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Spring 2021 - W

Spring 2021 - LIFESCI7B-1 - PHELAN

| | |
|---------------------|------------------------------------|
| Started on | Friday, 23 April 2021, 3:21 PM PDT |
| State | Finished |
| Completed on | Friday, 23 April 2021, 4:55 PM PDT |
| Time taken | 1 hour 34 mins |
| Grade | 105.00 out of 123.00 (85%) |

Information

[Questions 1-4] Imagine an autosomal co-dominant trait with three different alleles: A, B, and C. For each of the following families, identify the possible nondisjunction events (rare mistakes during meiosis) that could explain the genotype of the offspring.

Question 1

Correct

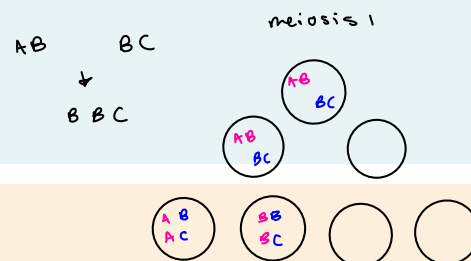
3.00 points out of 3.00

Parent 1 has genotype AB and Parent 2 has genotype BC. They have a triploid offspring that has genotype BBC.

This could have occurred through non-disjunction in meiosis I of Parent 1.

Select one:

- True
- False ✓



Distinguish between sister chromatids and homologous chromosomes

Visualize how meiosis produces four haploid gametes

Create a pedigree from a scenario

Week 1 handout and clicker questions

Week 3 clicker questions

Question 2

Correct

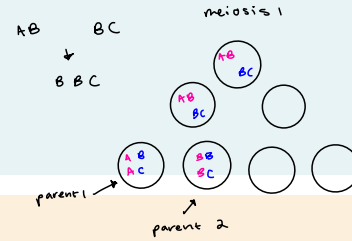
3.00 points out of 3.00

Parent 1 has genotype AB and Parent 2 has genotype BC. They have a triploid offspring that has genotype BBC.

This could have occurred through non-disjunction in meiosis I of Parent 2.

Select one:

- True ✓
- False



Distinguish between sister chromatids and homologous chromosomes

Visualize how meiosis produces four haploid gametes

Create a pedigree from a scenario

Week 1 handout and clicker questions

Week 3 clicker questions

Question 3

Incorrect

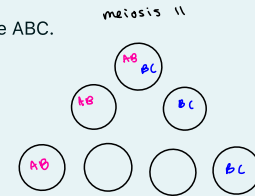
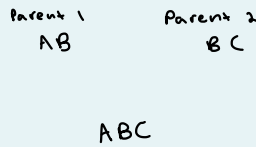
0.00 points out of 3.00

Parent 1 has genotype AB and Parent 2 has genotype BC. They have a triploid offspring that has genotype ABC.

This could have occurred through non-disjunction in meiosis II of Parent 1.

Select one:

- True ✗
- False



Distinguish between sister chromatids and homologous chromosomes

Visualize how meiosis produces four haploid gametes

Create a pedigree from a scenario

Week 1 handout and clicker questions

Week 3 clicker questions

Question 4

Incorrect

0.00 points out of 3.00

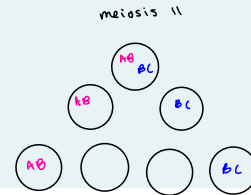
Parent 1 has genotype AB and Parent 2 has genotype BC. They have a triploid offspring that has genotype ABC.

This could have occurred through non-disjunction in meiosis II of Parent 2.

Select one:

 True **X**
 False

AB BC
ABC



Distinguish between sister chromatids and homologous chromosomes

Visualize how meiosis produces four haploid gametes

Create a pedigree from a scenario

Week 1 handout and clicker questions

Week 3 clicker questions

Information

[Questions 5 - 7] You are a genetic counselor and are meeting with a couple where both individuals are heterozygous for primary ciliary dyskinesia (a rare recessive autosomal disorder). They are planning on starting a family and are interested in knowing the probability that their children may or may not have primary ciliary dyskinesia.

Question 5

Incorrect

0.00 points out of 3.00

If they have two children, what is the probability that only one of their children will have primary ciliary dyskinesia?

- a. 9/16
- b. 10/16
- c. None of the other answer choices are correct
- d. 6/16
- e. 3/16

Calculate the probability of a particular gamete being produced from an individual, assuming independent segregation of alleles

Use pedigree analysis to calculate the likelihood an individual will have a particular genotype or phenotype

Use the multiplication and sum rule

Weeks 1 and 2 clicker questions

Lab Weeks 3 and 4

Question 6

Correct

3.00 points out of 3.00

If they have two children, what is the probability that both children will be unaffected?

- a. 3/16
- b. 9/16
- c. 12/16
- d. 7/16
- e. none of the other answer choices are correct

Calculate the probability of a particular gamete being produced from an individual, assuming independent segregation of alleles

Use pedigree analysis to calculate the likelihood an individual will have a particular genotype or phenotype

Use the multiplication and sum rule

Weeks 1 and 2 clicker questions

Lab Weeks 3 and 4

Question 7

Correct

3.00 points out of 3.00

If they have two children, what is the probability that both children will have the same phenotype?

- a. 4/16
- b. 9/16
- c. 10/16
- d. None of the other answer choices are correct
- e. 7/16

Calculate the probability of a particular gamete being produced from an individual, assuming independent segregation of alleles

Use pedigree analysis to calculate the likelihood an individual will have a particular genotype or phenotype

Use the multiplication and sum rule

Weeks 1 and 2 clicker questions

Lab Weeks 3 and 4

Information

[Questions 8-11] Natalie (an XX individual) and Daniel (an XY individual) are concerned about having a child with polycystic kidney disease, which causes cysts to develop on the kidneys and loss of kidney function over time. This condition, which is very rare, has affected both Natalie's uncle (her mother's brother) and Daniel's sister. No one else in either family has the condition.

Question 8

Correct

3.00 points out of 3.00

Polycystic kidney disease is most-likely an autosomal dominant trait.

