MARQUETTE UNIVERSITY

HELEN WAY KLINGLER
COLLEGE OF ARTS AND SCIENCES

Department of Mathematics, Statistics and Computer Science

COLLOQUIUM ANNOUNCEMENT

miRNAdriver: Copy Number Derived microRNA-Gene Interactions in Cancer

Banabithi Bose

Department of Mathematics, Statistics, and Computer Science
Marquette University

2:00 PM, Friday November 16, 2018

Cudahy Hall, Room 401

Abstract

Copy number aberration events such as amplifications and deletions are pervasive in cancer. Frequently aberrated copy number regions in cancer patients include regulators such as microRNAs (miRNA), which regulate downstream target genes that involve in key biological processes in tumorigenesis. MiRNA-gene interaction networks have been studied extensively, but existing work on copy number-derived miRNA regulation is limited. Identifying copy number-derived miRNA-target gene regulatory interactions in cancer could shed some light on biological mechanisms in tumor initiation and progression. In this study, we present a computational pipeline that integrates copy number alteration, DNA methylation, gene and miRNA expression datasets to compute copy number-derived miRNA-gene interactions in cancer. We applied our pipeline on the breast cancer dataset from the Cancer Genome Atlas Project (TCGA). Our preliminary results show that we recover some of the known miRNA-gene interactions as well as putative interactions. We are working towards building genome-wide copy-number-derived miRNA-gene interaction network for multiple cancer types and assess the results based on gene-enrichment and survival analysis.