★食品生理学研究室 業績 (2014-2025) MAR 2025

49 編（原著･総説･著書）

■ 原著（Original papers: 38 編）○：責任著者

1. Takahashi H, Sashide Y, ○ **Takeda M.** (2025) Systemic administration of Docosahexaenoic acid suppresses rat trigeminal secondary nociceptive neuronal activity. ***Int J Transl Med*** (in press)

2. Yamaguchi S, Chida R, Utugi S, Sashide Y, ○**Takeda M.** (2025) Systemic administration of the phytochemical, myricetin, attenuates the excitability of rat nociceptive secondary trigeminal neuron, ***Molecules,*** *30:1019*

3. Sashide Y, ○ **Takeda M.** (2025) Gut Microbiota-Derived Short-chain Fatty Acid Suppresses the Excitability of Rat Nociceptive Secondary Neurons via G-protein-coupled receptor 41 Signaling. ***Mol Pain,*** *21:1-10*

4. Utugi S, Chida R, Yamaguchi S,Sashide Y, ○**Takeda M.** (2025) Local Administration of (−)-Epigallocatechin-3-gallate as a Local Anesthetic Agent Inhibits the Excitability of Rat Nociceptive Primary Sensory Neurons. ***Cells,*** *14:52*

5. Yajima S, Sakata R, Watanuki Y, Sashide Y, ○**Takeda M**. (2024) Naringenin suppresses the hyperexcitability of trigeminal nociceptive neurons associated with inflammatory hyperalgesia: Replacement of NSAIDs with phytochemicals. ***Nutrients,*** *16:3895*

6. Chida R, Yamaguchi S, Utugi S, Sashide Y, ○Takeda M. (2024) Suppression of the excitability of rat nociceptive secondary sensory neurons following systemic administration of astaxanthin. ***Anesth Res, 2024,*** *1: 117-127*

7. Watanuki Y, Yajima S, Sashide Y, ○**Takeda M,** (2024) Effect of theanine on the hyperexcitability of trigeminal secondary nociceptive neurons following orofacial inflammation in rats. ***Eur J Oral Sci,*** *e12961*

8. Sashide Y, Toyota R, ○**Takeda M** (2024) Local administration of the phytochemical, quercetin, attenuates the hyperexcitability of rat nociceptive primary sensory neurons following inflammation comparable to lidocaine. ***J Pain*** *25:755-765*

9. Uchino M, Sashide Y, ○**Takeda M** (2023) Suppression of the Excitability of Rat Nociceptive Secondary Sensory Neurons following Local Administration of the Phytochemical, (-)-Epigallocatechin-3-gallate. ***Brain Res*** *1813:148426*

10. ○Shimazu Y, Taya Y, Oeno Y, Kudo T, Sato K, **Takeda M**, (2023) The relationship between Meckel's cartilage resorption and incisor tooth germ in mice. ***J Anat*** 243、534-544

11. Osaki H, Mori M, Oshima K, Shimazu Y, ○**Takeda M**, (2023) Effect of local administration of eicotapentaenoic acid on the jaw-opening reflex in rats. ***Eur J Oral Sci,*** *131(2) e12917*

12. Toyota R, Itou H, Sashide Y, ○**Takeda M.**, (2022) Suppression of the excitability of rat nociceptive primary sensory neurons following local administration of the phytochemical quercetin. ***Journal of Pain*** *24:540-549*

13. Itou H, Toyota R, ○**Takeda M**., (2022) Phytochemical quercetin alleviates hyperexcitability of trigeminal nociceptive neurons associated with inflammatory hyperalgesia comparable to NSAIDs. ***Mol Pain**, 18, 17448069221108971*

14. Yamaguchi M, Kinouchi R, Morizumi S, Shmazu Y, ○ **Takeda M**. (2021) Local adminisitration of genistein as a local anesthetic agent inhibits the trigeminal nociceptive neuronal activity in rats. ***Brain Res Bull** 172: 120-128.*

15. Hirata K, Nishiki Y, Goto R, Inagaki M, Oshima K, Shimazu-Y, ○**Takeda M**, (2020) Resveratrol suppress nociceptive jaw-opening reflex via $5HT_3$ receptor-mediated GABAergic inhibition. ***Neurosci Res** 160,25-31,*

16. Okubo N, Ishikawa H, Sano R, Shimazu Y, ○**Takeda M**, (2020) Effect of resveratrol on the hyperexcitability of nociceptive neurons associated with ectopic hyperalgesia induced by experimental tooth movement. ***Eur J Oral Biosci** 128:275-283*

17. Ikeda A, Muroki A, Suzuki C, Shimazu Y, ○**Takeda M**, (2020) Resolvin D1 suppress inflammation-induced hyperexcitability of nociceptive trigeminal neurons associated with mechanical hyperalgesia. ***Brain Res Bull** 154:61-67.*