Select one:

- True
- False ✓

Distinguish between dominant, recessive, autosomal, X-linked patterns of inheritance using pedigrees

Create a pedigree from a scenario

Clicker questions Weeks 2 and 3

Lab Week 3

Question 9

Correct

3.00 points out of 3.00

Based on their family history, what is the probability Natalie and Daniel's first child will be affected by polycystic kidney disease?

- a. 6/36
- b. 9/36
- c. 4/36
- d. 2/36
- e. none of the other answer choices are correct

Distinguish between dominant, recessive, autosomal, X-linked patterns of inheritance using pedigrees

Create a pedigree from a scenario

Clicker questions Weeks 2 and 3

Lab Week 3

Question 10

Correct

3.00 points out of 3.00

The couple is also concerned about their child inheriting hemophilia, another rare disease, which is X-linked. Natalie's brother, Daniel's father, and Daniel's sister both have hemophilia. No one else in either family has the condition.

The probability that Natalie and Daniel's first child has hemophilia is $1/2$.

Select one:

- True
- False ✓

Distinguish between dominant, recessive, autosomal, X-linked patterns of inheritance using pedigrees

Create a pedigree from a scenario

Clicker questions Weeks 2 and 3

Lab Week 3

Question 11

Correct

3.00 points out of 3.00

The couple is also concerned about their child inheriting hemophilia, another rare disease, which is X-linked. Natalie's brother, Daniel's father, and Daniel's sister both have hemophilia. No one else in either family has the condition.

The probability that Natalie and Daniel's first child will be a girl affected by both diseases is 0.

Select one:

- True ✓
- False

Distinguish between dominant, recessive, autosomal, X-linked patterns of inheritance using pedigrees

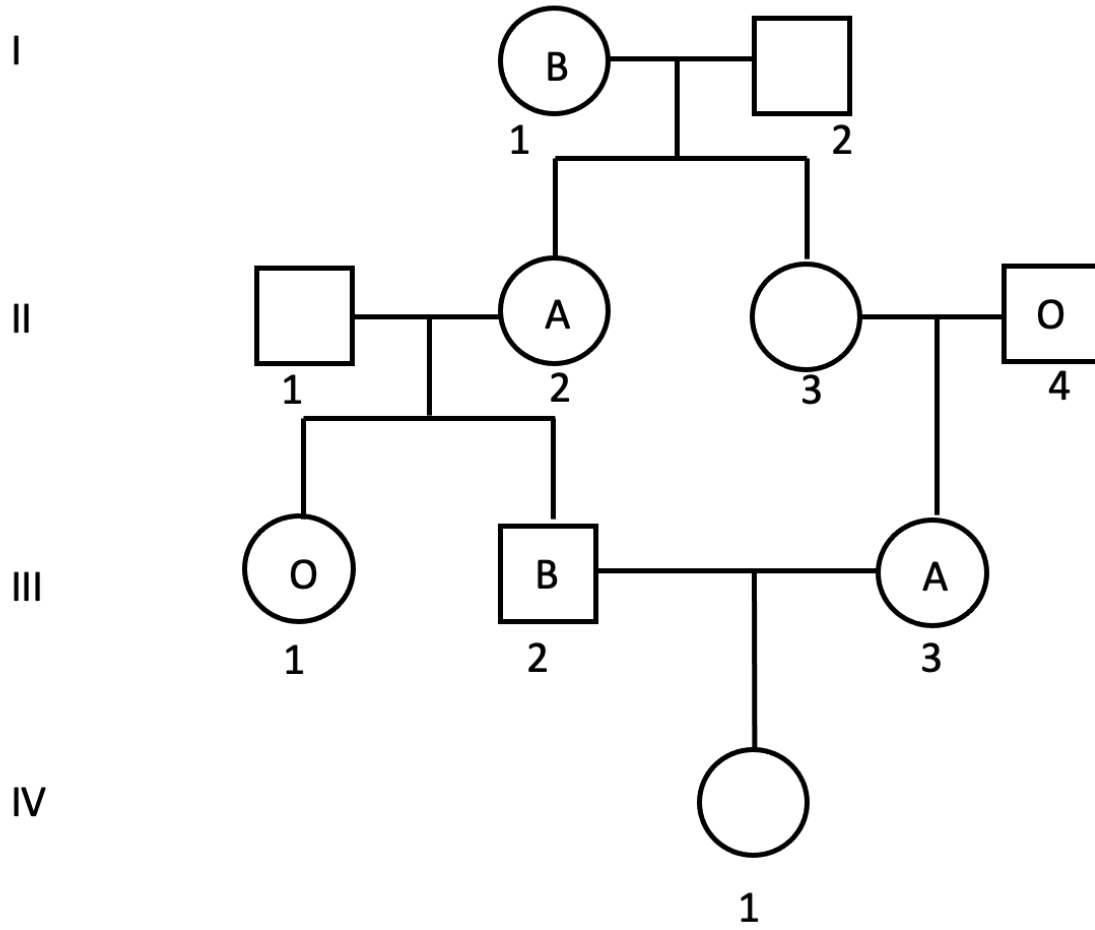
Create a pedigree from a scenario

Clicker questions Weeks 2 and 3

Lab Week 3

Information

[Questions 12–13] Recall that ABO blood groups exhibit a co-dominant pattern of inheritance: I^A and I^B are codominant and i is recessive to both I^A and I^B . A human pedigree and the ABO blood types of some of the members of the family are shown in the figure below.



Question 12

Incorrect

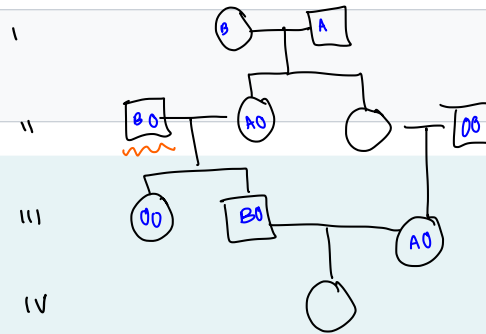
0.00 points out of 3.00

Individual II-1 could be blood type AB.

Select one:

 True ✘ False

BECAUSE III-1 is OO,
II-1 must be BO
in order to produce an
OO



Interpret the results of crosses and pedigrees whose results differ from Mendelian expectations because of incomplete dominance, epistasis, or hierarchy of dominance

Use pedigree analysis to calculate the likelihood an individual will have a particular genotype or phenotype

Week 2 clicker questions

Question 13

Correct

3.00 points out of 3.00

Individual IV-1 has an equal probability of being blood type O or blood type AB.

