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Piperazine

National Cancer Institute

Source

National Cancer Institute. *Piperazine*. NCI Thesaurus. Code C61892.

A cyclic organic compound possessing two nitrogen atoms in opposite positions within a 6-member heterocyclic ring that serves as a backbone for piperazine derivatives and acts as a gamma-amino-butyric acid (GABA) receptor agonist in nematodes, with potential anti-helminthic activity. Upon administration, piperazine binds to the GABA inhibitory receptors in susceptible nematodes, thereby inducing chloride channel opening and hyperpolarization. This results in paralysis of the worm musculature and allows normal peristalsis to dislodge the worm from the intestinal lumen, which causes the worm to be expelled from the body. Unlike vertebrates where GABA is restricted to the central nervous system (CNS), the GABA receptors in helminths are also expressed in the peripheral nervous system.