

# 麻 醉 科 学 講 座

## ○主な研究内容

- 1 周術期の疼痛の機序解明と鎮痛薬の有効な使用の基礎・臨床研究
- 2 癌性疼痛や神経障害性疼痛の機序解明と臨床へのトランスレーション
- 3 新しい麻酔薬デスフルランの気管支への作用機序の解明
- 4 心臓や血管内皮に対する麻酔薬の作用機序の解明
- 5 新しい筋弛緩薬ロクロニウムと拮抗薬スガマデクスの基礎的作用機序の解明
- 6 虚血再灌流障害に対するデクスメトミジンの心筋保護作用の解明
- 7 敗血症腸管虚血における病勢予測の新規開発
- 8 手術患者の麻酔の質を高める画期的モニタの開発と臨床試用
- 9 超音波ガイドによる末梢神経ブロックや中心静脈穿刺のイノベーション
- 10 困難気道患者の分析と革新的気道確保技術の研究

## ○Pub Med 掲載論文 (2018 年)

1. Chronological change in oropharyngeal leak pressure of pediatric i-gel™.

Yoshikawa Y, Naoyuki H, Yuko N, Yamakage M.

Paediatr Anaesth. 2018 Nov 16. doi: 10.1111/pan.13546. [Epub ahead of print]

PMID: 30447041

2. Evaluation of pre- and post-dilution continuous veno-venous hemofiltration on leukocyte and platelet function in patients with sepsis.

Chihara S, Masuda Y, Tatsumi H, Yamakage M.

Int J Artif Organs. 2018 Oct 2;39:1398818801292. doi: 10.1177/0391398818801292. [Epub ahead of print]

PMID: 30278811

3. Dexmedetomidine Does Not Affect Platelet Function Measured With TEG 6S and Platelet Mapping Assay in Whole Blood.

Yoshikawa Y, Takahashi K, Edanaga M, Hirata N, Yamakage M.

J Cardiothorac Vasc Anesth. 2018 Dec;32(6):e9-e11. doi: 10.1053/j.jvca.2018.06.018. Epub 2018 Jun 27. No abstract available.

PMID: 30072264

4. Superior sealing effect of a three-dimensional printed modified supraglottic airway compared with the i-gel in a three-dimensional printed airway model.

Kimijima T, Edanaga M, Yamakage M.

J Anesth. 2018 Oct;32(5):655-662. doi: 10.1007/s00540-018-2531-7. Epub 2018 Jul 18.

PMID: 30022284

5. In reply: Why remifentanyl?

Sakai W, Yoshikawa Y, Yamakage M.

J Anesth. 2018 Jun;32(3):459. doi: 10.1007/s00540-018-2487-7. Epub 2018 Apr 3. No abstract available.

PMID: 29616346

6. Spread of injectate in ultrasound-guided serratus plane block: a cadaveric study.

Kunigo T, Murouchi T, Yamamoto S, Yamakage M.

JA Clin Rep. 2018;4(1):10. doi: 10.1186/s40981-018-0147-4. Epub 2018 Jan 22.

PMID: 29457120 Free PMC Article

7. Clinical Utility of Intraoperative Motor-Evoked Potential Monitoring to Prevent Postoperative Spinal Cord Injury in Thoracic and Thoracoabdominal Aneurysm Repair: An Audit of the Japanese Association of Spinal Cord Protection in Aortic Surgery Database.

Yoshitani K, Masui K, Kawaguchi M, Kawamata M, Kakinohana M, Kato S, Hasuwa K, Yamakage M, Yoshikawa Y, Nishiwaki K, Aoyama T, Inagaki Y, Yamasaki K, Matsumoto M, Ishida K, Yamashita A, Seo K, Kakumoto S, Hayashi H, Tanaka Y, Tanaka S, Ishida T, Uchino H, Kakinuma T, Yamada Y, Mori Y, Izumi S, Nishimura K, Nakai M, Ohnishi Y.

