

Curriculum Vitae: Motoki Takaku

CONTACT INFORMATION

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Assistant Professor
Department of Biomedical Sciences
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EDUCATION

B.Sc. 2005 Waseda University Electrical, Electronics and Computer Engineering
M.Sc. 2007 Waseda University Electrical Engineering and Bioscience (Dr. Hitoshi Kurumizaka)
Ph.D. 2010 Waseda University Biochemistry and Structural biology (Dr. Hitoshi Kurumizaka)

PROFESSIONAL POSITIONS HELD

2009-2011 Research Associate, Department of Electrical Engineering and Bioscience, Waseda University, Tokyo, Japan
2011-2012 Research Assistant Professor, Department of Electrical Engineering and Bioscience, Waseda University, Tokyo, Japan
2012-2013 Junior Researcher, Department of Electrical Engineering and Bioscience, Waseda University, Tokyo, Japan
2013-2015 Supplemental Visiting Fellow, Epigenetics & Stem Cell Biology Laboratory, National Institute of Environmental Health Sciences (NIESH/NIH), Research Triangle Park, NC (Supervisor: Dr. Paul A. Wade)
2015-2019 Visiting Fellow, Epigenetics & Stem Cell Biology Laboratory, National Institute of Environmental Health Sciences (NIEHS/NIH), Research Triangle Park, NC (Supervisor: Dr. Paul A. Wade)
2019-present Assistant Professor, Department of Biomedical Sciences, University of North Dakota

HONORS

2020 Paper of the Month: "Tanaka et al. Nat Commun (2020)" has been chosen as one of the Intramural Papers of the Month in the November 2020 issue of the Environmental Factor
2020 Paper of the Month: "Takaku et al. Nucleic Acids Res (2020)" has been chosen as one of the Intramural Papers of the Month in the June 2020 issue of the Environmental Factor
2019 AIMS awards for chemical screening: Two projects were selected for AIMS awards
2018 Paper of the Month: "Takaku et al. Nat Commun (2018)" was chosen as one of the Intramural Papers of the Month in the May 2018 issue of the Environmental Factor (NIEHS)
2016 Paper of the Year: "Takaku et al. Genome Biol. (2016)" was chosen as one of the NIEHS (Division of Intramural Research) papers of the Year
2016 Paper of the Month: "Takaku et al. Genome Biol. (2016)" was chosen as one of the Intramural Papers of the Month in the May 2016 issue of the Environmental Factor (NIEHS)

- 2015 Best poster presentation award: International Symposium on Chromatin Structure, Dynamics, and Function (8/23/2015-8/26/2015) Awaji Island, Japan
- 2015 Best oral presentation award: NIEHS SCIENCE DAYS (11/5/2015-11/6/2015), North Carolina, USA

CURRENT RESEARCH GRANT

- 2023 – 2028 Agency: NIH NIGMS R01GM148729 (9/1/2023 - 8/31/2028)
Title: Role of nucleosome architecture in cellular reprogramming
Role: PI, \$1,762,500
- 2023 – 2027 Agency: American Cancer Society RSG-23-645952-01-DMC (7/1/2023 - 6/30/2027)
Title: Function of GATA3 and its mutations in breast cancer
Role: PI, \$792,000
- 2023 – 2026 Agency: F31 fellowship F31GM146427 (5/23/2023 - 12/31/2025)
Title: Function of GATA3-PARP1 complex in breast cancer during GATA3-mediated cellular reprogramming
Role: Supervisor (PI: Mikhala Cooper), \$111,235
- 2022 – 2024 Agency: JSPS Overseas Research Fellowship (7/1/2021 - 6/30/2024)
Role: Mentor (PI: Mika Saotome, postdoc in Takaku's lab), \$104,000
- 2024 – 2026 Agency: Eli Lilly (4/1/2024 - 3/31/2026)
Title: Unraveling Immune Response Effects on Metastatic Breast Tumors Post-CDK Inhibition via Circulating Tumor Chromatin
Role: Co-PI (PI: Dr. Takada Mamoru), \$170,000 (\$100,000 for Takaku lab), Calendar months: 0.24

