Johannes Nicolaus **Wibisana**

PhD student

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Summary

I am a 4th year PhD student at the Genomics and Regulatory Systems Unit (PI: Nicholas Luscombe) of Okinawa Institute of Science and Technology, currently investigating the basis of gene regulation conservation despite extreme genome rearrangement in the marine plankton *Oikopleura dioica* using genomics, single-cell transcriptomics, and epigenomics approaches. Previously, I used single-cell omics data coupled with fluorescence imaging analysis to investigate NF-κB transcription factor mediated gene regulation in B cell (Wibisana et al., 2023, PLoS Genetics). I am familiar with R, Python, bash, Nextflow and git for data analysis and visualization of multi-omics data with a focus on reproducibility. I also have experience with basic molecular biology experiments such as mammalian and avian cell culture, smRNA-FISH, molecular cloning, genome editing and qPCR. My research interests include gene regulation, genome evolution and single-cell omics.

Education

Okinawa Institute of Science and Technology — *Okinawa, Japan*

Doctor of Philosophy — *Apr. 2022 - Present*

- A genomic investigation of evolution and gene regulation in *Oikopleura dioica*. Genomics and Regulatory Systems Unit (PI: Nicholas Luscombe)
- Side projects:
  Global pangenome construction and analysis of *O. dioica*
  Genomic database platform development for global *O. dioica*
  Single-cell transcriptomic analysis of *O. dioica* epithelium (Collaboration with Onuma lab, Kagoshima University)
- Rotation projects:
  Investigation of dental microwear analysis in fish-tetrapod transition. Macroevolution Unit (PI: Lauren Sallan)
  Investigation of metabolic-related gene duplication in pomacentridae. Marine Eco-Evo-Devo Unit (PI: Vincent Laudet)

Osaka University (Graduate School of Science) — *Osaka, Japan*

B.Sc - M.Sc in Biological Sciences — *Oct. 2016 - Mar. 2022*

- Thesis research: NF-κB transcriptional regulation in B-cell, Laboratory for Cell Systems (PI: Mariko Okada)
- Awardee of the MEXT scholarship and Honjo International Scholarship Foundation scholarship
- Others: In charge of laboratory website and bioinformatics training of visiting researchers

Publications

Research articles

Modifiable clinical dental impression methods to obtain whole-mouth and detailed dental traits from vertebrates (doi:10.1002/jmor.70017) — *Journal of Morphology*

JN Wibisana*, RA Sallan*, T Ota, P Puchenkov, T Kubo, L Sallan* — *2025*

Less, but More: New Insights From Appendicularians on Chordate Fgf Evolution and the Divergence of Tunicate Lifestyles (doi:10.1093/molbev/msae260) — *Molecular Biology and Evolution*

G Sanchez-Serna, J Badia-Ramentol, P Bujosa, A Ferrandez-Roldan, NP Torres-Aguila, M Fabrega-Torrus, **JN Wibisana***, MJ Mansfield, C Plessy, NM Luscombe, R Albalat, C Canestro — *2025*

The complete mitogenome of an unidentified Oikopleura species (doi:10.12688/f1000research.157311.1) — *F1000Research*

JN Wibisana, C Plessy*, N Diercxksens, J Miao, NM Luscombe — *2025*

Type 2 helper T cells convert into Interleukin-13-expressing follicular helper T cells after antigen repriming (doi:10.33611/trs.2022-010) — *Translational and Regulatory Sciences*

Y Harada, T Sasaki, **JN Wibisana**, M Okada, C Liu, H Ueno, PD Burrows, M Kubo* — *2022*

Enhanced transcriptional heterogeneity mediated by NF-κB super-enhancers (doi:10.1371/journal.pgen.1010235) — *PLoS Genetics*

JN Wibisana, T Inaba, H Shinohara, N Yumoto, T Hayashi, M Umeda, M Ebisawa, I Nikaido, Y Sako, M Okada* — *2022*

ASURAT: functional annotation-driven unsupervised clustering of single-cell (doi:10.1093/bioinformatics/btac541) — *Bioinformatics*

K Iida*, J Kondo, **JN Wibisana**, M Inoue, M Okada — *2022*

Review articles

Encoding and decoding NF-κB nuclear dynamics (doi:10.1016/j.ceb.2022.102103) — *Current Opinion in Cell Biology*

JN Wibisana, M Okada* — *2022*

Prediction of transcriptional regulation in immune cells through single-cell analysis — *Journal of Clinical and Experimental Medicine (Igaku no Ayumi)*