Anesth Analg. 2018 Mar;126(3):763-768. doi: 10.1213/ANE.0000000000002749.

PMID: 29283918

8. Perioperative respiratory complications: current evidence and strategy discussed in 2017 JA symposium.

Hirota K, Yamakage M, Hashimoto S, Asai T, Isono S.

J Anesth. 2018 Feb;32(1):132-136. doi: 10.1007/s00540-017-2432-1. Epub 2017 Nov 13.

PMID: 29134423

9. Desflurane inhibits endothelium-dependent vasodilation more than sevoflurane with inhibition of endothelial nitric oxide synthase by different mechanisms.

Kazuma S, Tokinaga Y, Takada Y, Azumaguchi R, Kimizuka M, Hayashi S, Yamakage M.

Biochem Biophys Res Commun. 2018 Jan 1;495(1):217-222. doi: 10.1016/j.bbrc.2017.11.017.

Epub 2017 Nov 4.

PMID: 29113802

10. Dexmedetomidine Maintains Its Direct Cardioprotective Effect Against Ischemia/Reperfusion Injury in Hypertensive Hypertrophied Myocardium.

Yoshikawa Y, Hirata N, Kawaguchi R, Tokinaga Y, Yamakage M.

Anesth Analg. 2018 Feb;126(2):443-452. doi: 10.1213/ANE.0000000000002452.

PMID: 28914648

11. Association Between Motor-Evoked Potentials and Spinal Cord Damage Diagnosed With Magnetic Resonance Imaging After Thoracoabdominal and Descending Aortic Aneurysm Repair.

Hattori K, Yoshitani K, Kato S, Kawaguchi M, Kawamata M, Kakinohana M, Yamada Y, Yamakage M, Nishiwaki K, Izumi S, Yoshikawa Y, Mori Y, Hasegawa K, Onishi Y.

J Cardiothorac Vasc Anesth. 2018 Dec 5. pii: S1053-0770(18)31106-6. doi:

10.1053/j.jvca.2018.12.004. [Epub ahead of print]

PMID: 30638920

12. The Influence of Anesthesia on Corticocortical Evoked Potential Monitoring Network Between Frontal and Temporoparietal Cortices.

Suzuki Y, Enatsu R, Kanno A, Yokoyama R, Suzuki H, Tachibana S, Akiyama Y, Mikami T, Ochi S, Yamakage M, Mikuni N.

World Neurosurg. 2018 Dec 18. pii: S1878-8750(18)32822-5. doi:

10.1016/j.wneu.2018.11.253. [Epub ahead of print]

PMID: 30576824

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- 10 困難気道患者の分析と革新的気道確保技術の研究

## ○Pub Med 掲載論文 (2017 年)

1. Effect of remifentanyl during cardiopulmonary bypass on incidence of acute kidney injury after cardiac surgery.

Sakai W, Yoshikawa Y, Hirata N, Yamakage M.

J Anesth. 2017 Dec;31(6):895-902. doi: 10.1007/s00540-017-2419-y. Epub 2017 Oct 30.

PMID:29086014

2. Nitrite administration improves sepsis-induced myocardial and mitochondrial dysfunction by modulating stress signal responses.

Kawaguchi R, Hirata N, Tokinaga Y, Hayashi S, Inoue S, Watanabe N, Yamakage M.

J Anesth. 2017 Dec;31(6):885-894. doi: 10.1007/s00540-017-2417-0. Epub 2017 Oct 23.

PMID: 29063286

3. Three cases of implantation of a SureScan® system and MRI for investigating causes of pain.

Takahashi K, Sawada A, Iwasaki S, Yama N, Takashima H, Onodera M, Hatakenaka M, Yamakage M.

J Anesth. 2017 Dec;31(6):915-917. doi: 10.1007/s00540-017-2413-4. Epub 2017 Oct 16.

