

# Cancer Education Project Abstracts



## DNA Microarrays (Gene Chips) and Cancer

This series of activities explores the use of DNA Microarray (Gene Chips) technology in investigations to understand the role of genes involved in causing cancer. It also illustrates how the results of these investigations can be applied to diagnosing and treating cancer patients.

- **Part 1: Gene Expression and Cancer**

Students view a PowerPoint presentation that introduces the concept of gene expression and explains that cancer may arise from changes in gene expression. Students then read about the action of some genes involved in cancer and predict whether increased or decreased gene expression might lead to cancer.

- **Part 2: DNA Microarray Technology**

Students are introduced to microarray technology through a PowerPoint and a simulated paper microarray activity. They analyze the microarray results to compare gene expression in normal and cancerous cells.

- **Part 3: Apply Your Understanding of Microarray Technology**

This worksheet reviews concepts of microarray technology and allows students to apply these concepts to analyze how a cancer drug affects gene expression.

- **Part 4: Personalized Medicine**

Students read about a new microarray test that makes personalized medicine a reality for breast cancer patients. This activity may be used as an introduction to the laboratory activity.

- **Part 5: Microarrays and Personalized Medicine**

This simulated microarray “wet lab” illustrates how personalized medicine could be used to select breast cancer patients who are likely to need chemotherapy. Students prepare a microarray and analyze the results to determine which patients might benefit most from chemotherapy.

- **Part 6: Microarrays and Cancer Diagnosis**

This data analysis activity illustrates how microarrays can be used in cancer diagnosis.