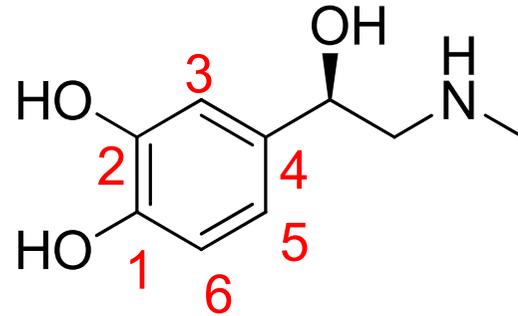


## Adrenaline/Epinephrine



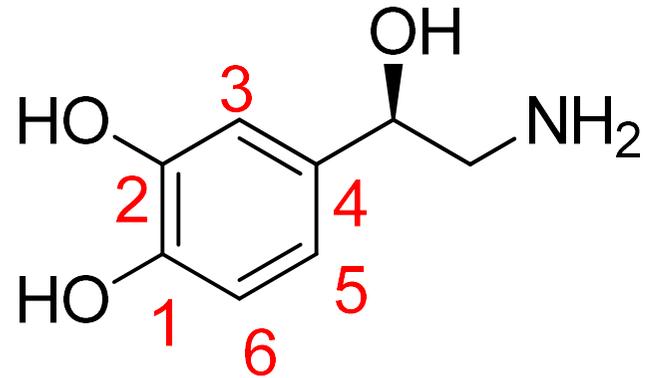
### MOA

- ❖ Adrenaline is a powerful agonist of both  $\alpha$  and  $\beta$  adrenoreceptor.
- ❖ Its action is very complex and depends on the relative distribution of adrenergic receptor and also on the dose and method of introduction.
- ❖ The levorotary (-) isomer of adrenalin is 50 times more active than dextrorotary (+) isomer.
- ❖ It directly and nonspecifically activates both  $\alpha$  and  $\beta$  adrenoreceptor.
- ❖ Activation of  $\alpha$  receptor leads to constriction of blood vessel.
- ❖ Activation of  $\beta_1$  receptor increase the heart rate and cardiac output.
- ❖ Activation of  $\beta_2$  receptor in lungs leads to dialation of bronchi.

### Uses

- ❖ Used for relieving bronchial asthma, revival of anaphylactic shock and allergic reaction.
- ❖ In ophthalmology, it is used to reduce intraocular pressure.
- ❖ It is indicated to increase mean arterial blood pressure in patients with hypotensive associated with septic shock.

## Noradrenaline



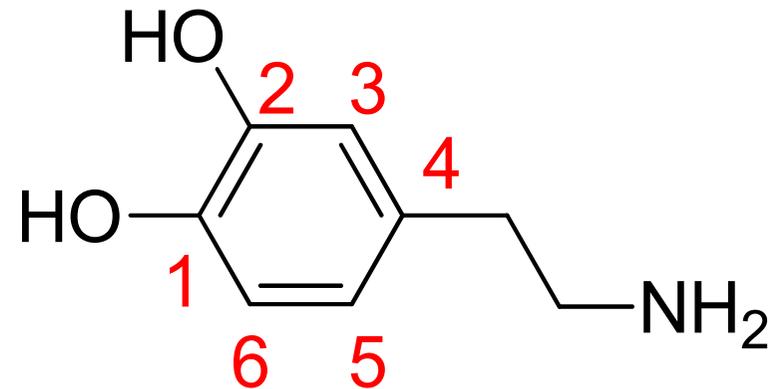
### MOA

- ❖ It stimulates  $\alpha_1$  and  $\alpha_2$  adrenergic receptors to cause blood vessel contraction, thus increases peripheral vascular resistance and resulted in increased blood pressure.
- ❖ This effect also reduces the blood supply to gastrointestinal tract and kidneys.

### Uses

- ❖ It is used to treat life-threatening low blood pressure (hypotension) that can occur with certain medical conditions or surgical procedures.
- ❖ Norepinephrine is often used during CPR (cardio-pulmonary resuscitation).

# Dopamine



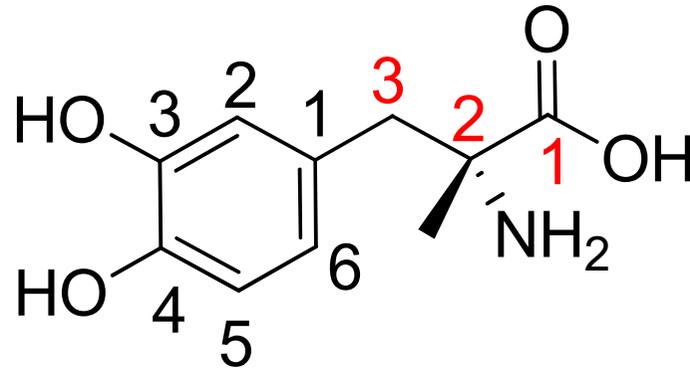
## MOA

Dopamine is found in every sympathetic neuron and ganglion in the CNS. Dopamine exhibits its primary action on the cardiovascular system, kidneys, and mesentery. The mechanism of action is based on the excitatory effect on  $\beta$ -adrenoreceptors (in low and moderate doses), as well as on  $\alpha$ -adrenoreceptors (in large doses). It has a positive inotropic effect on the heart, and slightly increases the frequency of heartbeats.

## Uses

It is used as a temporary agent for treating hypotension and circulatory shock caused by myocardial stroke, trauma, kidney rejection, and endogenous septicemia.

# Methyldopa



## MOA

It acts centrally on the vasomotor center of the CNS. Methyldopa is transported into the CNS via an aromatic amino acid transport mechanism, where it is decarboxylated and hydroxylated into  $\alpha$ -methyl norepinephrine. The metabolite then acts as an agonist on the  $\alpha_2$  adrenoceptor and inhibits sympathetic output.

## Uses

It is used for the treatment of hypertension.