

分子生物学講座

○主な研究内容

- 1 癌のエピジェネティクス (DNA メチル化とヒストン修飾)
- 2 癌のシグナル伝達機構の解析
- 3 クロマチンレベルでの遺伝子発現制御の分子機構解析
- 4 癌におけるマイクロ RNA と RNA 干渉系の異常と制御
- 5 エピゲノム解析による新しい癌の診断及び治療法開発
- 6 組織及び癌幹細胞のエピゲノム解析

○Pub Med 掲載論文 (2018 年)

1. DOT1L inhibition blocks multiple myeloma cell proliferation by suppressing IRF4-MYC signaling.

Ishiguro K, Kitajima H, Niinuma T, Ishida T, Maruyama R, Ikeda H, Hayashi T, Sasaki H, Wakasugi H, Nishiyama K, Shindo T, Yamamoto E, Kai M, Sasaki Y, Tokino T, Nakase H, Suzuki H.

Haematologica. 2018 Aug 31. pii: haematol.2018.191262. doi: 10.3324/haematol.2018.191262. [Epub ahead of print]

PMID: 30171029 Free Article

2. Screening for long noncoding RNAs associated with oral squamous cell carcinoma reveals the potentially oncogenic actions of DLEU1.

Nishiyama K, Maruyama R, Niinuma T, Kai M, Kitajima H, Toyota M, Hatanaka Y, Igarashi T, Kobayashi JI, Ogi K, Dehari H, Miyazaki A, Yorozu A, Yamamoto E, Idogawa M, Sasaki Y, Sugai T, Tokino T, Hiratsuka H, Suzuki H.

Cell Death Dis. 2018 Aug 1;9(8):826. doi: 10.1038/s41419-018-0893-2.

PMID: 30069008 Free PMC Article

3. Dysregulation of miRNA in chronic hepatitis B is associated with hepatocellular carcinoma risk after nucleos(t)ide analogue treatment.

Wakasugi H, Takahashi H, Niinuma T, Kitajima H, Oikawa R, Matsumoto N, Takeba Y, Otsubo T, Takagi M, Ariizumi Y, Suzuki M, Okuse C, Iwabuchi S, Nakano M, Akutsu N, Kang JH, Matsui T, Yamada N, Sasaki H, Yamamoto E, Kai M, Sasaki Y, Sasaki S, Tanaka Y, Yotsuyanagi H, Tsutsumi T, Yamamoto H, Tokino T, Nakase H, Suzuki H, Itoh F.

Cancer Lett. 2018 Oct 10;434:91-100. doi: 10.1016/j.canlet.2018.07.019. Epub 2018 Jul 17.

PMID: 30026054

4. Surface microstructures are associated with mutational intratumoral heterogeneity in colorectal tumors.

Harada T, Yamamoto E, Yamano HO, Aoki H, Matsushita HO, Yoshikawa K, Takagi R, Harada E, Tanaka Y, Yoshida Y, Eizuka M, Yorozu A, Sudo G, Kitajima H, Niinuma T, Kai M, Sasaki

Y, Tokino T, Sugai T, Nakase H, Suzuki H.

J Gastroenterol. 2018 Dec;53(12):1241–1252. doi: 10.1007/s00535-018-1481-z. Epub 2018 Jun 11.

PMID: 29948303

5. Epigenetic silencing of miR-200b is associated with cisplatin resistance in bladder cancer.

Shindo T, Niinuma T, Nishiyama N, Shinkai N, Kitajima H, Kai M, Maruyama R, Tokino T, Masumori N, Suzuki H.

Oncotarget. 2018 May 11;9(36):24457–24469. doi: 10.18632/oncotarget.25326. eCollection 2018 May 11.

