Outline of Selected Projects

Host institution	University of Tsukuba
Center name	International Institute for Integrative Sleep Medicine
Head of host institution	Nobuhiro Yamada
Chief center-project officer	Masashi Yanagisawa
Prospective center director	Masashi Yanagisawa

＜Project Summary＞

Sleep is a remarkably universal phenomenon in the higher animal species, and its disturbances reduce mental and physical wellbeing. However, the function of sleep and the mechanism for sleep regulation still remain unknown; these questions are among the most important challenges in modern neuroscience. The proposed research center will gather the world prominent scientists from multiple research fields contributing to the neurobiology of sleep. We will aim at elucidating the fundamental mechanism of sleep/wake regulation by combining the cutting-edge methodologies of neurobiology, molecular genetics and physiology. We will induce the fusion of medicine, chemistry, pharmacology and biology in order to reveal the pathophysiology of sleep disorders and related diseases, and to develop methods for their treatment and prevention. Through these research efforts, we will strive to reduce sleep disorders and associated diseases, and to contribute to an improvement of physical and mental health in today's aging society with a dwindling birthrate.

The mission of this WPI Center is to be a multidisciplinary, international hub for the research to elucidate the fundamental mechanism of sleep/wakefulness, to develop strategies to regulate sleep, and to contribute to enhancement of world health through the combat with sleep disorders and associated diseases.

Target research field

Sleep biomedicine

Sleep biomedicine, as defined here, is an inherently interdisciplinary field in terms of methodology, spanning molecular genetics, cellular biology, neurophysiology, neurochemistry, pharmaceutical sciences, medicinal chemistry, and clinical and social medicine. While focusing on sleep, the field is also interdisciplinary with respect to its integral research targets, e.g., studying mood disorders as well as metabolic diseases that are closely associated with pathological variations in sleep/wake states.

＜Remarks＞

Sleep disorder is a major medical and social problem in today’s developed countries. Progress in this area has excellent potential for positive societal impact. It can attract interest from general public as well as specialists.

There is a distinctive approach to an important set of basic research problems. Genetic approach that the center is intending seems to be one of the promising ones. It can be the first sleep research center in Japan.

The prospective center director is well recognized internationally, and able to bring back practices that can be transformative to the host institution.