COMPLETED RESEARCH GRANT AND FELLOWSHIP **(Since UND)**

- 2019 – 2023 Agency: NIH P20GM104360 COBRE, Epigenomics and Development and Disease
Title: Mechanisms of GATA3 mediated cell reprogramming in breast cancer
Role: PL (PI: Roxanne Vaughan), \$1,042,500 for 5 years (direct + indirect), Calendar months: 6
- 2022 – 2023 Agency: Eli Lilly (4/1/2022 - 12/31/2023)
Title: Identify molecular mechanisms underlying tumor inhibition by circulating tumor-derived chromatin
Role: Co-PI (PI: Dr. Takada Mamoru), \$170,000 (\$100,000 for Takaku lab), Calendar months: 0.24
- 2022 – 2023 Agency: Dean's funds for meritorious NIH grant proposals
Role: PI, \$50,000
- 2021 – 2022 Agency: DaCCoTA (NIH/NIGMS)
Title: AI-based early cancer diagnosis using chromatin architectures in cfDNA
Role: Co-I (PI: Xusheng Wang), \$40,000, Calendar months: 0.5
- 2021 – 2022 Agency: Dean's funds for meritorious NIH grant proposals
Role: PI, \$50,000
- 2020 – 2021 Agency: NIH Administrative Supplements for Research on Women's Health in the IDeA States
Title: Mechanism of Tumor Suppressor Function of Progesterone Receptor in Breast Cancer
Role: PL (PI: Roxanne Vaughan), \$178,097.10 for 1 year (direct + indirect)
- 2020 – 2021 Agency: DaCCoTA Pilot Grant COVID-19-Related Applications

Title: Phenotypic and Epigenomic Impact of SARS- Cov-2 (Covid-19) Nucleocapsid Protein in Breast Cancer
Role: Co-PI (PI: Archana Dhasarathy), \$50,000 for 1 year (direct + indirect), Calendar months: 0.48

- 2020 – 2022 Agency: ND-ACES (EPSCoR)
Title: Early cancer detection by cell-free chromatin and machine learning
Role: PI, \$31,807 (direct), Calendar months: 0.24
- 2020 - 2020 Agency: UND COBRE pilot genomics awards
Title: Determine role of PR chromatin binding for 3D chromatin formation
Role: Supervisor (PI: Mika Saotome), \$7,500
- 2019 - 2020 Agency: ND EPSCoR undergraduate research
Title: Mechanism of Tumor Suppression mediated by Progesterone Receptor in Breast Cancer
Role: PI, \$5,000

(Before UND)

- 2017 - 2018 Division of Intramural Research Innovative Research Award (DIRA) from NIEHS
Title: Nucleosome targeting mechanism by pioneer transcription factors
Role: PI, \$50,000
- 2013 - 2015 JSPS Postdoctoral fellowship for research abroad
Title: Describe the role of Mi-2/NuRD complex in shaping the structural and functional properties of chromatin
Role: PI, \$120,000
- 2012-2013 Kurata Grants (The Kurata Memorial Hitachi Science and Technology Foundation)
Title: In vitro reconstitution of human homologous recombination repair
Role: PI, \$9,000
- 2011- 2013 Grant-in-Aid for Young Scientists (B) from the Ministry of Education, Culture, Sports, Science and Technology of Japan
Title: Functional analysis of RAD51 on nucleosomal DNA templates
Role: PI, \$42,000
- 2009-2011 Grant-in-Aid for Young Scientists (Start-up) from the Ministry of Education, Culture, Sports, Science and Technology of Japan
Title: Functional analysis of a novel RAD51-binding protein, EVL in the homologous recombinational repair.
Role: PI, \$25,000