Select one:

 True ✔ False

Interpret the results of crosses and pedigrees whose results differ from Mendelian expectations because of incomplete dominance, epistasis, or hierarchy of dominance

Use pedigree analysis to calculate the likelihood an individual will have a particular genotype or phenotype

Week 2 clicker questions

Information

[Questions 14-18] Ben and Sarah are two people who are considering having children together. Ben, his father, and his mother all have blood type B. His younger sister and his brothers have blood type O. Sarah, her mother, and her younger brother all have blood type A. Sarah's sister and older brother both have blood type O, and her father has type B.

Question 14

Correct

3.00 points out of 3.00

The probability that their first child will have blood type A is 1/6

Select one:

True ✓

False

14) % First child type A is 1/6 → true

$$P(\text{Gen } B0) \cdot \text{child } (AO) = \frac{2}{3} \cdot \frac{1}{4} = \frac{2}{12} = \frac{1}{6}$$

Interpret the results of crosses and pedigrees whose results differ from Mendelian expectations because of incomplete dominance, epistasis, hierarchy of dominance

Use pedigree analysis to calculate the likelihood an individual will have a particular genotype or phenotype

Create a pedigree from a scenario

Week 2 clicker questions

Pre-class objective: Define the addition (i.e., sum) rule and the multiplication (i.e., product) rule

Question 15

Correct

3.00 points out of 3.00

The probability that their first child will have blood type O is 1/8.

Select one:

True

False ✓

15) % First child have type O is 1/8 → false

$$P(\text{Gen } B0) \cdot \text{child } (OO) = \frac{2}{3} \cdot \frac{1}{4} = \frac{2}{12} = \frac{1}{6}$$

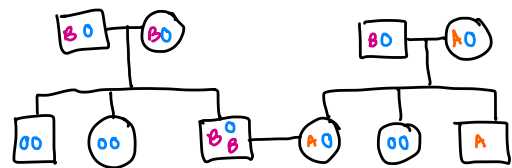
Interpret the results of crosses and pedigrees whose results differ from Mendelian expectations because of incomplete dominance, epistasis, hierarchy of dominance

Use pedigree analysis to calculate the likelihood an individual will have a particular genotype or phenotype

Create a pedigree from a scenario

Week 2 clicker questions

Pre-class objective: Define the addition (i.e., sum) rule and the multiplication (i.e., product) rule



| | | |
|---|----|----|
| | B | O |
| B | BB | BO |
| O | BO | OO |

| | | |
|---|----|----|
| | A | O |
| B | AB | BO |
| O | AO | OO |

| | | |
|---|----|----|
| | A | O |
| B | AB | BO |
| B | AB | BO |

Question 16

Correct

3.00 points out of 3.00

The probability that their first child will have blood type B is 1/6.

Select one:

- True
- False ✓

16) % first child is type B is $\frac{1}{6} \rightarrow$ false

$$p(\text{Gen BB}) \cdot p(\text{child BO}) + p(\text{Gen BO}) \cdot p(\text{child BO})$$

$$\left(\frac{1}{3} \cdot \frac{1}{2} \right) + \left(\frac{2}{3} \cdot \frac{1}{2} \right)$$

$$\frac{1}{6} + \frac{2}{6} = \frac{3}{6} = \frac{1}{2}$$

Interpret the results of crosses and pedigrees whose results differ from Mendelian expectations because of incomplete dominance, epistasis, or hierarchy of dominance

Use pedigree analysis to calculate the likelihood an individual will have a particular genotype or phenotype

Create a pedigree from a scenario

Week 2 clicker questions

Pre-class objective: Define the addition (i.e., sum) rule and the multiplication (i.e., product) rule

Question 17

Correct

3.00 points out of 3.00

The probability that their first child will have blood type AB is 1/3.

Select one:

- True ✓
- False

17) Probability first child have AB is $\frac{1}{3} \rightarrow$ true

$$p(\text{Gen BB}) \cdot p(\text{child AB}) + p(\text{Gen BO}) \cdot p(\text{child AB})$$

$$\left(\frac{1}{3} \cdot \frac{1}{2} \right) + \left(\frac{2}{3} \cdot \frac{1}{4} \right)$$

$$\frac{1}{6} + \frac{2}{12} = \frac{2}{6} = \frac{1}{3}$$

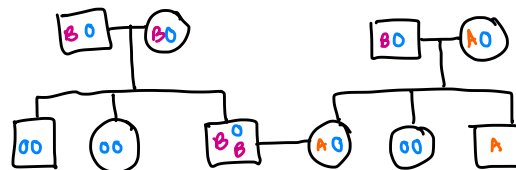
Interpret the results of crosses and pedigrees whose results differ from Mendelian expectations because of incomplete dominance, epistasis, or hierarchy of dominance

Use pedigree analysis to calculate the likelihood an individual will have a particular genotype or phenotype

Create a pedigree from a scenario

Week 2 clicker questions

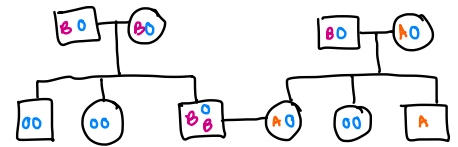
Pre-class objective: Define the addition (i.e., sum) rule and the multiplication (i.e., product) rule



| | | |
|---|----|----|
| | B | O |
| B | BB | BO |
| O | BO | OO |

| | | |
|---|----|----|
| | A | O |
| B | AB | BO |
| O | AO | OO |

| | | |
|---|----|----|
| | A | O |
| B | AB | BO |
| B | AB | BO |



Question 18
 Incorrect
 0.00 points out of 3.00

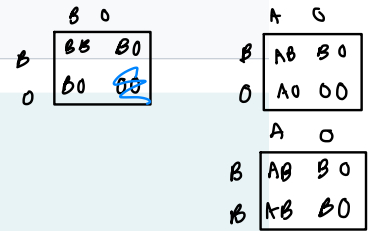
?

