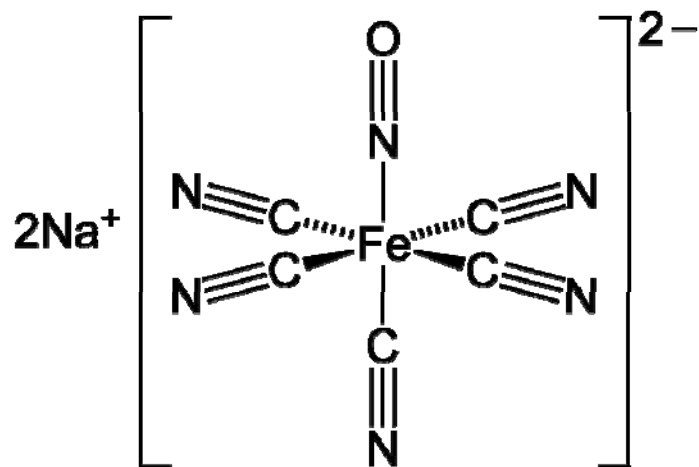
IUPAC: 2,4-Diamino-6-piperidinopyrimidine 3-oxide

Diazoxide

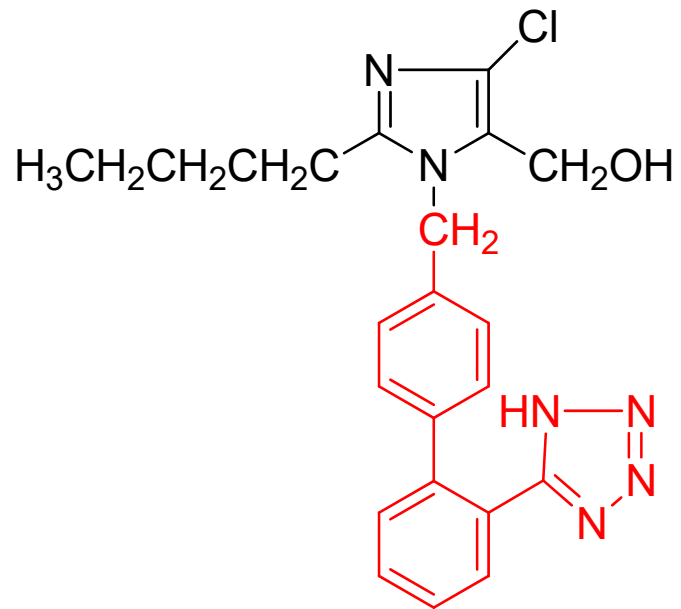


IUPAC: 7-chloro-3-methyl-4H-1,2,4-benzothiadiazine-1,1-dione

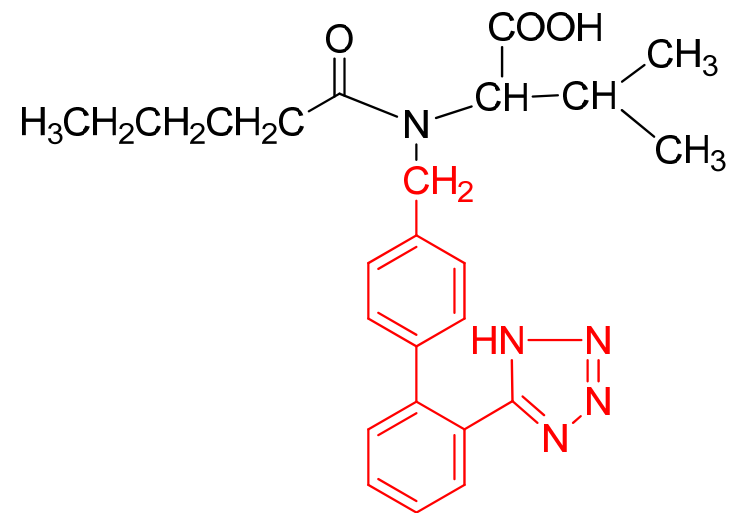