TEACHING EXPERIENCE

Class activities at UND

- 2019-present Assistant Professor (University of North Dakota)
- BIMD 501 MODULE 1 (Co-Director): Molecular Biology
 - BIMD 514 (Co-Lecturer): Foundations of Bioinformatics
 - UNIT 1 SMHS (med students): Lecture 'Chromatin'
 - REMS program: Lecture "Research Collaboration session"
 - BIMD518: Contributed as an external faculty reviewer
 - Workshops:
 - (1) Introduction to Genomics (2-day workshop, ~30 participants) in 2021
 - (2) How to use Artificial Intelligence - ChatGPT for biomedical research? (2-day workshop, ~20 participants) in 2023

Mentoring at UND

Postdoctoral fellows at UND

1. Mika Saotome (2019 - present)
Received COBRE pilot grant (\$7,500), JSPS fellowship (salary support for 2 years, \$114,600 ,2022-2024)
2. Deepak Balakrishnan Poduval (2021~2022, moved to Yale as a senior bioinformatician)
3. Bappa Ghosh (2022 - present)

Lab technicians at UND

1. Jill Goodman (2023 – present)
2. Vaisnavii Mohanraj (2023 – present)
3. Aerica Nagornyuk (2022 - 2023)
4. Regina Nguyen (2022 – present)
5. Most Shanaj Parvin (2022)
6. Kazi Rafsun (2021)
7. Renju Nair (2019~2021)

Graduate students at UND

Primary supervisor

1. Sakuntha Gunarathna (2022 - present)
2. Mikhala Cooper (2019 - present)
3. Aerica Nagornyuk (2024)

Lab rotation

1. Jenna Grindeland (2024)
2. Behnaz Karimialiabadi (2024)
3. Anahitasadat Mansouripour (2023)
4. Christian Abosedede (2023)
5. Abiodun Ebenezer Odufuwa (2019)

Undergraduate students at UND

1. Paige Bonnet - BIOL492 (2024 - present)
2. Alexander Samardzic - BIMD494, research assistant (2023 – present)
3. Nobuki Hida – research assistant (2023 – present)
4. Stephen Patten - REU Summer program (University of Florida) (2023)
5. Clara Anderson-Cameron - REU Summer program (Cottey College) (2022)
6. Annika Price - BIMD494 4 credits, COBRE Supplement grant (2019 - 2021)
7. Gwyneth S Knott - REU Summer program (Colorado State University) (2021)
8. Edward Looker (Hampshire College) - REU Summer program 2021
9. Nicholis Johnson - BIMD494, research assistant) (2019 - 2020)
10. Benjamin Lagein - BIMD494 (2019)
11. Kylee Altendorf - volunteer (2019)

Med students at UND

1. Sarah DiDonna - REMS 2022
2. Joshua Haus - REMS 2022
3. Hayden May - REMS 2021
4. Michael Solc - REMS 2020 (co-mentored with Dr. Dhasarathy)
5. Sa Kong - REMS 2020 (co-mentored with Dr. Dhasarathy)

Mentoring and teaching activities before UND

2013-2019 Post-doc (NIH/NIEHS): Mentor for post-baccalaureate students
Hands-on training: ATAC-seq training for the trainees at NIEHS.

- 2012-2013 Junior Researcher (Waseda University): Research mentor for undergraduate and graduate students
- 2011-2012 Assistant professor (Waseda University): Classes for undergraduate and graduate students
- 2009-2011 Research Associate (Waseda University): Classes for undergraduate students
(1) Practical training in molecular biology (DNA extraction from tissue, PCR, etc)
two semesters for 1st grade undergraduate students
two semesters for 3rd grade undergraduate students

(2) Advanced biology course for graduate students (Clinical application of epigenetic studies, next-generation sequencing, etc)

SERVICE/PROFESSIONAL ACTIVITY

PhD/master program committee: serving as a committee member for four PhD students

