

Important Papers

Friday 16 September 2016

18:24

Biology

1. Biological networks: the tinkerer as an engineer.
2. Mass-spectrometric exploration of proteome structure and function # general info about proteomics
3. Transcriptome-Based Network Analysis Reveals a Spectrum Model of Human Macrophage Activation # nice example for the questions that networks help to explore and also extensive use of GeneOntology!
4. Uses and abuses of mathematics in biology # general
5. Subnets of scale-free networks are not scale-free: sampling properties of networks. # to keep in mind !!!!
6. Transcriptional regulatory networks in *Saccharomyces cerevisiae*.
7. Gene regulatory networks and the role of robustness and stochasticity in the control of gene expression # Biology of gene regulatory networks
8. Relationship between differentially expressed mRNA and mRNA- protein correlations in a xenograft model system
9. Reconstruction of biochemical networks in microorganisms ## All steps for different types of networks, with assembly of different datasets in each type.
Most relevant biological networks!!!
10. **The Language of Gene Interaction #**
11. **Genetic interaction networks: better understand to better predict # Nice review of the different types of molecular networks**
12. **Interactome Networks and Human Disease # barabasi review of the types of networks and their integration!!**
13. **Detecting protein complexes from signed protein-protein interaction networks # great use of Perrimor 2014 data, for complex detection, signed protein networks**

Gene essentiality

1. Network analysis of gene essentiality in functional genomics experiments ## A novel method called NEST used to predict gene essentiality

2. Gene Essentiality Is a Quantitative Property Linked to Cellular Evolvability
3. The importance of bottlenecks in protein networks: Correlation with gene essentiality and expression dynamics
4. **High-Betweenness Proteins in the Yeast Protein Interaction Network ## Prior to the previous paper (Bottlenecks), well written.**
5. Network rewiring is an important mechanism of gene essentiality change.
6. Redefining gene essentiality
7. Predicting essential genes based on network and sequence analysis
8. **Predicting Essential Genes and Proteins Based on Machine Learning and Network Topological Features: A Comprehensive Review ## very nice review! Poses important questions and future challenges**
9. Gene co-expression network analysis reveals common system- level properties of prognostic genes across cancer types ## Nice review of the importance of networks, and identification of prognostic cancer genes using network theory
- ★ 10. **A new method for identifying essential proteins based on network topology properties and protein complexes # Most recent paper about gene essentiality. Nicely structured and well presented work, especially the evaluation methods!**
11. A new essential protein discovery method based on the integration of protein-protein interaction and gene expression data
12. **Evolution of Centrality Measurements for the Detection of Essential Proteins in Biological Networks # 2016 Nice review for the centralities used to predict essential genes.**
13. **All or Nothing/ Protein Complexes Flip Essentiality between Distantly Related Eukaryotes ## Modular essentiality. Protein complexes. Nice paper!!!**
14. Up-to-date catalogues of yeast protein complexes # introduction of database of protein complexes
15. Rechecking the centrality-lethality rule in the scope of protein subcellular localization interaction networks # Comparison of methods for Drosophila, Human, Yeast, Mouse

Ecological networks: keystone species

1. Keystone species and food webs.
2. Centrality measures and the importance of generalist species in pollination networks
3. Characterization of topological keystone species. Local, global and "meso-scale" centralities in food webs

Protein Complexes

1. Global landscape of protein complexes in the yeast *Saccharomyces cerevisiae*.
2. detecting overlapping protein complexes in protein-protein interaction networks
3. Detecting protein complexes from signed protein-protein interaction networks
4. **All or Nothing/ Protein Complexes Flip Essentiality between Distantly Related Eukaryotes**
5. Up-to-date catalogues of yeast protein complexes
6. Protein complex-based analysis framework for high-throughput data sets

From Nikolaou

1. Uncovering a Hidden Distributed Architecture Behind Scale-free Transcriptional Regulatory Networks
2. Gene networks of fully connected triads with complete auto-activation enable multistability and stepwise stochastic transitions

Data

1. Drosophila Network: <https://doi.org/doi:10.1038/nmeth.2733>
2. Yeast PPI, GIN Networks: <https://thebiogrid.org/download.php>
3. Gene Essentiality: <http://ogee.medgenius.info/browse/>
4. Yeast Protein Complexes: <http://wodaklab.org/cyc2008/downloads>

Network construction

1. Statistical inference of the time-varying structure of gene-regulation networks.
2. Information theory and signal transduction systems/ From molecular information processing to network inference ## good, pros and cons of information based approaches to network construction
3. **Reverse Engineering of Genome-wide Gene Regulatory Networks from Gene Expression Data** ## Nice review of ALL different approaches to construct a network from gene expression data!!

construct a network from gene expression data!!