JN Wibisana, K Iida, M Okada — *2021*

Book Chapter

Quantitative imaging analysis of NF-κB for mathematical modelling applications (doi:10.1007/978-1-0716-3008-2_11) — *Methods in Molecular Biology*

JN Wibisana, T Inaba, Y Sako, M Okada* — *2023*

Recent presentations

International

Gene regulation of the scrambled genome of *Oikopleura dioica* — *Cold Spring Harbor, New York*
CSHL Meeting: Mechanisms of Eukaryotic Transcription (Poster presentation) — *August. 2025*

Gene regulation of the scrambled genome of *Oikopleura dioica* — *Nafplio, Greece*
EMBO Lecture Course: Evolutionary and Comparative Genomics (Poster presentation) — *Nov. 2024*

Epigenetic landscape of the cryptic tunicate *Oikopleura dioica* — *Sevilla, Spain*
EMBO Workshop: Animal Genomes (Poster presentation) — *Nov. 2021*

Domestic

Unraveling Genome Scrambling in a Miniature Chordate Genome Using Multiple Chromosome-Level Assemblies — *Kanagawa, Japan*
The 47th Annual Meeting of the Molecular Biology Society of Japan (Oral presentation) — *Dec. 2025*

Enhancer-mediated transcriptional regulation in *Oikopleura dioica* — *Fukuoka, Japan*
The 46th Annual Meeting of the Molecular Biology Society of Japan (Poster presentation) — *Nov. 2024*

Enhancer-mediated transcriptional regulation in *Oikopleura dioica* — *Chiba, Japan*
The 45th Annual Meeting of the Molecular Biology Society of Japan (Poster presentation) — *Nov. 2022*

Research Experience

Genomics and Regulatory Systems Unit (PI: Nicholas Luscombe), Okinawa Institute of Science and Technology — *Okinawa, Japan*
PhD student — *Mar. 2022 - Present*
- Project: A genomic investigation of evolution and gene regulation in *Oikopleura dioica*
- Analysis of genomic, transcriptomic, and epigenomic data of *O. dioica*.
- Improved genome annotation of *O. dioica*
- Developed a genome browser for *O. dioica*: oikobrowser.jnicolaus.com
- Side project: *O. dioica* pangenomics

Macroevolution Unit (PI: Lauren Sallan), Okinawa Institute of Science and Technology — *Okinawa, Japan*
PhD Rotation student — *2023*
- Project: Investigation of dental microwear analysis in fish-tetrapod transition
- Established fish facility for Polypterus
- Performed dental molding of fossils and scanning using confocal microscope

Marine Eco-Evo-Devo Unit (PI: Vincent Laudet), Okinawa Institute of Science and Technology — *Okinawa, Japan*
PhD Rotation student — *2022*
- Project: Investigation of metabolic gene duplication in clownfish

Laboratory for Cell Systems (PI: Mariko Okada), Osaka University — *Osaka, Japan*
Undergraduate - Master's student — *Feb. 2019 - Mar. 2022*
- Project: NF-κB mediated transcriptional regulation in B cell
- Performed quantitative imaging analysis of NF-κB nuclear translocation using confocal microscope and ImageJ
- Performed single-cell RNA-seq and single-cell ATAC-seq analysis to find the relationship between cis-regulatory elements and gene expression
- In charge of training of visiting researchers on RNA-seq analysis

Laboratory of Science and Innovation for Pain, Osaka University — *Osaka, Japan*
Research Assistant — *Apr. 2018 - Feb. 2019*
- Performed mouse genotyping, RNA extraction, ELISA, and MRI image analysis

Bio Medical Wet Robotics Laboratory (PI: Keisuke Morishima), Osaka University — *Osaka, Japan*
Associate Project Leader for Osaka University BIOMOD 2017-2018 — *2017-2018*
- Performed basic DNA origami experiments (modeling and experiments)

Laboratory of Cellular Life Science (PI: Naotada Ishihara), Osaka University — *Osaka, Japan*
Research Intern — *Sep. 2018 - Feb. 2019*
- Project: Quantification of Mitochondrial Morphology using ImageJ

Honors & Awards

Apr. 2020 - Mar. 2022 **Honjo International Scholarship Foundation Scholarship** — *Japan*

Sep. 2020 **Poster presentation award**, The 58th Annual meeting of the Biophysical Society of Japan — *Japan*

Sep. 2016 - Mar. 2020 **MEXT scholarship** — *Japan*

Workshops

Dec. 2022 EMBO Practical Course: Single-cell omics: deeper to genomics — *Heidelberg, Germany*

Jul. 2020 第 30 回細胞生物学ワークショップ (The 30th Cell Biology Workshop) — *Hyogo, Japan*