

主な研究課題・発表代表論文

分子細胞生理学講座（旧生理学第一講座） Molecular and Cellular Physiology

研究領域 器官制御医科学

教授 宮本 達雄 Tatsuo Miyamoto

Web ページ：<https://ds0n.cc.yamaguchi-u.ac.jp/~lipid/index.html>

主な研究課題

- ・脂質代謝異常による纖毛病の発症機構の解明（脂質纖毛学・Lipid Ciliologyの開拓）
- ・細胞のコレステロール代謝機構の解明（分解できない生体物質の量的恒常性維持機構の解明）
- ・纖毛機能制御剤の探索（動脈硬化・囊胞腎・網膜色素変性症・感染症などを標的とした創薬）
- ・ゲノム編集技術を用いた疾患モデル細胞・動物の作製（学内外の基礎・臨床他科との連携）

発表代表論文

- 1) Hosoba K, Morita T, Zhang Y, Kishi H, Yamamoto T, **Miyamoto T**. High-efficient CRISPR/Cas9-mediated gene targeting to establish cell models of ciliopathies. *Methods in Cell Biol*, in press, 2022.
- 2) **Miyamoto T**, Hosoba K, Akutsu SN, Matsuura S. Imaging of ciliary cholesterol underlying the sonic hedgehog signal transduction. *Methods in Mol Biol*, 2374:49-57, 2022.
- 3) Akutsu SN, **Miyamoto T**, Oba D, Tomioka K, Ochiai H, Ohashi H, Matsuura S. iPSC reprogramming-mediated aneuploidy correction in autosomal trisomy syndromes. *Plos One*, 17(3):e0264965, 2022.
- 4) Tomioka K[#], **Miyamoto T**[#], Akutsu SN, Yanagihara H, Fujita K, Royba E, Tauchi H, Yamamoto T, Koh I, Hirata E, Kudo Y, Kobayashi M, Okada S, Matsuura S. (#Equal contribution): NBS1 I171V variant underlies individual differences in chromosomal radiosensitivity within human populations. *Scientific Rep*, 11(1):19661, 2021.
- 5) Kobayashi Y, Tomoshige S, Imakado K, Sekino Y, Koganezawa N, Shirao T, Diniz GB, **Miyamoto T**, Saito Y. Ciliary GPCR-based transcriptome as a key regulator as cilia length control. *FASEB BioAdvances*, 3(9):744-767, 2021
- 6) **Miyamoto T** Hosoba K, Itabashi T, Iwane AH, Akutsu SN, Ochiai H, Saito Y, Yamamoto T, Matsuura S: Insufficiency of ciliary cholesterol in hereditary Zellweger syndrome. *EMBO J*, e103499, 2020
- 7) **Miyamoto T**, Akutsu SN, Fukumitsu A, Morino H, Masatsuna Y, Hosoba K, Kawakami H, Yamamoto T, Shimizu K, Ohashi H, Matsuura S: PLK1-meditated phosphorylation of WDR62/MCPH2 ensures proper mitotic spindle orientation. *Hum Mol Genet*, 26(22):4429-4440, 2017
- 8) Royba E, **Miyamoto T**, Akutsu SN, Hosoba K, Tauchi H, Kudo Y, Tashiro S, Yamamoto T, Matsuura S*: Evaluation of ATM heterozygous mutations underlying individual differences in radiosensitivity using genome editing in human cultured cells. *Scientific Rep*, 7(1):5996, 2017
- 9) Porazinski S[#], Wang H[#], Asaoka Y[#], Behrndt M[#], **Miyamoto T**[#], Morita H, Hata S, Sasaki T, Krens SF, Osada Y, Asaka S, Momoi A, Linton S, Miesfeld JB, Link BA, Senga T, Castillo-Morales A, Urrutia AO,

Shimizu N, Nagase H, Matsuura S, Bagby S, Kondoh H, Nishina H, Heisenberg CP, Furutani-Seiki M. (#Equal contribution): YAP is essential for tissue tension to ensure vertebrate 3D body shape. *Nature*, 521(7551):217-221, 2015

10) **Miyamoto T**, Hosoba K, Ochiai H, Royba E, Izumi H, Sakuma T, Yamamoto T, Dynlacht BD, Matsuura S: The Microtubule-Depolymerizing Activity of a Mitotic Kinesin Protein KIF2A Drives Primary Cilia Disassembly Coupled with Cell Proliferation. *Cell Reports*, 10:664-673, 2015

11) Ochiai H[#], **Miyamoto T[#]**, Kanai A, Hosoba K, Sakuma T, Kudo Y, Asami K, Ogawa A, Watanabe A, Kajii K, Yamamoto T, Matsuura S. (#Equal contribution): TALEN-mediated single-base-pair editing identification of an intergenic mutation of upstream of *BUB1B* as causative of PCS (MVA) syndrome. *Proc Natl Acad Sci USA*, 111 : 1461-1466, 2014

12) **Miyamoto T**, Porazinski S, Wang H, Borovina A, Ciruna B, Shimizu A, Kajii T, Kikuchi A, Furutani-Seiki M, Matsuura S: Insufficiency of *BUBR1*, a mitotic spindle checkpoint regulator, causes impaired ciliogenesis in vertebrates. *Hum Mol Genet*, 20(10):2058-2070, 2011