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National Cancer Center
Tokyo Institute of Technology

**New simple storage method for faecal samples offers improvements in the metagenomic analysis and the study of disease**

Associate Professor Takuji Yamada of Tokyo Institute of Technology, Laboratory Head Shinichi Yachida of National Cancer Center and colleagues developed a new faecal microbiome preservation method to support metagenomic analysis of intestinal flora, bacteria in the intestines. Recent developments in gene-sequencing technology have enabled researchers to identify the genomes of natural bacteria in the intestines. Reports have shown that these bacteria are strongly associated with obesity, diabetes, inflammatory bowel disease and allergies. They also show potential as disease markers to identify cancer risks.

Conventionally faecal samples are frozen on dry ice or in a deep-freezer immediately after collection, because bacterial taxa can undergo changes within 15 minutes at room temperature. However, immediate deep-freezing is often inconvenient in clinical practice, so a simple storage method at room temperature is desirable.

Researchers stored faecal samples in a guanidine thiocyanate solution kept at room temperature and compared them with samples preserved using conventional fresh freezing. Samples stored at room temperature showed no significant difference in taxonomic composition from those stored using conventional methods. This new, simple storage solution offers a means for metagenomic analysis of faecal samples stored at room temperature. The study further showed that bacterial composition did not vary significantly before or after large intestine colonoscopy and pre-washout.

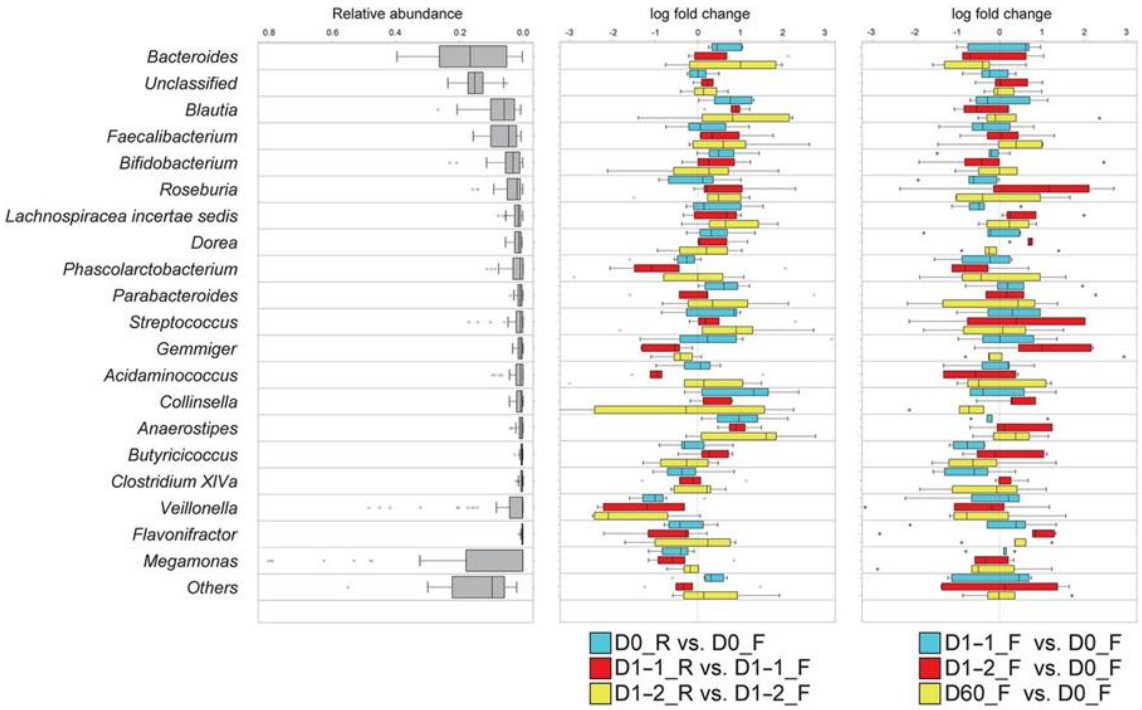


**Figure: Fold changes in taxonomic abundance of 20 dominant genera.**

Left, fold changes in taxonomic abundance of 20 dominant genera. Middle, comparisons between frozen and room temperature-stored samples from one day before colonoscopy (blue), the test day morning (red) and during bowel cleansing (yellow). Right, comparisons between baseline samples (D0_F) and samples from the test day morning (blue), during bowel cleansing (red), and 2 months after colonoscopy (yellow).

**References**


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