PhD course

1. Kaitlyn Gura - UND Biomedical Sciences, PI: Dr. Dhasarathy (2023 – present)
2. Regmi, Amrit – UND Chemistry, PI: Dr. Sui (2023 – present)
3. Christian Abosedede – UND Biomedical Sciences, PI: Dr. Eliazer (2023 – present)
4. Solène Bechelli – UND Biomedical Engineering, PI: Dr. Delhommelle (2022)
5. Nelofar Nargis – UND Biomedical Sciences, PI: Dr. Combs (2022)
6. Abiodun Odufuwa – UND Biomedical Sciences, PI: Dr. Watt (2021 – present)
7. Trevor Long - UND Biology, PI: Dr. Manu (2021 – present)
8. Jacob Haugen - UND Biomedical Sciences, PI: Dr. Milavetz (2020 – present)
9. Gbolahan Bamgbose - UND Biomedical Sciences, PI: Dr. Tulin (2019-2020)

Mater course

1. Oluwatobiloba Aminu - UND Biomedical Sciences, PI: Dr. Hur (2023)
2. Temidayo Adeluwa - UND Biomedical Sciences, PI: Dr. Hur (2021)

UND committee

1. Research Committee in the Department of Biomedical Sciences at UND (2023 - present)
2. Bylaw Committee (2022 - present)
3. Chair of Engagement Committee in the Department of Biomedical Sciences at UND (2022-present)
4. Medical Student Academic Performance Committee (MSAPC, 2020)
5. Epigenetics Group Faculty Search Committee (2020 – 2022)

Ad hoc reviewer: Advanced Science, Oncogene, Nucleic Acids Research, NAR Cancer, Genome Biology, Communications Biology, Computational and Structural Biotechnology Clinical and translational medicine, Environmental Health Perspectives, Journal, Breast Cancer Research and Treatment, Cellular Reprogramming, Molecular Cancer Therapeutics, PeerJ, Experimental and Molecular Pathology, International Journal of Molecular Sciences, Bosnian Journal of Basic Medical Sciences

Editorial board: Scientific Reports (2023-), PeerJ Journals (2019-present),

Review editor: Frontiers in Physiology (2021-present), Frontiers in Genetics (2022-present), and Frontiers in Cell and Developmental Biology (2022-present)

Others

- Served as a reviewer for multiple internal grant applications at UND
- Serving as a reviewer for The System Biology Program of Skoltech (fellowship)
- Served as a reviewer for NIH Cancer Molecular Pathobiology (CAMP) study section via Early Career Reviewer (ECR) Program (June-July 2021)
- Served as a reviewer for the 2021 Breast Cancer Research Program (BCRP) for the Department of Defense Congressionally Directed Medical Research Programs (CDMRP) (2021)

- Served as a reviewer for NSF (2022 - 2024)
- Attended GRAD competition as a judge (2021)

PUBLICATIONS (pre-print, under revision)
(pre-print)

1. DiDonna SC, Nagornyuk A, Adhikari N, Takada M, **Takaku M** * (*corresponding author). P4HTM: A Novel Downstream Target of GATA3 in Breast Cancer (2023) Research Square. doi.org/10.21203/rs.3.rs-2622989/v1

(resubmission)

1. Chen Y, Takada M, Nagornyuk A, Junchiao W, Muhan W, Yamada H, Nagashima T, Ohtsuka M, Makus S, DeLuca J, **Takaku M**, and Suzuki A. CMPD1 is a microtubule plus-end inhibitor with high tumor-selective cytotoxicity. (preparing for resubmission)
2. Norman RX, Chen Y, Loi J, Saotome M, Ghosh B, Recchia EE, Rosemarie Q, Lesko SL, Patel S, Sherer N, Sugden B, **Takaku M***, Burkard MR*, Suzuki A*. (corresponding authors) One step 3D-ChromExM: robust super-resolution microscopy for nuclear structures (preparing for resubmission)

PUBLICATIONS (peer reviewed)
(Since UND)

