BACKGROUND

Under physiological conditions, Na\(^+\)-Cl\(^-\)-dependent hemicholinium-3 (HC-3)-sensitive, high-affinity choline uptake limits the rate of acetylcholine synthesis in cholinergic neurons. Hemicholinium-3-sensitive high-affinity choline transporter (CHT1) carries out this uptake. Regions of the nervous system that are rich with cholinergic cell bodies such as the spinal cord, brainstem, mid-brain, and striatum express CHT at high levels, whereas tissues lacking cholinergic cells, such as the cerebellum and kidney, show no CHT1 expression. CHT1 localizes to a subpopulation of small vesicles, which also contain vesicular acetylcholine transporter and acetylcholine, within the cholinergic presynaptic terminals. In response to neuronal activity, these particular vesicles translocate to the plasma membrane to re-uptake choline, a process that, due to the other contents of the vesicle, may be coupled with the rate of ACh release.

REFERENCES


SOURCE

CHT1 (5K101) is a mouse monoclonal antibody raised against thymocytes of chicken origin.