If they have two children, the probability only one of them will be type O is 1/4.

$$p(\text{1st child } B0) \cdot p(\text{1st child } 00) \cdot p(\text{2nd child not } 00) = \frac{2}{3} \cdot \frac{1}{4} \cdot \frac{3}{4} = \frac{6}{48}$$

Select one:

- True
- False ✘



Interpret the results of crosses and pedigrees whose results differ from Mendelian expectations because of incomplete dominance, epistasis, or hierarchy of dominance

Use pedigree analysis to calculate the likelihood an individual will have a particular genotype or phenotype

Create a pedigree from a scenario

Week 2 clicker questions

Pre-class objective: Define the addition (i.e., sum) rule and the multiplication (i.e., product) rule

Question 19
 Correct
 3.00 points out of 3.00

Individuals that are heterozygous for four loci $AaBbCcDd$ and $AaBbCcDd$ are crossed. Assuming independent segregation and complete dominance for each trait, the expected proportion of the progeny that will have at least one recessive allele at each locus is:

- a. 81/256
- b. 9/16
- c. 27/64
- d. 12/16
- e. none of the other answer choices are correct

Visualize how meiosis produces four haploid gametes

Calculate the probability of a particular gamete being produced from an individual, assuming independent segregation of alleles

Week 2 clicker questions

Question 20

Incorrect

0.00 points out of 3.00

Individuals with the genotypes $AaBbCcDdeeff$ and $AabbccDDEeFF$ are crossed. Assuming independent segregation and complete dominance for each trait, the expected proportion of the progeny that will be homozygous for all of the genes is 0.

Select one:

 True False ✘

because $ff \times FF$ will only produce heterozygous offspring \rightarrow there is a 0% chance

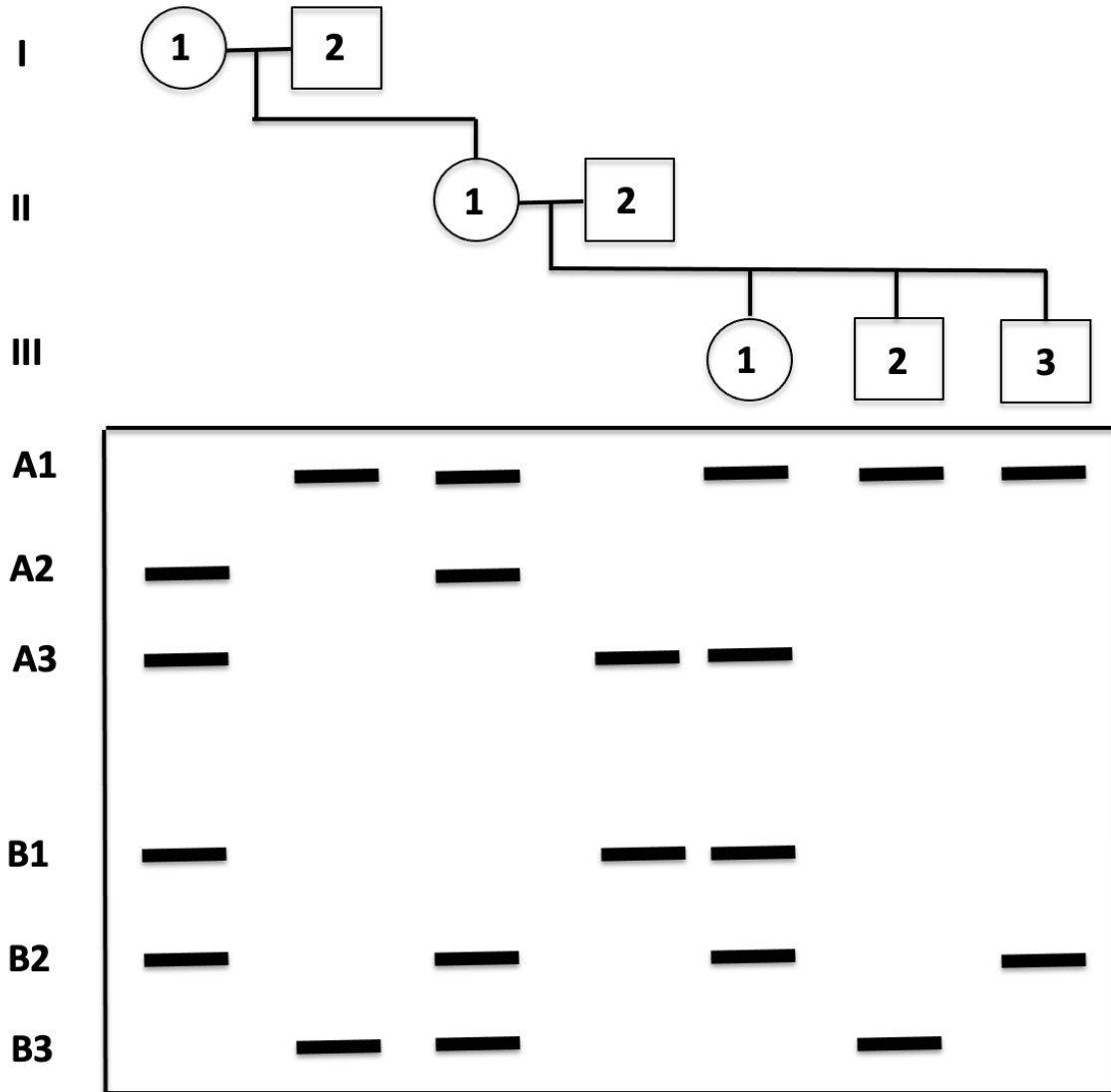
Visualize how meiosis produces four haploid gametes

Calculate the probability of a particular gamete being produced from an individual, assuming independent segregation of alleles

Week 2 clicker questions

Information

[Question 21-24] Three generations of a family are depicted with this pedigree. In the gel diagram shown below, *A* and *B* are both *X*-linked VNTRs with three alleles (denoted *A*₁, *A*₂, *A*₃ and *B*₁, *B*₂, *B*₃, respectively). The VNTR pattern for all the members of the pedigree is shown.



