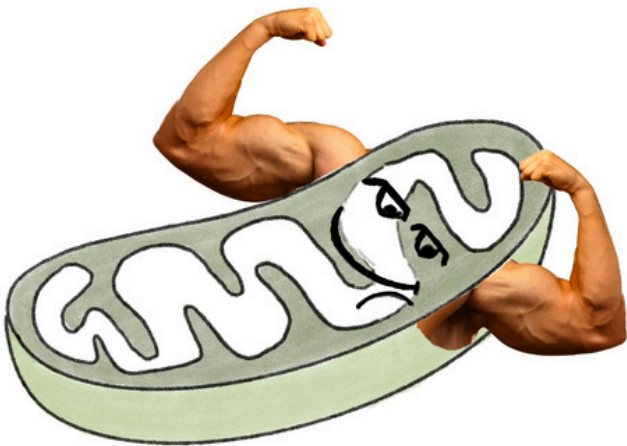


AP BIOLOGY

USING LAWS OF PROBABILITY

UNIT 5 REVIEW



→ using laws of probabilities is faster than using punnett squares

- Mutually exclusive events: cannot happen at same time, "either/or"
- Independent events: one event does not influence the other, "And"

LAWS OF PROBABILITY

Mutually exclusive event:

$$P(A \text{ or } B) = P(A) + P(B)$$

↑ probability

Independent event:

$$P(A \& B) = P(A) \times P(B)$$

EXAMPLE

One parent has genotype AaBb and the other is Aabb.
What is the probability that the child has a genotype aaBb?
(assume non linked genes)

↑
Independent event, so use $P(A \& B) = P(A) \times P(B)$

1. chance of aa genotype

e/ parents donate one allele:

50% of a 50% of a (25%)
Aa Aa → 50% × 50% chance of aa

2. chance of Bb genotype
50% of B 100% of b (50%)
Bb bb → 50% × 100% chance of Bb

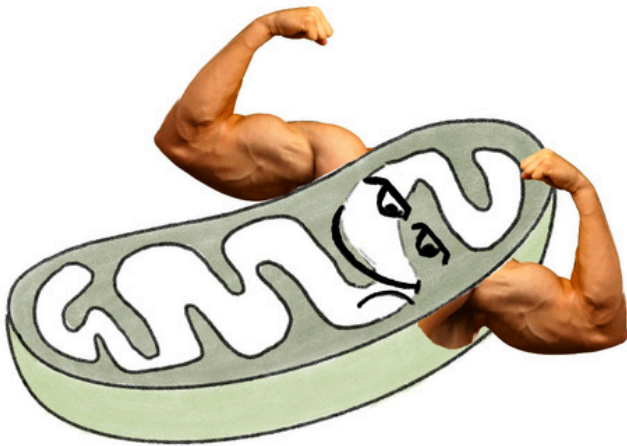
3. chance of both aa and Bb

25% × 50% = 12.5% chance

AP BIOLOGY

PEDIGREES

GUIDE



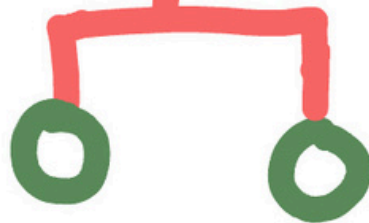
I. BASIC SYMBOLS

mating pair

□ = male



○ = female



] offspring

→ filled in symbol = affected by trait

AUTOSOMAL VS X-LINKED

→ **Autosomal**: trait affects both male & female in similar ratios

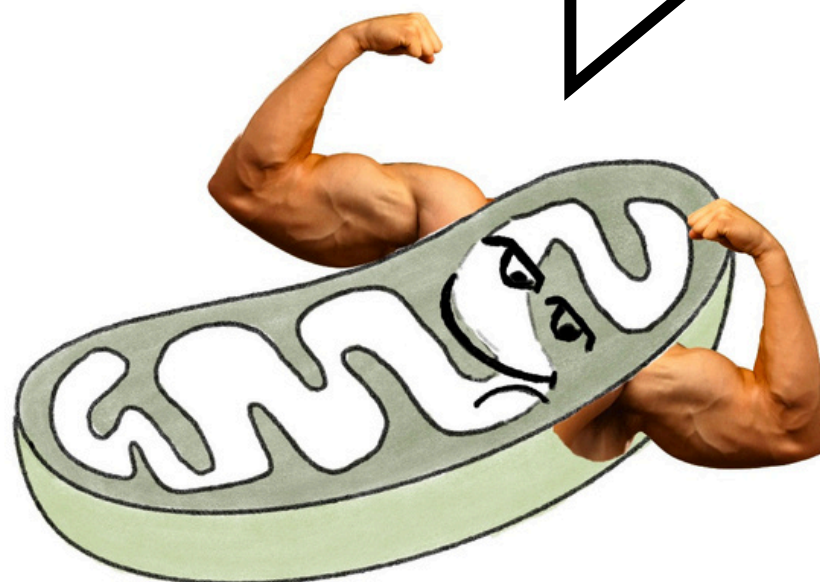
→ **X-linked**: trait strongly skewed towards males

KEY TEST → affected father has all affected sons but unaffected daughter → suggests x-linked

DOMINANT VS RECESSIVE

- **Dominant**: trait appears in **EVERY** generation, at least 1 parent must be affected for child to be
- **Recessive**: trait **CAN** skip generations, unaffected parent can have affected child → parents known as **carriers**

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more!**



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