

*The Making of the Fittest:
Natural Selection in Humans*

NAME _____

DATE _____

1. For the statement:

"Sickle cell disease is a(n) _____ disease."

Which of the following terms could fill in the blank to make the statement true? Write 'yes' or 'no' next to each possible response. **There may be more than one correct answer.**

genetic	_____	infectious	_____
lethal	_____	inherited	_____

2. For the statement:

"Malaria is a(n) _____ disease."

Which of the following terms could fill in the blank to make the statement true? Write 'yes' or 'no' next to each possible response. **There may be more than one correct answer.**

genetic	_____	infectious	_____
lethal	_____	inherited	_____

3. For the statement:

"An individual with two normal copies of the hemoglobin gene is said to be _____."

Which of the following terms could fill in the blank to make the statement true? Write 'yes' or 'no' next to each possible response. **There may be more than one correct answer.** (Note that a 'locus' is a location on a chromosome.)

homozygous at the hemoglobin locus	_____	susceptible to malaria	_____
heterozygous at the hemoglobin locus	_____	an identical twin	_____

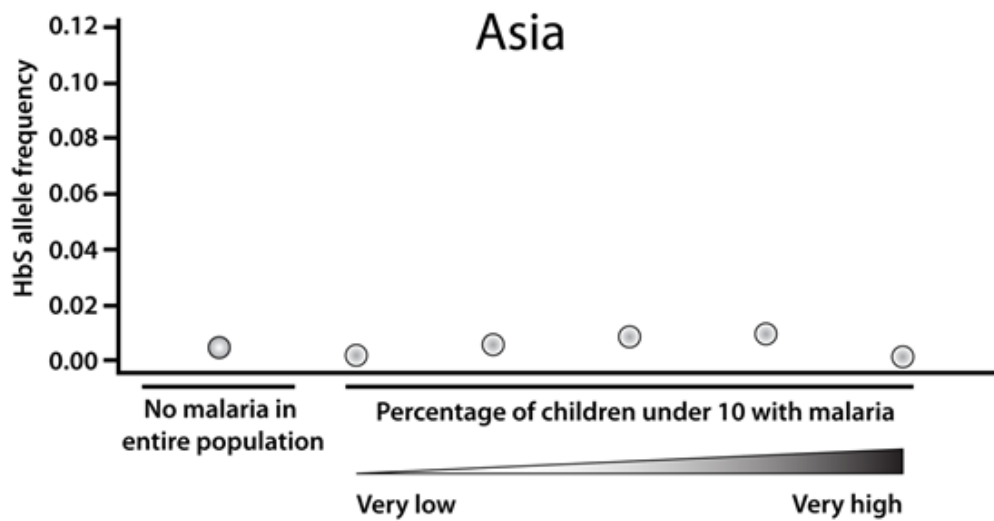
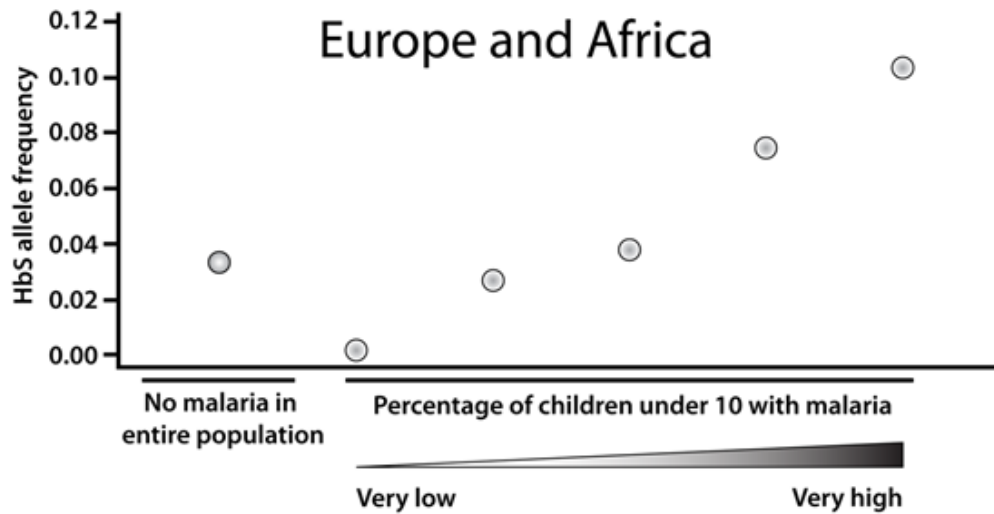
4. At the beginning of the film, you were introduced to Davaun and Skyy Cooper, who both have sickle cell disease. Which of the following must be true about their parents?

- One parent has at least one copy of the sickle cell allele.
- Both parents have at least one copy of the sickle cell allele.
- Both parents have sickle cell disease.
- One parent has sickle cell disease.



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9. Is the following statement true or false? "Malaria caused the sickle cell allele to appear." Justify your answer in one or two sentences.
10. Recently, Frédéric Piel *et al.* looked at global distributions of malaria infection and compared it to the global distribution of the sickle cell (HbS) allele. In one study, they looked at the frequency of the HbS allele in two different geographical areas: Europe and Africa, and Asia. Their findings are in the graphs below:



- a. Summarize the data presented in the graphs in two or three sentences.
- b. Provide a hypothesis that explains the author's findings in the second graph.