18. Arakawa S, Inoue M, Kinouchi R, Morizumi S, Yamaguchi M, ShimazuY, ○**Takeda M**. (2019) Dietary constituents genistein inhibits the hyperexcitability of trigeminal nociceptive neurons associated with mechanical hyperalgesia following orofacial inflammation. ***J Oral Biosci** 61:215-220*

19. ○Shimazu Y, Kobayashi, Endo S, Takemura J, **Takeda M**.(2019) Dietary constituent, lutein inhibits acute inflammation-induced c-fos expression of rat trigeminal spinal nucleus caudalis and C1 dorsal horn neurons. ***Eur J Oral Sci** 127:379-385*

20. Hidaka S, Kanai Y, Takehana S, Syoji Y, Kubota Y, Uotsu N, Yui K, Shimazu Y, ○**Takeda M**.（2019）Systemic administration of α-lipoic acid suppresses excitability of nociceptive wide-dynamic range neurons in rat spinal trigeminal nucleus caudalis ***Neurosci Res*** 144,14-20

21. Shinoda M, Fukuoka T, **Takeda M**, Iwata K, Noguchi K. (2019) Spinal glial cell line-derived neurotrophic factor infusion reverses reduction of Kv4.1-mediated A-type potassium currents of injured myelinated primary afferent neurons in a neuropathic pain model.**Mol Pain:**1744806919841196.

22. Syoji Y, Kobayashi R, Miyamura N, Hirohara T, Kubota Y, Uotsu N, Yui K, Shimmazu Y, ○**Takeda M**. (2018) Suppression of hyperexcitability of trigeminal nociceptive neurons associated with inflammatory hyperalgesia following systemic administration lutein via inhibition of cyclooxygenase-2 cascade signaling. ***J Inflamm***15:24

23. Nakajima R, Uehara A, Takehana S, Akama Y, Shimazu Y and ○**Takeda M** (2018) Decanoic acid attenuates the excitability of nociceptive trigeminal primary and secondary neuron associated with hypoalgesia. ***J Pain Res** 11:2867-2876*

24. Nakazaki S, Tadokoro K, Takehana S, Syoji S, Shimazu Y, ○**Takeda M** (2018) Docosahexaenoic acid attenuates inflammation-induced hyperexcitability of trigeminal spinal nucleus caudalis neurons associated with hyperalgesia in rats. ***Eur J Oral Sci*** 126: 458-465

25. Mitome K, Takehana S, Oshima K, Shimazu Y, ○**Takeda M** (2018) local anesthetic effect

of docosahexaenoic acid on the nociceptive jaw-opening reflex in rats. ***Neurosci Res*** 137:30-35

26. Kakita K, Tsubouchi H, Adachi M, Takehana S、Shimazu Y, ○**Takeda M** (2018) Local subcutaneous injection of chlorogenic acid inhibits the nociceptive trigeminal spinal nucleus caudalis neurons in rats. ***Neurosci Res*** 134:49-55

27. Matsumoto Y, Komatsu K, Takehana S, Syoji Y, Kobayashi A, Shimazu Y, ○**Takeda M** (2017) Effect of resveratrol on *c-fos* expression of rat trigeminal spinal nucleus caudalis and C1 dorsal horn neurons following mustard oil-induced acute inflammation *Eur J Oral Sci* 125:338-344.

28. Noguchi Y, Matsuzawa N, Akama Y, Sekiguchi K, Takehana S, Shimazu Y, ○**Takeda M** (2017) Dietary constituents, decanoic acid suppresses the excitability of nociceptive trigeminal neuronal activity associated with hypoalgesia via muscarinic M_2 receptor signaling. ***Mol Pain***, 13:1744806917710779

29. Kokuba S, Takehana S, Oshima K, Shimazu Y, ○ **Takeda M** (2017) Systemic administration of the dietary constituent resveratrol inhibits the nociceptive ja-opening reflex in rats via the endogenous opioid system. ***Neurosci Res*** 119:1-6

30. Takehana S, Kubota Y, Uotsu N, Yui K, Shimazu Y, ○ **Takeda M** (2017) Acute intravenous administration of dietary constituent theanine suppress noxious neuronal synaptic transmission of trigeminal spinal nucleus caudalis in rats. ***Brain Res Bull*** 131:70-77.

31. Takehana S, Kubota Y, Uotsu N, Yui K, Iwata K, Shimazu Y, ○ **Takeda M** (2017) The dietary constituent resveratrol suppresses nociceptive transmission via NMDA receptor. ***Mol Pain*** 13:1744806917697010

32. Kubo A, Shinoda M, Katagiri A, **Takeda M**, Suzuki T, Asaka J, Yeomans DC, Iwata K ,(2017) Oxytocin alleviates orofacial mechanical hypersensitivity associated with infraorbital nerve injury through vasopressin-1A receptors of the rat trigeminal ganglia. **Pain**.158:649-659.

