



CALL FOR PAPERS

Genomics is a discipline that focuses on analyzing functions and structures of genomes, in support of understanding biological systems. In the past decade, high-throughput genomic technologies, especially the next generation sequencing, open a door for genomics study using comprehensive amount of sequencing data. These technologies enable monitoring thousands of molecules simultaneously and have the potential to revolutionize how we study microbes. With the big genomic data, we are able to answer important genomic questions including identifying the genetic variants that cause antibiotic resistance and understanding important biological pathways associated with diseases. For example, genomic data were used to understand how Ebola virus evolved and resulted in the largest Ebola virus outbreak in 2014.

Along with the sequencing cost dramatically decreased, the time-limiting and critical step of genomic study became designing effective experiments and performing proper analyses to answer various biological hypotheses. Good bioinformatic tools can speed up routine genomic analysis and ease burdens of looking for alternative analytical solutions. Many bioinformatic tools have been developed to analyze genomic data for years.

In this special issue, we want to invite original research studies that use new methods to automatically analyze high-throughput data in microbial genomics. The new methods are suggested to be user-friendly presented in stand-alone or online accessible tools and pipelines. We look forward to the works demonstrating the impact and potential of data science to improve the way we think of, respond to, and understand microbial genomics. Studies that focus on solving microbial problems with nonsimulated high-throughput data are highly encouraged.

Potential topics include but are not limited to the following:

- ▶ Sequencing data analysis for genomic or transcriptomic data
- ▶ Biological networks construction and analysis
- ▶ Metagenomic/metatranscriptomic methods and tools
- ▶ Modeling and prediction of regulatory motifs
- ▶ Study of microbial genome structure and the organizational principles
- ▶ Methods to analyze regulatory noncoding RNAs
- ▶ Evolutionary analysis of important gene families and pathways

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