Mori Building Launches Joint Research Project with Keio University School of Medicine

The project will collect and analyze a range of participants' health data to examine the impact of dietary intervention, aiming to create urban environments that promote well-being

Tokyo, March 28, 2022 — Mori Building Co., Ltd., Japan's leading urban landscape developer, announced today that in conjunction with Keio University, one of Japan's top private educational institutions, it has launched a research project aimed at promoting the wellness of people living in urban environments. The project will involve the collection of participants' health data using monitors and other wearable devices, as well as questionnaires on their eating behaviors and mental states. The aim will be to investigate the effects of dietary intervention on various aspects of participants' health.

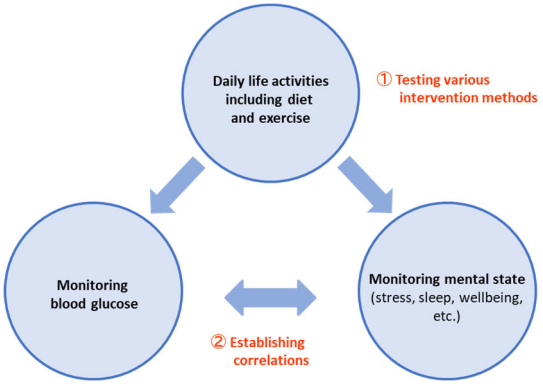
Hills Joint Research Laboratory for Future Preventive Medicine and Wellness—aiming for further development of preventive medicines

Mori Building's Toranomon-Azabudai Project, slated for completion in 2023, will be built on the central pillars of "Green" and "Wellness" with the aim of facilitating a healthy living and working environment for people of all ages. Each aspect of the development will be reviewed in terms of its contribution to the wellness of everyone living and working there. As part of their basic agreement concluded in March 2021, Mori Building and Keio University have agreed on the relocation and expansion of the latter's Center for Preventive Medicine to the site of the Toranomon-Azabudai Project. In April 2021, the two entities also opened the Hills Joint Research Laboratory for Future Preventive Medicine and Wellness, and are currently conducting research in conjunction with Dr. Kazuhiro Kashiwagi and Dr. Taishiro Kishimoto, both specially appointed professors.

The Toranomon-Azabudai Project aims to promote the development and implementation of new preventive medicine and wellness services for urban dwellers, in collaboration with the Center for Preventive Medicine and other Mori Building Hills facilities. Through the operation of this joint research laboratory, the two entities will not only contribute to the health of people living and working in Hills complexes, but will also promote research activities through collaboration between industry, academia and the private sector, with the aim of developing preventive medicines that can be passed on to future generations.

First phase of joint research targeting Mori Building employees

In February 2022, Mori Building and Keio University embarked on the first phase of a joint research project involving the participation of 40 employees of Mori Building. Using a combination of blood glucose monitors, other wearable devices, and comprehensively analyzing information collected by means of questionnaires, data related to daily blood glucose fluctuations, daily activity data (activity level, sleep data, heart rate, etc.), mental status (perceived stress levels, life satisfaction scores, sleepiness, etc.), are being collected and analyzed to ascertain any changes in mental status and other factors caused by blood glucose fluctuations. In addition, a dietitian is providing employees with advice on dietary behavior, with the aim of qualifying the effects of dietary intervention on blood glucose fluctuations and other indicators.



Mori Building aims to create cities—Hills complexes—where all aspects of living and working are linked to wellness. Based on the results of this joint research, the two entities aim to develop new services and solutions, help improve people's well-being, extend healthy life expectancy, and further develop preventive medicines, thereby paving the way to the cities of the future.

Goals of the joint research

Reducing blood glucose fluctuations can help prevent a variety of diseases, such as stroke and myocardial infarction. However, current health checkups are unable to evaluate blood glucose fluctuations in detail, and it is believed there are a certain number of people with "hidden diabetes" whose condition is not diagnosed during regular health checkups. There is also concern that the rapid drop in blood glucose levels associated with postprandial blood glucose spikes[1] can cause drowsiness, fatigue, stress, and other symptoms that interfere with work and learning efficiency. Reducing blood glucose fluctuations may prevent a number of diseases and improve performance in daily life. During this joint research, Keio University and Mori Building will examine the relationships between each item of health data collected using blood glucose monitors and other wearable devices. Using questionnaires on eating behavior and mental status, they will also investigate the effects of dietary intervention on specific health indicators.

[1] A blood glucose spike is a spike in blood glucose levels (140 mg/dl or higher) in the first hour or two after a meal, followed by the release of a large amount of insulin in reaction, causing blood glucose levels to drop sharply. It causes drowsiness, fatigue and other conditions, and interferes with concentration. It is also believed that wild fluctuations in blood glucose levels damage blood vessels, increasing the risk of sudden death from myocardial infarction or stroke.

