

## Foreword on LAB

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### Summary

Lactic acid bacteria (LAB) can be defined as those bacteria producing lactic acid, and is comprised of diverse genera found to have varied physiological functions. It is also known that LAB is closely associated with human life, especially with our health and food. According to recent discoveries related to the activity of LAB, the utilities of LAB expand into many areas of “food and health science”.

Although it has been said that uses of “milk LAB” in Japan do not have a long history yet, Japan does have it on “plant LAB” in their extensive uses in industry and also in science. Currently, Japan can be said to be unique in having very good activities, both in “milk LAB” and “plant LAB”, that is quite different from Western science which focuses mainly on the former area. This makes Japan the only one highly active in both.

The concept of probiotics originated in the Western world, but actual products and studies on their effects came from the East, especially Japan. This has further developed into the creation of the concept of “food of special health use = FOSHU” in Japan. Japan has also contributed greatly to the science on microbiota in digestive systems in human and animals. Microbiota in digestive systems have been recognized to be very important factors or keys to our health.

The rapid progress in science and technology on LAB can also be seen from patent applications (Japanese Provisional Patents), i.e., patents related to LAB and effects on good health have proven to many in the last 10 years, for example: immune modulation, 95; physiological functions, 56; cholesterol, 33; cosmetics, 33; high blood pressure, 17; diets, 10; vaccine, 10 and obesity, 10.

Research on LAB often deals with complex systems and this may cause difficulty in understanding and interpretation of experiments, but on the other hand, these give us very challenging problems and are the treasure box of new discoveries.

In the special issue, topics on LAB from basic to applied area are covered by the forefront scientist. As the editor of this special issue, I appreciate greatly the contributors for their exhaustive efforts in wiring the best and most updated reviews on their areas of specialty and these papers clearly show us the future direction of science and technology on LAB.

At the last but not the least, much appreciation goes to the editorial office of FFIJ.