

Which of the following is *NOT* true of endostatin.

- (A) it is a human protein
- (B) it is derived from collagen
- (C) it is an anti-angiogenesis treatment
- (D) it is an effective cancer treatment in humans

Most cancers are caused by inheriting a defective gene.

- (A) True
- (B) False

p53 is a protein known as the guardian angel of the genome. It controls passage through the cell cycle. Many most tumors have mutations in p53. This allows cancer cells to

- (A) divide
- (B) avoid apoptosis
- (C) obtain nutrients
- (D) replicate their DNA

Which of the following is *NOT* true of Avastin.

- (A) it is an antibody pathway
- (B) it can shrink certain tumors
- (C) it interferes with a growth factor receptor
- (D) it is a chemotherapy drug/chemical

Macular degeneration is a type blindness that can be treated by inhibiting new blood vessel growth.

- (A) True
- (B) False

After tobacco use/lung cancer what is the second largest cause of cancer deaths worldwide

- (A) alcohol use
- (B) skin care /UV exposure
- (C) vaping
- (D) diet

_____ are non-protein coding stretches of DNA

- (A) Telomeres
- (B) Messenger RNAs
- (C) Telomerase
- (D) Codons

Cells were treated with a suspect cancer causing chemical (carcinogen). After treatment a second dish of cells was exposed to the DNA from the first group of cells. The presence of clumps of cells growing on top of each other would allow you to conclude?

- (A) the chemical may cause cancer
- (B) the chemical does not cause cancer in mice
- (C) the clumps of cells were transformed
- (D) A and C

Avastin is currently used to treat certain cancers where it is found to significantly reduce the size of tumors. This is because Avastin directly binds and inhibits which of the following?

- (A) Apoptosis
- (B) Cell division
- (C) VEGF
- (D) mitosis
- (E) DNA replication

In the experiments that lead to the hypothesis that tumors need a blood supply to grow large, where were the negative control cells implanted?

- (A) in the liquid part of the eye
- (B) no cells were implanted
- (C) in the iris
- (D) no correct answer

Long before molecular cancer genetics, scientists knew a virus could cause cancer in chickens. When the ability to work with DNA was developed, what was discovered about this virus.

- (A) it caused cancer in chickens
- (B) Chicken viruses do not infect humans
- (C) humans had a gene very much like in the virus
- (D) all DNA is the same

Cancer in elephants is rare, they have many copies of the p53 gene, and their cells are very sensitive to radiation. Which of the following supports all three of these facts.

- (A) elephant cells are bigger than human cells (C) elephants have more cells than humans
(B) elephants would rather their cells die than collect mutations (D) all are correct

Human cells contain a gene for reverse transcriptase.

- (A) True (B) Unclear (C) False

Human cells contain a gene for making nicotine.

- (A) True (B) Unclear (C) False

The comet assay is used to test for

- (A) metastatic cancer (B) potential mutagens (C) free radicals (D) All are correct