

9th Biotechnology Congress

August 31-September 02, 2015 Orlando, Florida, USA

New concept of prebiotics: Prebiotic enzyme transglucosidase

Satoshi Koikeda

Amano Enzyme Inc., Japan

The role of gut microbiota to influence human physiology, metabolism, nutrition and immune function has been highlighted. Gut microbiota is a community of microorganisms inhabiting in gastrointestinal tract and is thought to change in response to nutritional and physical condition. Nowadays, development of novel prebiotic and probiotic to keep gut microbiota at good balance is paid attention to prevent and treat chronic diseases. We are investigating prebiotic enzyme named transglucosidase (TGD). TGD is an enzyme catalyzing the synthesis of the prebiotics isomaltooligosaccharides from maltose. The randomized, double-blind, placebo-controlled study of TGD was conducted. Patients with type 2 diabetes (T2MD) were randomized to TGD orally 300 or 900 mg per day for 12 weeks. Blood and fecal samples were collected before and after 12 weeks. At 12 weeks, TGD 300 mg/day and TGD 900 mg/day significantly reduced HbA1c (0.18 and 0.21%) and insulin concentration (19.4 and 25.0 pmol/l), respectively, vs. placebo. In the placebo and TGD groups, the bacterial communities were generally similar before and after the treatment. However, after 12 weeks of TGD therapy, the Bacteroidetes-to-Firmicutes ratio in the TGD groups significantly increased and was significantly higher compared with that in the placebo group, indicating that TGD improved the growth of the fecal bacterial communities in the T2DM patients. Therefore, TGD treatment decreased blood glucose levels and prevented body weight gain in the T2DM patients by inducing the production of oligosaccharides in the alimentary tract and modulating gut microbiota composition.

Biography

Satoshi Koikeda has completed his PhD at 1990 from Kanazawa University in Japan and joined Amano Enzyme Inc. He is a general manager in frontier research department of Amano Enzyme Inc. He is interested in novel enzyme technology and enzyme application.

satoshi_koikeda@amano-enzyme.com

Notes: