Construction of the rapid detection system of gut bacterium for health awareness improvement

Principal Investigator

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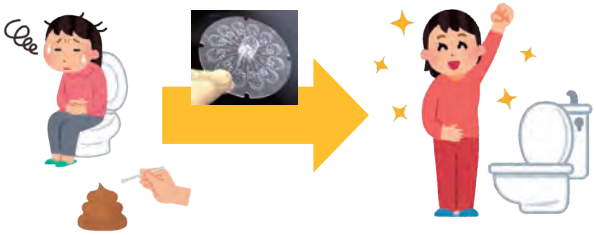
Project Outline

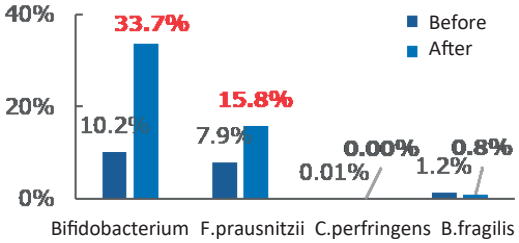
Goal of social implementation



The importance of the gut microbiome has been attractive. However, the measurement of them remain the issue. Therefore, based on our unique centrifugal thermal convection PCR technology, we are trying to construct a system that can provide the ratio of gut bacterium ratio with rapidity. Through this, we aim to encourage behavioral changes for health, such as improving diet.

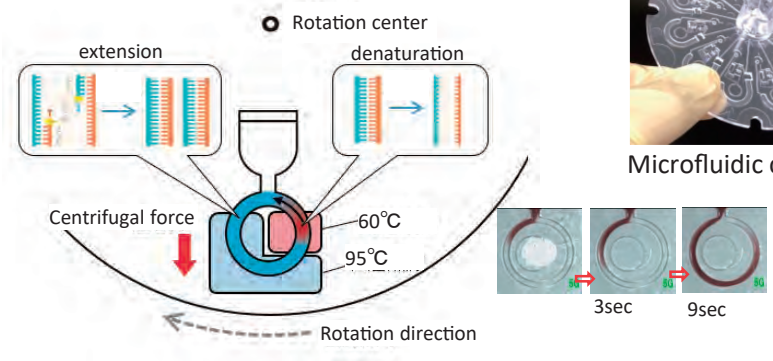
PoC trial test by prototype (46 people, 2019)

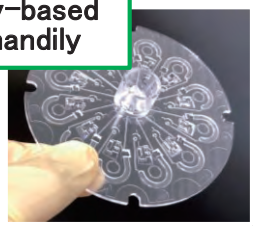
Measurement of human stools before and after ingestion of dietary fiber foods and fermented foods. (Bifidobacterium, Lactobacillus, Fericus, Faecali, Clostridium, Fragilis, Clostridium perfringens)



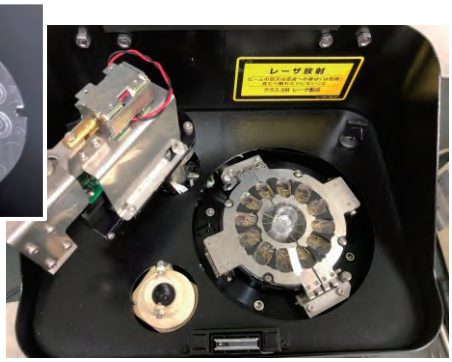
Visualized the increment of beneficial bacterium and decrement of bad bacterium by measuring human stool. In addition, the results of the questionnaire also suggest changes in diet and health awareness.

Centrifugal thermal convection technology–based DNA detection device with rapidity and handily





Microfluidic chip



Prototype of centrifugal thermal convection（A4 paper size）

Progress toward the goal	Constructed prototype system and succeeded measurement of the ratio of model bacterium from human stool sample. We are investigating the relationship between gut bacterium and health, and aiming to establish a healthcare support method.

Target disease: Health promotion and disease prevention by measuring intestinal bacteria
Patent information: JP/5967611, EP/3045523, US/10946384, US/10493416, JP/6714277, EU/3141592, etc.
Technology features: this device can be detected DNA directly, handily and rapidly from human stool. It is also possible to apply the detection of SNP, infection pathogen, hygiene.
Issue for market and development: We are looking for partners for developing more compact device and food-related company for improving the intestinal environment.