1. Saotome M, Poduval DB, Grimm SA, Nagornyuk A, Gunarathna S, Shimbo T, Wade PA*, and **Takaku M*** (*corresponding authors). Genomic transcription factor binding site selection is edited by the chromatin remodeling factor CHD4 (2024) **Nucleic Acids Res**, PMID: 38281186 DOI: 10.1093/nar/gkae025
2. Wilbourne J, Jia S, Fogarty A, Jiang R, **Takaku M**, Zhao F. Crucial roles of the mesenchymal androgen receptor in Wolffian duct development. (2023) **Endocrinology**, PMID: 38146640, DOI: 10.1210/endocr/bqad193
3. Cooper M*, Ray A*, Bhattacharya A, Dhasarathy A, **Takaku M** (*co-first authors). ATAC-seq Optimization for Cancer Epigenetics Research (2022) **J Vis Exp**. doi: 10.3791/64242
4. Saotome M, Poduval DB, Nair R, Cooper M, **Takaku M**. GATA3 truncation mutants alter EMT related gene expression via partial motif recognition in luminal breast cancer cells. (2022) **Frontiers in Genetics**. doi: 10.3389/fgene.2022.820532.
5. Ansari KI, Bhan A, Saotome M, Tyagi A, De Kumar B, Chen C, **Takaku M**, Jandial R. Autocrine GM-CSF signaling contributes to growth of HER2+ breast leptomenigeal carcinomatosis. (2021) **Cancer Res**. doi: 10.1158/0008-5472.CAN-21-0259.
6. Saotome M, **Takaku M**. Analysis of protein complexes using gel filtration chromatography. (2021) **PSSJ Archives**, 14, e100 (2021)
7. Tanaka H*, Takizawa Y*, **Takaku M***, Kato D, Kumagawa Y, Grimm SA, Wade PA, Kurumizaka K. (*first authors) Interaction of the pioneer transcription factor GATA3 with nucleosomes. (2020) **Nat Commun** 11(1):4136. doi: 10.1038/s41467-020-17959-y.
8. **Takaku M***, Grimm SA, Kumar BD, Bennett BD, and Wade PA* (*corresponding authors) Cancer-specific mutation of GATA3 disrupts the transcriptional regulatory network governed by Estrogen Receptor alpha, FOXA1 and GATA3. (2020) **Nucleic Acids Res** 48(9):4756-4768. doi: 10.1093/nar/gkaa179
**This paper has been recommended in Faculty Opinions (F1000prime) as a significant paper.*
9. Machida S, Depierre D, Chen HC, Thenin-Houssier S, Petitjean G, Doyen C, **Takaku M**, Cuvier O and Benkirane M. Exploring histone loading on unintegrated HIV DNA reveals a dynamic nucleosome positioning between unintegrated and integrated viral genome. (2020) **Proc Natl Acad Sci USA**, 117(12):6822-6830. doi: 10.1073/pnas.1913754117

(Before UND)