PMID: 29038851

4. Injection Volume and Anesthetic Effect in Serratus Plane Block.

Kunigo T, Murouchi T, Yamamoto S, Yamakage M.

Reg Anesth Pain Med. 2017 Nov/Dec;42(6):737-740. doi: 10.1097/AAP.0000000000000649.

PMID: 28891826

5. Less postoperative sore throat after nasotracheal intubation using a fiberoptic bronchoscope than using a Macintosh laryngoscope: A double-blind, randomized, controlled study.

Tachibana N, Niiyama Y, Yamakage M.

J Clin Anesth. 2017 Jun;39:113–117. doi: 10.1016/j.jclinane.2016.10.026. Epub 2017 Apr 6.

PMID:28494884

6. Possible utility of contrast-enhanced ultrasonography for detecting spread of local anesthetic in nerve block.

Sasaki H, Yamauchi M, Ninomiya T, Tatsumi H, Yamakage M.

J Anesth. 2017 Jun;31(3):365–373. doi: 10.1007/s00540-017-2347-x. Epub 2017 Apr 3.

PMID: 28374060

7. Effects of the concurrent use of a reduced dose of propofol with divided supplemental remifentanil and moderate hyperventilation on duration and morphology of electroconvulsive therapy-induced electroencephalographic seizure activity: A randomized controlled trial.

Nishikawa K, Yamakage M.

J Clin Anesth. 2017 Feb;37:63–68. doi: 10.1016/j.jclinane.2016.11.006. Epub 2016 Dec 30.

PMID: 28235531

8. Remifentanil prevents increases of blood glucose and lactate levels during cardiopulmonary bypass in pediatric cardiac surgery.

Chaki T, Nawa Y, Tamashiro K, Mizuno E, Hirata N, Yamakage M.

Ann Card Anaesth. 2017 Jan-Mar;20(1):33–37. doi: 10.4103/0971-9784.197827.

PMID: 28074792

9. Time- and Dose-Dependent Effects of Desflurane in Sensitized Airways.

Zhou J, Iwasaki S, Yamakage M.

Anesth Analg. 2017 Feb;124(2):465–471. doi: 10.1213/ANE.0000000000001754.

PMID: 28067710

10. Experimental and Clinical Evaluation of Predilution and Postdilution Continuous Venovenous Hemofiltration on Clearance Characteristics.

Chihara S, Masuda Y, Yamakage M.

ASAIO J. 2017 Mar/Apr;63(2):229–234. doi: 10.1097/MAT.0000000000000468.

PMID:27861424

11. Early induction of direct hemoperfusion with a polymyxin-B immobilized column is associated with amelioration of hemodynamic derangement and mortality in patients with septic shock.

Chihara S, Masuda Y, Tatsumi H, Nakano K, Shimada T, Murohashi T, Yamakage M.

J Artif Organs. 2017 Mar;20(1):71–75. doi: 10.1007/s10047-016-0922-9. Epub 2016 Jul 28.

PMID:27469940

12. The influence of depth of anesthesia on motor evoked potential response during awake craniotomy.

Ohtaki S, Akiyama Y, Kanno A, Noshiro S, Hayase T, Yamakage M, Mikuni N.

J Neurosurg. 2017 Jan;126(1):260-265. doi: 10.3171/2015.11.JNS151291. Epub 2016 Mar 4.

PMID: 26943841

## ○その他論文 (2017 年)

### 1. 進藤ゆかり

オピオイド鎮痛薬治療を受けている慢性痛患者の生活への影響に関する研究

1. The effectiveness and the practical question of opioid therapy in Japanese chronic non-cancer pain patients
2. Lived Experience of Chronic Non-cancer Pain Patients Receiving Opioid Therapy in Japan: A Qualitative Study

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## ○Pub Med 掲載論文 (2016 年)

1. Comparison of the clinical performances of Air-Qsp and i-Gel for airway management under general anesthesia with a muscle relaxant.

