

The transient receptor potential (TRP) V1 is a cation channel belonging to the TRP channel family and it has been reported to be involved in energy metabolism, especially glucose metabolism. While, we have previously shown that intragastric administration of allyl isothiocyanate (AITC) enhanced glucose metabolism via TRPV1, the underlying mechanism has not been elucidated. In this study, we examined the relationship between insulin secretion and the increase in carbohydrate oxidation due to AITC. Intragastric administration of AITC elevated blood insulin levels in mice and AITC directly enhanced insulin secretion from isolated islets. These observations were not reproduced in TRPV1 knockout mice. Furthermore, AITC did not increase carbohydrate oxidation in streptozotocin-treated mice. These results suggest that intragastric administration of AITC could induce insulin secretion from islets via TRPV1 and that enhancement of insulin secretion was related to the increased carbohydrate oxidation due to AITC.

Intragastric administration of AITC could induce insulin secretion via TRPV1 and that insulin secretion was related to the increased carbohydrate oxidation due to AITC.