

# Neurology and Neurological Science

## 1. Staffs and Students

Professor, Chairman	Hidehiro Mizusawa	
Professor	Takanori Yokota	
Junior Associate Professor	Kinya Ishikawa	
Assistant Professor	Nobuo Sanjo,	Hiroyuki Tomimitsu,
	Mutsufusa Watanabe,	Satoru Ishibashi
Hospital Staff	Takayuki Kubodera,	Osamu Tao,
	Taro Ishiguro,	Maya Ohara,
	Keisuke Abe,	Kohtaro Yoshioka
Senior Resident	Yoko Ito,	Satoshi Zeniya
Post-doctoral Fellow	Kazutaka Nishina	
Graduate Student	Kenji Ishibashi,	Yoshitaka Uno,
	Toshiro Kanazawa,	Tamako Misawa,
	Miho Akaza,	Xu Han Yan,
	Mayra Azat,	Jin Hai Feng,
	Zen Kobayashi,	Hiroya Kuwahara,
	Makoto Takahashi,	Piao Wen Ying,
	Toshiki Unno,	Masato Ohbayashi,
	Yusuke Niimi,	Masaki Kobayashi,
	Takumi Hori,	Takaaki Hattori,
	Akira Machida,	Ayaka Yamanami,
	Kazuyuki Saito,	Azusa Watanabe,
	Kie Yoshida	

## 2. Education

Neurology is a medical speciality concerned with the diagnosis and treatment of disorders of the nervous system including the brain, spinal cord, peripheral nerves, autonomic nerves and skeletal muscles. Since the nervous system extends to the whole body and regulate all the organs, neurologists have to examine and understand many symptoms of the whole brain and body.

Department of Neurology and Neurological Science at Tokyo Medical and Dental University offers an unique “clinical neurological training for specialist” in a four-year residency program. This program is designed to provide the highest quality clinical training in the clinical practice of neurology, either in an academic or a practice career. To accomplish this, the program integrates extensive practical exposure to all aspects of current clinical neurology with a firm grounding in underlying scientific principles and methods of clinical investigations such as electrophysiology, neuromuscular pathology, neuroimaging, or neurogenetics and so on. The faculty and staff are committed to facilitate resident education and training.

After completion of their training for four years, senior residents are equipped with a lot of clinical experience as attending doctors or teaching assistants in the university hospital and the affiliated hospitals. They are eligible for the board certification by the Japanese Society of Neurology.

## 3. Research Subjects

- 1) Gene identification and investigation of its pathomechanism for hereditary diseases such as spinocerebellar ataxias, especially for SCA6 and SCA31
- 2) Development of gene therapies using RNAi
- 3) Basic and clinical researches for neurodegenerative diseases such as spinocerebellar ataxia, amyotrophic lateral sclerosis, and Alzheimer disease
- 4) Development of neuroregenerative therapy using stem cells for cerebrovascular and neurodegenerative diseases
- 5) Basic and clinical researches of neurological autoimmune diseases
- 6) Electrophysiological studies using electric and magnetic stimulation
- 7) Basic and clinical studies of neuromuscular diseases by studying the biopsied peripheral nerves and muscles

#### 4. Clinical Services

We see about 100 out-patients and 40 in-patients daily, and offer in and out-patient consultation services through the weekday and on weekends. We diagnose and treat stroke patients, as well as patients with epilepsy, headache, multiple sclerosis, Parkinson's disease, spinocerebellar ataxia, and hundreds of other neurological issues, some of which are acute, others may be chronic. We also have an out-patient office specialized to patients with dementia corresponding to needs of the rapidly aging society. Our patients will be reliably evaluated and diagnosed with some skillful techniques, such as the electrophysiological, neuroradiological, and neuropsychological tests and pathological diagnosis of biopsied nerves and muscles.

