

Case 18: Which gene is causing Arrow's illness?

Congratulations! You've learned how bog breath is inherited, now you will use the Gene-to-Protein Genie to determine which gene on that chromosome is causing bog breath. Follow these instructions and help save Arrow!

Instructions

1. Research each gene by clicking it and reading about what it does in HEALTHY DRAKES.
2. Based on the description, select the gene you think could be related to bog breath.
3. Click "Sequence it" to send a blood sample from BOG BREATH DRAKES to the lab for DNA sequencing.
4. When you find the allele that is different in bog breath drakes, click "Continue" to return to the genome browser window.
5. Back to the main Gene-to-Protein Genie Screen, click the "Send DNA" button, then click the "Translate all" button in both windows.
6. You will receive a message once you've found the correct gene. Then you can learn about Arrow's fate.

Questions

1. Which gene has an allele that differs between bog breath and healthy drakes?
2. What is the role of this gene and what does it have to do with Arrow's symptoms?
3. What is the difference between the normal OTC protein and the bog breath OTC protein?
4. How did they treat Arrow's bog breath condition?

Bonus: Go back to the gene that causes bog breath and sequence it again. Back in the Gene-to-Protein Genie screen, change "compare" in the pull-down menu on the left to each allele one at a time and check out the DNA code highlighted yellow to the right. What's the one difference in this sequence that causes the gene to make a defective protein resulting in the bog breath disease? (*Hint: Look for the red.*)

Answer: _____