DAIKENCHUTO, A TRADITIONAL JAPANEASE (KAMPO) MEDICINE, FACILITATES CONTRACTION IN ISOLATED MOUSE DISTAL COLONS: INVOLVEMENT OF TRPA1 CHANNEL AND CALCITONIN GENE-RELATED PEPTIDE

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AIM: Daikenchuto (DKT) improves symptoms associated with postoperative ileus and constipation. we have Previously shown that allyl-isothiocyanate, a TRPA1 activator, induces contraction in mouse distal colon via primary sensory nerves and cholinergic neurons. We investigated the effect of DKT on colonic motility in the isolated mouse distal colon. Especially, we focused on the role of TRPA1 channels and CGRP receptors. **METHODS:** Distal colons were isolated from male ddY mice. The longitudinal smooth muscle tension was isotonically measured by using Magnus apparatus. **RESULT:** DKT induced twitch contraction in dose-dependent manner (0.1-10 mg/mL). The maximal response was observed at 3 mg/mL. DKT-induced contraction was inhibited by the NK_1 antagonist FK888, the NK_2 antagonist GR159897, and the CGRP receptor antagonist BIBN4096. The TRPA1 blocker A9607079 also markedly inhibited the contraction. The contraction was abolished by the pretreatment with atropine or tetrodotoxin. In the immunohistochemical study, TRPA1 immunoactivities were found in muscle layers of the mouse distal colon. Several TRPA1-expressing nerve fibers contained substance P (SP) and CGRP. **CONCLSION:** The DKT induced twitch contraction was mediated by TRPA1-expressing sensory nerves, which release SP and CGRP from the nerve terminals.