10. Weiss K, Lazar HP, Kurolap A, Martinez AF, Paperna T, Cohen L, Smeland MF, Wallen S, Solveig H, Keren B, Terhal P, Irving M, **Takaku M**,..., Lachlan K. (2019) The CHD4-related syndrome: a comprehensive investigation of the clinical spectrum, genotype-phenotype correlations, and molecular basis. **Genet Med**, doi: 10.1038/s41436-019-0612-0
11. Grimm SA, Shimbo T, **Takaku M**, Thomas JW, Auerbach S, Bennett B, Bucher JR, Burkholder AB, Day F, Du Y, French JE, Li J, Merrick BA, Tice RR, Wang T, Xu X, Bushel P, Fargo DC, Mullikin JC, Wade PA. (2019) DNA methylation in mice is influenced by genetics as well as sex and life experience. **Nature Commun**, 10(1)
12. Blok LS, Rousseau J, Twist J, Ehresmann S, **Takaku M**, et al. (2018) CHD3 helicase domain mutations cause a neurodevelopmental syndrome with macrocephaly and impaired speech and language. **Nature Commun**, 9 (4619)
13. **Takaku M**, Grimm SA, Roberts JD, Chrysovergis K, Bennett BD, Myers P, Perera L, Tucker CJ, Perou CM, and Wade PA. (2018) GATA3 Zinc Finger 2 mutations reprogram the breast cancer transcriptional network. **Nature Commun**, 9 (1) doi:10.1038/s41467-018-03478-4
14. Li P, Wang L, Bennett BD, Wang J, Li J, Qin Y, **Takaku M**, Wade PA, Wong J, Hu G (2017) Rif1 Promotes a Repressive Chromatin State to Safeguard Against Endogenous Retrovirus Activation. **Nucleic Acids Res**, 45(22):12723-12738
15. Zhang S, **Takaku M**, Zou L, Gu A, Chou W, Zhang G, Wu B, Kong Q, Thomas SY, Serody JS, Chen X, Xu X, Wade PA, Cook DN, Ting JP, Wan YY (2017) Releasing Ski-Smad4 mediated suppression is essential to license Th17 differentiation. **Nature**, 551(7678):105-109
16. Thomas SY, Whitehead GS, **Takaku M**, Ward JM, Xu X, Nakano K, Lyons-Cohen MR, Nakano H, Gowdy KM, Wade PA, Cook DN (2017) MyD88-dependent Dendritic and Epithelial Cell Crosstalk Orchestrates Immune Responses to Allergens. **Mucosal Immunol**, doi: 10.1038/mi.2017.84
17. Kobayashi W, **Takaku M**, Machida S, Tachiwana H, Maehara K, Ohkawa Y, Kurumizaka H (2016) Chromatin architecture may dictate the target site for DMC1, but not for RAD51, during homologous pairing. **Sci Rep**, 6:24228
18. Shimbo T, **Takaku M**, Wade PA (2016) High-quality ChIP-seq analysis of MBD3 in human breast cancer cells. **Genom Data**, 7:173-4
19. **Takaku M**, Grimm SA, Shimbo T, Perera L, Menafra R, Stunnenberg HG, Archer TK, Machida S, Kurumizaka H, Wade PA (2016) GATA3-dependent cellular reprogramming requires activation-domain dependent recruitment of a chromatin remodeler. **Genome Biol**, 17(1):36
20. Machida M, Hayashida R, **Takaku M**, Fukuto A, Sun J, Kinomura A, Tashiro S, Kurumizaka H (2016) Relaxed Chromatin Formation and Weak Suppression of Homologous Pairing by the Testis-Specific Linker Histone H1T. **Biochemistry**, 55(4):637-46
21. **Takaku M**, Grimm SA, Wade PA. (2015) GATA3 in Breast Cancer: Tumor Suppressor or Oncogene? **Gene Expr**, 16(4)
22. Machida S*, **Takaku M***, Ikura M, Sun J, Suzuki H, Kobayashi W, Kinomura A, Osakabe A, Tachiwana H, Horikoshi Y, Fukuto A, Matsuda R, Ura K, Tashiro S, Ikura T, Kurumizaka H. (2014) *co-first authors. Nap1 stimulates homologous recombination by RAD51 and RAD54 in higher-ordered chromatin containing histone H1. **Sci Rep**, 4:4863
23. Adomas AB, Grimm SA, Malone C, **Takaku M**, Sims JK, Wade PA. (2014) Breast tumor specific mutation in GATA3 affects physiological mechanisms regulating transcription factor turnover. **BMC Cancer**,

