

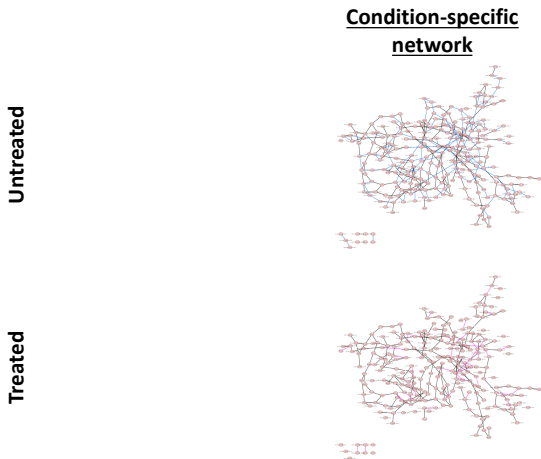
Differential Network Biology

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Feb 26, 2018

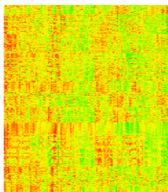
Biological Networks are Dynamic



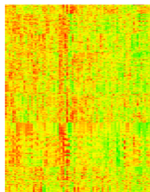
How to Infer the Differential Network?

Data

Untreated



Treated

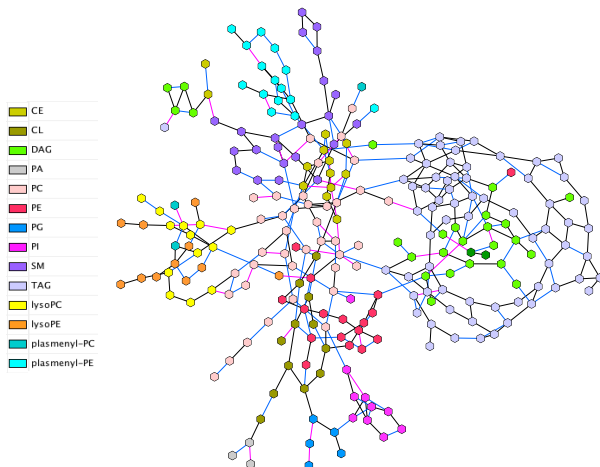


Case Study: Chronic Renal Insufficiency Cohort

- ▶ **Goal:** identify lipidomic signature of progression of Chronic Kidney Disease (285 lipids, 79 progressors vs. 121 non-progressors)

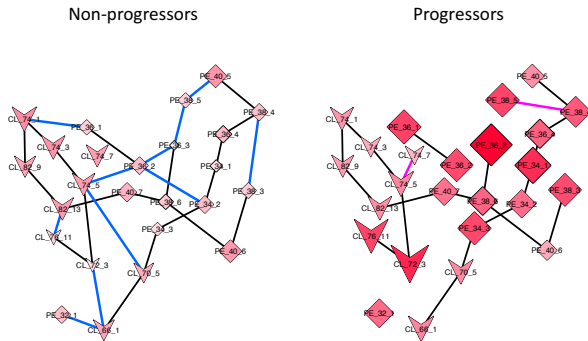
Case Study: Chronic Renal Insufficiency Cohort

- **Goal:** identify lipidomic signature of progression of Chronic Kidney Disease (285 lipids, 79 progressors vs. 121 non-progressors)



Case Study: Chronic Renal Insufficiency Cohort

- ▶ “*Lipid pathway*” characteristic of progression of Chronic Kidney Disease



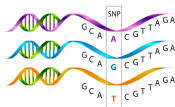
Adjusted p value - 1.39e-12

Big Data on a Massive Scale

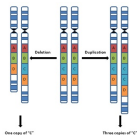
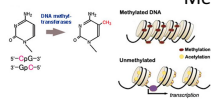


*Understanding genomics
to improve cancer care*

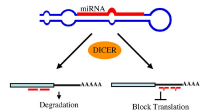
Mutation



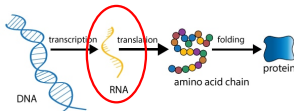
Methylation



Copy Number Variation



microRNA Expression



Gene Expression