News Release

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A New Approach to Detect Early Stages of Mental Illness

- Kirin Holdings, FANCL, and Hamamatsu City team up to investigate the relationship between olfactory function/autonomic nerve activity and mood state, in Japanese participants -

TOKYO, Tuesday November 24, 2020 - Kirin Holdings Company, Limited (Kirin Holdings), FANCL CORPORATION (FANCL), and Hamamatsu City, Shizuoka Prefecture (Hamamatsu City) have started a collaborative survey to evaluate the relationship among olfactory function, autonomic nervous system activity, and mood state in Hamamatsu citizens from November 22, 2020. This follows existing joint-research between the Kirin Group and FANCL.

● Developing Approaches to Evaluate Early Stages of Mental Illness

With the arrival of a rapidly-aging society and recent changes in the social environment, the number of people suffering from mental illness is increasing[*1], and building a support system for mental health has become an important social issue.

Since symptoms of mental illness are often found in advanced stages at the time of diagnosis, it is important to identify mood swings and stressed-out states in daily life and take appropriate measures as soon as possible. However, since deterioration of mental state due to low mood and stress is difficult to recognize, objective indicators that can be easily measured on a daily basis are needed. Recent studies have reported an association between olfactory function, autonomic nerve activity and salivary constituents and mood and stress, but this has not been investigated in Japanese people well.

1: Source: "Patient Survey" published by Department of Health and Welfare for Persons with Disabilities, Ministry of Health, Labour and Welfare

● Additional Brain Function Studies

Since January 2020, Kirin and FANCL have been conducting joint research to solve social issues related to brain function[*2]. In addition, Kirin Holdings and FANCL have been contributing to the health of the city's residents through the Hamamatsu Wellness Lab[*3], in collaboration with Hamamatsu City, medical institutions, universities and participating companies. In September, Kirin Holdings and Seirei Welfare began a joint clinical study of β-lactolin for the treatment of mild cognitive impairment (MCI)[*4], in which FANCL is participating.

2: Refer to *KIRIN and FANCL launch a joint project to target brain function*
https://www.kirinholdings.co.jp/news/2020/0130_02.html (Japanese)

3: Refer to *The Hamamatsu Wellness lab Established in Hamamatsu, Shizuoka Prefecture*
https://www.kirinholdings.co.jp/news/2020/0218_01.html (Japanese)

4: Refer to *Specified Clinical Trial on the Effects of β-lactolin in Mild Cognitive Impairment (MCI)*
https://www.kirinholdings.co.jp/english/news/2020/0930_01.pdf (English)

This time, Kirin Holdings, FANCL and Hamamatsu City will collaborate to resolving unmet social health needs for and contribute to the improvement of the health of Hamamatsu citizens and achieving the goals of the *Smart Wellness City*, a coalition of municipal governments committed to contribute to residents' longer and healthier lives through studies and deriving necessary actions from them.

● Survey Overview

Examine olfactory function, autonomic nerve activity and salivary components in Hamamatsu residents. Also, investigate the relationship between olfactory function and mood/stress status using a questionnaire.
(1) Participant recruitment period: November 2020 - August 2021
(2) Eligible participants: Females/males between the ages of 40 and 75 (360 participants planned)
(3) Method: sniffing test, autonomic nerve measurement, saliva collection, and answers to a questionnaire on mood status.

● Expected Outcome

Kirin Holdings and FANCL will work together to develop services and solutions that enable early detection of changes in mood, stress and health conditions using the evidence from this survey. Both will also create opportunities for Hamamatsu residents to learn about their own mood status and stress level, and raise awareness of the importance of mental health care.

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