Overview of Functional Genomics Experiments

Genome Sequencing

Experiment Design

Legend
Sample Flow →
Data Flow – –>

Biological Sample

Biological Sample

Biological Sample

Microarray analysis

Proteomics

Immunohistochemistry

Metabolomics

Protocols

Extract DNA and clone fragments

Extract mRNA and apply to microarray

Extract protein and separate by 2D gel

Apply antibodies to samples

Separate metabolites by gas chromatography

Image analysis

Determine sequence, assemble and find genes

Measure relative level of mRNA expression

Mass spectrometry to identify proteins

View samples with a scanning microscope

Mass spectrometry or NMR to detect metabolite profiles

Statistical processing

Genome sequence

Global gene expression

Global protein expression

Positional expression profile

Metabolite profile

Data Integration

Functionally annotated genome