

## NEUROSURGERY

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### Other Faculty Members

Professor: Yuji Matsumaru M.D., Ph.D.

Professor: Yoji Komatsu M.D., Ph.D.

Professor: Yasushi Shibata M.D., Ph.D.

Associate Professor: Eiichi Ishikawa M.D., Ph.D.

Assistant Professor: Hiroyoshi Akutsu M.D., Ph.D.

Assistant Professor: Masahide Matsuda M.D., Ph.D.

Assistant Professor: Ai Muroi M.D.

Assistant Professor: Takao Tsurubuchi M.D., Ph.D.

Assistant Professor: Masayuki Sato M.D., Ph.D.

Assistant Professor: Yoshiro Ito M.D., Ph.D.

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### Major Scientific Interests of the Group

- I. Neurooncology Research Unit
  - 1) Boron Neutron Capture Therapy, Proton Therapy
  - 2) Immunotherapy, Antiangiogenic therapy, Molecular targeted therapy, Viral therapy
- II. Neuroradiology Research Unit
  - 1) Magnetic resonance Imaging; f-MRI, MRS, DTI, intraoperative MRI,
  - 2) Molecular Imaging; PET, SPECT
  - 3) Development of new device for neurointervention
- III. Cerebrovascular Disease Research Unit
  - 1) Cerebral Protection using Nanoparticles
  - 2) Regenerative Medicine using dental pulp stem cells
  - 3) Neurorehabilitation using HAL robot and other BMI modalities
- IV. Functional Neurosurgery and Intraoperative Monitoring
  - 1) Neurophysiological monitoring (SEP, MEP, etc)
  - 2) Intraoperative MRI
  - 3) Deep Brain Stimulation, Epilepsy surgery
- V Neurotrauma and Sports medicine
  - 1) Mechanisms and diagnosis of Brain concussion
  - 2) Brain protection for Brain injury

### Projects for Regular Students in Doctoral or Master's Programs

- 1) Upon request negotiable from above topics

### Study Programs for Short Stay Students (one week – one trimester)

Upon request negotiable from above topics

## Selected Publications

1. Hara T, Akutsu H, Takano S, Kino H, Ishikawa E, Tanaka S, Miyamoto H, Sakamoto N, Hattori K, Sakata-Yanagimoto M, Chiba S, Hiyama T, Masumoto T, Matsumura A: Clinical and biological significance of adamantinomatous craniopharyngioma with CTNNB1 mutation. *J Neurosurg* 2018 Jul 1 [Epub ahead of print]
2. Ishiyama S, Shibata Y, Ayuzawa S, Matsushita A, Matsumura A: Clinical Effect of C2 Peripheral Nerve Field Stimulation Using Electroacupuncture for Primary Headache. *Neuromodulation* 21 (8) 793-796, 2018
3. Marushima A, Nieminen M, Kremenetskaia I, Gianni-Barrera R, Woitzik J, Degenfeld GV, Banfi A, Vajkoczy P, Hecht N: Balanced single-vector co-delivery of VEGF/PDGF-BB improves functional collateralization in chronic cerebral ischemia. *J Cereb Blood Flow Metab* 2019 Jan 9 [Epub ahead of print]
4. Matsuda M, Ishikawa E, Yamamoto T, Hatano K, Joraku A, Iizumi Y, Masuda Y, Nishiyama H, Matsumura A: Potential use of prostate specific membrane antigen (PSMA) for detecting the tumor neovasculature of brain tumors by PET imaging with <sup>89</sup>Zr-Df-IAB2M anti-PSMA minibody. *J Neurooncol* 138 (3) 581-589, 2018
5. Sato E, Zaboronok A, Yamamoto T, Nakai K, Taskaev S, Volkova O, Mechetina L, Taranin A, Kanygin V, Isobe T, Mathis BJ, Matsumura A: Radiobiological response of U251MG, CHO-K1 and V79 cell lines to accelerator-based boron neutron capture therapy. *J Radiat Res* 59 (2) 101-107, 2018
6. Hosoo H, Marushima A, Nagasaki Y, Hirayama A, Ito H, Puentes S, Mujagic A, Tsurushima H, Tsuruta W, Suzuki K, Matsui H, Matsumaru Y, Yamamoto T, Matsumura A: Neurovascular Unit Protection From Cerebral Ischemia-Reperfusion Injury by Radical-Containing Nanoparticles in Mice. *Stroke*. 2017, 48(8):2238-2247.
7. Watanabe H, Goto R, Tanaka N, Matsumura A, Yanagi H : Effects of gait training using the Hybrid Assistive Limb® in recovery-phase stroke patients:A2-month follow-up, randomized, controlled study. *NeuroRehabilitation* 40, 363-367, 2017