#### 5. Publications

##### Original Article

1. Hizume M, Kobayashi A, Teruya K, Ohashi H, Ironside JW, Mohri S, Kitamoto T. Human prion protein (PrP) 219K is converted to PrP<sup>Sc</sup> but shows heterozygous inhibition in variant Creutzfeldt-Jakob disease infection. *J Biol Chem* 2009; 284: 3603-3609.
2. Irioka T, Yamanami A, Uchida N, Iwase M, Yasuhara H, Mizusawa H. Opsoclonus caused by diphenhydramine self-poisoning. *J Neuro Ophthalmol.* 2009; 29: 72-73.
3. Irioka T, Yamanami A, Yagi Y, Mizusawa H. Aortic dissection as a possible cause of pure transient global amnesia: a case report and literature review. *Neurol Sci* 2009; 30: 255-258.
4. Ishibashi S, Maric D, Mou Y, Ohtani R, Ruetzler C, Hallenbeck JM. Mucosal tolerance to E-selectin promotes the survival of newly generated neuroblasts via regulatory T-cell induction after stroke in spontaneously hypertensive rats. *J Cereb Blood Flow Metab* 2009; 29: 606-620.
5. Ishiguro T, Ishikawa K, Takahashi M, Obayashi M, Amino T, Sato N, Sakamoto M, Fujigasaki H, Tsuruta F, Dolmetsch R, Arai T, Sasaki H, Nagashima K, Kato T, Yamada M, Takahashi H, Hashizume Y, Mizusawa H. The carboxy-terminal fragment of  $\alpha_{1A}$ -calcium channel preferentially aggregates in the cytoplasm of human spinocerebellar ataxia type 6 Purkinje cells. *Acta Neuropathol* 2009; 119: 447-464.
6. Kinoshita H, Okabayashi M, Kaneko M, Yasuda M, Abe K, Machida A, Ohkubo T, Kamata T, Yakushiji F. Shakuyaku-kanzo-to induces pseudoaldosteronism characterized by hypokalemia, rhabdomyolysis, metabolic alkalosis with respiratory compensation, and increased urinary cortisol levels. *J Altern Complement Med* 2009; 15: 439-443.
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9. Kobayashi Z, Tsuchiya K, Machida A, Goto J, Miake H, Watabiki S, Taki K, Haga C, Yokota O, Arai T, Akiyama H, Mizusawa H. Metastatic CNS lymphoma presenting with periventricular dissemination- an autopsy case with an unusual MRI. *J Neurol Sci* 2009; 277: 109-113.
10. Miki K, Ishibashi S, Sun L, Xu H, Ohashi W, Kuroiwa T, Mizusawa H. Intensity of chronic cerebral hypoperfusion determines white/gray matter injury and cognitive/motor dysfunction in mice. *J Neurosci Res* 2009; 87: 1270-1281.
11. Nishida Y, Saito Y, Yokota T, Kanda T, Mizusawa H. Skeletal Muscle MRI in Complex Regional Pain Syndrome. *Intern Med* 2009; 48: 209-212.
12. Nishida Y, Ito S, Ohtsuki S, Yamamoto N, Takahashi T, Iwata N, Jishage K, Yamada H, Sasaguri H, Yokota S, Piao W, Tomimitsu H, Saido TC, Yanagisawa K, Terasaki T, Mizusawa H, Yokota T. Depletion of vitamin E increases amyloid  $\beta$  accumulation by decreasing its clearances from brain and blood in a mouse model of Alzheimer disease. *J Biol Chem* 2009; 284: 33400-33408.
13. Sasaguri H, Mitani T, Anzai M, Kubodera T, Saito Y, Yamada H, Mizusawa H, Yokota T. Silencing efficiency differs among tissues and endogenous microRNA pathway is preserved in short hairpin RNA transgenic mice. *FEBS Lett* 2009; 583: 213-218.
14. Sato N, Amino T, Kobayashi K, Asakawa S, Ishiguro T, Tsunemi T, Takahashi M, Matsuura T, Flanigan KM, Iwasaki S, Ishino F, Saito Y, Murayama S, Yoshida M, Hashizume Y, Takahashi Y, Tsuji S, Shimizu N, Toda T, Ishikawa K, Mizusawa H. Spinocerebellar ataxia type 31 is associated with "inserted" penta-nucleotide repeats containing (TGGAA)<sub>n</sub>. *Am J Hum Genet* 2009; 85: 544-557.
15. Sun L, Kuroiwa T, Ishibashi S, Miki K, Li S, Xu H, Endo S, Mizusawa H. Two region-dependent pathways of

eosinophilic neuronal death after transient cerebral ischemia. *Neuropathology* 2009; 29: 45-54.

16. Ota K, Tsunemi T, Saito K, Yamanami F, Watanabe M, Irioka T, Mizusawa H. (18)F-FDG PET successfully detects spinal cord sarcoidosis. *J Neurol* 2009; 256: 1943-1946.