

Abstract

In most of the multi factorial human disease-gene associated databases, the genes are ranked according to the number of articles published in the accepted journals. For a researcher who is dealing on the genes of a particular disease will be more interested in the genes, which are more interactive in a biological system.

The Type II Diabetes Mellitus (T2DM) has been a more chronically life threatening condition. According to the current knowledge predicted genetic association of T2DM is about 24%. Since T2DM is a polygenic disorder it is a complex process to identify the suspected genes. The linkage studies and the GWAS play a major role in succeeding the process. Further studies in this regard could have been facilitated by scientifically predicting the T2DM associated genes. One of such methods is creation of a gene-gene interaction map in relation to T2DM. Analysis of this map would enable the researches to target their future studies for a better outcome.

Some basic information was gathered on confirmed genes which are associated with T2DM by doing a literature survey. According to the survey, the most suitable database out of the considered ones was selected (T2DGAD) by comparing the gene order in the relevant databases. A new data base was created with the selected gene list for T2DM from the T2DGAD. This list was curated with the HGNC (HUGO Gene Nomenclature Committee) set of genes for further accuracy. The result was used in the STRING database to generate the interaction map. The data on the interaction map was used in the 'Cytoscape' to create the centrality measures by one of its core-plugin-ins- 'Network Analyzer'.

The Principal Component Analysis method was applied for the result after the standardization. The genes were ranked according to the index generated by considering 6 centrality measures, namely betweenness, closeness, degree, eccentricity, radiality and the stress.

The interaction data were incorporated into the database for further studies. A graphical user interface was developed to provide important information for the users who are interested on further studies.

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