Docket #: S21-177

Sparse Gaussian Mixture Model for Learning Gene Regulatory Networks

SparseGMM, is a new algorithm which is a novel statistical approach for identifying drug targets in cancer patients and other diseases by more accurately modeling biological pathways. SparseGMM for the first time allows cancer driver and target genes to be part of multiple modules thanks to a sparse mixture model. This more faithfully models molecular biology and allows to disentangle the multitude of functions of known and unknown genes. With extensive evaluation and testing, we show that SparseGMM identifies more drug target candidates compared to competing methods that we validated using the largest compendium of in vitro data for matched tissues.

Applications

- Drug target discovery for biotech and pharmaceutical companies

Advantages

- Superior in modeling genes with multiple biological functions
- Entropy of a gene can then be used as an indicator of variable biological function

Patents

- Published Application: WO2023097238

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