

## **Genes, Pathways and Cell Behavior**

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My lab uses gene regulatory systems and gene expression profiles to define cellular processes and predict cellular behavior. It's known that proteins in a pathway need to be co-regulated so a cell has the necessary components to provide the pathway activity needed. We have developed a model that classifies genes to pathways based on patterns of gene expression in human cell lines. The model predicts the probability of a gene and its protein being associated with a pathway or many pathways. The results from this model can be mined to reveal 1) how pathways relate to each other, 2) how pathways relate to various gene classes, and 3) how pathways relate to cellular behaviors, such as growth and response to drugs.