Question 21

Correct

3.00 points out of 3.00

The genotype of II-2 is:

- a. A1B3/A1B3
- b. A3B1/Y
- c. A1B3/Y
- d. A3B1/A3B1

Evaluate whether a specific SNP or VNTR is associated with a specific disease

Analyze VNTR DNA fingerprinting data to determine the genotypes and/or relatedness of individuals

Determine if and where homologous recombination has occurred based on combinations of linked alleles

Visualize how meiosis produces four haploid gametes

CQs Week 3

PEQs Week 3

Question 22

Correct

3.00 points out of 3.00

III-1 inherited a non-recombinant chromosome from their XX parent.

Select one:

- True
- False ✓

Evaluate whether a specific SNP or VNTR is associated with a specific disease

Analyze VNTR DNA fingerprinting data to determine the genotypes and/or relatedness of individuals

Determine if and where homologous recombination has occurred based on combinations of linked alleles

Visualize how meiosis produces four haploid gametes

CQs Week 3

PEQs Week 3

Question 23

Correct

3.00 points out of 3.00

III-2 inherited a recombinant chromosome from their XX parent.

Select one:

- True
- False ✓

Evaluate whether a specific SNP or VNTR is associated with a specific disease

Analyze VNTR DNA fingerprinting data to determine the genotypes and/or relatedness of individuals

Determine if and where homologous recombination has occurred based on combinations of linked alleles

Visualize how meiosis produces four haploid gametes

CQs Week 3

PEQs Week 3

Question 24

Correct

3.00 points out of 3.00

Which chromosome did III-1 inherited from their XY parent?

- a. A3B1
- b. A1B2
- c. A1B1
- d. A3B2

Evaluate whether a specific SNP or VNTR is associated with a specific disease

Analyze VNTR DNA fingerprinting data to determine the genotypes and/or relatedness of individuals

Determine if and where homologous recombination has occurred based on combinations of linked alleles

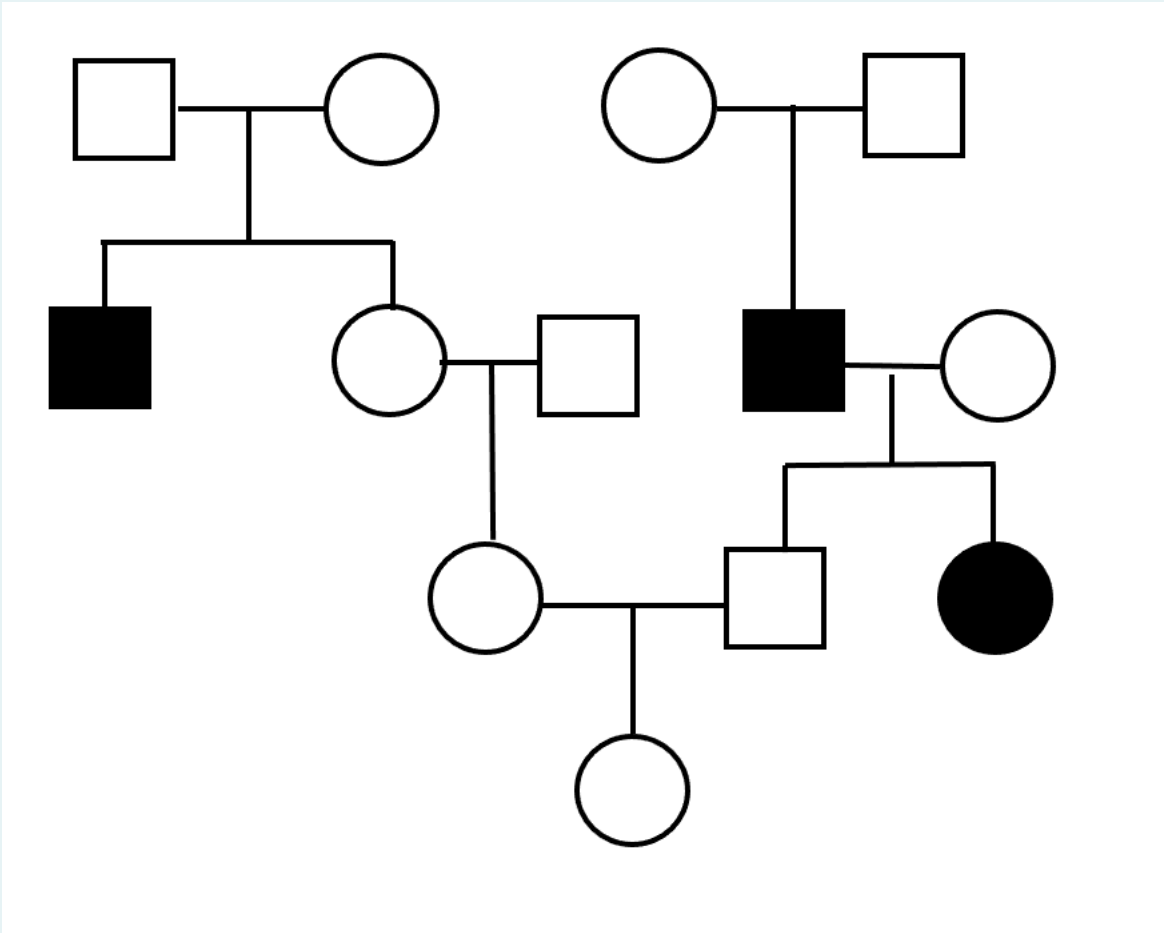
Visualize how meiosis produces four haploid gametes

CQs Week 3

PEQs Week 3

Information

[Question 25] Consider the pedigree. Shaded circles or squares indicate individuals who are affected.



Question 25

Correct

3.00 points out of 3.00

This disease could be autosomal recessive.

