Genetics questions

Dr. Mohammad

In humans, XXY individuals are males with Klinefelter syndrome. Which of the following events may not give rise to a Klinefelter male?

A. nondisjunction at meiosis I in the mother

B. nondisjunction at meiosis II in the mother

C. nondisjunction at meiosis I in the father

D. nondisjunction at meiosis II in the father

E. All of the choices could give rise to a Klinefelter male.

Ans: E

Which of the following helps explain why increased maternal age is correlated with an increased risk of Down syndrome?

A. mutations accumulate in the germ line in a time-dependent manner

B. meiosis in oocytes is incomplete before fertilization

C. frequency of crossovers increases with gamete age

D. barriers to double fertilization decrease in older ova

E. kinetochore fusion is more common in older women

Ans: B

Down syndrome can result from

A. three copies of chromosome 21.

B. a translocation of a part of chromosome 21.

C. a reciprocal translocation between any two autosomes.

D. both A and B

The most common human aneuploidy is trisomy 21, Down syndrome. All of the effects listed below may be seen in this syndrome except:

A. death always by age 25.

B. mental retardation.

C. skeletal abnormalities.

D. heart defects.

E. increased susceptibility to infection.

Ans: A

Which of the following sex chromosome aneuploidies is not usually seen in live births?

A. XO

B. XXY

C. YO

D. XXX

E. None of the choices are correct.

Ans: C

Triploid organisms usually result from

A. the union of haploid and diploid gametes.

B. unequal disjunction during embryogenesis.

C. propagation of fused cell lines.

D. fusion of three gametes simultaneously.

E. Two of the choices

Ans:E

What is the expected outcome for a human embryo with the XXXY chromosome

constitution?

A. It would likely develop into a female who will not respond to the hormone

testosterone.

B. It would likely develop into a sterile male with reduced testes.

C. It will always abort early in development before birth.

D. It would likely develop into a tall female who may be slightly cognitively impaired.

E. It would likely develop into a fertile man with a completely normal male

phenotype.

Ans: B

A Barr body is a(n):

A. gene on the X chromosome that is responsible for female development.

B. patch of cells that has a phenotype different from surrounding cells because of

variable X inactivation.

C. inactivated X chromosome, visible in the nucleus of a cell that is normally from a

female mammal.

D. extra X chromosome in a cell that is the result of nondisjunction.

E. extra Y chromosome in a cell that is the result of nondisjunction.

Ans: C

Which of the following statements about X inactivation in mammalian females is

FALSE?

A. Females that are heterozygous for an X-linked gene have patches of cells that

express one allele and patches of cells that express the other.

B. Some genes on the inactive X continue to be expressed after the chromosome is

inactivated.

C. X inactivation is random as to which X is inactivated and takes place early in

embryonic development

D. Inactivation is thought to be initiated by expression of the Xist gene on the X that

will remain active.

E. Once an X chromosome first becomes inactivated in a cell, that same X will

remain inactivated in somatic cells that are descendants of this cell

Ans: D

Done by

Layan Daoud