

Click and Learn
The p53 Gene and Cancer

INTRODUCTION

This handout should be used with the Click and Learn “The p53 Gene and Cancer” (<http://www.hhmi.org/biointeractive/p53-gene-and-cancer>). It is intended as a basic introduction to the p53 gene and its role in cancer.

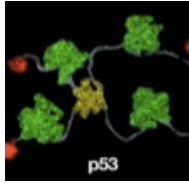
PROCEDURE

Follow the instructions as you proceed through the Click and Learn and answer the questions in the spaces below.

1. On **slide 1**, “p53” is referred to as a molecule, a protein, and a gene. In your own words, and based on your knowledge of molecular genetics, how are these terms related?

2. After reading the text on **slide 2** and watching the video, describe the three types of cancer genes:

	Normal function	What happens if they're mutated?
Oncogenes		
Tumor Suppressor Genes		
DNA Repair Genes		



Click and Learn
The p53 Gene and Cancer

3. If a cell is stressed, p53 normally functions to shut down cell division. What activates p53 and what, in turn, does p53 do (**slide 3**)?

4. To understand how the p53 protein works, you need to understand its structure. In your own words, describe the function of each of p53's domains (**slide 4**).
 - a. Transactivation domain:

 - b. DNA binding domain:

 - c. Complexing domain:

5. **Slide 5** describes transcription factors. In your own words what is a transcription factor? Does p53 act as a transcription factor?

6. Why is the complexing domain of p53 so important to its function (**slide 5**)?

7. Describe how the p53 protein works once it has been activated (**slide 7**).

Summarize what you've learned:

On **slide 1** you learned that the p53 gene is mutated in about half of all cancers. Explain how and why a mutated p53 gene can lead to cancers.