

【過去5年に報告したNVU関連の主な論文】

1. Characteristics of cortical spreading depression and c-Fos expression in transgenic mice having a mutation associated with familial hemiplegic migraine. Tang C, Unekawa M, Shibata M, Tomita Y, Izawa Y, Sugimoto H, Ikeda K, Kawakami K, Suzuki N, Nakahara J. *Cephalalgia*. 2020 Jun 2;333102420929028.
2. Neuroimaging pattern and pathophysiology of cerebellar stroke-like lesions in MELAS with m.3243A>G mutation: a case report. Oyama M, Iizuka T, Nakahara J, Izawa Y. *BMC Neurol*. 2020 May 1;20(1):167.
3. Cerebral Infarction after Transcatheter Aortic Valve Implantation in Japan: Retrospective Analysis at a Single High-Volume Center. Iizuka T, Oki K, Hayashida K, Minami K, Izawa Y, Takahashi S, Shimizu H, Fukuda K, Nakahara J. *J Stroke Cerebrovasc Dis*. 2019 Dec;28(12):104455.
4. Spatiotemporal dynamics of red blood cells in capillaries in layer I of the cerebral cortex and changes in arterial diameter during cortical spreading depression and response to hypercapnia in anesthetized mice. Unekawa M, Tomita Y, Toriumi H, Osada T, Masamoto K, Kawaguchi H, Izawa Y, Itoh Y, Kanno I, Suzuki N, Nakahara J. *Microcirculation*. 2019 Aug;26(6):e12552.
5. Trends of Antiplatelet Therapy for the Management of Moyamoya Disease in Japan: Results of a Nationwide Survey. Oki K, Katsumata M, Izawa Y, Takahashi S, Suzuki N, Houkin K; Research Committee on Spontaneous Occlusion of Circle of Willis (Moyamoya disease). *J Stroke Cerebrovasc Dis*. 2018 Dec;27(12):3605-3612.
6. Enhanced Susceptibility to Cortical Spreading Depression in Two Types of Na<sup>+</sup>,K<sup>+</sup>-ATPase  $\alpha$ 2 Subunit-Deficient Mice as a Model of Familial Hemiplegic Migraine 2. Unekawa M, Ikeda K, Tomita Y, Kawakami K, Suzuki N. *Cephalalgia*. 2018 Aug;38(9):1515-1524.
7. Neuroprotective Role of Astroglia in Parkinson Disease by Reducing Oxidative Stress Through Dopamine-Induced Activation of Pentose-Phosphate Pathway. Mashima K, Takahashi S, Minami K, Izawa Y, Abe T, Tsukada N, Hishiki T, Suematsu M, Kajimura M, Suzuki N. *ASN Neuro*. 2018 Jan-Dec; 10: 1759091418775562.

8.  $\beta$  1-integrin-matrix interactions modulate cerebral microvessel endothelial cell tight junction expression and permeability. Izawa Y, Gu YH, Osada T, Kanazawa M, Hawkins BT, Koziol JA, Papayannopoulou T, Spatz M, Del Zoppo GJ. *J Cereb Blood Flow Metab.* 2018 Apr;38(4):641-658.
9. High-mobility group box 1 is an important mediator of microglial activation induced by cortical spreading depression. Takizawa T, Shibata M, Kayama Y, Shimizu T, Toriumi H, Ebine T, Unekawa M, Koh A, Yoshimura A, Suzuki N. *J Cereb Blood Flow Metab.* 2017 Mar;37(3):890-901.
10. Dynamic diameter response of intraparenchymal penetrating arteries during cortical spreading depression and elimination of vasoreactivity to hypercapnia in anesthetized mice. Unekawa M, Tomita Y, Masamoto K, Toriumi H, Osada T, Kanno I, Suzuki N. *J Cereb Blood Flow Metab.* 2017 Feb;37(2):657-670.
11. Alterations in the threshold of the potassium concentration to evoke cortical spreading depression during the natural estrous cycle in mice. Ebine T, Toriumi H, Shimizu T, Unekawa M, Takizawa T, Kayama Y, Shibata M, Suzuki N. *Neurosci Res.* 2016 Nov;112:57-62.
12. Dynamic Flow Velocity Mapping from Fluorescent Dye Transit Times in the Brain Surface Microcirculation of Anesthetized Rats and Mice. Hoshikawa R, Kawaguchi H, Takuwa H, Ikoma Y, Tomita Y, Unekawa M, Suzuki N, Kanno I, Masamoto K. *Microcirculation.* 2016 Aug;23(6):416-25.
13. A possible role of microglia-derived nitric oxide by lipopolysaccharide in activation of astroglial pentose-phosphate pathway via the Keap1/Nrf2 system. Iizumi T, Takahashi S, Mashima K, Minami K, Izawa Y, Abe T, Hishiki T, Suematsu M, Kajimura M, Suzuki N. *J Neuroinflammation.* 2016 May 4;13(1):99.
14. Ipsilateral Facial Tactile Hypesthesia in a Patient with Lateral Medullary Syndrome. Katsumata M, Oki K, Nakahara J, Izawa Y, Abe T, Takahashi S, Suzuki N. *J Stroke Cerebrovasc Dis.* 2015 Nov;24(11):e315-7.
15. Hyperperfusion counteracted by transient rapid vasoconstriction followed by long-lasting oligemia induced by cortical spreading depression in anesthetized mice. Unekawa M, Tomita Y, Toriumi H, Osada T, Masamoto K, Kawaguchi H, Itoh Y, Kanno I, Suzuki N. *J Cereb Blood Flow Metab.* 2015 Mar

