JINIS Biopharmaceuticals Co.

Technology Overview

1. Background of Technology

Obesity is a major health problem in the world, and is increasing both in prevalence and severity. Since it poses a major risk for various serious chronic diseases, it is very important to prevent and treat obesity.

The main prescription products currently approved for obesity are sibutramine (Abbott's Meridia®) and orlistat (Roche's Xenical®). Sibutramine inhibits the reuptake of noradrenaline and serotonin, controlling appetite and therefore decreasing food intake. Sibutramine, however, has well known side effects associated with sympathomimetic properties, affecting heart rate and blood pressure.

In contrast to sibutramine, orlistat acts locally. Orlistat is a gastric and pancreatic lipase inhibitor that prevents fat hydrolysis, thus reduces dietary fat absorption by approximately 30%. However, undigested fat along the gastrointestinal track cause side effects, which is not only uncomfortable but also socially unacceptable. Therefore, a new type of anti-obesity treatment needs to be actively sought because the current pharmaceutical drugs are not ideal for the treatment of obesity.

2. Description on Technology Applied

A probiotic strain was mutagenized to isolate JBD 301 series that could inhibit fat absorption, which result in reduction of energy intake and thus weight reduction.

Figure. The effect on weight gain by administration of JBD301 upon diet-induced obesity

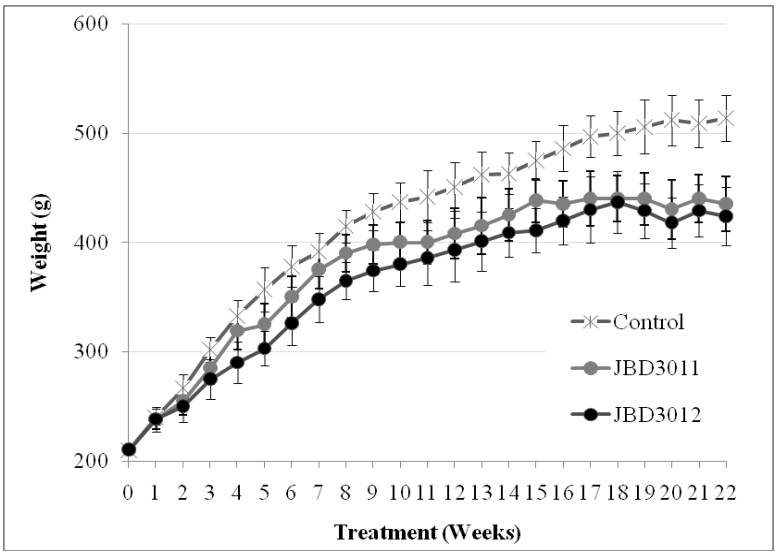


Figure. The effect on visceral fat reduction by administration of JBD301 series (MRI)