Watanabe A, Edanaga M, Ichinose H, Yamakage M.

J Clin Anesth. 2016 Nov;34:223-6. doi: 10.1016/j.jclinane.2016.04.012.

PMID: 27687379

2. Changes in synaptic transmission of substantia gelatinosa neurons after spinal cord hemisection revealed by analysis using in vivo patch-clamp recording.

Kozuka Y, Kawamata M, Furue H, Ishida T, Tanaka S, Namiki A, Yamakage M.

Mol Pain. 2016 Aug 28;12. pii: 1744806916665827. doi: 10.1177/1744806916665827.

PMID: 27573517 Free PMC Article

3. Effect of Intraoperative Glucose Infusion on Catabolism of Adipose Tissue and Muscle Protein in Patients Anesthetized With Remifentanyl in Combination With Sevoflurane During Major Surgery: A Randomized Controlled Multicenter Trial.

Sawada A, Kamada Y, Hayashi H, Ichinose H, Sumita S, Yamakage M.

Anesth Analg. 2016 Oct;123(4):869-76. doi: 10.1213/ANE.0000000000001522.

PMID: 27529317

4. Retrolaminar block: analgesic efficacy and safety evaluation.

Murouchi T, Yamakage M.

J Anesth. 2016 Aug 12. [Epub ahead of print]

PMID: 27518726

5. Early induction of direct hemoperfusion with a polymyxin-B immobilized column is associated with amelioration of hemodynamic derangement and mortality in patients with septic shock.

Chihara S, Masuda Y, Tatsumi H, Nakano K, Shimada T, Murohashi T, Yamakage M.

J Artif Organs. 2016 Jul 28. [Epub ahead of print]

PMID: 27469940

6. Regional block: who first thought of such an approach?

Yamakage M.

J Anesth. 2016 Aug;30(4):551-2. doi: 10.1007/s00540-016-2216-z. No abstract available.

PMID: 27405735

7. Continuous wound infiltration with 0.2% ropivacaine versus a single intercostal nerve block with 0.75% ropivacaine for postoperative pain management after reconstructive surgery for microtia.

Niiyama Y, Yotsuyanagi T, Yamakage M.

J Plast Reconstr Aesthet Surg. 2016 Oct;69(10):1445-9. doi: 10.1016/j.bjps.2016.05.009.

PMID: 27350268

8. The influence of depth of anesthesia on motor evoked potential response during awake craniotomy.

Ohtaki S, Akiyama Y, Kanno A, Noshiro S, Hayase T, Yamakage M, Mikuni N.

J Neurosurg. 2016 Mar 4:1-6. [Epub ahead of print]

PMID: 26943841

9. Comparison of fluid leakage across endotracheal tube cuffs using a three-dimensional printed model of the human trachea.

Kimijima T, Edanaga M, Yamakage M.

J Anesth. 2016 Jun;30(3):510-3. doi: 10.1007/s00540-016-2138-9.

PMID: 26816263

10. Quadratus Lumborum Block: Analgesic Effects and Chronological Ropivacaine Concentrations After Laparoscopic Surgery.

Murouchi T, Iwasaki S, Yamakage M.

Reg Anesth Pain Med. 2016 Mar-Apr;41(2):146-50. doi: 10.1097/AAP.0000000000000349.

PMID: 26735154

11. Severity of Myasthenia Gravis Influences the Relationship between Train-of-four Ratio and Twitch Tension and Run-down of Rat Endplate Potentials.

Takahashi K, Niiya T, Takada Y, Narimatsu E, Yamakage M.

Anesthesiology. 2016 Feb;124(2):369-77. doi: 10.1097/ALN.0000000000000949.

PMID: 26569169

12. Nitrite Reduces Ischemia-Induced Ventricular Arrhythmias by Attenuating Connexin 43 Dephosphorylation in Rats.

Maruyama D, Hirata N, Tokinaga Y, Kawaguchi R, Yamakage M.

