Fermented ginseng suppresses AITC-induced nocifensive behavior

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Panax ginseng is one of the component of herbal medicine and widely used in Asian countries. Ginsenosides is principal ingredient of Panax ginseng and has multiple effects such as anti-pain, anti-stress and hepatoprotective action. Ginsenoide Rb1 is metabolized to the Compound K (CK) by microflora in the intestine, and CK has stronger physiological activity than Rb1. In this experiment, we prepared two type of ginsengs, fermented ginseng (FG) which contain high amount of CK and non-fermented ginseng (NFG). Here we studied whether NFG and FG have anti-nociceptive effect, using by calcium imaging and behavioral assessment.

We applied AITC (TRPA1 agonist) and capsaicin (TRPV1 agonist) as noxious stimuli on the cultured rat DRG neurons. Pre-application of FG, but not NFG suppressed AITC-induced calcium response. By contrast, pre-application of NFG but not FG enhanced the capsaicin-induced calcium response. Then, we tested the effect of FG and NFG on pain behavior induced by intraplantar injection of AITC. Oral application of FG, but not NFG prevented AITC-induced pain behavior.

Taken together, we suggest that the FG, but not NFG suppressed TRPA1 channel on DRG neurons and showed anti-nociceptive effect on in vivo animals.