PMID: 29849953 Free PMC Article

6. Subtypes of the Type II Pit Pattern Reflect Distinct Molecular Subclasses in the Serrated Neoplastic Pathway.

Aoki H, Yamamoto E, Yamano HO, Sugai T, Kimura T, Tanaka Y, Matsushita HO, Yoshikawa K, Takagi R, Harada E, Nakaoka M, Yoshida Y, Harada T, Sudo G, Eizuka M, Yorozu A, Kitajima H, Niinuma T, Kai M, Nojima M, Suzuki H, Nakase H.

Dig Dis Sci. 2018 Jul;63(7):1920–1928. doi: 10.1007/s10620-018-5016-5. Epub 2018 Mar 15.

PMID: 29546645

7. Epigenetic silencing of SMOC1 in traditional serrated adenoma and colorectal cancer.

Aoki H, Yamamoto E, Takasawa A, Niinuma T, Yamano HO, Harada T, Matsushita HO, Yoshikawa K, Takagi R, Harada E, Tanaka Y, Yoshida Y, Aoyama T, Eizuka M, Yorozu A, Kitajima H, Kai M, Sawada N, Sugai T, Nakase H, Suzuki H.

Oncotarget. 2017 Dec 20;9(4):4707–4721. doi: 10.18632/oncotarget.23523. eCollection 2018 Jan 12.

PMID: 29435136 Free PMC Article

8. Evaluation of Urinary DNA Methylation as a Marker for Recurrent Bladder Cancer: A 2-Center Prospective Study.

Shindo T, Shimizu T, Nojima M, Niinuma T, Maruyama R, Kitajima H, Kai M, Itoh N, Suzuki H, Masumori N.

Urology. 2018 Mar;113:71–78. doi: 10.1016/j.urology.2017.11.025. Epub 2017 Nov 28.

PMID: 29196070

9. Analysis of the expression of cancer-associated fibroblast- and EMT-related proteins in submucosal invasive colorectal cancer.

Sugai T, Uesugi N, Kitada Y, Yamada N, Osakabe M, Eizuka M, Sugimoto R, Fujita Y, Kawasaki K, Yamamoto E, Yamano H, Suzuki H, Matsumoto T.

J Cancer. 2018 Jun 23;9(15):2702–2712. doi: 10.7150/jca.25646. eCollection 2018.

PMID: 30087711 Free PMC Article

10. Molecular Profiling Based on KRAS/BRAF Mutation, Methylation, and Microsatellite Statuses in Serrated Lesions.

Sugai T, Eizuka M, Fujita Y, Kawasaki K, Yamamoto E, Ishida K, Yamano H, Suzuki H, Matsumoto T.

Dig Dis Sci. 2018 Oct;63(10):2626–2638. doi: 10.1007/s10620-018-5167-4. Epub 2018 Jul 5.

PMID: 29974407 Free PMC Article

11. Comprehensive molecular analysis based on somatic copy number alterations in intramucosal colorectal neoplasias and early invasive colorectal cancers.

Sugai T, Eizuka M, Habano W, Fujita Y, Sato A, Sugimoto R, Otsuka K, Yamamoto E, Matsumoto T, Suzuki H.

Oncotarget. 2018 May 1;9(33):22895–22906. doi: 10.18632/oncotarget.25112. eCollection 2018 May 1.

PMID: 29796160 Free PMC Article

12. Molecular profiling and comprehensive genome-wide analysis of somatic copy number alterations in gastric intramucosal neoplasias based on microsatellite status.

Sugai T, Eizuka M, Arakawa N, Osakabe M, Habano W, Fujita Y, Yamamoto E, Yamano H, Endoh M, Matsumoto T, Suzuki H.

Gastric Cancer. 2018 Sep;21(5):765–775. doi: 10.1007/s10120-018-0810-5. Epub 2018 Feb 21.

PMID: 29468422 Free PMC Article

13. Molecular profiling and genome-wide analysis based on somatic copy number alterations in advanced colorectal cancers.

Sugai T, Takahashi Y, Eizuka M, Sugimoto R, Fujita Y, Habano W, Otsuka K, Sasaki A, Yamamoto E, Matsumoto T, Suzuki H.

