Goal2 Realization of ultra-early disease prediction and intervention by 2050.

Towards overcoming disorders linked to dementia based on a comprehensive understanding of multiorgan network

Project manager

Ryosuke Takahashi

Professor, Department of Neurology Kyoto University Graduate School of Medicine

leader's institution

Kyoto University

R&D institutions

ExCELLS, Hiroshima Univ., Hokkaido Univ., Jikei Univ., Juntendo Univ., Keio Univ., Kobe Univ., Kyoto Univ., Kyushu Univ., Nagoya Univ., NCU, NCVC, Niigata Univ., Osaka Univ., QST, TMDU, Tokushima Univ, The Univ. of Tokyo, Univ. of Yamanashi, NCNP

Summary of the project

One of the major sociomedical problem is the increasing rate of dementia and related disorders due to the super aging society. Recent studies have shown that systemic abnormalities such as autonomic dysfunction and chronic inflammation are already present in the early stages of dementia. Our goal is to understand how these changes alter multi-organ networks and contribute to the development of dementia. By 2050 we aim to achieve ultra-early prediction and prevention of dementia, collaborating with other projects under Goal 2, and by 2030 we aim to clarify the alteration of multi-organ networks related to dementia, enabling ultra-early prediction and early return of the achievement to the society. The R&D themes in this project include research for the three most common dementia as well as the development of basic technologies supporting these research and mathematical approach to understand multi-organ networks. We will also conduct ELSI research to make our achievement acceptable to society.

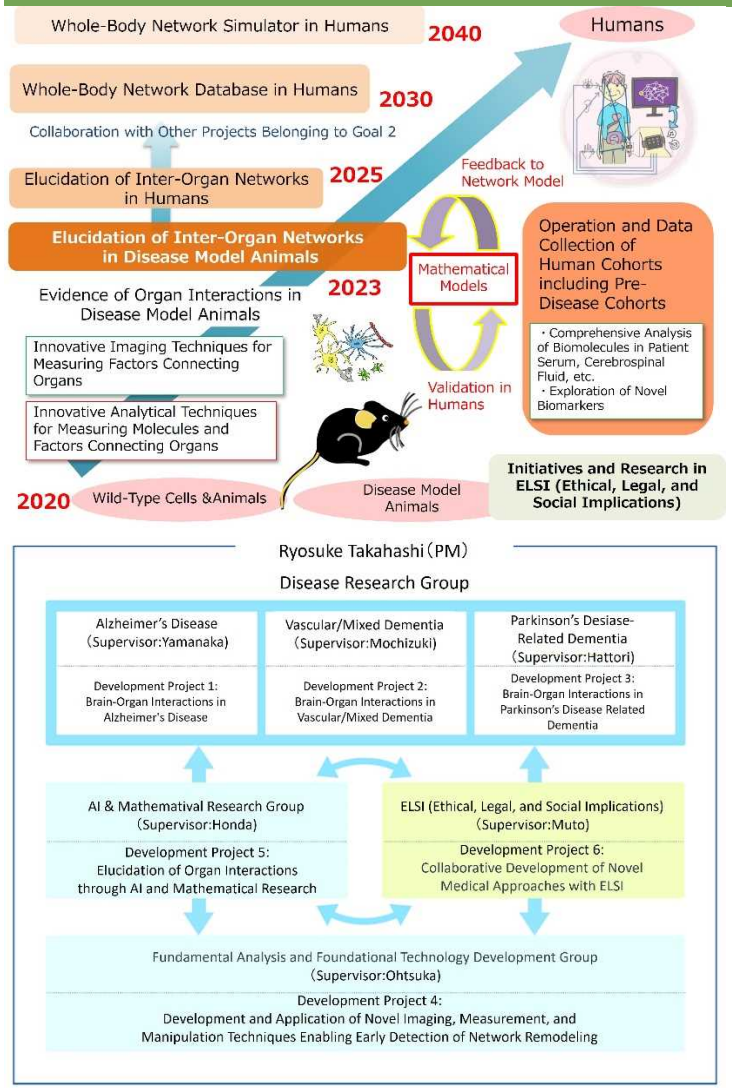
Milestone by year 2030

Establishment of Whole-Body Network Atlas which can predict the development of dementia in "healthy" individuals within 10 years by analyzing non-invasive biomarkers such as blood, urine, and stool samples.

Milestone by year 2025

The development of dementia can be predicted at least one year before the onset by clarifying the alteration of multi-organ networks in individuals with dementia using invasive and non-invasive biomarkers such as peripheral blood, spinal fluid, and imaging etc.

R&D theme structure of the project



国立研究開発法人 科学技術振興機構 Japan Science and Technology Agency