

## Curriculum Vitae: Motoki Takaku

### CONTACT INFORMATION

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Assistant Professor, Biomedical Sciences  
 School of Medicine and Health Sciences  
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### EDUCATION/TRAINING

EDUCATION/TRAINING	Year	FIELD	INSTITUTION	SUPERVISOR
Visiting fellow	2015-present	Cell biology, Genomics	NIEHS/NIH	Paul A. Wade
Supplemental visiting fellow	2013-2015			
Junior Researcher	2012-2013	Biochemistry, Molecular biology, Structural biology	Waseda University	Hitoshi Kurumizaka
Assistant professor	2011-2012			
Research Associate	2009-2011			
Ph.d	2007-2010			
M.Sc.	2005-2007			
B.Sc.	2001-2005	Electrical, Electronics and Computer Engineering		

## **PUBLICATIONS**

1. 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. DNA methylation in mice is influenced by genetics as well as sex and life experience  
*Nat Commun*, 10(1)
2. Blok LS, Rousseau J, Twist J, Ehresmann S, **Takaku M**, et al. (2018) Missense mutations disrupting the helicase domain of chromatin remodeller CHD3 cause a novel neurodevelopmental syndrome with intellectual disability, macrocephaly and impaired speech and language  
*Nat Commun*, 9 (4619)
3. **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  
*Nat Commun*, 9 (1) doi:10.1038/s41467-018-03478-4
4. 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
5. 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
6. 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
7. 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
8. Shimbo T, **Takaku M**, Wade PA (2016) High-quality ChIP-seq analysis of MBD3 in human breast cancer cells  
*Genom Data*, 7:173-4
9. **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
10. 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
11. **Takaku M**, Grimm SA, Wade PA. (2015) GATA3 in Breast Cancer: Tumor Suppressor or Oncogene?  
*Gene Expr*, 16(4)

12. 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
13. 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
14. 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
15. 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
16. **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
17. **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
18. **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
19. **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.
20. 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
21. Horikoshi N, Morozumi Y, **Takaku M**, Takizawa Y, Kurumizaka H. (2010) Holliday junction-binding activity of human SPF45.  
*Genes Cell.*, **15**(4):373-383
22. **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

23. 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.
24. 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
25. **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

### **HONORS**

- 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

### **RESEARCH GRANT AND FELLOWSHIP**

- 2017 - 2018 Division of Intramural Research Innovative Research Award (DIRA) from NIEHS, Nucleosome targeting mechanism by pioneer transcription factors  
Role: PI, \$50,000
- 2013 - 2015 JSPS Postdoctoral fellowship for research abroad, 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), 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, 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, Functional analysis of a novel RAD51-binding protein, EVL in the homologous recombinational repair.  
Role: PI, \$25,000

**TEACHING EXPERIENCE**

2017-present Mentor for post-baccalaureate student

2016-2017 Mentor for post-baccalaureate student

2013-2014 Mentor for post-baccalaureate student

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