Mol Carcinog. 2018 Mar;57(3):451–461. doi: 10.1002/mc.22769. Epub 2017 Dec 23.

PMID: 29230882 Free PMC Article

14. Translational regulation by miR-301b upregulates AMP deaminase in diabetic hearts.

Tatekoshi Y, Tanno M, Kouzu H, Abe K, Miki T, Kuno A, Yano T, Ishikawa S, Ohwada W, Sato T, Niinuma T, Suzuki H, Miura T.

J Mol Cell Cardiol. 2018 Jun;119:138–146. doi: 10.1016/j.yjmcc.2018.05.003. Epub 2018 May 4.

PMID: 29733818

15. Molecular characterization and pathogenesis of gastrointestinal stromal tumor.

Niinuma T, Suzuki H, Sugai T.

Transl Gastroenterol Hepatol. 2018 Jan 9;3:2. doi: 10.21037/tgh.2018.01.02. eCollection 2018. Review.

PMID: 29441367 Free PMC Article

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- 6 組織及び癌幹細胞のエピゲノム解析

○Pub Med 掲載論文 (2017 年)

1. Epigenetic silencing of diacylglycerol kinase gamma in colorectal cancer.

Kai M, Yamamoto E, Sato A, Yamano HO, Niinuma T, Kitajima H, Harada T, Aoki H, Maruyama R, Toyota M, Hatahira T, Nakase H, Sugai T, Yamashita T, Toyota M, Suzuki H. *Mol Carcinog.* 2017 Feb 20. doi: 10.1002/mc.22631. [Epub ahead of print]
PMID: 28218473

2. Downregulation of miR-186 is associated with metastatic recurrence of gastrointestinal stromal tumors.

Niinuma T, Kai M, Kitajima H, Yamamoto E, Harada T, Maruyama R, Nobuoka T, Nishida T, Kanda T, Hasegawa T, Tokino T, Sugai T, Shinomura Y, Nakase H, Suzuki H. *Oncol Lett.* 2017 Nov;14(5):5703–5710. doi: 10.3892/ol.2017.6911. Epub 2017 Sep 8.
PMID: 29113198

3. Evaluation of Urinary DNA Methylation as a Marker for Recurrent Bladder Cancer: a Two-Center Prospective Study.

Shindo T, Shimizu T, Nojima M, Niinuma T, Maruyama R, Kitajima H, Kai M, Itoh N, Suzuki H, Masumori N. *Urology.* 2017 Nov 28. pii: S0090-4295(17)31223-2. doi: 10.1016/j.urology.2017.11.025. [Epub ahead of print]
PMID:29196070

4. Endoscopic and molecular characterization of colorectal sessile serrated adenoma/polyps with cytologic dysplasia.

Tanaka Y, Yamano HO, Yamamoto E, Matushita HO, Aoki H, Yoshikawa K, Takagi R, Harada E, Nakaoka M, Yoshida Y, Eizuka M, Sugai T, Suzuki H, Nakase H. *Gastrointest Endosc.* 2017 Dec;86(6):1131–1138. e4. doi: 10.1016/j.gie.2017.05.006. Epub 2017 May 10.
PMID: 28501592

5. Genome-wide analysis of DNA copy number alterations in early and advanced gastric cancers.

Arakawa N, Sugai T, Habano W, Eizuka M, Sugimoto R, Akasaka R, Toya Y, Yamamoto E, Koeda

K, Sasaki A, Matsumoto T, Suzuki H.
Mol Carcinog. 2017 Feb;56(2):527–537. doi: 10.1002/mc.22514. Epub 2016 Aug 24.
PMID: 27312513

