# Computational miRNomics

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### Editorial

The term MicroRNA or its contraction miRNA currently appears in 21,215 titles of abstracts, published between 1997 and now, available on Pubmed (2016-21-22:12:59 EET). 4,108 of these were published in 2016 alone which signifies the importance of miRNA-related research. MicroRNAs can be detected experimentally using various techniques like directional cloning of endogenous small RNAs but they are time consuming [1]. Additionally, it is necessary for the miRNA and its mRNA target(s) to be co-expressed to infer a functional relationship which is difficult, if not impossible, to achieve [2]. Since experimental approaches are facing such difficulties, they have been complemented by computational approaches [3] thereby defining the field of computational miRNomics. Due to the rapid development in the discipline, it is important to assess the state-of-the-art. In this special issue, several areas of the field are investigated ranging from pre-miRNA detection via machine learning to application of differential expression analysis in plants. First, Saçar Demirci et al. discuss an approach to virus pre-miRNA detection using machine learning [4]. Such approaches are based on parameterization of miRNAs and Yousef et al. discuss how to select among such features [5]. A different computational perspective is provided by Kotipalli et al. who model the kinetics of miRNA genesis and targeting [6]. To fuel more refined future models for genesis and targeting, it is important to establish miRNA and target expression under varying conditions. Zhang et al. [7] and Kanke et al. [8] discuss two approaches to quantify miRNAs and other non-coding short RNAs. Diler et al., finally, discuss actual biological implications of differentially expressed miRNAs [9]. This special issue on computational miRNomics, thus, provides a trajectory from detection of pre-miRNAs to biological implications of differentially expressed miRNAs. Additional topics will be covered in the upcoming second volume of the special issue on computational miRNomics.

## References

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