

## DEFINING COMPLEX GENETIC PATHWAYS WITH GENE-EXPRESSION MICROARRAYS

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Abbreviated Abstract - A primary goal of functional genomics is to understand the molecular mechanisms underlying genetically controlled biochemical pathways. The availability of EST reagents, combined with recent advances in analytical technologies and bioinformatics tools are making a dramatic impact on this field. We are exploiting these tools to elucidate the genes involved in a particular organ system, the skin. Gene expression is being examined during different stages of mouse development and in response to genetic mutations or environmental exposures. To this end, we are combining three areas of expertise at ORNL (i.e., mouse molecular genetics, analytical technologies and instrumentation, and bioinformatics) to develop an integrated-systems approach for defining gene function in genetic networks. Details regarding this integrated approach to gene expression analysis will be presented.

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