

Discovering Disease-Disease Associations by Fusing Molecular Data

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Sunday, 24 November 2013 15:01 - Last Updated Wednesday, 15 June 2016 22:07

[Nature's Scientific Reports](http://www.nature.com/srep) has published our latest paper on data fusion, [Discovering disease-disease associations by fusing systems-level molecular data](http://www.nature.com/srep/2013/131115/srep03202/full/srep03202.html), in which we combine various sources of biological information to discover human disease-disease associations.

The advent of genome-scale genetic and genomic studies allows new insight into disease classification. Recently, a shift was made from linking diseases simply based on their shared genes towards systems-level integration of molecular data. We aim to find relationships between diseases based on evidence from fusing all available molecular interaction and ontology data. We propose a multi-level hierarchy of disease classes that significantly overlaps with existing disease classification. In it, we find 14 disease-disease associations currently not present in Disease Ontology and provide evidence for their relationships through comorbidity data and literature curation. Interestingly, even though the number of known human genetic interactions is currently very small, we find they are the most important predictor of a link between diseases. Finally, we show that omission of any one of the included data sources reduces prediction quality, further highlighting the importance in the paradigm shift towards systems-level data fusion.

[Check it out!](http://www.nature.com/srep/2013/131115/srep03202/full/srep03202.html)