Mitochondrial DNA and Identification of the Unknown Soldier

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Introduction:

1. What is mitochondrial DNA?
2. How is it inherited?
3. Why are mitochondrial DNA types turned haplotypes?
4. How did the mitochondrial genome evolve?

Problem: Who is related to the Vietnam MIA?

Results:

1. Make a labeled drawing of your gels.
2. Measure and record distance migrated by various bands in millimeters.
3. Graph your results
    a- represent distance migrated by x-axis
    b- length of bands should be represented by the y-axis
    c- plot distance migrated vs. base pair length for each marker fragment
    d- connect the data points with a line

Analysis:

1. Using the DNA sequences given out by the teacher determine:
    a- Who is related to the Vietnam veteran?
    b- How do you know?
    c- What are the statistical probabilities of these connections?
2. Explain the function of each in mitochondrial DNA investigation-
    a- TAQ Polymerase
    b- Primers
    c- dNTP
    d- Magnesium Chloride
    e- Tris-HCL
    f- KCL
3. Explain why each sample had to be amplified.
4. Explain why mitochondrial DNA primer/ loading mix contains sucrose and cresol red.
5. Explain how mitochondrial DNA testing can be used to identify
    a- The remains of the Romanoff family killed during the revolution
    b- Missing Persons

Conclusion: Explain the advantages and disadvantages of utilizing mitochondrial DNA testing for the identification of missing soldiers.