6. Molecular subtypes of colorectal cancers determined by PCR-based analysis.
Sugai T, Eizuka M, Takahashi Y, Fukagawa T, Habano W, Yamamoto E, Akasaka R, Otsuka K,
Matsumoto T, Suzuki H.
Cancer Sci. 2017 Mar;108(3):427–434. doi: 10.1111/cas.13164.
PMID: 28083970

7. Genetic differences stratified by PCR-based microsatellite analysis in gastric
intramucosal neoplasia.
Sugai T, Sugimoto R, Habano W, Endoh M, Eizuka M, Tsuchida K, Yamamoto E, Kawasaki K, Yanai
S, Matsumoto T, Suzuki H.
Gastric Cancer. 2017 Mar;20(2):286–296. doi: 10.1007/s10120-016-0616-2. Epub 2016 May 28.
PMID: 27236438

8. Analysis of the DNA methylation level of cancer-related genes in colorectal cancer and
the surrounding normal mucosa.
Sugai T, Yoshida M, Eizuka M, Uesugii N, Habano W, Otsuka K, Sasaki A, Yamamoto E, Matsumoto
T, Suzuki H.
Clin Epigenetics. 2017 May 18;9:55. doi: 10.1186/s13148-017-0352-4. eCollection 2017.
PMID: 28533824

9. Analysis of molecular alterations in laterally spreading tumors of the colorectum.
Sugai T, Habano W, Takagi R, Yamano H, Eizuka M, Arakawa N, Takahashi Y, Yamamoto E, Kawasaki
K, Yanai S, Ishida K, Suzuki H, Matsumoto T.
J Gastroenterol. 2017 Jun;52(6):715–723. doi: 10.1007/s00535-016-1269-y. Epub 2016 Oct
4.
PMID: 27704264

10. Fenton reaction-induced renal carcinogenesis in Mutyh-deficient mice exhibits less
chromosomal aberrations than the rat model.
Li GH, Akatsuka S, Chew SH, Jiang L, Nishiyama T, Sakamoto A, Takahashi T, Futakuchi M,
Suzuki H, Sakumi K, Nakabeppu Y, Toyokuni S.
Pathol Int. 2017 Nov;67(11):564–574. doi: 10.1111/pin.12598. Epub 2017 Oct 13.
PMID: 29027306

11. Molecular alterations in colorectal adenomas and intramucosal adenocarcinomas defined
by high-density single-nucleotide polymorphism arrays.
Eizuka M, Sugai T, Habano W, Uesugi N, Takahashi Y, Kawasaki K, Yamamoto E, Suzuki H,
Matsumoto T.
J Gastroenterol. 2017 Nov;52(11):1158–1168. doi: 10.1007/s00535-017-1317-2. Epub 2017 Feb
14.
PMID: 28197804

12. Molecular profiling and genome-wide analysis based on somatic copy number alterations
in advanced colorectal cancers.
Sugai T, Takahashi Y, Eizuka M, Sugimoto R, Fujita Y, Habano W, Otsuka K, Sasaki A, Yamamoto
E, Matsumoto T, Suzuki H.

Mol Carcinog. 2017 Dec 12. doi: 10.1002/mc.22769. [Epub ahead of print]
PMID: 29230882