14:278

24. Osakabe A, Tachiwana H, **Takaku M**, Hori T, Obuse C, Kimura H, Fukagawa T, Kurumizaka H. (2013) Vertebrate Spt2 is a novel nucleolar histone chaperone that assists in ribosomal DNA transcription. *J Cell Sci*, **126**(Pt 6):1323-1332
25. Morozumi Y, Ino R, **Takaku M**, Hosokawa M, Chuma S, Kurumizaka H. (2012) Human PSF concentrates DNA and stimulates duplex capture in DMC1-mediated homologous pairing. *Nucleic Acids Res*, **40**(7):3031-3041
26. **Takaku M***, Tsujita T*, Horikoshi N, Takizawa Y, Qing Y, Hirota K, Ikura M, Ikura T, Takeda S, Kurumizaka H. (2011) *co-first authors. Purification of the human SMN-GEMIN2 complex and assessment of its stimulation of RAD51-mediated DNA recombination reactions. *Biochemistry*, **50**(32):6797-6805
27. **Takaku M***, Ueno H*, and Kurumizaka H. (2011) *co-first authors. Biochemical analysis of the human Ena/Vasp-family proteins, MENA, VASP, and EVL, in homologous recombination. *J Biochem*, **149**(6):721-729
28. **Takaku M***, Kainuma T*, Ishida-Takaku T, Ishigami S, Suzuki H, Tashiro S, van Soest RW, Nakao Y and Kurumizaka H. (2011) *co-first authors. Halenaquinone, a chemical compound that specifically inhibits the secondary DNA binding of RAD51. *Genes Cell*, **16**(4):427-436
29. **Takaku M**, Takahashi D, Machida S, Ueno H, Hosoya N, Ikawa S, Miyagawa K, Shibata T, Kurumizaka H. (2010) Single-stranded DNA catenation mediated by human EVL and a type I topoisomerase. *Nucleic Acids Res*, **38**(21):7579-7586.
30. Takizawa Y, Qing Y, **Takaku M**, Ishida T, Morozumi Y, Tsujita T, Kogame T, Hirota K, Takahashi M, Shibata T, Kurumizaka H, Takeda S. (2010) GEMIN2 promotes accumulation of RAD51 at double-strand breaks in homologous recombination. *Nucleic Acids Res*, **38**(15):5059-5074
31. Horikoshi N, Morozumi Y, **Takaku M**, Takizawa Y, Kurumizaka H. (2010) Holliday junction-binding activity of human SPF45. *Genes Cell*, **15**(4):373-383
32. **Takaku M**, Machida S, Nakayama S, Takahashi D, Kurumizaka H. (2009) Biochemical analysis of the human EVL domains in homologous recombination. *FEBS J*, **276**(20):5841-5848
33. Morozumi Y, Takizawa Y, **Takaku M**, Kurumizaka H. (2009) Human PSF binds to RAD51 and modulates its homologous-pairing and strand-exchange activities. *Nucleic Acids Res*, **37**(13):4296-4307.
34. Katsura M, Tsuruga T, Date O, Yoshihara T, Ishida M, Tomoda Y, Okajima M, **Takaku M**, Kurumizaka H, Kinomura A, Mishima HK, Miyagawa K. (2009) The ATR-Chk1 pathway plays a role in the generation of centrosome aberrations induced by Rad51C dysfunction. *Nucleic Acids Res*, **37**(12):3959-3968
35. **Takaku M**, Machida S, Hosoya N, Nakayama S, Takizawa Y, Sakane I, Shibata T, Miyagawa K, Kurumizaka H. (2009) Recombination activator function of the novel RAD51- and RAD51B-binding protein, human EVL. *J Biol Chem*, **284**(21):14326-14336

Invited seminar

- 1) University of Southern California Norris Comprehensive Cancer Center and Department of Pathology (April 5, 2024)
- 2) Chiba University, Department of Biology (January 5, 2024)
- 3) University of Wisconsin - Madison, Department of Comparative Biosciences (October 3, 2023)
- 4) Rutgers University, Department of Molecular Biosciences (September 26, 2023)
- 5) Biocompare Webinar (August 24, 2023)

- 6) ADNAT-IMTECH workshop 'Era of big data in genomics' in India (November 7, 2021)
- 7) University of Kansas, Department of Molecular Biosciences (Nov 16th 2020)

Other activities

- 1) White Paper on Science, Technology, and Innovation published by the Ministry of Education, Culture, Sports, Science and Technology (MEXT), one of the ministries of the Japanese government:
My interview article was published in the white paper
- 2) Web article and webinar organized by the Department of Human Resource Education and Development at Hokkaido University:
Provided practical advice to undergrad and graduate students who are interested in studying in the US

Meetings (from 2013-present)