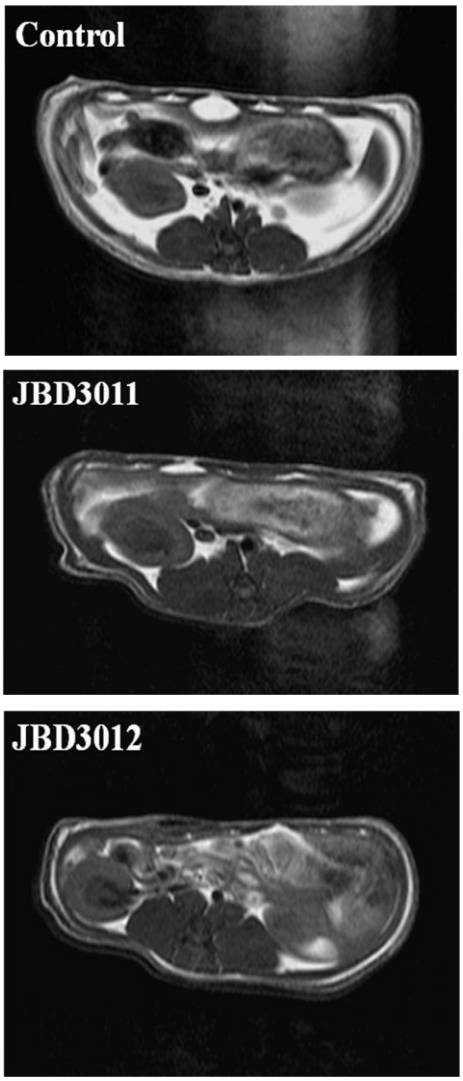


Figure. The effect on serum lipid profile by administration of JBD301 series

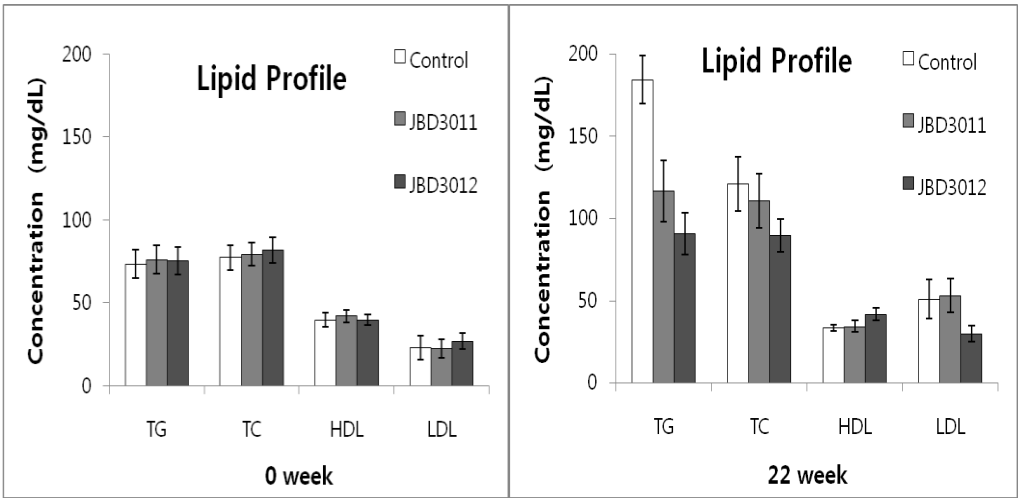


Figure. The effect on serum insulin and leptin level by administration of JBD301 series