Select one:

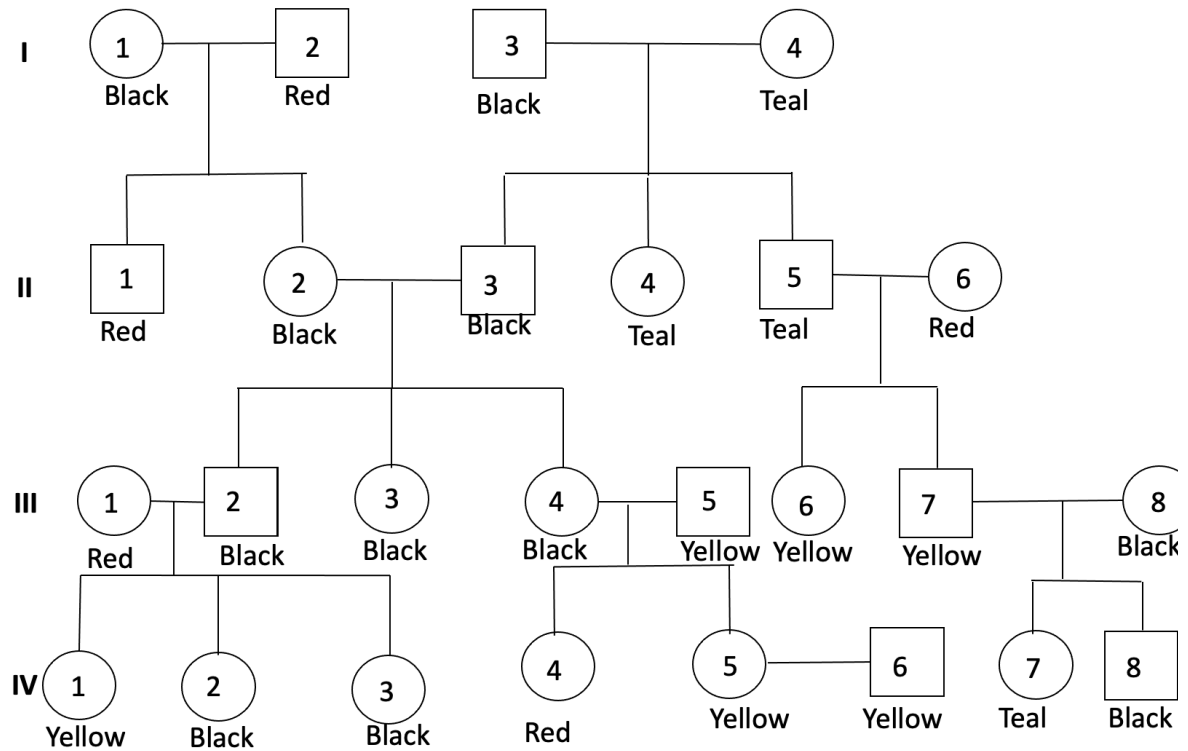
- True ✓
- False

Distinguish between dominant, recessive, autosomal, X-linked patterns of inheritance using pedigrees

Week 3 lab

Information

[Questions 26-29] There is a dewclaw on each of the front legs of the Danang cat. The pedigree below shows the inheritance of dewclaw color in Danang cat. There are four different dewclaw colors: black, red, teal, and yellow. Dewclaw color in Danang cat is determined by a **single autosomal gene** with **three alleles** that exhibit an unknown hierarchy of dominance. Genetic testing shows that individuals I-2, I-4, and II-6 are each homozygous. Use this information and the pedigree to answer the following questions.



Question 26

Correct

3.00 points out of 3.00

All teal individuals must be homozygous

Select one:

- True ✓
- False

Interpret the results of crosses and pedigrees whose results differ from Mendelian expectations because of incomplete dominance, epistasis, hierarchy of dominance

Use pedigree analysis to calculate the likelihood an individual will have a particular genotype or phenotype

Week 2 clicker questions

Question 27

Correct

3.00 points out of 3.00

II-2 and II-3 cannot produce a red offspring.

Select one:

- True ✓
- False

Interpret the results of crosses and pedigrees whose results differ from Mendelian expectations because of incomplete dominance, epistasis, or hierarchy of dominance

Use pedigree analysis to calculate the likelihood an individual will have a particular genotype or phenotype

Week 2 clicker questions

Question 28

Correct

3.00 points out of 3.00

III-2 and III-4 must have different genotypes.

Select one:

- True ✓
- False

Interpret the results of crosses and pedigrees whose results differ from Mendelian expectations because of incomplete dominance, epistasis, or hierarchy of dominance

Use pedigree analysis to calculate the likelihood an individual will have a particular genotype or phenotype

Week 2 clicker questions

Question 29

Correct

3.00 points out of 3.00

What is the probability that II-2 and II-3 will have a teal offspring?

- a. 1
- b. 1/2
- c. 3/4
- d. 0
- e. 1/4

Interpret the results of crosses and pedigrees whose results differ from Mendelian expectations because of incomplete dominance, epistasis, or hierarchy of dominance

Use pedigree analysis to calculate the likelihood an individual will have a particular genotype or phenotype

Week 2 clicker questions

Information

[Questions 30–33] You are doing a breeding experiment with fruit flies. In the parental generation, you cross two true-breeding flies. The female parent is brown and wingless (BBnn) and the male parent is black with wings (bbNN). All of the flies in the F1 generation are brown and have wings.

Question 30

Correct

3.00 points out of 3.00

The genotypes of the flies in the F1 generation are 1/4 BBNN, 1/2 BbNn, and 1/4 bbnn.

Select one:

- True
- False ✓

Determine if and where homologous recombination has occurred based on combinations of linked alleles

Calculate genetic map distances among linked genes from the frequencies of progeny with recombinant phenotypes, and construct a genetic map from data provided

Week 2 lab

Week 2 and 3 clicker questions

Question 31

Correct

3.00 points out of 3.00

You now take an F1 female and cross her to a true-breeding black, wingless male. You count 1200 offspring in the F2 generation. If the wing and the color traits were linked and no recombination occurred, you would expect to count:

300 brown, winged flies (of the genotype BbNn)

300 black, winged flies (of the genotype bbNn)

300 brown, wingless flies (of the genotype Bbnn)

300 black, wingless flies (of the genotype bbnn)

Select one:

 True False ✓

Determine if and where homologous recombination has occurred based on combinations of linked alleles

Calculate genetic map distances among linked genes from the frequencies of progeny with recombinant phenotypes, and construct a genetic map from data provided

Week 2 lab

Week 2 and 3 clicker questions

Question 32

Correct

3.00 points out of 3.00

When you count the F2 generation, you really get:

65 brown, winged flies

520 black, winged flies

560 brown, wingless flies

55 black, wingless flies

Based on this result, you can determine that the genetic distance between the color and wing genes is 10%

