

# Degree Programs in Comprehensive Human Sciences

## <Doctoral Program in Neuroscience>

Field of Research	Faculty	Detailed Description of Research Field
Neuroscience	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>
	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>
	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 person with dementia</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>• Roles of brain's monoamine systems in cognition, emotion, and motivation.</li> </ul>
	YAMADA Hiroshi	<ul style="list-style-type: none"> <li>• Using primate model for human cognitive function, neural mechanisms for economic decision makings are examined.</li> <li>• Examination of neural circuitry underlying economic decision makings.</li> <li>• Examining how the motivation and willingness to act are emerged in the brain.</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>• Elucidation of the molecular mechanism of neurogenesis</li> <li>• Functional analyses of axonal guidance molecules</li> <li>• Functional analyses of novel candidate genes involved in axonal guidance</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>
	SAKAGUCHI Masanori	<ul style="list-style-type: none"> <li>• Mechanisms of diseases caused by sleep and memory dysfunction</li> <li>• Functional significance of hippocampal activity for memory consolidation during sleep</li> <li>• Elucidation of the mechanisms of adult-neurogenesis in memory consolidation</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>
	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>
	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>
	SAMBAI 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>
	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>

[Cooperative Graduate School]

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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>
	SATO Chikara (AIST)	<ul style="list-style-type: none"> <li>• Structural biology of receptors and ion channels of neural system.</li> <li>• Study of subcellular machinery of neurons and brain</li> </ul>
	TAKASHIMA Ichiro (AIST)	<ul style="list-style-type: none"> <li>• Functional architecture of the cortex</li> <li>• Neural mechanisms of functional recovery</li> </ul>
	MIO Kazuhiro (AIST)	<ul style="list-style-type: none"> <li>• Molecular biology of the macromolecular complexes essential for maintaining and functioning of neuronal cells</li> <li>• Structural biology of the signal transduction molecules in the cell and in the nucleus</li> </ul>

(AIST) National Institute of Advanced Industrial Science and Technology

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