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**S E C T I O N 11 - 2 R E V I E W**

G ENE E XPRESSION AND D EVELOPMENT

**VOCABULARY REVIEW Distinguish between the terms in each of the following pairs of terms.**

1. cell differentiation, morphogenesis
2. benign tumor, malignant tumor
3. sarcoma, lymphoma
4. oncogene, tumor-suppressor gene

**MULTIPLE CHOICE Write the correct letter in the blank.**

1. The expression of different genes in different cells of a multicellular organism
	1. contributes to the development of form in an organism.
	2. causes the uncontrolled proliferation of cells.
	3. is caused by the transfer of cells from one organism to another.
	4. results from mutations that destroy normal gene functioning.
2. Homeoboxes are

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **a.** | found only in prokaryotes. | **c.** | mutations that can have devastating |
|  | **b.** found only in*Drosophila.* |  | consequences on development. |
|  |  |  |  | **d.** DNA sequences that regulate patterns |
|  |  |  |  |  | of development. |  |
| **3.** | The major distinguishing characteristic of cancer is |  |
|  | **a.** | uncontrolled cell division. | **c.** | metastasis. |  |
|  | **b.** rapid cell division. |  | **d.** tumor formation. |  |
| **4.** | Ninety percent of all lung cancers are caused by |  |
|  | **a.** asbestos. | **b.** cigarette tobacco. | **c.** X rays. | **d.** ultraviolet light. |
| **5.** | A gene whose normal function is to prevent uncontrolled cell division is |
|  | **a.** | an oncogene. |  | **c.** | a homeotic gene. |  |
|  | **b.** | a cancer gene. |  | **d.** | a tumor-suppressor gene. |

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**SHORT ANSWER Answer the questions in the space provided.**

1. How do homeotic genes regulate development in *Drosophila?*
2. What factors influence whether a person will develop cancer?
3. How can viruses induce cancer?
4. How are introns and exons used in gene expression?
5. **Critical Thinking** Most medicines used in cancer chemotherapy work by inhibiting cell division.Knowing this, explain why cancer patients who receive chemotherapy often experience a loss of

body hair.

**STRUCTURES AND FUNCTIONS Complete the flowchart below by filling in the three boxes at the bottom.**

Tumor-suppressor

Proto-oncogenes

genes

|  |  |  |  |
| --- | --- | --- | --- |
| Normal | Mutations | Normal |  |
|  |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Effect: |  |  | Effect: |  |  | Effect: |
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