(Since UND)

Oral presentations

- 1) DaCCoTA Annual Symposium (July 27, 2023)
Deep learning based development of early cancer detection by chromatin architecture in cell-free DNA
- 2) Epigenetics Annual Symposium (May 18, 2023)
Analyzing Chromatin by Machine Learning
- 3) Asilomar Chromatin, Chromosomes & Epigenetics Conference (December 2022)
Interpretable machine learning model for detecting cell-free nucleosomes from cancer patients.
- 4) Selected speaker: Fragile nucleosome seminar series (June 2021)
Chromatin invasion by a pioneer factor and chromatin remodelers
- 5) Presented at UND Epigenetics & Epigenomics Virtual Symposium (March 2021)
Chromatin invasion by a pioneer factor
- 6) Selected speaker: Asilomar Chromatin, Chromosomes & Epigenetics Conference (December 2020)
Active role of the nucleosome in breast cancer cell reprogramming
- 7) 4th International Conference on Epigenetics and Bioengineering (EpiBio) (Oct 9th – 11th, 2020, virtual)
Dynamic Nucleosome Reorganization during the Pioneer Factor GATA3-Mediated Cellular Reprogramming in Breast Cancer
- 8) The IDeA Central Region Conference (June 12th – 14th 2019, Okhahoma City, OK)
Oral presentation: Pioneering activity of GATA3 drives cell fate transition in breast cancer

(Before UND)

- 9) Center Of Excellence in Chromosome Biology Postdoctoral Fellows Workshop (June 7th 2017, Bethesda, MD)
GATA3 mutations promotes tumor growth by reprogramming luminal transcriptional network in breast cancer
- 10) AACR 106th Annual Meeting (April 18th-22nd 2015, Philadelphia, PA)
GATA3 modulates chromatin structure to establish active enhancers in breast cancer cells

Poster presentations

(Since UND)

- 1) AACR Annual Meeting 2024 (April 8, 2024, San Diego) Interplay of Pioneer and Chromatin Remodeling Factors: New Insights into Breast Cancer Mechanisms
- 2) EpiCypher 2023 conference (November 5-10 2023, Cancun Mexico) Dissecting cancer epigenetics and chromatin by Artificial Intelligence

- 3) San Antonio Breast Cancer Symposium (December 7-10 2021, hybrid conference) Breast cancer derived GATA3 mutations disrupt luminal transcriptional network
- 4) The 38th Summer Symposium in Molecular Biology, Chromatin and Epigenetic Regulation at Penn State University (July 30th-August 1st 2019, PA)
CHD4-mediated nucleosome formation regulates pioneering activity of GATA3 during mesenchymal-to-epithelial transition in breast cancer

(Before UND)

- 5) AACR Annual Meeting (April 14th-18th 2018, Chicago, IL)
GATA3 Zinc-Finger mutation induces transcriptional reprogramming in breast cancer through gain and loss of function
- 6) 1ST ANNUAL CHROMATIN AND EPIGENETICS SYMPOSIUM (December 7th, 2017, Chapel Hill, NC)
GATA3 Zinc-Finger mutation drives luminal transcriptome reprogramming in breast cancer
- 7) Cold Spring Harbor meeting: EPIGENETICS & CHROMATIN in NY (September 13rd-17th, NY)
Molecular dissection of the pioneer factor GATA3 reveals a stepwise process for chromatin reprogramming
- 8) International Symposium on Chromatin Structure, Dynamics, and Function (August 23rd-26th, 2015, Awaji, Japan)
GATA3 facilitates chromatin reprogramming in epithelial breast cancer cell specification
- 9) NCI Symposium on Chromosome Biology: Chromatin, ncRNA, Methylation & Disease (April 16th-17th 2015, Bethesda, MD)
GATA3-MEDIATED CHROMATIN ESTABLISHMENT IN BREAST CANCER CELLS
- 10) AACR Annual Meeting 2014 (April 5th-9th 2014, San Diego, CA)
GATA3 mutations in breast cancer