

Toyota Boshoku begins joint research with Nagoya University on the effects of the tide-generating force

~ Accelerating research and development for new value creation ~

Kariya(JAPAN)- October 17, 2018-Toyota Boshoku Corporation (Tokyo:3116) recently reached an agreement with Nagoya University to jointly engage in research to elucidate the effect of the tide-generating force*¹ on organisms.

Toyota Boshoku has been focusing on the relationship between the growth of plants and the tide generating force. The company has conducted research on cultivation technology in synchrony with the tide generating force, where it has adjusted the temperature and light of greenhouses in sync with the rhythms of the high and low tides. The goal is to advance the company's research and development and make it useful for society, by elucidating the effect of the tide-generating force across a range of areas.

On this occasion, Toyota Boshoku has entered into a collaboration with the Institute of Transformative Bio-Molecules (ITbM)*², Nagoya University, which is carrying out cutting-edge research on the circadian clock rhythm of animals and plants, to jointly research the effect of the tide-generating force. The partners will deepen their research from a variety of viewpoints by leveraging the advantages provided by combining research areas.

Toyota Boshoku in April established “Technical Advisory Board”, a brain trust made up of outside experts that are working to propose new value to respond to needs and expectations that arise as society changes. Professor Kenichiro Itami, the Director of ITbM is participating in the advisory board to promote open innovation.

Through this activity, Toyota Boshoku and ITbM will aim to accelerate research on the tide generating force and contribute to society by applying our research achievements to increasing food production and promoting health.



Mr. Osamu Kito, Executive Functional Officer of Toyota Boshoku Corporation (left) and Professor Kenichiro Itami, Director of ITbM (right)

The story behind Toyota Boshoku's joint research on cultivation technology in synchrony with the tide generating force

For many years, Toyota Boshoku, which develops automotive interior components, has been working to use plant-derived materials for those parts in order to manufacture in an environmentally friendly way. Through basic research on Kenaf as a material, it has focused on the effects of the tide generating force on plants and attempted to apply them to cultivation technology.

By optimizing the temperature, light, nourishing solution, carbon dioxide and other environmental variables in greenhouses in sync with the rhythms of the high and low tides, Toyota Boshoku has already increased the harvest weight of leafy vegetables such as lettuce, and it is moving forward with a proof of concept toward practically applying this technique as a cultivation method for promoting plant growth.

*1 — A force arising from the gravitational pull between the Sun, Earth and Moon and the centrifugal force of Earth, which causes the rising and falling of the tides.

*2 — A research center chosen for the Ministry of Education, Culture, Sports, Science and Technology's World Premier International Research Center Initiative (WPI). By integrating the world's most advanced synthetic chemistry and plant/animal biology, it aims to pioneer new academic fields and to create transformative bio-molecules that will bring about a significant impact on society in a wide range of fields including food production, the environment, and drug development and medical technology. ITbM is an abbreviation of Institute of Transformative Bio-Molecules.