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Getting from Genotypes to Phenotypes through Network Reconstruction and Modeling

JENNIFER REED, University of Wisconsin-Madison

sGenome annotations provide a detailed description of the metabolic activities an organism can carry out. A metabolic network can be reconstructed from genomic data and serves as a framework to build computational metabolic models. These models can make phenotypic predictions about the behavior of an organism given different genetic or environmental perturbations. Comparisons between model predictions and experimental data can then be used to identify missing components and interactions in biochemical networks. These comparisons provide a mechanism to improve our understanding of biological networks and genomes and in turn lead to improved models.