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Targeting gut microbiota for the control of obesity and metabolic disorders mediated by probiotics and synbiotics

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As revealed, our new organ gut microbiota has profound effect on obesity and its related metabolic disorders through host-microbiota interactions as well as metabolic pathways regulations. The objectives of this work are to have an in-depth understanding on the effects of probiotics (*Bifidobacterium animalis*, subsp. *lactis* and *Lactobacillus paracasei*, subsp. *paracasei*) and prebiotics (oat β -glucans) on the regulation of gut micro biota as well as alleviation of obesity. C57 mice fed high fat diet (HFD) were treated either with probiotics or synbiotics (pro- and prebiotics together) by gavage for 8 weeks. The fecal recoveries of the probiotic bacteria were monitored by qPCR. Levels of animal serum cholesterol and triglyceride were enzymatically determined using commercial kits. The host gene expressing level of TNF- α , CD11c and MCP-1 in eAT, liver and jejunum were quantified by RT-qPCR. The concentrations of cecal short chain fatty acids were determined by GC method. Compared with mice fed control diet, HFD-fed mice gained more body weight and showed a tendency to developing effects of metabolic disorders, including elevated fasting blood glucose, serum cholesterol and triglyceride, decreased concentrations of short chain fatty acids in cecal content and increased the gene expression of TNF- α , CD11c and MCP-1 in eAT, liver and jejunum. Oral administration of the probiotics and synbiotics tended to prevent and alleviate these HFD-induced effects. The intervention of synbiotics is more effective than probiotics in obesity control.

Biography

K E Xinxin is currently a PhD student at School of Life Sciences, The Chinese University of Hong Kong under the supervision of Peter C.K. Cheung. Her PhD project is collaborated with labs in Germany and USA. She has overseas learning experience in Technical University of Munich and attended different conferences to present her project and ideas.

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