

生体制御科学専攻 脳神経制御学講座

脳神経内科学分野

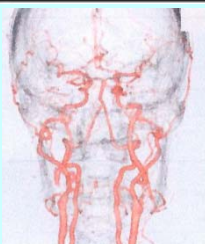
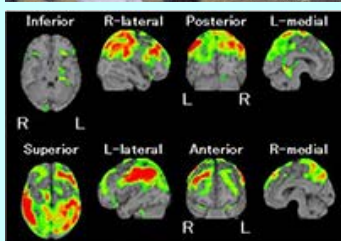
Department of Neurology

— From Bench to Bedside —

Brain science study is aiming at conquest of stroke, dementia and the neurologic intractable diseases.



Prof. Koji Abe



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Research Fields Introduction

Department of Neurology is responsible for the diagnosis and treatment of the diseases which are closely related to the lifestyle diseases and metabolic syndrome, and the number of patients is expected to increase in the aging society, for example, stroke, dementia, amyotrophic lateral sclerosis, Parkinson's disease and neurologic intractable diseases such as the spinocerebellar degeneration. For overcoming these diseases, our group is working on developing disease-specific biomarkers for earlier diagnosis, gene therapy, regenerative medicine, and molecular targeted therapies. Furthermore, we are also aiming at realizing clinical application.

• Stroke Research Group

Regarding a significant increase in the number of patients with cerebral infarction, our stroke group is conducting acute phase brain imaging (MR, CT scan, cerebral angiography, carotid artery ecology, etc.), pathological condition analysis and therapy development. Currently, we are developing the second generation cerebral protection therapy by using neurotrophic factors. Furthermore, we are researching on the third therapeutic method by using cerebral infarction gene therapy, neural stem cells and iPS cells, and also researching on the regenerative medicine for cerebral infarction, we always lead the world in research field with development studies of new stroke treatments.

• Dementia Research Group

Alzheimer's disease (AD), the number of patients is rapidly increasing with aging, our dementia group is developing early diagnosis method by using brain image analysis of functional MRI, PET, SPECT, MEG and so on, clarifying the pathology of cerebrovascular dementia and conducting dementia-related gene analysis. We have also succeeded in the development of fundamental therapeutic methods and preventive methods for AD by using dementia transgenic mice, and we are continuing our research towards future clinical applications.

• Neurodegenerative Disease Research Group

Neurodegenerative diseases are a group of chronic, progressive disorders characterized by the gradual loss of neurons in discrete areas of the central nervous system such as amyotrophic lateral sclerosis, Parkinson's disease and the spinocerebellar degeneration. Our group is trying to elucidate the pathological and genetic analysis of these diseases by using transgenic mice models in addition to clinical studies such as brain imaging analysis by using MRI and SPECT. We are also aiming at fundamental research on gene therapy and regenerative medicine for these neurological diseases, and preparing clinical application to human.

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