Joint-research test group

A total of 40 Mori Building employees, comprising both generally healthy people and those with impaired glucose tolerance.

Joint research period

End of February to end of April 2022 (about 2 months).

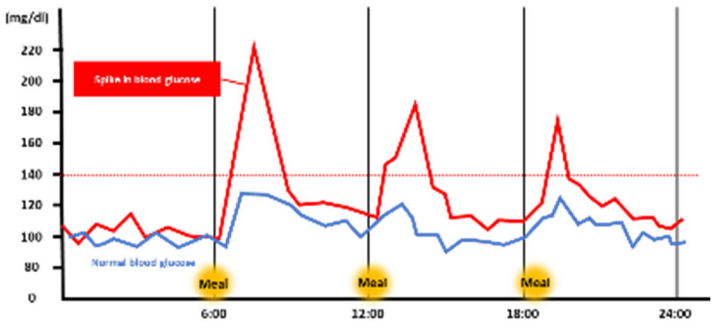
How health data is collected

1. Monitoring of activities
   A wristband-type wearable device will be worn for eight consecutive weeks to record daily activity data, including: number of steps taken; distance walked; calories burned; exercise time; sleep-related data (sleep duration, heart rate, sleep stages, etc.); and general heart rate.

2. Monitoring of blood glucose
   A “FreeStyle Libre[2]” continuous blood glucose monitor (CGM), 5 mm in diameter and 5 mm thick, will be worn for 14 days to collect blood glucose data. A dietitian will then provide dietary advice, and the monitor will be worn for an additional 14 days to obtain data on fluctuations in blood glucose levels.

3. Assessment of eating behavior/mental status
   Assessment will be made based on the data provided via questionnaires on eating behavior (eating style, dietary contents, etc.) and mental status (perceived stress levels, life satisfaction scores, sleepiness, etc.).

Continuous blood glucose monitor



Graph of blood glucose fluctuation

[2] 【© 2022 Abbott. All Rights Reserved. "FreeStyle", "Libre" and related brand marks are the property of Abbott.】

Specially appointed professors from Keio University School of Medicine who are affiliated with the Hills Joint Research Laboratory for Future Preventive Medicine and Wellness

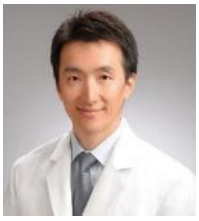
Kazuhiro Kashiwagi

As a gastroenterologist and endoscopist, Dr. Kashiwagi has been involved in basic cancer research and cancer detection and treatment. For the past six years, he has been involved in quality control of endoscopic cancer screening and research on the relationship between visceral fat and digestive diseases at the Center for Preventive Medicine. He is preparing for a new clinical study in pursuit of wellness and is creating an advanced, personalized health care program offered at this center, which will move to Toranomon-Azabudai next year.

Career

1992 Graduated from Keio University School of Medicine
2002 Postdoc research fellow at University of California, San Diego, and Baylor University Medical Center, Dallas, TX, USA
2011 Lecturer at the Center for Diagnostic and Therapeutic Endoscopy, Keio University School of Medicine
2019 Project Associate Professor at the Center for Preventive Medicine, Keio University School of Medicine

Taishiro Kishimoto



Dr. Kishimoto is a psychiatrist engaged in clinical research. Using digital technologies such as wearable devices and artificial intelligence, he develops objective measures for screening and quantifying psychiatric diseases. He is also working on digitizing medical care through the use of telepsychiatry and remote patient monitoring. At the Hills Joint Research Laboratory for Future Preventive Medicine and Wellness, he aims to quantify stress and well-being in hopes that such technologies may help drive preventative medicine.

Career

2000 Graduated from Keio University School of Medicine
2009 Postdoc research fellow at The Zucker Hillside Hospital, NY, USA
2013 Lecturer at the Neuropsychiatry Department, Keio University School of Medicine

About Mori Building

Mori Building is an innovative urban developer based in Tokyo. The company is committed to maximizing the magnetic power of cities by creating and nurturing safe, sustainable and cosmopolitan urban centers based on its unique Vertical Garden City concept of high-rise centers for business, education, leisure and residence. The concept is applied in the company's many leading-edge projects, including ARK Hills, Roppongi Hills and Toranomon Hills in Tokyo and the Shanghai World Financial Center. Mori Building is also engaged in real estate leasing, project management and consultation. Please visit www.mori.co.jp/en for more information.

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