Select one:

 True ✓ False

Determine if and where homologous recombination has occurred based on combinations of linked alleles

Calculate genetic map distances among linked genes from the frequencies of progeny with recombinant phenotypes, and construct a genetic map from data provided

Week 2 lab

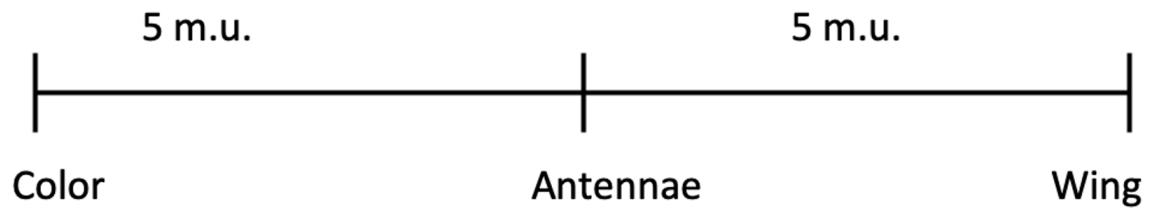
Week 2 and 3 clicker questions

Question 33

Correct

3.00 points out of 3.00

A series of fruit fly matings shows that the recombination frequency between the gene for wing size and the gene for antenna length is 5% (i.e. the genetic distance between them is 5 map units). The figure shows a correct genetic map for the three genes:



Select one:

- True ✓
- False

Determine if and where homologous recombination has occurred based on combinations of linked alleles

Calculate genetic map distances among linked genes from the frequencies of progeny with recombinant phenotypes, and construct a genetic map from data provided

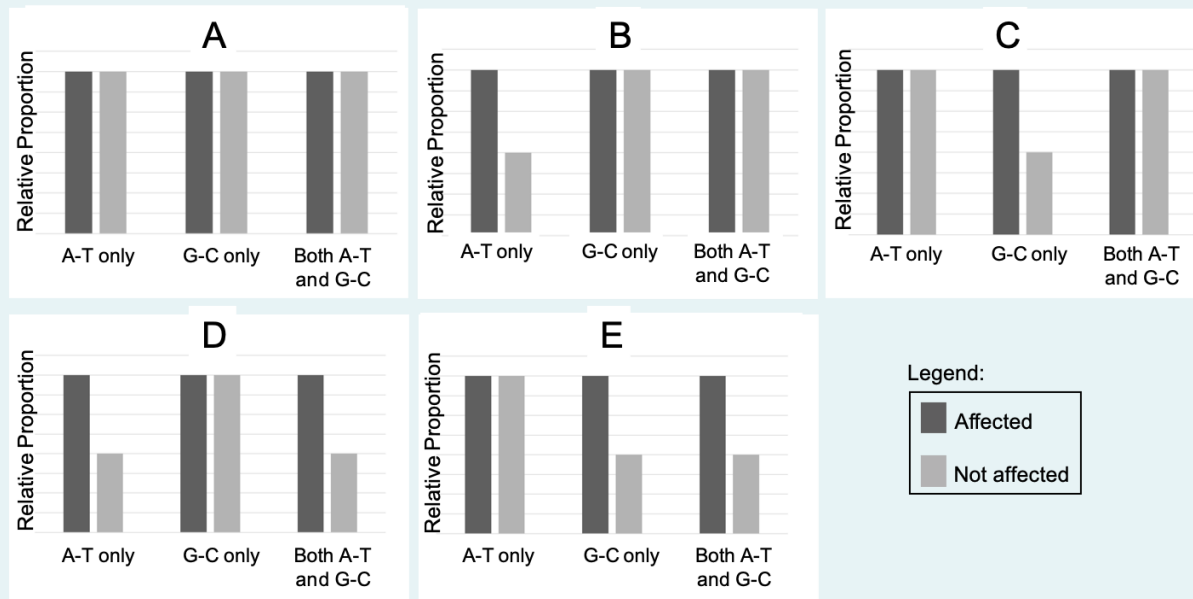
Week 2 lab

Week 2 and 3 clicker questions

Information

[Questions 34-35] Use the figure below to answer questions 34 and 35.

The graphs shown depict the relative proportions of individuals affected with a certain condition (darker shaded bar) and individuals not affected (lighter bar) for individuals carrying only A-T, only G-C, or both A-T and G-C alleles of a single-nucleotide polymorphism (SNP).



Question 34

Correct

3.00 points out of 3.00

Which graph shows a pattern that suggests that the A - T allele is a risk factor for a dominant disease?

- a. Graph D
- b. Graph A
- c. Graph B
- d. Graph E
- e. Graph C

Evaluate whether a specific SNP or VNTR is associated with a specific disease

Week 3 Clicker questions

Question 35

Correct

3.00 points out of 3.00

Which graph shows a pattern that suggests that neither SNP is a risk factor for the disease?

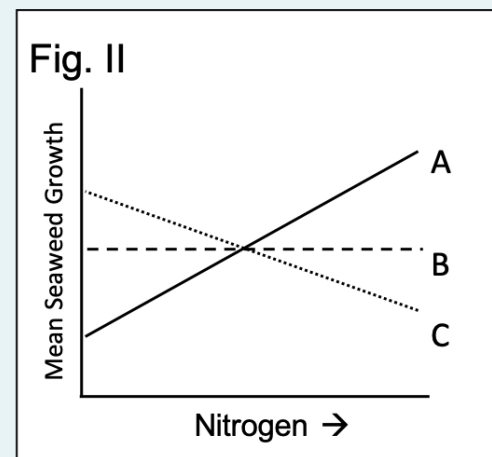
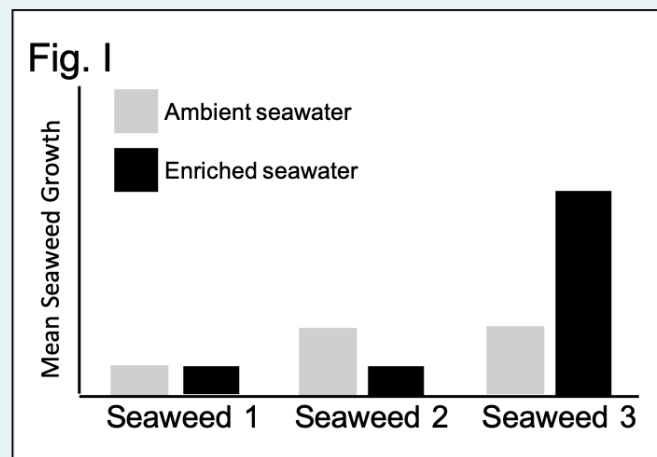
- a. Graph E
- b. Graph D
- c. Graph C
- d. Graph B
- e. Graph A