4. Inference of dynamic networks using time-course data ## another review as the previews paper!
5. **ARACNE: An Algorithm for the Reconstruction of Gene Regulatory Networks in a Mammalian Cellular Context**
6. **Reverse engineering gene regulatory networks ## nice review based on biological challenges**
7. **Statistical inference and reverse engineering of gene regulatory networks from observational expression data ## we present a systematic and conceptual overview of methods for inferring gene regulatory networks from observational gene expression data ##**
8. Wisdom of crowds for robust gene network inference ## **AMAZING!!!!**
Compares all methods, for different species, and uses a combined method for better results!
9. **Signed weighted gene co-expression network analysis of transcriptional regulation in murine embryonic stem cells #### Different method for negative weights !!!!!!!!!**
10. Biological networks 2007 Chapter 3 & 4
11. Understanding biological functions through molecular networks
12. Reconstruction of biochemical networks in microorganisms #### Work flows for network construction by assembling different types of datasets
13. Towards genome-scale signalling- network reconstructions
- ★ 14. **Link Clustering Reveals Structural Characteristics and Biological Contexts in Signed Molecular Networks ## Comprehensive analysis of distributions, motifs, clusters of negative and positive links of Gene Coexpression Networks**
15. Quantitative maps of genetic interactions in yeast - Comparative evaluation and integrative analysis # negative weight in yeast!!
16. Systematic Mapping of Genetic Interaction Networks ## Genotype Phenotype technics
17. Exploring genetic interactions and networks with yeast ##
18. The Genetic Landscape of a Cell
19. **A strategy for extracting and analyzing large-scale quantitative epistatic interaction data # Nice explanatory paper for SGA quantification!**
20. **Genetic Interaction Networks: Toward an Understanding of Heritability # nice review of GIN**
21. **A Robust Toolkit for Functional Technique Profiling of the Yeast Genome ## SGA technique method for extracting correlations**
22. **Systematic interpretation of genetic interactions using protein networks ## SGA and physical interactions intergraded for yeast**
23. **Functional Analysis and Characterization of Differential Coexpression Networks ## yeast time course and negative weights**
24. **Integrative approaches for finding modular structure in biological networks**

24. Integrative approaches for finding modular structure in biological networks.
Nice overview- TABLE!!!! of biological networks, the importance of modularity
25. Missing value imputation for microarray data: a comprehensive comparison study and a web tool Threshold for correlation
26. Identifying essential genes in bacterial metabolic networks with machine learning methods # Metabolic network

Centralities and node influence

With dynamic models (e.g SIR, SI, SIS)

1. Locating influential nodes via dynamics-sensitive centrality

Static

1. Complex network measures of brain connectivity: Uses and interpretations
2. Identifying important nodes in weighted functional brain networks: A comparison of different centrality approaches
3. The importance of bottlenecks in protein networks: Correlation with gene essentiality and expression dynamics
4. Weighted gene coexpression network analysis: state of the art.
5. Vital nodes identification in complex networks # Up to date review

Data enrichment

- Gene Ontology
 - Gene Ontology: tool for the unification of biology
 - Bingo and Cytoscape
<http://www.psb.ugent.be/cbd/papers/BiNGO/Tutorial.html>
 - Use and misuse of the gene ontology annotations GLAD: an Online Database of Gene List Annotation for *Drosophila*
 - <http://www.flyrnai.org/tools/glad/web/findgroups>

- Gene essentiality annotation
 - <https://www.biostars.org/p/112101/>
 - **OGEE: an online gene essentiality database**
 - **Use of the BioGRID Database for Analysis of Yeast Protein and Genetic Interactions**
 - Database of Essential Genes (DEG) database.
- Protein Complexes
 - Protein Complex–Based Analysis Framework for High-Throughput Data Sets
 - <http://fgr.hms.harvard.edu/compleat>
 - All or nothing: Protein complexes flip essentiality between distantly related eukaryotes