

Johannes Nicolaus Wibisana

PHD STUDENT

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Summary

I am a 4th year PhD student at the Okinawa Institute of Science and Technology at the Genomics and Regulatory Systems Unit (PI: Nicholas Luscombe). I am currently working to investigate 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 DIERCKXSENS, 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 NIKAIIDO, 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

Recent presentations

INTERNATIONAL

Gene regulation of the scrambled genome of *Oikopleura dioica*

CSHL MEETING: MECHANISMS OF EUKARYOTIC TRANSCRIPTION (POSTER PRESENTATION)

Cold Spring Harbor, New York

August. 2025

Gene regulation of the scrambled genome of *Oikopleura dioica*

EMBO LECTURE COURSE: EVOLUTIONARY AND COMPARATIVE GENOMICS (POSTER PRESENTATION)

Nafplio, Greece

Nov. 2024

Epigenetic landscape of the cryptic tunicate *Oikopleura dioica*

EMBO WORKSHOP: ANIMAL GENOMES (POSTER PRESENTATION)

Sevilla, Spain

Nov. 2021

DOMESTIC

Unraveling Genome Scrambling in a Miniature Chordate Genome Using Multiple Chromosome-Level Assemblies

THE 47TH ANNUAL MEETING OF THE MOLECULAR BIOLOGY SOCIETY OF JAPAN (ORAL PRESENTATION)

Kanagawa, Japan

Dec. 2025

Enhancer-mediated transcriptional regulation in *Oikopleura dioica*

THE 46TH ANNUAL MEETING OF THE MOLECULAR BIOLOGY SOCIETY OF JAPAN (POSTER PRESENTATION)

Fukuoka, Japan

Nov. 2024

Enhancer-mediated transcriptional regulation in *Oikopleura dioica*

THE 45TH ANNUAL MEETING OF THE MOLECULAR BIOLOGY SOCIETY OF JAPAN (POSTER PRESENTATION)

Chiba, Japan

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* pan-genomics

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 Pam, Osaka University

Osaka, Japan

RESEARCH ASSISTANT

Apr. 2018 - Feb. 2019

Project: Performed mouse genotyping, RNA extraction, ELISA, and MRI image analysis
Bio Medical Wet Robotics Laboratory (PI: Katsuke Morishima), Osaka University

Osaka, Japan

ASSOCIATE PROJECT LEADER FOR OSAKA UNIVERSITY BIOMOD 2017-2018

2017-2018

Project: 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