



Classroom Activity

10 Big Question: How do we unravel the causes of disease?

Quiz

Read "Target acquired: Making smart cancer drugs with medicinal chemistry" in e-Science Magazine issue 15, October 2015. Once you've read the article, it's time to see how much you remember. Have a go at the questions below to find out!

1. Name one process that a cell performs during the cell cycle.
2. What is a tumour?
3. What role do 'inhibitors' play in the treatment of cancer?
4. Name two differences between cancerous and non-cancerous cells.
5. Why do many of the currently existing anti-cancer drugs have unfavourable side effects?
6. Define the following terms: hypoxia, pro-drug.
7. It is very difficult to find one drug to cure all types of cancers. Explain why.
8. How can our society benefit from an effective treatment of cancer?

Answers

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1. Any of the following: growth, DNA replication (making copies of DNA), preparation for mitosis, mitosis (cell division)
 2. A collection of abnormal cells produced from uncontrolled cell division
 3. Inhibitors are most often chemically synthesised molecules that bind to and block the enzyme not allowing it to perform its original function
 4. Cancer cells are hypoxic (have much lower oxygen content) than normal cells; the body has no control over the rate at which cancer cells multiply
 5. Most anti-cancer drugs kills both cancer cells AND normal cells
 6. Hypoxia: low oxygen environment. Prodrug: is the inactive version of the drug which becomes active when it reacts in the organism.
 7. Cancer is a broad term given to a set of diseases involving abnormal cell cycle behaviour most often leading to a tumour. Different cancers have different and often extremely complex mechanisms of function which is why one drug is not the cure for all cancers
 8. Cancer treatment is expensive and also is physically and psychologically stressful due to the many side effects of anti-cancer drugs. Finding a cure for cancer will reduce and potentially eliminate all or most of the costs and stress thus offering financial and personal benefits to society.