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16. Dabigatran abrogates brain endothelial cell permeability in response to thrombin. Hawkins BT, Gu YH, Izawa Y, del Zoppo GJ. *J Cereb Blood Flow Metab.* 2015 Jun;35(6):985-92.

【2019年4月以降の主な学会発表】

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Unekawa M., Tomita Y., Izawa Y., Tang C., Masamoto K., Kanno I., Ikeda K., Kawakami K., Suzuki N., Nakahara J. Effects of spreading depolarization on development of cerebral infarction after middle cerebral artery occlusion in Na<sup>+</sup>,K<sup>+</sup>-ATPase  $\alpha$ 2 subunit-deficient mice. 29th International Symposium on Cerebral Blood Flow, Metabolism & Function.

Tomita Y., Hatakeyama N., Unekawa M., Tanaka K., Matsui K., Suzuki N., Kanno I., Masamoto K., Nakahara J. Optogenetic activation of neural and astrocytic control of vasodilation in the mouse cortex. 29th International Symposium on Cerebral Blood Flow, Metabolism & Function.

Tang C., Unekawa M., Shibata M., Tomita Y., Izawa Y., Sugimoto H., Ikeda K., Kawakami K., Suzuki N., Nakahara J. Electrophysiology and regional cerebral blood flow during potassium-induced cortical spreading depression in a mouse model of familial hemiplegic migraine 2. 29th International Symposium on Cerebral Blood Flow, Metabolism & Function.

Ishikawa T., Unekawa M., Tomita Y., Nakahara J., Yasui M. In vivo systemic reactions, including the morphological change of paravascular space, during water intoxication. 29th International Symposium on Cerebral Blood Flow, Metabolism & Function.

Oishi M., Abe Y., Steinhäuser C., Tanaka K. F. Generation of a mouse line for mural cell optogenetics. 29th International Symposium on Cerebral Blood Flow, Metabolism & Function.

Unekawa M., Ikeda K., Tomita Y., Izawa Y., Kawakami K., Suzuki N., Nakahara J. Enhanced susceptibility and wide distribution of c-Fos expression to cortical spreading depression in two-types of Na<sup>+</sup>,K<sup>+</sup>-ATPase  $\alpha$ 2 subunit-deficient mice as a model of familial hemiplegic migraine 2. 3rd International Conference on Spreading Depolarization.

Tang C., Unekawa M., Shibata M., Tomita Y., Izawa Y., Sugimoto H., Ikeda K., Kawakami K., Suzuki N., Nakahara J. Responsiveness to potassium-induced cortical spreading depression and subsequent c-Fos expression in a mouse model of familial hemiplegic migraine 2. 3rd International Conference on Spreading Depolarization.

Ishikawa T., Unekawa M., Tomita Y., Nakahara J., Yasui M. Biphasic morphological and physiological responses, including the change of paravascular space, during formation of cerebral edema in vivo. XIV European Meeting on Glial Cells in Health and Disease.

畝川美悠紀, 富田裕, 鳥海春樹, 長田高志, 正本和人, 川口拓之, 伊澤良兼, 伊藤義彰, 菅野巖, 鈴木則宏, 中原仁. 大脳皮質性拡張性抑制誘発時の実質毛細血管内赤血球速度の経時的変化と二酸化炭素負荷に対する反応性. 第62回日本脳循環代謝学会学術集会. 2019年11月29-30日, 仙台.

唐春花, 畝川美悠紀, 柴田護, 富田裕, 伊澤良兼, 池田啓子, 川上潔, 鈴木則宏, 中原仁. Properties of behavior after cortical spreading depression in Na<sup>+</sup>,K<sup>+</sup>-ATPase  $\alpha$ 2 subunit defective mice. 第62回日本脳循環代謝学会学術集会. 2019年11月29-30日, 仙台.

Ishikawa T., Unekawa M., Tomita Y., Nakahara J., Yasui M. Aquaporin-4 deletion in mice attenuates paravascular space closure and neuronal activity reduction after water intoxication. 49th Society for Neuroscience's Annual Meeting. Oct. 19-23, 2019. Chicago, USA.