Sodium Nitroprusside



Angiotensin (AT₁) antagonist

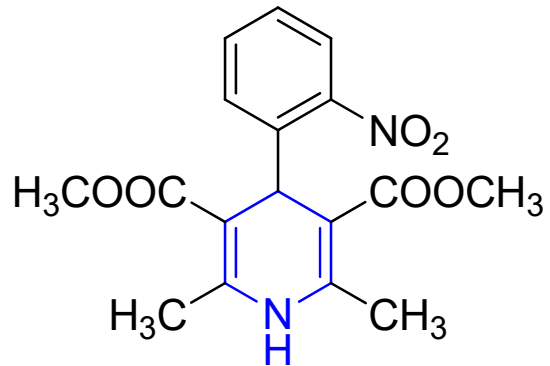


Losartan

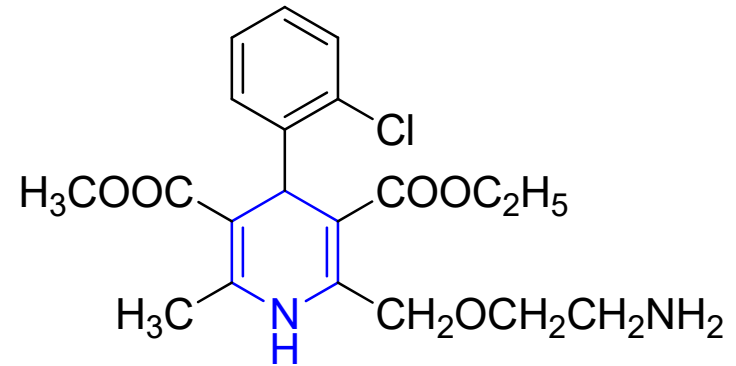


Valsartan

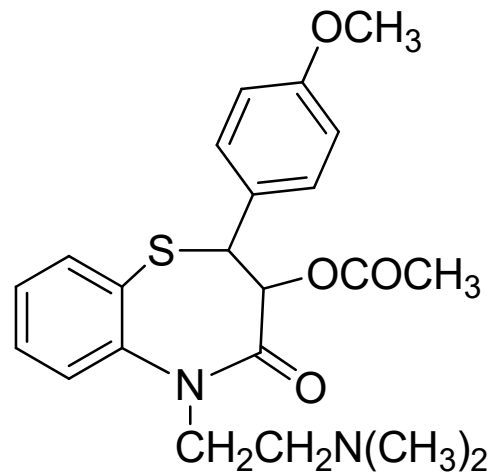
Calcium channel blockers:



Nifedipine

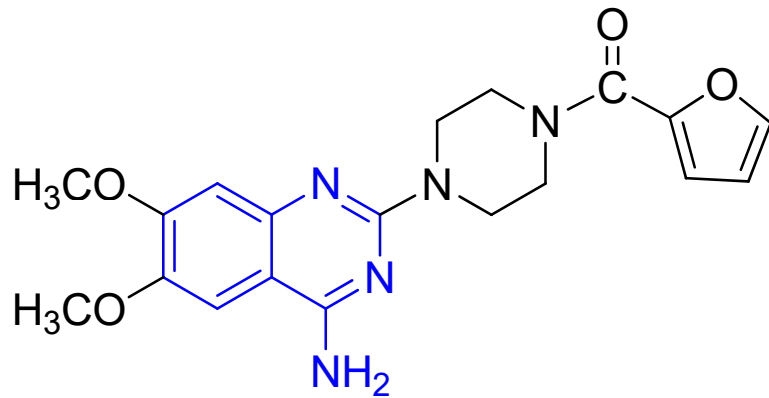


Amlodipine

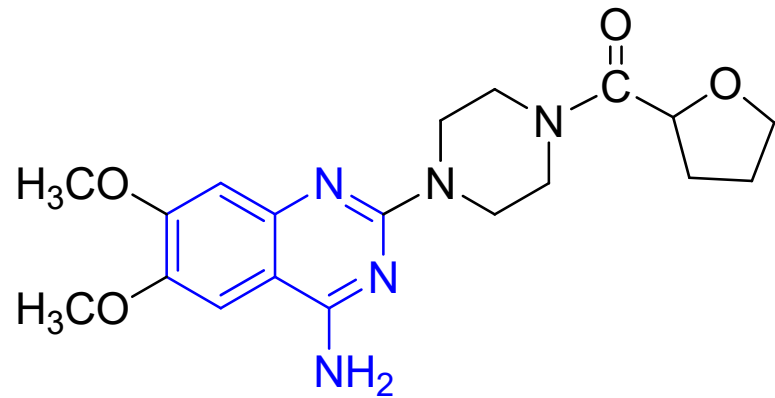


Diltiazem

α_1 -adrenergic blockers



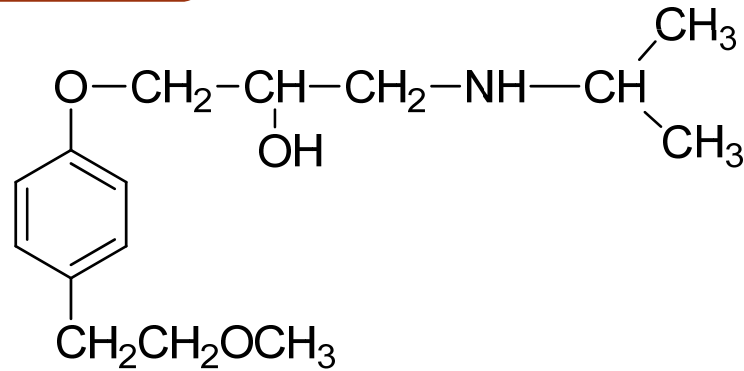
Prazosin



Terazosin

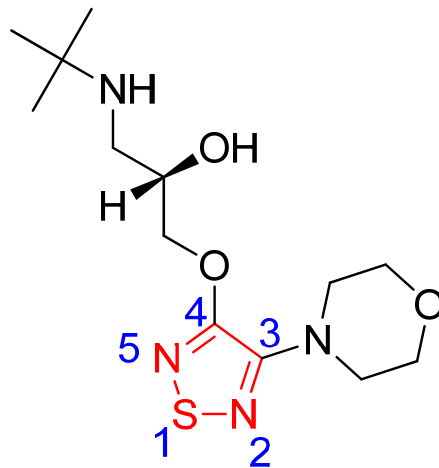
β -adrenergic blockers

Metoprolol



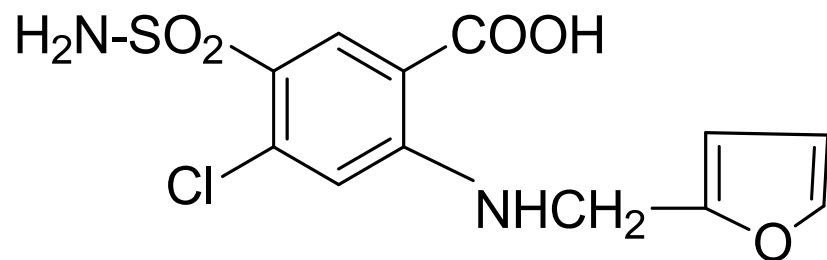
IUPAC: 1-(isopropylamino)-3-[4-(2-methoxyethyl)phenoxy]propan-2-ol

Timolol

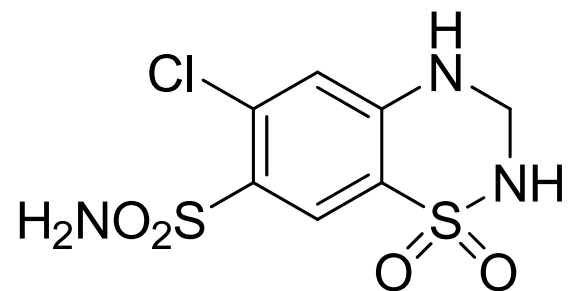


IUPAC: (S)-1-(tert-butylamino)-3-[(4-morpholin-4-yl-1,2,5-thiadiazol-3-yl)oxy]propan-2-ol

Diuretics



Furosemide



Hydrochlorothiazide