STUDENT CONDUCTED LAB: CAT GENETICS

Let's Review what we know!

Answers to be placed on your SCL: Cat Genetics document

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CAT GENETICS LAB:

FIVE MAIN LOCI OR GENES

(use in order listed!)

#1 – The C Locus..... C = permits color..... cc = albino (with pink eyes and nose, all white fur)

#2 – The O Locus ..... O = orange fur..... oo = other genes expressed

This gene is **sex linked** to the X chromosome and will override the B gene. Use this guide:

- X^OX^O or X^OY = orange fur ...**Remember:** XX is female and XY is male.
  - And dd will dilute orange to cream
- X^OX^o = Tortoiseshell (at least two colors, no white)
- X^OX^o and Ss = Calico (many colors with white)
- X^oX^o = other genes expressed – no orange fur

#3 – The W Locus ..... W = white fur (blue, yellow or odd eyes) ..... ww = normal pigment

#4 – The A Locus..... A = Agouti (banded color on each hair)..... aa = solid color expressed (on each hair)

#5 – The Tabby Locus ... T = Tabby/Tiger (stripes, only expressed if A present)..... t^bt^b = mackerel tabby (stripes in whorled pattern)

There are Handouts from the ORIGINAL slides when these genes were reviewed in class over the last month in the SCL: Cat Genetics module!

Answers to be placed on your SCL: Cat Genetics document

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THE OTHER LOCI OR GENES

(can be examined in any order after the first five)

- The **B** Locus B = **BLACK** bb = **BROWN**
  When dilute (dd): Grey/blue lilac
- The **D** Locus D = **FULL COLOR** dd = **DILUTE**
- The **L** Locus L = **SHORT HAIR** ll = **LONG HAIR**
- The **S** Locus (codominance)

  SS = mostly white with normal or spotted backs

  Ss = white underparts ("socks" and/or belly)

  ss = no white parts

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So, let's start simple …

The FIVE MAIN Loci or Genes
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Other Loci or Genes
(can be examined in any order after the first five)

The B Locus ..... B = Black .....bb = Brown
When dilute (dd): .. Grey/blue ..... lilac

The D Locus..... D = Full Color .....dd = Dilute

The L Locus..... L = Short Hair .....ll = Long Hair

The S Locus (**codominance**)
..... SS = mostly white with normal or spotted backs
..... Ss = white underparts ("socks" and/or belly)
..... ss = no white parts

What are the phenotypes or genotypes of these cats?
(complete on the lab)

1. aaBbCCDd =
2. aaBBCCdd =
3. aabbccDd =
4. _ _ / _ _ / _ _ / _ _ = a grey cat

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One more before you start…

=__/__/__/__/__/__/__/__/__
A B C D L S T W X-Y

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..... SS = mostly white with normal or spotted backs
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NOTES:

1. If you cannot determine genotype due to another overriding it, leave it blank.
2. Enter a ? If you cannot tell what the second allele is.

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SCL: Cat Genetics

Pages 2 through 5 are graded!

Part 1: Convert Genotypes

- MUST do ALL five (5).
- Remember, …
  you have to do the first FIVE main loci IN ORDER!
- Describe EACH genotype shown in each.
- 1 point each

Part 2: Convert Phenotypes

- MUST do five (5) of the 10.
  - ONLY the first 5 will be graded.
- Remember, …
  you have to do the first FIVE main loci IN ORDER!
- Enter EACH possible genotype as shown in the phenotype.
- NOTES:
  1. If you cannot determine genotype due to another overriding it, leave it blank.
  2. Enter a ? If you cannot tell what the second allele is.
- 1 point each

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