

# Degree Programs in Comprehensive Human Sciences

## <Doctoral Program in Neuroscience>

Field of Research	Faculty	Detailed Description of Research Field
Neuroscience	AYABE Saho	<ul style="list-style-type: none"> <li>• Human olfactory perception/cognition and odor hedonics</li> <li>• Haptic space perception/cognition and perceptual learning</li> <li>• Perception/cognition of facial expressions</li> </ul>
	YAMADA Kazuo	<ul style="list-style-type: none"> <li>• Behavioral neuroscience on neural mechanisms of learning, memory, and forgetting using rodents</li> <li>• Behavioral neuroscience on rodents' models of post-traumatic stress disorder (PTSD) and drug dependence</li> </ul>
	TAKAHASHI Aki	<ul style="list-style-type: none"> <li>• Neuroscience, behavior genetics, and neuroimmunological approaches to study biological mechanism of animal behavior including emotion and social behaviors (especially aggressive behavior) using animal model</li> </ul>
	YAMANAKA Katsuo	<ul style="list-style-type: none"> <li>• Psychosocial approaches for dementia care</li> <li>• Psychological assessments for dementia care</li> <li>• Social attitudes to persons living with dementia</li> </ul>
	SAMBAL Ami	<ul style="list-style-type: none"> <li>• Processing of reading, writing and language and its development</li> <li>• Study of cognitive mechanisms of developmental dyslexia and SLI</li> <li>• Clinical study of developmental dyslexia and SLI</li> </ul>
	ARAI Tetsuaki	<ul style="list-style-type: none"> <li>• Early diagnosis of dementia using biomarkers</li> <li>• Clinical study of dementia prevention</li> <li>• Clinicopathological, biochemical and neuroimaging study of dementia</li> <li>• Clinical study of presenile dementia</li> </ul>
	OTA Miho	<ul style="list-style-type: none"> <li>• Relationship between the aphasia and the regional brain function in dementia revealed by magnetic resonance imaging</li> <li>• Psychiatric disease-related brain change revealed by magnetic resonance imaging</li> </ul>
	MATSUMOTO Masayuki	<ul style="list-style-type: none"> <li>• Neurophysiological researches to understand neural mechanisms underlying conscious/unconscious decision-making in nonhuman primates</li> <li>• Neurophysiological and optogenetic researches to understand neural mechanisms underlying economic decision-making in nonhuman primates</li> </ul>
	YAMADA Hiroshi	<ul style="list-style-type: none"> <li>• Neural mechanisms for economic decision makings</li> <li>• How neural circuitry employees computations</li> <li>• How the motivation and willingness to act are emerged in the brain</li> </ul>
	KOGANEZAWA Tadachika	<ul style="list-style-type: none"> <li>• Study on the neural regulation of the cardiovascular system</li> <li>• Study on the neural regulation of the respiratory system</li> <li>• Study on the neural regulation based cardiovascular and respiratory diseases</li> </ul>

SAKURAI Takeshi	<ul style="list-style-type: none"> <li>• Elucidation of physiological roles of novel neuropeptides</li> <li>• Deciphering the neuronal mechanisms that regulate sleep/wakefulness states</li> <li>• Revealing neuronal pathways that regulate social behavior and social distance</li> <li>• Analyzing the neuronal mechanisms that control regulated hypometabolism</li> </ul>
HIRANO Arisa	<ul style="list-style-type: none"> <li>• Molecular biology and neuroscience on oscillatory mechanism of the circadian clock in mice</li> <li>• Neural network involved in regulation of circadian rhythms (sleep/wake, endocrine, body temperature) in mice</li> <li>• Molecular mechanism of non-visual photo-reception in mouse retina</li> </ul>
TAKEI Yosuke	<ul style="list-style-type: none"> <li>• Analysis of molecular pathology of schizophrenia and autism spectrum disorder</li> <li>• Analysis of mechanism of intracellular transport in neurons</li> </ul>
MASUDA Tomoyuki	<ul style="list-style-type: none"> <li>• DNA methylation in the brain genome and psychiatric and neurodegenerative diseases</li> <li>• Elucidation of the mechanisms of neurodegenerative diseases caused by organic arsenic compound</li> <li>• Basic research for the treatment of neurodegenerative diseases</li> <li>• Functional analyses of novel candidate genes involved in axonal guidance</li> </ul>
SASAKI Tetsuya	<ul style="list-style-type: none"> <li>• Functional cortical area formation and development</li> <li>• Primate-specific neural circuit formation and the involvement in pathophysiology of psychiatric disorders</li> </ul>
ABE Takashi	<ul style="list-style-type: none"> <li>• Neurobehavioral consequences of sleep loss</li> <li>• Understanding the psychological functions of sleep</li> <li>• Developing novel methods for measuring sleep and alertness</li> </ul>
SAKAGUCHI Masanori	<ul style="list-style-type: none"> <li>• Functional significance of sleep in memory</li> <li>• Elucidation and application of neuronal plasticity</li> <li>• Developing a new therapy for PTSD (clinical study)</li> </ul>
LAZARUS Michael	<ul style="list-style-type: none"> <li>• Understanding the control of sleep and wake by motivation</li> <li>• Sleep circuits as potential therapeutic targets for insomnia</li> <li>• Link between REM sleep loss and the desire for junk food</li> </ul>
OISHI Yo	<ul style="list-style-type: none"> <li>• Short-sleeper mice to elucidate sleep function and mechanisms</li> <li>• Generation of sleepwalking-like state to elucidate the neural mechanisms</li> </ul>
KUNIMATSU Jun	<ul style="list-style-type: none"> <li>• The effect of respiration on cognitive function</li> <li>• The neural mechanisms for social behavior in primates</li> <li>• Role of the cerebellum in higher motor control</li> </ul>
PASQUALOTTO Achille	<ul style="list-style-type: none"> <li>• Multisensory/visual/auditory/haptic cognition in humans</li> <li>• Memory modulation via non-invasive brain stimulation in humans</li> <li>• Human spatial cognition</li> </ul>
NAKATA Mariko	<ul style="list-style-type: none"> <li>• Neuroendocrine basis of social and emotional behavior</li> <li>• Establishment and investigation of neural basis of animal model for group behavior in mice</li> <li>• Neural basis of side effects induced by psychiatric medication</li> </ul>
HONJOH Sakiko	<ul style="list-style-type: none"> <li>• Synaptic plasticity and sleep</li> <li>• Neural circuits underlying NREM sleep specific brain activity</li> </ul>

[Cooperative Graduate School]

Field of Research	Faculty	Detailed Description of Research Field
Neuroscience (Cooperative Graduate School)	IWAKI Sunao (AIST)	<ul style="list-style-type: none"> <li>▪ Quantitative evaluation of subjective experience using non-invasive neuroimaging techniques</li> <li>▪ Development of multimodal neuroimaging to visualize and model neural networks in the human brain</li> </ul>
	TAKEDA Yuji (AIST)	<ul style="list-style-type: none"> <li>▪ Research on characteristics of human visual attention and memory</li> <li>▪ Development of psychophysiological indices of cognitive states</li> </ul>
	YAMAMOTO Shinya (AIST)	<ul style="list-style-type: none"> <li>▪ Multisensory integration and segregation</li> <li>▪ Temporal and spatial representation</li> <li>▪ Neural representation of the body and tools</li> <li>▪ Effects of local brain temperature on the neural information processing</li> </ul>

(AIST) National Institute of Advanced Industrial Science and Technology

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