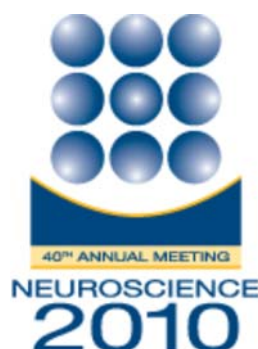


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Presentation Abstract

This presenter will not attend

Program#/Poster#: 138.8/E40

Title: M_2 -like muscarinic acetylcholine receptors regulate perisomatic GABA release in rat dentate gyrus

Location: Halls B-H

Presentation Time: Sunday, Nov 14, 2010, 11:00 AM -12:00 PM

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Abstract: Acetylcholine (ACh) plays an important role in regulating cortical activity. Previous studies indicate that activation of muscarinic acetylcholine receptors (mAChRs) inhibits GABA release from fast-spiking (FS) cells in neocortex and hippocampus. However, the specific subtypes and their effects on basal synaptic transmission of these mAChRs remain elusive. To address these questions, we combined pharmacology and whole cell patch recording from granule cells. We show that bath-applied arecaidine but-2-ynyl ester tosylate (ABET), a preferential muscarinic M_2 receptor agonist, significantly inhibits perisomatic GABA release in the dentate gyrus (DG). Pretreatment with gallamine, a muscarinic M_2 receptor antagonist, prevents this inhibition. Interestingly, bath application of gallamine enhances perisomatic GABA release, suggesting a tonic inhibitory effect of endogenous ACh on BC axon terminals.

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Keyword(s): DENTATE GYRUS
MUSCARINIC
ACETYLCHOLINE RECEPTOR

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