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CONTRACTILE EFFECTS OF EXCITATORY AMINO ACIDS ON ISOLATED RAT FUNDUS

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There are neurons within the wall of gastrointestinal tract which use glutamate or aspartate, two excitatory amino acids, as neurotransmitters. In our study we have examined the effects of glutamate, aspartate and subtype-selective agonists of receptors for excitatory amino acids (N-methyl-D aspartate /NMDA/, kainate and \pm -1-aminocyclopentane-cis-1,3-dicarboxylic acid /ACDA/) on smooth muscle of isolated rat gastric fundus, prepared according to Vane. Both aspartate, glutamate, kainate and NMDA produced concentration-dependent tonic contractions of isolated preparations (EC_{50} 's were 328.6, 406.6, 29.2 and 52.0 μ M, respectively), without significant effect on spontaneous contractions. On the other hand, ACDA (4nM to 4mM) did not affect either the tone or spontaneous contractions of isolated preparations. The results of our study suggest existence of functional NMDA and kainate receptors for glutamate and aspartate in smooth muscle of rat gastric fundus.