Anesth Analg. 2016 Feb;122(2):410-7. doi: 10.1213/ANE.0000000000001063.

PMID: 26516799

13. A new once-a-day fentanyl citrate patch (Fentos Tape) could be a new treatment option in patients with end-of-dose failure using a 72-h transdermal fentanyl matrix patch.

Koike K, Terui T, Nagasako T, Horiuchi I, Machino T, Kusakabe T, Hirayama Y, Mihara H, Yamakage M, Kato J, Nishisato T, Ishitani K.

Support Care Cancer. 2016 Mar;24(3):1053-9. doi: 10.1007/s00520-015-2880-9.

PMID: 26248654



14. Reply to: performance of the Eleveld pharmacokinetic model to titrate propofol in an obese Japanese patient population.

Tachibana N, Niiyama Y, Yamakage M.

Eur J Anaesthesiol. 2016 Jan;33(1):59-60. doi: 10.1097/EJA.0000000000000277. No abstract available.

PMID: 26086292

15. Efficacy and Safety of a Lidocaine and Ropivacaine Mixture for Scalp Nerve Block and Local Infiltration Anesthesia in Patients Undergoing Awake Craniotomy.

Chaki T, Sugino S, Janicki PK, Ishioka Y, Hatakeyama Y, Hayase T, Kaneuchi-Yamashita M, Kohri N, Yamakage M. J Neurosurg Anesthesiol. 2016 Jan;28(1):1-5. doi: 10.1097/ANA.0000000000000149.

PMID: 25493926

16. Effect of sevoflurane anesthesia on the comprehensive mRNA expression profile of the mouse hippocampus.

Hayase T, Tachibana S, Yamakage M.

Med Gas Res. 2016 Jul 11;6(2):70-76.

PMID: 27867470 Free PMC Article

17. Experimental and clinical evaluation of pre-dilution and post-dilution continuous veno-venous hemofiltration on clearance characteristics.

Chihara S, Masuda Y, Yamakage M.

ASAIO J. 2016 Nov 16. [Epub ahead of print]

PMID: 27861424

18. Anesthetic Management for Non-cardiac Surgery in a Patient with Severe Pulmonary Arterial Hypertension.

Ohno S, Niiyama Y, Murouchi T, Yamakage M, Masui. 2016 May;65(5):526-9. Japanese.

19. Efficacy of Ultrasound-guided Caudal Epidural Block for Transrectal Ultrasound-guided Prostate Biopsy.

Sawada A, Niiyama Y, Yamakage M, Masui.

2016 May;65(5):511-5. Japanese.

20. A Patient with Klippel-Feil Syndrome Having Difficulties in Inserting and Placing an Endotracheal Tube under General Anesthesia. Masui.

Hashidume Y, Tachibana S, Takada Y, Edanaga M, Yamakage M.

2016 Apr;65(4):373-6. Japanese.

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## ○Pub Med 掲載論文 (2015 年)