Evaluate whether a specific SNP or VNTR is associated with a specific disease

Week 3 Clicker questions

Information

[Questions 36-37] You are studying how seaweed (marine algae) could respond to increased nitrogen that can enter the ocean during a sewage spill. You collect three different species of seaweed (1, 2, and 3) and bring them back to the outdoor lab to run a controlled experiment. You separate each species of seaweed into multiple small individual seawater tanks, where all of the tanks have the same temperature and access sunlight. For each species, to half of the tanks you give the seaweed ambient seawater (no added nutrients) and in half of the tanks you give the seaweed nutrient enriched water (added nitrogen). The results of your experiment are shown in Figure I below.



Question 36

Correct

3.00 points out of 3.00

The environmental response to nitrogen is strongest in seaweed species 1.

Select one:

- True
- False ✓

Interpret experiments to determine the relative influences of genes versus the environment on a given phenotype

Evaluate how genes and the environment can interact to influence a phenotype

Week 3 clicker questions

Question 37

Correct

3.00 points out of 3.00

Based on these results, which line [A, B, or C] from Figure II (the right panel above) best illustrates environmental influence on growth for seaweed species 2?

- a. Line B
- b. Line C
- c. Line A

Interpret experiments to determine the relative influences of genes versus the environment on a given phenotype

Evaluate how genes and the environment can interact to influence a phenotype

Week 3 clicker questions

Information

[Questions 38-39] You are investigating the petal color of a new species of flowering plant that you discovered. Through a series of breeding experiments you are able to determine that flower color is controlled by two genes that are on different chromosomes. For individuals where both genes are present in the homozygous recessive state, flowers are white. When the dominant allele for either gene is present, the flowers are purple.

Question 38

Correct

3.00 points out of 3.00

When you cross two individuals from the F1 generation (i.e. heterozygous for both genes), what is the expected proportion of F2 generation flowers that could be white?

- a. 4/16
- b. 9/16
- c. 6/16
- d. 15/16
- e. 1/16
- f. none of the other answer choices are correct
- g. 3/16

Calculate the probability of a particular gamete being produced from an individual, assuming independent segregation of alleles

Interpret the results of crosses and pedigrees whose results differ from Mendelian expectations because of incomplete dominance, epistasis, or hierarchy of dominance

Week 2 clicker questions

Week 4 lab

Question 39

Correct

3.00 points out of 3.00

If two individuals that are heterozygotes for both genes are crossed, what is the probability that they will have an offspring who is homozygous recessive for one gene and have at least one dominant allele for the other gene?

- a. 3/16
- b. 15/16
- c. 1/16
- d. none of the other answer choices are correct
- e. 6/16
- f. 9/16
- g. 4/16

Calculate the probability of a particular gamete being produced from an individual, assuming independent segregation of alleles

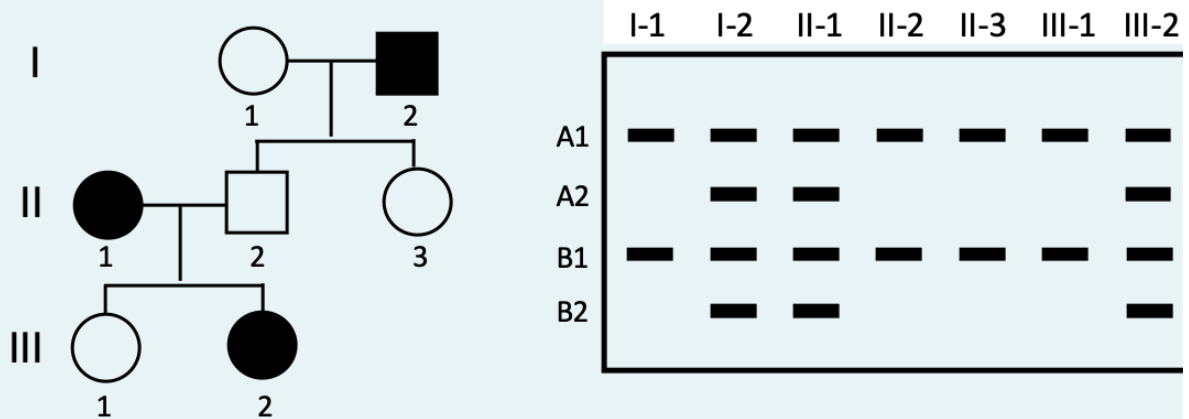
Interpret the results of crosses and pedigrees whose results differ from Mendelian expectations because of incomplete dominance, epistasis, or hierarchy of dominance

Week 2 clicker questions

Week 4 lab

Information

[Questions 40–41] Huntington's disease is a neurodegenerative disease with an autosomal dominant inheritance pattern. The affected gene (*HTT*) is very large, so sequencing the gene to look for mutations is not practical. Instead, you have identified two VNTR regions (A and B) very close to the *HTT* gene that can be readily analyzed using PCR. You test the two VNTR regions to see if there are any VNTR alleles that are linked to mutant alleles of the *HTT* gene that causes Huntington's disease. The pedigree and your gel results are shown below.



Question 40

Correct

3.00 points out of 3.00

The A2 allele could be linked with the *HTT* allele in individual I-2.

Select one:

- True ✓
- False

Evaluate whether a specific SNP or VNTR is associated with a specific disease

Week 3 clicker questions

Week 2 lab

Question 41

Correct

3.00 points out of 3.00

Allele A2 could be used as a genetic marker for Huntington's disease.

Select one:

 True ✓ False

Evaluate whether a specific SNP or VNTR is associated with a specific disease

Week 3 clicker questions

Week 2 lab

[◀ Mechanisms datasheet ...](#)

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