

Noradrenaline

Template:Stump

Noradrenaline' (also *norepinephrine*) is a hormone produced by the adrenal medulla and a neurotransmitter. It is particularly involved in the activities of the sympathetic vegetative system and in mediating the stress response.

It is stored and synthesized (mainly) in the terminal branches of unmyelinated '*sympathetic postganglionic nerve fibers*. After action potential is received, there is an influx of Ca^{2+} and an outpouring of noradrenaline into the synaptic cleft.

adrenal medulla
amino acid derivative
 α and β receptors

Synthesis

Biosynthesis takes place in the adrenal medulla and adrenergic neurons. The basis is tyrosine.

1. **Dopa** - hydroxylation of the aromatic ring, tetrahydrobiopterin (THB);
2. **Dopamine** - dopa decarboxylation, pyridoxal phosphate;
3. **Noradrenaline** - hydroxylation of dopamine, dopamine- β -monooxygenase (cofactor: ascorbic acid).

Effect

It works by binding to the adrenergic receptor system G-proteins.

Increasing inotropy

bathmotropia, chronotropia and dromotropia

The mechanism of increased contraction works thanks to β_1 - receptors on the myocardial membrane, which bind noradrenaline and cause an increase in cAMP concentration, which activates protein kinase, which phosphorylates L-type Ca^{2+} channels, which thereby remain open longer.

 *For more information see Catecholamines.*

Links

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