Answer the questions below based on your knowledge of the topics. You might have to do some research to answer the questions, but should be able to reference a basic biology textbook or genetics book to obtain the answers.

**Questions**

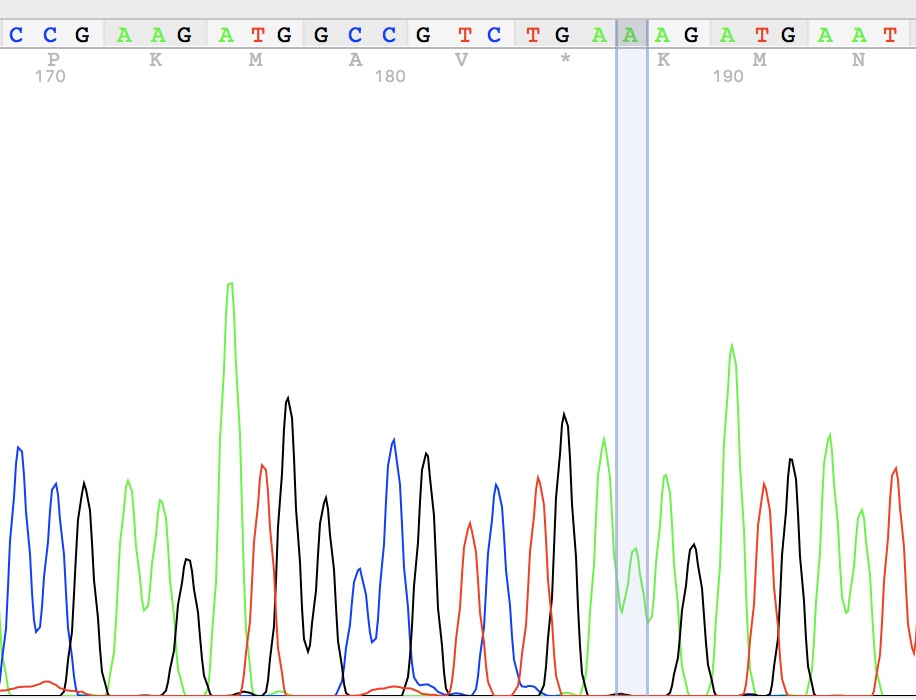
1. Inheritance of DNA in mammals
   1. How is nuclear DNA inherited in mammals?
   2. How is mitochondrial DNA inherited in mammals?
2. Compare the molecular method of DNA sequencing with prokaryotic DNA replication.

*For sequencing, you can get an overview at* [*https://www.youtube.com/watch?v=wdS3j0TgbjM*](https://www.youtube.com/watch?v=wdS3j0TgbjM)*.*

*You can also review* <https://openstax.org/books/biology-2e/pages/14-2-dna-structure-and-sequencing>.

* 1. How are the DNA polymerases used in nature (DNA replication) and sequencing different?
  2. What other steps in DNA sequencing are different than prokaryotic DNA replication?
  3. What are the special nucleotides used in sequencing, how are they different than the nucleotides used in prokaryotic DNA replication and why are they useful?
  4. How is prokaryotic DNA replication similar to PCR? How is it different?

1. Using the diagram, determine the sequence that is illustrated by this electropherogram (*this is not a sequence related to the next part of the case study)*.



* G = black, C = blue
* A = green, T = red

(read peaks left to right – 5’ to 3’)

|  |  |  |  |
| --- | --- | --- | --- |
| Enter sequence | 5’ |  | 3’ |