1. Murouchi T, Iwasaki S, Yamakage M.  
Chronological Changes in Ropivacaine Concentration and Analgesic Effects Between Transversus Abdominis Plane Block and Rectus Sheath Block.  
Reg Anesth Pain Med. 2015 Sep-Oct;40(5):568-71. doi: 10.1097/AAP.0000000000000288.
2. Tachibana N, Niiyama Y, Yamakage M.  
Reply to: performance of the Eleveld pharmacokinetic model to titrate propofol in an obese Japanese patient population.  
Eur J Anaesthesiol. 2015 Jun 16. [Epub ahead of print] No abstract available.
3. Hayase T, Sugino S, Moriya H, Yamakage M.  
TACR1 gene polymorphism and sex differences in postoperative nausea and vomiting.  
Anaesthesia. 2015 Oct;70(10):1148-59. doi: 10.1111/anae.13082. Epub 2015 May 27.
4. Takahashi S, Ichihara K, Hashimoto K, Hiyama Y, Muranaka T, Hashimoto J, Fukuta F, Kobayashi K, Niiyama Y, Yamakage M, Masumori N.  
Serum antimicrobial concentrations for surgical antimicrobial prophylaxis in radical nephrectomy and radical prostatectomy.  
J Infect Chemother. 2015 Jun;21(6):464-7. doi: 10.1016/j.jiac.2015.03.001. Epub 2015 Mar 12.
5. Tachibana S, Hayase T, Osuda M, Kazuma S, Yamakage M.  
Recovery of postoperative cognitive function in elderly patients after a long duration of desflurane anesthesia: a pilot study.  
J Anesth. 2015 Aug;29(4):627-30. doi: 10.1007/s00540-015-1979-y. Epub 2015 Feb 1.
6. Maruyama D, Chaki T, Omote M, Hirata N, Yamauchi M, Yamakage M.  
Movements of the double-lumen endotracheal tube due to lateral position with head rotation and tube fixation: a Thiel-embalmed cadaver study.  
Surg Radiol Anat. 2015 Sep;37(7):841-4. doi: 10.1007/s00276-014-1411-6. Epub 2014 Dec 28.

7. Kimura Y, Kimura S, Sumita S, Yamakage M.  
Predictors of hypofibrinogenemia in blunt trauma patients on admission.  
J Anesth. 2015 Apr;29(2):242-8. doi: 10.1007/s00540-014-1895-6. Epub 2014 Aug 12.
8. Tachibana N, Niiyama Y, Yamakage M.  
Incidence of cannot intubate-cannot ventilate (CICV): results of a 3-year retrospective multicenter clinical study in a network of university hospitals.  
J Anesth. 2015 Jun;29(3):326-30. doi: 10.1007/s00540-014-1847-1. Epub 2014 May 27.
9. Koike K, Terui T, Takahashi Y, Hirayama Y, Mizukami N, Yamakage M, Kato J, Ishitani K.  
Effectiveness of multidisciplinary team conference on decision-making surrounding the application of continuous deep sedation for terminally ill cancer patients.  
Palliat Support Care. 2015 Apr;13(2):157-64. doi:10.1017/S1478951513000837. Epub 2013 Nov 4.
10. Wakasugi K, Niyama Y, Kita A, Sonoda H, Yamakage M.  
McGRATH® MAC Is Useful to Learn Tracheal Intubation Using a Macintosh Laryngoscope.  
Masui. 2015 Oct;64(10):1091-6. Japanese.
11. Uno A, Tanaka S, Kanno M, Ishioka Y, Watanabe M, Yamakage M.  
Ultrasound Analysis of the Anatomical Relationships between Vertebral Arteries and Internal Jugular Veins in Adults.  
Masui. 2015 Apr;64(4):383-7. Japanese.
12. Kanno M, Edanaga M, Mizukami N, Tokinaga Y, Niiyama Y, Yamakage M.  
Successful Management of Cardiopulmonary Bypass Using Heparin in a Patient with Previous History of Heparin-induced Thrombocytopenia.  
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13. Homma M, Iwasaki S, Sugime F, Murouchi T, Yamakage M.  
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# 麻酔科学講座

## ○主な研究内容

- 1 周術期の疼痛の機序解明と鎮痛薬の有効な使用の基礎・臨床研究
- 2 癌性疼痛や神経障害性疼痛の機序解明と臨床へのトランスレーション
- 3 新しい麻酔薬デスフルランの気管支への作用機序の解明
- 4 心臓や血管内皮に対する麻酔薬の作用機序の解明
- 5 新しい筋弛緩薬ロクロニウムと拮抗薬スガマデクスの基礎的作用機序の解明
- 6 海馬における麻酔薬や毒ガスの作用機序の解明
- 7 敗血症腸管虚血における病勢予測の新規開発
- 8 手術患者の麻酔の質を高める画期的モニタの開発と臨床試用
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