Postprandial blood glucose control is the major goal in the treatment of diabetes. Here, we investigated the effect of sea cucumber saponins (SCSs) on postprandial blood glucose levels. SCS inhibited yeast as well as rat intestinal α-glucosidase activity in a dose-dependent manner and showed better inhibition of yeast α-glucosidases compared to the positive control. Further studies were performed using ICR mice treated with SCS and starch or SCS alone by oral gavage. Unexpectedly, SCS increased postprandial blood glucose levels a short time (1 h) after oral gavage. The serum corticosterone (CORT) level showed a consistent correlation with glucose levels. *In vitro* experiments confirmed that SCS treatment increased the secretion of CORT in the Y1 adrenal cell line. Overall, these studies demonstrated that SCS gavage could inhibit α-glucosidase activity but cannot attenuate postprandial blood glucose level within short time periods. The underlying mechanisms are probably related to increased serum CORT levels.

The research idea of the effect of SCS on postprandial blood glucose.