

Outline of Selected Projects

Host institution	The University of Tokyo
Center name	International Research Center for Neurointelligence
Head of host institution	Makoto Gonokami
Prospective center director	Takao K. Hensch

<Project Summary>

Culture, civilization, science, and technology are all characteristic of a human society and ultimately stem from "human intelligence". From a socio-biological perspective, human intelligence can be considered a consequence of humans' superior brain functions, which enable social cooperation, long-term planning, and the accumulation and transmission of knowledge through spoken and written language.

Human intelligence has brought about tremendous technological advances for humanity; however, modern society is now facing considerable challenges in mental health. Disorders such as autism spectrum disorder and schizophrenia reflect maladjustment to the social environments created by human intelligence, and overcoming them will require an innovative approach.

Furthermore, artificial intelligence (AI), which was created by the human brain, is beginning to surpass human intelligence in certain situations. In particular, deep learning and other machine-learning technologies are expected to have a considerable impact on society.

Our ultimate aim is to answer the question "How does human intelligence arise?" We will approach this challenge by combining the University of Tokyo's knowledge in the life sciences, medicine, linguistics, mathematics, and information sciences to study neurodevelopment in the brain. Moreover, by considering the common foundations of human intelligence and AI, we will tackle one of humanity's biggest questions: "Can the human brain understand itself?" In the longer term, we will incorporate the humanities and social sciences to understand human intelligence on a deeper level, and use this understanding to help solve the problems faced by society today.

<Remarks>

This is an ambitious project aimed at making synergistic progress on a triad of research subjects: neuronal circuit development, mental disorder, and artificial intelligence. This area of research is very important and timely. Progress in advancing it would have a major scientific impact.

The proposed director, Dr. Takao Hensch, is a world-reputed scientist who will bridge the proposed center with prominent research centers in the US and Europe. The proposed PIs are excellent world-class scientists from Japan and worldwide in the target fields.