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Education

Ph.D. in Biology

Max Planck Institute for Biology Tübingen, Tübingen, Germany

January 2021 - Present

M. Sc. in Marine Biology

Shanghai Ocean University, Shanghai, China

September 2017 - June 2020

Research Experience

Max Planck Institute for Biology Tübingen

PhD Student, Susana Coelho's Lab & Chang Liu's Lab

Tübingen, Germany | January 2021 - Present

Thesis: Evolution of 3D chromatin architecture of brown algal genomes

- Led studies on chromatin architecture in brown algae using high-throughput genomics and bioinformatics
- Applied epigenomics uses techniques: Hi-C, ChIP-seq and RNA-seq to investigate chromatin roles during viral infection in reproductive cells of model brown algae species *Ectocarpus*

Shanghai Ocean University

Master Student, Zhigang Zhou's Lab

Shanghai, China | September 2017 - June 2020

Thesis: BAC library construction from female gametophytes of commercially important brown algal species *Saccharina japonica* and cloning/sequencing of genes adjacent a female sex-specific marker FRML-1488

- Built 3D BAC library for female gametophytes of *S. japonica*
- Screened, sequenced, and assembled sex-related BAC clones

Publications

1. **Pengfei Liu**, Rory J. Craig, Elena Avdievich, Fabian B. Haas, Chang Liu, Susana M Coelho. 2025. "The evolution of 3D chromatin architecture and centromeres across a multicellular eukaryotic lineage". (in preparation)
2. Jeromine Vigneau†, Jaruwatana Sodai Lotharukpong†, **Pengfei Liu**, Remy Luthringer, Bérangère Lombard, Damarys Loew, Fabian Haas, Michael Borg, Susana M Coelho. 2025. "Rewiring of chromatin regulation underlies the evolution of brown algal multicellularity". **bioRxiv** doi.org/10.1101/2025.09.16.676480
3. Josué Barrera-Redondo†, Agnieszka P Lipinska†, **Pengfei Liu**, Erica Dinatale, Guillaume Cossard, Kenny Bogaert, Masakazu Hoshino, Komlan Avia, Goncalo Leiria, Elena Avdievich, Daniel Liesner, Rémy Luthringer, Olivier Godfroy, Svenja Heesch, Zofia Nehr, Lorraine Brillet-Guéguen, Akira F. Peters, Galice Hoarau, Gareth Pearson, Jean-Marc Aury, Patrick Wincker, France Denoeud, J Mark Cock, Fabian B. Haas, and Susana M Coelho. 2025. "Origin and evolutionary trajectories of brown algal sex chromosomes". **Nature Ecology and Evolution**

doi.org/10.1038/s41559-025-02838-w

4. **Pengfei Liu**, Jeromine Vigneau, Rory J. Craig, Josue Barrera-Redondo, Elena Avdievich, Claudia Martinho, Michael Borg, Fabian B. Haas, Chang Liu, and Susana M Coelho. 2024. "3D Chromatin Maps of a Brown Alga Reveal U/V Sex Chromosome Spatial Organization". **Nature Communications**, 15, 9590. [doi:10.1038/s41467-024-53453-5](https://doi.org/10.1038/s41467-024-53453-5)
 5. **Pengfei Liu**, Yanhui Bi, Qian Zheng, Li Liu, Yu Du, Yu Liu, Zhigang Zhou. 2023. "Molecular and FISH Analysis of 45S rDNA on BAC Molecule of *Saccharina japonica*". **Aquaculture and Fisheries** 8(2). [doi:10.1016/j.aaf.2021.07.002](https://doi.org/10.1016/j.aaf.2021.07.002)
 6. Yu Du, **Pengfei Liu**, Zhi Li, Qian Zheng, Yanhui Bi, Zhigang Zhou. 2022. "Discerning the Putative U and V Chromosomes of *Saccharina japonica* by Cytogenetic Mapping of Sex-Linked Molecular Markers". **Frontiers in Marine Science** 9. [doi:10.3389/fmars.2022.821603](https://doi.org/10.3389/fmars.2022.821603)
 7. Yu Liu, **Pengfei Liu**, Yanhui Bi, Zhigang Zhou. 2021. "Chromosomal Mapping of 5S and 18S-5.8S-25S rRNA Genes in *Saccharina japonica* by Dual-Color FISH". **Journal of Oceanology and Limnology** 39(2). [doi:10.1007/s00343-020-9276-5](https://doi.org/10.1007/s00343-020-9276-5)
 8. Wushan Dong†, **Pengfei Liu†**, Yu Liu, Yu Du, Yanhui Bi, Zhigang Zhou. 2020. "Immunocytochemical Localization of the Kinetochore Protein Nuf2p on Gametophyte Chromosomes of a *Saccharina* Cultivar". **Frontiers in Marine Science** 7. [doi:10.3389/fmars.2020.539260](https://doi.org/10.3389/fmars.2020.539260)
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Conference Presentations

1. August 2025, **Oral Presentation**, European Society for Evolutionary Biology (ESEB) Congress, Barcelona, Spain
 2. July 2025, **Oral Presentation**, BioConnect Symposium, Tübingen, Germany
 3. October 2024, **Poster Presentation**, Molecular Mechanisms in Evolution and Ecology, EMBL, Heidelberg, Germany
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Languages

- English (fluent)
 - Chinese (native)
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Awards & Funding

- 2020 Chinese Government Scholarship, Shanghai, China
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Skills

- **Molecular Biology:** DNA/RNA extraction, PCR, qPCR, RNA-seq, ChIP-seq, ATAC-seq, Hi-C, Illumina/Nanopore library prep, DNA FISH / mRNA FISH, immunofluorescence(IF), Expansion microscopy, Flow cytometry
 - **Programming:** R, Python, HPC (Slurm, SGE)
 - **Multi-omics Integration:**
 - Specialized in integrating and analyzing multi-omics datasets, focusing on chromatin interactions, gene regulation, and epigenomics.
 - Proficient in applying bioinformatics tools to address complex biological questions and drive discoveries in regulatory genomics.
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