33. Shimazu Y, Shibuya E, Takehana S, Sekiguchi K, Oshima K, Kamata H, Karibe H, ○ **Takeda M** (2016) Local administration of resveratrol inhibits excitability of nociceptive wide-dynamic range neurons in rat trigeminal spinal nucleus caudalis. ***Brain Res Bull*** 124:262-268.

34. Takehana S, Sekiguchi K, Inoue M, Kubota Y, Ito Y, Yui K, Shimazu Y, ○**Takeda M** (2016) Systemic administration of resveratrol suppress the nociceptive neuronal activity of spinal trigeminal nucleus caudalis in rats. ***Brain Res Bull*** 120:117-122.

35. Sekiguchi K, Takehana S, Shibuya E, Matsuzawa N, Hidaka H, Kanai Y, Inoue M, Kubota Y, Shimazu Y, ○ **Takeda M** (2016) Resveratrol attenuates inflammation-induced hyperexcitability of trigeminal spinal nucleus caudalis neurons associated with hyperalgesia in rats. ***Mol Pain*** 12:1744806916643082

36. ○Shinoda M, **Takeda M**, Honda K, Maruno M, Katagiri A, Satoh-Kuriwada S, Shoji N, Tsuchiya M, (2015) Involvement of peripheral artemin signaling in tongue pain: possible mechanism in burning mouth syndrome.**Pain**. 156:2528-2537.

37. ○**Takeda M**, Takahashi M, Matsumoto S（2014) Inflammation enhanced brain derived neurotrophic factor -induced suppression of the voltage-gated potassium currents in small-diameter trigeminal ganglion neurons projecting to the trigeminal nucleus interpolaris/caudalis transition zone. ***Neuroscience*** 261:223-31

38. Takahashi M, ○**Takeda M**, Mastumoto S (2014) Somatostatin enhances tooth-pulp-evoked cervical dorsal horn neuronal activity in the rat via inhibition of GABAergic interneuron. ***Brain Res Bull*** 100:76-83

■ **総説（Reviews: 7 編）**

1. ○**武田　守**　補完代替医療による疼痛緩和：ファイトケミカルの局所麻酔/抗炎症薬の可能性、アグリバイオ　2025, 9(3)43-49

2. ○**Takeda M**, Sashide Y, Toyota R, Ito H, (2024) The phytochemical, quercetin, attenuates nociceptive and pathological pain: neurophysiological mechanisms and therapeutic potential. ***Molecules**, 29, 3957*

3. ○**Takeda M.**(2024) Neurophysiological mechanisms underlying the attenuation of nociceptive and pathological pain by phytochemicals: Clinical application as therapeutic agents**.** ***Prog Neurobiol** 11:1-13.*

4. ○**Takeda M and Shimazu Y**（2020）Modulatory mechanism underlying how dietary constituents attenuate orofacial pain. ***J Oral Sci 62:*** 140-143

5. ○**Takeda M**, **Takehana S**, **Sekiguchi K**, Kubota Y and **Shimazu Y** (2016) Modulatory mechanism of nociceptive neuronal activity by dietary constituents resveratrol. ***Int J Mol Sci*** 17:1702.

6. ○**武田　守**、竹鼻志織、島津徳人　食品成分による疼痛緩和のメカニズム：レスベラトロール、(2017) 日本運動器疼痛学雑誌 9:192-197

7. Goto T, Oh SB, Takeda M, Shinoda M, Sato T, Gunjikake K, ○Iwata K, (2016) Recent advances in basic research on the trigeminal ganglion ***J Physiol Sci*** 66:381-386

■ **著書（4編）**

１．○**武田　守**、９章；ポリフェノールの疼痛緩和のメカニズムと臨床応用の可能性、ポリフェノールの多角的応用と機能、(監修：田中隆)、2022,シーエムシー出版、pp101-113

２．○**Takeda M, Takehana S, Shimazu Y**, The polyphenolic Compound Resveratrol attenuates Pain :Neurophysiological mechanisms. ***Polyphenol: mechanisms of action in Human Health and Disease***, Academic Press, 2nd Ed., pp 237-247. Eds. Ronald Watson Victor Preedy Sherma Zibadi, Academic Press, 2018.

３．○ **Takeda M, Shimazu Y** Dietary constituents act as local anesthetic agents: neurophysiological mechanism of nociceptive pain. Book 2. Chapter 40: The Neuoscience of Anesthetics and analgesics, 2.4.Novel and non-pharmacological aspects and treatments. ***Pain, Anesthetics and Analgesics.*** Elsevier, 2021, pp473-485

4. ○ Iwata K, **Takeda M**, Oh SB, Shinoda M, *Neurophysiology of Orafacial Pain*, Contemorary Oral Medichine, C.S. Farah et al., (eds.), Springer International Publishing AG, **2017**, DOI 10. 10007/978-319-281000-1_8-3