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1. Analysis of molecular alterations in laterally spreading tumors of the colorectum.
Sugai T, Habano W, Takagi R, Yamano H, Eizuka M, Arakawa N, Takahashi Y, Yamamoto E, Kawasaki K, Yanai S, Ishida K, Suzuki H, Matsumoto T.
J Gastroenterol. 2016 Oct 4.
PMID: 27704264
2. Molecular differences in the microsatellite stable phenotype between left-sided and right-sided colorectal cancer.
Takahashi Y1,2, Sugai T3, Habano W4, Ishida K1, Eizuka M1, Otsuka K5, Sasaki A5, Takayuki M1, Matsumoto6, Morikawa T2, Unno M2, Suzuki H7.
Int J Cancer. 2016 Dec 1;139(11):2493-501. doi: 10.1002/ijc.30377.
PMID: 27509333 Free Article
3. Epigenetic activation of LY6K predicts the presence of metastasis and poor prognosis in breast carcinoma.
Kong HK1, Park SJ1, Kim YS1, Kim KM2, Lee HW3,4, Kang HG3,5, Woo YM1, Park EY1, Ko JY1, Suzuki H6, Chun KH3,5, Song E7, Jang KY2, Park JH1.
Oncotarget. 2016 Aug 1. doi: 10.18632/oncotarget.10972. [Epub ahead of print]
PMID: 27494879 Free Article
4. Plasticity of lung cancer stem-like cells is regulated by the transcription factor HOXA5 that is induced by oxidative stress.
Saijo H1,2, Hirohashi Y1, Torigoe T1, Horibe R1,2, Takaya A1, Murai A1, Kubo T1, Kajiwara T1, Tanaka T1, Shionoya Y1,2, Yamamoto E1, Maruyama R3, Nakatsugawa M1, Kanaseki T1, Tsukahara T1, Tamura Y1,4, Sasaki Y5, Tokino T5, Suzuki H3, Kondo T6, Takahashi H2, Sato N1.
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PMID: 27418136 Free Article
5. Relationship Between Noncoding RNA Dysregulation and Epigenetic Mechanisms in Cancer.
Suzuki H1, Maruyama R2, Yamamoto E2,3, Niinuma T2, Kai M2.
Adv Exp Med Biol. 2016;927:109-35. doi: 10.1007/978-981-10-1498-7_4.
PMID: 27376733

6. Genome-wide analysis of DNA copy number alterations in early and advanced gastric cancers. Arakawa N1, Sugai T1, Habano W2, Eizuka M1, Sugimoto R1, Akasaka R3, Toya Y3, Yamamoto E4, Koeda K5, Sasaki A5, Matsumoto T3, Suzuki H4. *Mol Carcinog.* 2016 Jun 17. doi: 10.1002/mc.22514. [Epub ahead of print] PMID: 27312513
7. Genetic differences stratified by PCR-based microsatellite analysis in gastric intramucosal neoplasia. Sugai T1, Sugimoto R2, Habano W3, Endoh M4, Eizuka M2, Tsuchida K2, Yamamoto E5, Kawasaki K4, Yanai S4, Matsumoto T4, Suzuki H5. *Gastric Cancer.* 2016 May 28. [Epub ahead of print] PMID: 27236438
8. A genomic screen for long noncoding RNA genes epigenetically silenced by aberrant DNA methylation in colorectal cancer. Kumegawa K1, Maruyama R1,2, Yamamoto E1,3, Ashida M1, Kitajima H1, Tsuyada A1, Niinuma T1,3, Kai M1, Yamano H04, Sugai T5, Tokino T6, Shinomura Y3, Imai K7, Suzuki H1. *Sci Rep.* 2016 May 24;6:26699. doi: 10.1038/srep26699. PMID: 27215978 Free PMC Article
9. Assessment of epigenetic alterations in early colorectal lesions containing BRAF mutations. Sawada T1,2, Yamamoto E1,3, Yamano H04, Nojima M5, Harada T1, Maruyama R1, Ashida M1, Aoki H1, Matsushita H04, Yoshikawa K4, Harada E4, Tanaka Y4, Wakita S6, Niinuma T1, Kai M1, Eizuka M7, Sugai T7, Suzuki H1. *Oncotarget.* 2016 Jun 7;7(23):35106-18. doi: 10.18632/oncotarget.9044. PMID: 27145369 Free Article
10. Clinical prognostic value of DNA methylation in hepatoblastoma: Four novel tumor suppressor candidates. Honda S1, Minato M1, Suzuki H2, Fujiyoshi M1, Miyagi H1, Haruta M3, Kaneko Y3, Hatanaka KC4, Hiyama E5, Kamijo T3, Okada T6, Taketomi A1. *Cancer Sci.* 2016 Jun;107(6):812-9. doi: 10.1111/cas.12928. Epub 2016 Apr 27. PMID: 26991471 Free PMC Article
11. Clinicopathological and molecular alterations in early gastric cancers with the microsatellite instability-high phenotype. Sugimoto R1, Sugai T1, Habano W2,3, Endoh M4,5, Eizuka M1, Yamamoto E6, Uesugi N1, Ishida K1, Kawasaki T1, Matsumoto T4,5, Suzuki H6.
12. Relationship Between Noncoding RNA Dysregulation and Epigenetic Mechanisms in Cancer. Suzuki H1, Maruyama R2, Yamamoto E2,3, Niinuma T2, Kai M2. *Adv Exp Med Biol.* 2016;927:109-35. doi: 10.1007/978-981-10-1498-7_4. PMID: 27376733
13. TET1 Depletion Induces Aberrant CpG Methylation in Colorectal Cancer Cells. Kai M, Niinuma T, Kitajima H, Yamamoto E, Harada T, Aoki H, Maruyama R, Toyota M, Sasaki Y, Sugai T, Tokino T, Nakase H, Suzuki H. *PLoS One.* 2016 Dec 15;11(12):e0168281. doi:10.1371/journal.pone.0168281. PMID:27977763 Free PMC Article

