

Problem Statement

Identification of potential biomarkers by studying expression of different existing biomarker isoforms in ovarian cancer.

Project Summary

This project aims to identify potential biomarkers by performing comparative analysis of RNA-Seq data. This is a transcriptomics based study which takes ovarian cancer samples across 4 grades of cancer. For the completion of this project, RNA-Seq data publicly available on <http://firebrowse.org/> [Ovarian serous cystadenocarcinoma (OV)] will be used. 25 samples will be selected for each group, i.e. 5 each from control and four different grades of cancer. First, the expression tables of the existing biomarkers will be calculated. Subsequently, differential expression analysis will be performed with other gene profiles for the discovery of potential biomarkers (genes) with the help of machine learning algorithms, and the results thus obtained will be used for precision diagnostics of ovarian cancer.

Link for Raw Data

Clinical data:

http://gdac.broadinstitute.org/runs/stddata_2016_01_28/data/OV/20160128/gdac.broadinstitute.org_OV.Merge_Clinical.Level_1.2016012800.0.0.tar.gz

mRNA-Seq Isoform normalized data:

http://gdac.broadinstitute.org/runs/stddata_2016_01_28/data/OV/20160128/gdac.broadinstitute.org_OV.Merge_rnaseqv2_illuminahtseq_rnaseqv2_unc_edu_Level_3_RSEM_isoforms_normalized_data.Level_3.2016012800.0.0.tar.gz

mRNA-Seq Gene normalized data:

http://gdac.broadinstitute.org/runs/stddata_2016_01_28/data/OV/20160128/gdac.broadinstitute.org_OV.Merge_rnaseqv2_illuminahtseq_rnaseqv2_unc_edu_Level_3_RSEM_genes_normalized_data.Level_3.2016012800.0.0.tar.gz

Reference Publications

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5898550/>

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3381792/>

<https://www.pulsus.com/abstract/clinical-biomarkers-for-detection-of-ovarian-cancer-4964.html>