

Role of Cyclic Nucleotides in the Effect of Hydrogen Sulfide on Contractions of Rat Jejunum

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Abstract

© 2017 Springer Science+Business Media, LLC We studied the role of cyclic nucleotides in the influence of hydrogen sulfide (H₂S) donor, sodium hydrosulfide (NaHS, 200 μM), on motor activity of rat jejunum. NaHS reduced spontaneous and carbachol-induced contractions of rat jejunum segment, which suggests that H₂S can act through mechanisms involving muscarinic receptor activation. Against the background of a membrane-penetrating non-hydrolyzable cAMP analogue or under conditions of adenylate cyclase blockade, the inhibitory effect of NaHS on the carbachol-induced contractions was maintained. Against the background of elevated cGMP concentration or guanylate cyclase inhibition, the reduction of carbachol-induced contractions upon exposure to NaHS was less pronounced than in control. It was hypothesized that H₂S induces relaxation of carbachol-induced jejunum contractions, affecting protein kinase G targets or activating cGMP synthesis.

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