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- 6 組織及び癌幹細胞のエピゲノム解析

○Pub Med 掲載論文 (2015 年)

1. Isosaka M, Niinuma T, Nojima M, Kai M, Yamamoto E, Maruyama R, Nobuoka T, Nishida T, Kanda T, Taguchi T, Hasegawa T, Tokino T, Hirata K, Suzuki H, Shinomura Y.
A Screen for Epigenetically Silenced microRNA Genes in Gastrointestinal Stromal Tumors.
PLoS One. 2015 Jul 27;10(7):e0133754. doi: 10.1371/journal.pone.0133754. eCollection 2015.
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Analysis of the molecular features of rectal carcinoid tumors to identify new biomarkers that predict biological malignancy.
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Aberrant TET1 Methylation Closely Associated with CpG Island Methylator Phenotype in Colorectal Cancer.
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Cell Rep. 2015 Jun 16;11(10):1549-63. doi: 10.1016/j.celrep.2015.05.011. Epub 2015 Jun 4.
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Association of Fusobacterium species in pancreatic cancer tissues with molecular features and prognosis.
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7. Ito M, Kanno S, Nosho K, Sukawa Y, Mitsuhashi K, Kurihara H, Igarashi H, Takahashi T, Tachibana M, Takahashi H, Yoshii S, Takenouchi T, Hasegawa T, Okita K, Hirata K, Maruyama R, Suzuki H, Imai K, Yamamoto H, Shinomura Y.
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11. Nosho K, Igarashi H, Ito M, Mitsuhashi K, Kurihara H, Kanno S, Yoshii S, Mikami M, Takahashi H, Kusumi T, Hosokawa M, Sukawa Y, Adachi Y, Hasegawa T, Okita K, Hirata K, Maruyama R, Suzuki H, Imai K, Yamamoto H, Shinomura Y.
Clinicopathological and molecular characteristics of serrated lesions in Japanese elderly patients.
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Molecular analysis of isolated tumor glands from endometrial endometrioid adenocarcinomas.
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- 6 組織及び癌幹細胞のエピゲノム解析

○Pub Med 掲載論文 (2014 年)

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分子生物学講座

○主な研究内容

- 1 癌のエピジェネティクス (DNA メチル化とヒストン修飾)
- 2 癌のシグナル伝達機構の解析
- 3 クロマチンレベルでの遺伝子発現制御の分子機構解析
- 4 癌におけるマイクロ RNA と RNA 干渉系の異常と制御
- 5 エピゲノム解析による新しい癌の診断及び治療法開発
- 6 組織及び癌幹細胞のエピゲノム解析

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