

## Wheat Albumin as a Functional Ingredient

KAZUKI NUKUI  
Nisshin Pharma Inc.  
R & D Division  
Health Care Research Center  
Chief Researcher

### < Summary >

Wheat albumin (WA) is an effective functional ingredient that suppresses postprandial blood glucose increase. 0.19-albumin, a major component of WA, delays carbohydrate digestion and decreases intestinal carbohydrate absorption by inhibiting mammalian pancreatic  $\alpha$  amylase activity.

In rats, WA in the chow delayed carbohydrate digestion and absorption, resulting in reduced blood glucose levels and insulin secretion after food intake. In healthy human subjects, WA (0.25, 0.5 or 1.0 g) given with breakfast decreased blood glucose levels increases by 47% 30 min after food intake, which is the peak for postprandial blood glucose levels (0.5 g WA group compared to control,  $p < 0.01$ ). WA also significantly reduced blood glucose  $AUC_{0-1}$  (down 53% from control levels,  $p < 0.01$ ). Furthermore, supplementation with 0.5 g WA at breakfast effectively suppressed the postprandial blood glucose increase by 18% ( $p < 0.05$ ) in subjects with borderline type II diabetes whose fasting blood glucose levels were lower than 126 mg/dl.

In animal models, WA facilitated weight loss by decreasing lipogenesis via improved glucose metabolism and decreased insulin secretion. Results from clinical studies that tested efficacy of WA for weight loss suggest that WA improves lipid metabolism in humans as well.

The present data suggest that WA containing 0.19-albumin as a major component, is a promising functional ingredient that suppresses postprandial blood glucose levels by inhibiting human pancreatic  $\alpha$  amylase activity, and improves glucose- and lipid-metabolism by decreasing insulin secretion.