

Bioinformatics

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Other Faculty Members

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Major Scientific Interests of the Group

Bioinformatics is the research field of thinking on and solve biomedical problems thorough computers and massive data. Our lab develops bioinformatic methods to solve the biomedical problems and to interpret complicated massive data with the help of computers and AI. In addition, we apply informatics and statistics to biological and disease research.

Projects for Regular Students in Doctoral or Master's Programs

- 1) Machine learning-based prediction functions of genome sequences
- 2) Single-cell informatics (informatics for single-cell omics data)
- 3) Integrative analyses of massive biomedical datasets

Study Programs for Short Stay Students (one week – one trimester)

- 1) Basic python programming for unsupervised learning
- 2) Basic python programming for supervised learning

Selected Publications

- 1) Takeuchi M, [Ozaki H*](#), Hiraoka S, Kamagata Y, Sakata S, Yoshioka H, Iwasaki W. Possible cross-feeding pathway of facultative methylotroph *Methyloceanibacter caenitepidi* Gela4 on methanotroph *Methylocaldum marinum* S8. *PLOS ONE*. 2019;14(3):e0213535.
- 2) Hayashi T, [Ozaki H*](#), Sasagawa Y, Umeda M, Danno H, Nikaido I. Single-cell full-length total RNA sequencing uncovers dynamics of recursive splicing and enhancer RNAs. *Nature Communications*. 2018;9(1):619.
- 3) Terajima H, Yoshitane H, [Ozaki H](#), Suzuki Y, Shimba S, Kuroda S, Iwasaki W, Fukada Y. ADARB1 catalyzes circadian A-to-I editing and regulates RNA rhythm. *Nature Genetics*. 2017;49(1):146.
- 4) [Ozaki H](#), Iwasaki W. MOCCS: Clarifying DNA-binding motif ambiguity using ChIP-seq data. *Computational biology and chemistry*. 2016;63:62-72.
- 5) Ishizu H, Iwasaki YW, Hirakata S, [Ozaki H](#), Iwasaki W, Siomi H, Siomi MC. Somatic primary piRNA biogenesis driven by cis-acting RNA elements and trans-acting Yb. *Cell reports*. 2015;12(3):429-40.
- 6) Hirase S, [Ozaki H*](#), Iwasaki W. Parallel selection on gene copy number variations through evolution of three-spined stickleback genomes. *BMC Genomics*. 2014;15(1):735.
- 7) Yoshitane H, [Ozaki H*](#), Terajima H, Du NH, Suzuki Y, Fujimori T, Kosaka N, Shimba S, Sugano S, Takagi T, Iwasaki W. CLOCK-controlled polyphonic regulation of circadian rhythms through canonical and noncanonical E-boxes. *Molecular and Cellular Biology*. 2014;34(10):1776-87.