

Supplementary Materials

Apple juice relieves loperamide-induced constipation in rats by downregulating intestinal apical sodium-dependent bile acid transporter ASBT

Qiunan Zhu ^a, Yusuke Iwai ^a, Takehiro Okaguchi ^a, Yoshiyuki Shirasaka ^a, Ikumi Tamai^{*a}

a: Department of Membrane Transport and Biopharmaceutics, Faculty of Pharmaceutical Sciences, Institute of Medical, Pharmaceutical and Health Sciences, Kanazawa University, Japan

*: Corresponding author: Ikumi Tamai, Ph.D.

Department of Membrane Transport and Biopharmaceutics, Faculty of Pharmaceutical Sciences, Institute of Medical, Pharmaceutical and Health Sciences, Kanazawa University, Kakuma-machi, Kanazawa 920-1192, Japan

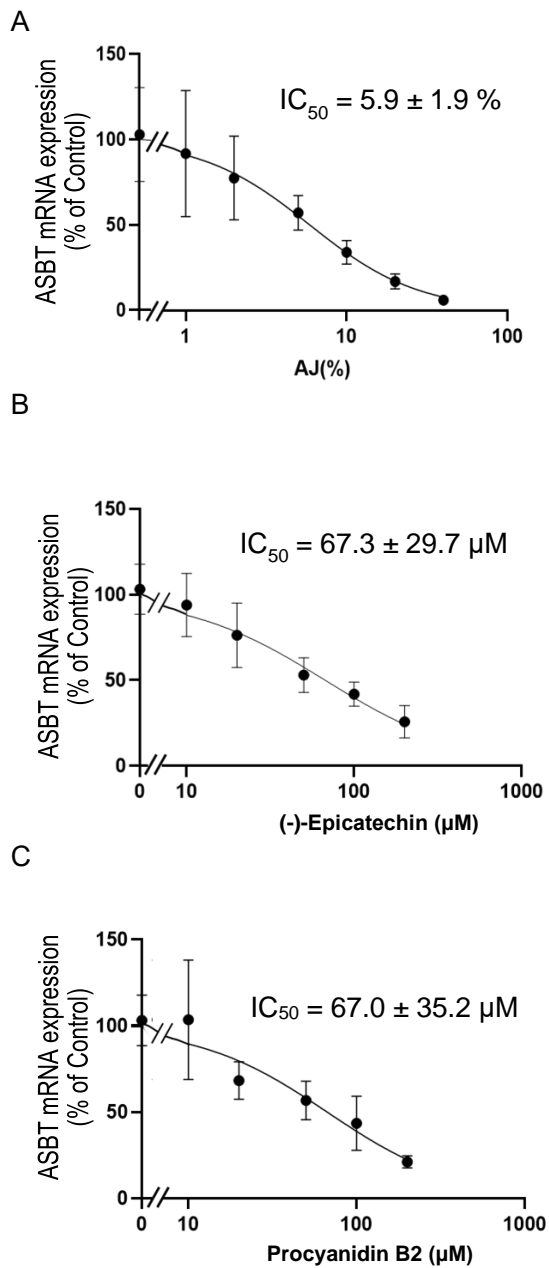
Tel: +81-76-234-4479; Fax: +81-76-264-6284; Email: tamai@p.kanazawa-u.ac.jp

Supplemental Table 1 Concentration of components in apple juice

Component	Concentration (μM)
Chlorogenic acid	153.00 ^a
(-)-Epicatechin	126.00 ^a
Procyanidin B2	73.00 ^a
Catechin	24.00 ^a
Phloridzin	19.00 ^a ; 16.80 ^b
Caffeic acid	14.00 ^a
Phloretin-2'-O-xyloglucoside	13.00 ^a
Procyanidin B1	7.00 ^a
Hesperetin	1.39 ^b
Quercetin	0.46 ^b
Hesperidin	0.25 ^b
Phloretin	0.23 ^b
Kaempferol	0.03 ^b
Bergamottin	0.02 ^b

a: concentrations from reported study³⁶.

b: concentrations from our previous study³⁷.



Supplemental Figure 1. Inhibitory effects of apple juice, (-)-epicatechin and procyanidin B2 on ASBT mRNA expression in Caco-2 cells.

ASBT mRNA expression level was measured after 48-h exposure of designed concentrations of apple juice (A), (-)-epicatechin (B) and procyanidin B2 (C) in 21-d cultured Caco-2 cells. HPRT was used as a housekeeping gene. The inhibitory effect on ASBT mRNA expression is shown as percentage of control, and the inhibitor concentration giving half-maximum inhibition (IC_{50}) was obtained by fitting to the following equation: $\% \text{ of control} = 100 \times IC_{50} / (IC_{50} + [I])$, where $[I]$ is inhibitor concentration (μM). Each result represents the mean \pm S.E.M. ($n=4$).