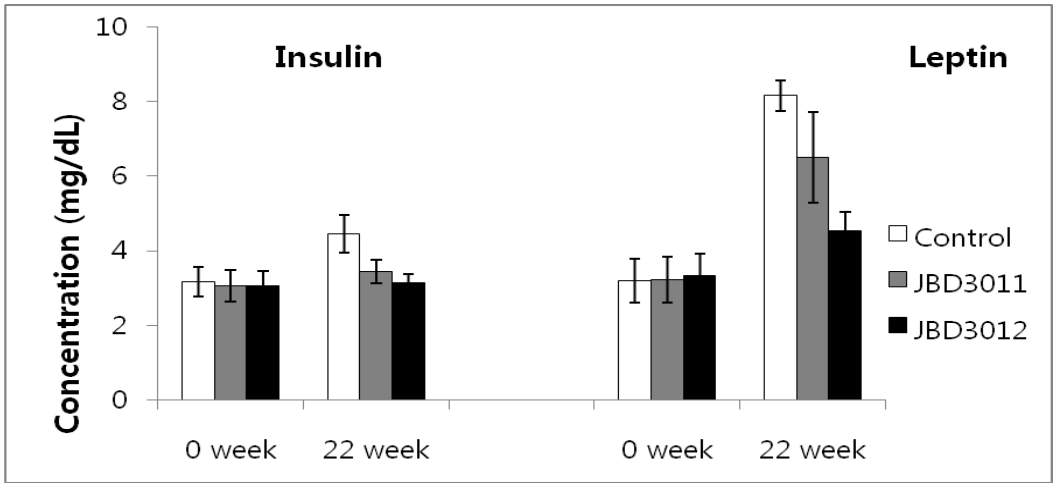


Figure. The effect on serum glucose level by administration of JBD301 series

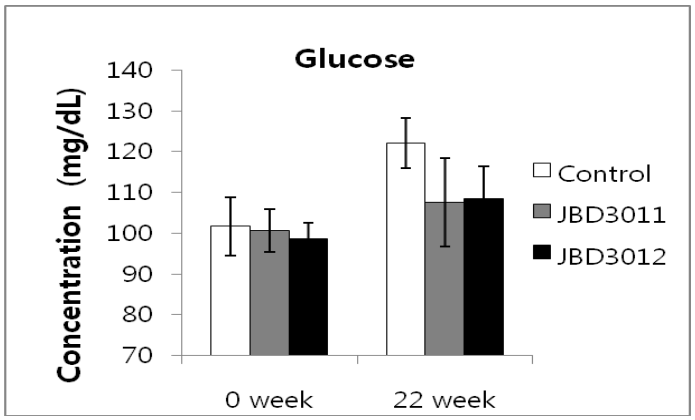
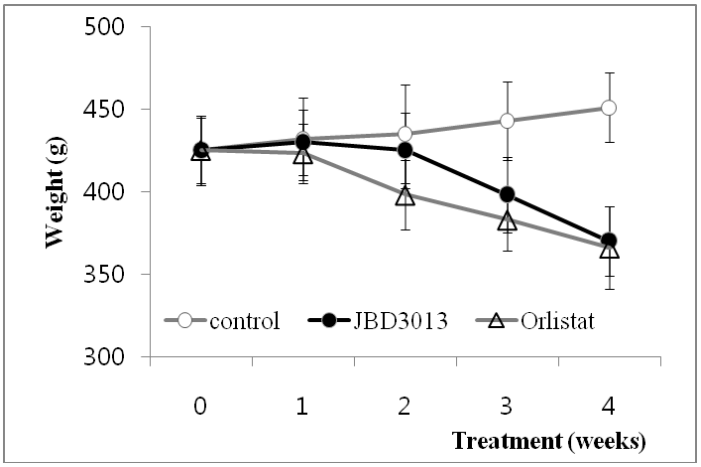


Figure. The effect on diet-induced obesity by administration of JBD301 series



JINIS JBD-301, a novel microbe strain (Patent-pending), inhibits absorption of fat in the gastrointestinal track, reducing calorie intake.

JBD-301 successfully reduced visceral fat accumulation and body weight while it does not show serious side effects reported with current drug. Administration of JBD-301 reduced visceral fat accumulation and body weight gain about 20% compared to the control as well as improving blood biochemical profiles relating to metabolic syndrome.

This implies JBD-301 can be developed as both SAFE and EFFECTIVE drug for the treatment of obesity as well as other associated health hazards, including cardiovascular disease and diabetes.

3. Differential Point, Superiority or Characteristics of Technology Applied

According to WHO, at present, 4 billion people are obese and 16 billion are overweight, while it is expected to be 7 billion of obese people in 2015. However, current pharmaceutical drugs are not ideal for the treatment of obesity because of serious unavoidable side effects. The absence of NEW and SAFE drug is the simple reason for relatively small market size for obesity drug, less than 0.5 billion USD, compared to the huge market size for weight control and diet, more than 50 billion USD. Therefore, a new type of anti-obesity treatment which is not only effective for weight loss but also safe for long-term use is needed.

Extra caloric intake from dietary fat is the most important determinant of obesity as it can be observed from rapid increases in obesity in the developed worlds. JBD301 can reduce fat absorption, which showed anti-obesity effect as much as the most popular anti-obesity drug, orlistat. Moreover, JBD301 as an anti-obesity drug has obvious advantages over the current pharmaceuticals for obesity. It does not act on the brain, but acts peripherally and, therefore, has a superior risk-benefit profile to centrally acting drugs, such as sibutramine. Second, JBD301 does not act on lipid hydrolysis that causes the unavoidable side effect of the GI track such as anal leakage and oily spotting.

Specific Patent

No.	Name of Patent	Application No.	Date of application	Country	Status (Applied/approval)	Cost for patent (KRW)
1	Composition and method for the prevention and the treatment of obesity and metabolic syndrome	PCT/ KR2009/ 003036	2009.06.05	PCT	Applied	5,000,000
2	Composition and method for the prevention and the treatment of obesity and metabolic syndrome	10-2009-0020474	2009.03.10	Korea	Applied	2,000,000

※ *Please provide accurate information for Application No and Date of application/approval. It will be used for patent search.*

※ *In case of Cost for patent, please consider administrative cost for patent application only.*

※ *In case of PCT or overseas patent (application) except domestic patent, Please attach a certificate of application/approval (or patent abstract) as a separate file.*