

Ryuta Kawashima / Professor / Institute of Development, Aging and Cancer



Profile

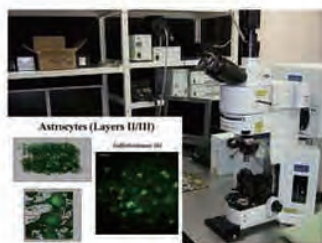
Dr. Ryuta Kawashima was born in 1959 in Chiba, Japan. He has been a Professor of the Department of Functional Brain Imaging, Institute of Development, Aging and Cancer (IDAC), Tohoku University from 2006. He graduated Tohoku University School of Medicine in 1985, and finished the PhD course of the Tohoku University Graduate School of Medicine in 1989. His scientific interests are in functional brain mapping of higher cognitive functions of humans, and in dynamics of microstructures of the brain. He has also been paying his attention to returning the benefits of basic sciences to the public, so that he has proposed systems for improvement of the prefrontal functions of humans through industry-university cooperation. He has won the Japan Society for Nuclear Medicine Award in 1996, and the Minister for Public Management, Home Affairs, Posts and Telecommunications prize in 2008. His scientific output includes over 140 peer-reviewed papers and 100 books.

Research Activities

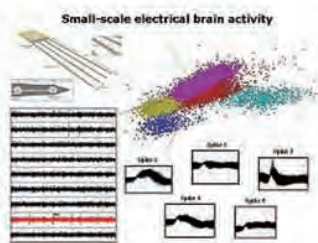
Researchers in our department have a variety of backgrounds including medicine, science, life science, engineering, pharmacy, linguistics, pedagogy, and the arts, and work energetically on a wide range of studies of brain science, from brain dynamics research, which is designed to determine the metabolism and circulation of brain cells in animals, to functional brain imaging research, which creates images of the working of the mind, to social technology study, which applies the findings of these studies to educational and welfare fields.

In brain imaging research, our interest is the “human mind.” Pursuing research of the relationship between brain and mind, we are trying to find answers to eternal questions of both natural science and humanity, such as “What do humans exist for?” and “Where did humans come from and what is our future?” In brain dynamics research, we are elucidating the principles of brain activity by studying neuronal activity and metabolism, as well as microcirculatory dynamics in small animals. In social technology research, we will open a new possible approach to education and social welfare from the viewpoint of brain science. Since this is still a new and uncharted research field, we will face a bumpy road ahead in the near term.

Brain Dynamics Research

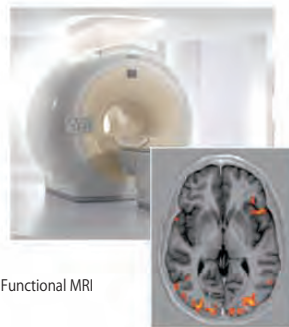


Two-photon laser microscope system

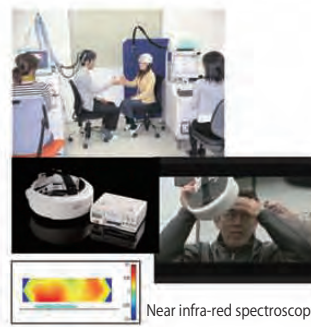


Multi-unit neuronal activity recording system

Functional Brain Imaging Research



Functional MRI



Near infra-red spectroscopy

To investigate neuro-vascular coupling of the cerebral cortex, advanced brain imaging techniques have been applied for experimental animals.

To investigate relationship between brain and mind, advance brain imaging techniques have been applied for human brain mapping

Message

When I was a junior high school student, I wanted to integrate my brain into a computer so that I could witness the downfall of mankind after my death. This is the reason why I decided to study the human brain. To fulfill this childhood dream, I studied at the Graduate School of Tohoku University and attempted to study human brains by positron emission tomography (PET). However, no one in the world had any idea of how to advance the study. I struggled for a few years without any progress, during which, however, I never gave up on my dream of visualizing brain activities. I found a research paper on imaging the mental functions of humans by PET, which I had wished to study, written by Professor Per Roland of the Karolinska Institute (Sweden), who has since become a mentor to me. Immediately, I wrote to him asking if I could study under him. I owe him greatly for what I have achieved. From my experience, I think that the most direct and the only effective way of realizing one's dream is to advance step by step with integrity without forgetting one's dream, even though it may be slow. I hope all of you will make a continuous effort to achieve your own dreams.