Evolution and race

Evolution and race

- Two populations become isolated and have begun to diverge
  - If gene flow is low, may result in speciation

- Biological race
  - Recognizes that there is some consistent type of divergence between different populations

Evolution and race

- How different should two races be?

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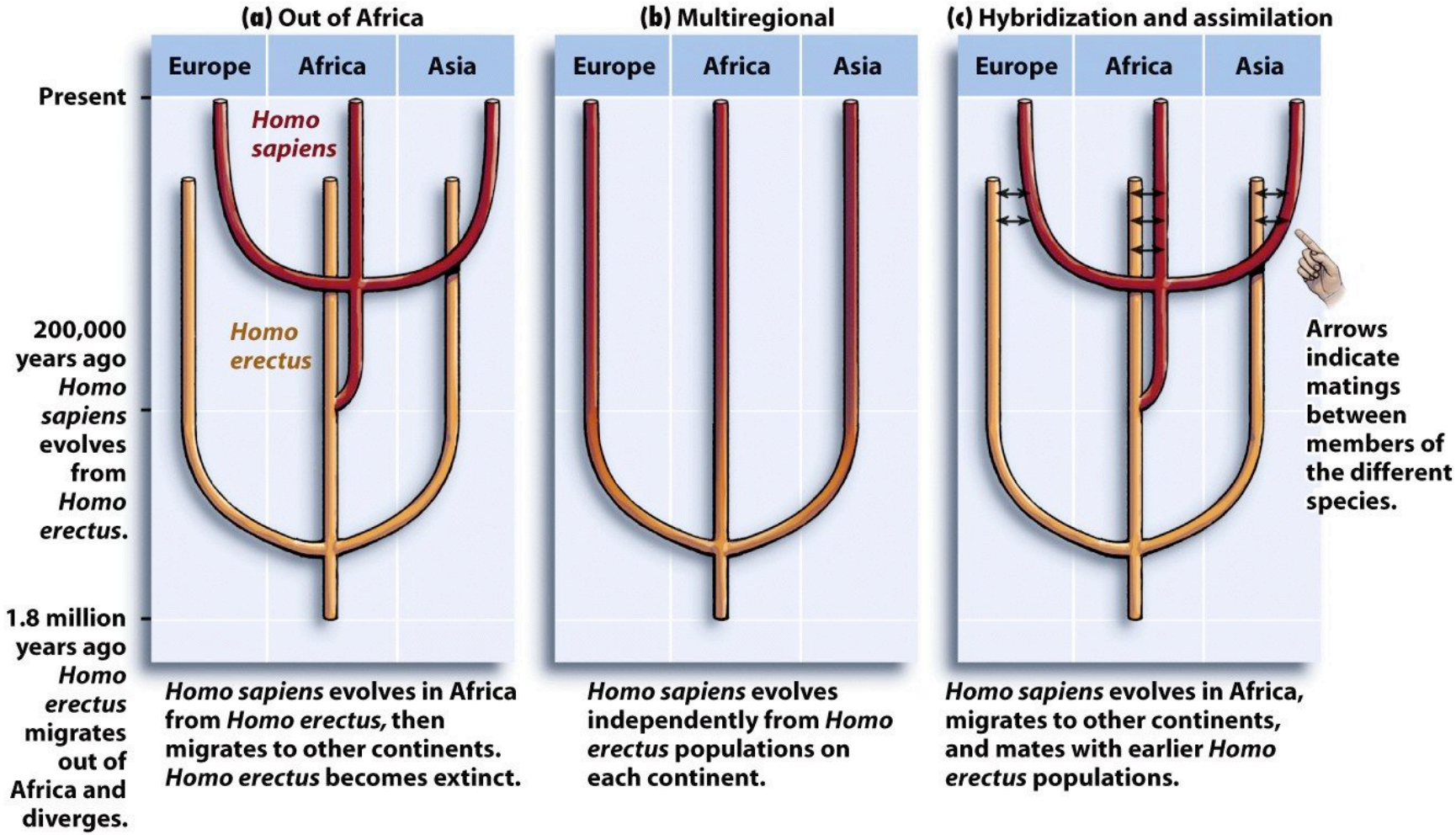
Evolution and race

- How different are human races?
  - Can be answered by:
    - Comparing evolutionary history
    - Looking for differences
    - Looking for similarities

Human evolution



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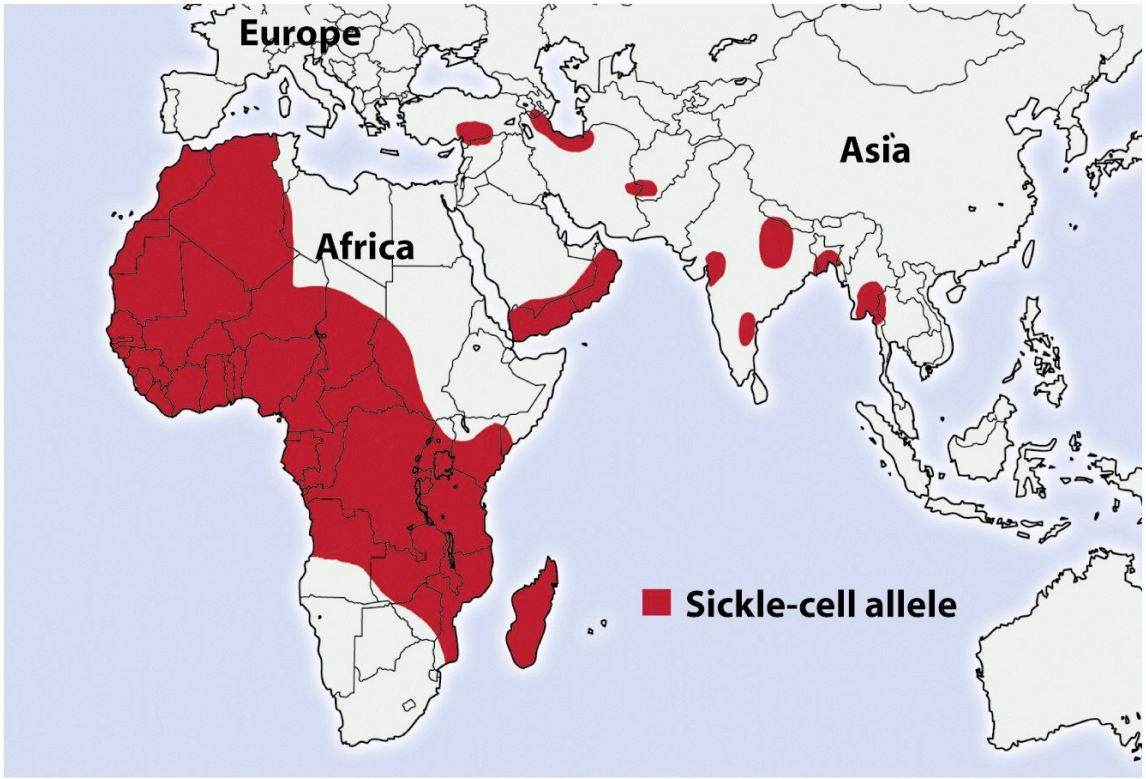
Human evolution

- Current data support “Out of Africa”
  - 1. Very close genetic similarity among individuals from different populations
  - 2. Overall, humans have less genetic diversity than any other great ape- a sign of recent diversification (over time, more alleles would be expected to appear by mutation)
  - 3. Human populations in Africa have more genetic diversity than in other population (African populations are likely older than other populations)

Humans and race

- Are there any markers (alleles) that denote race?
  - No evidence



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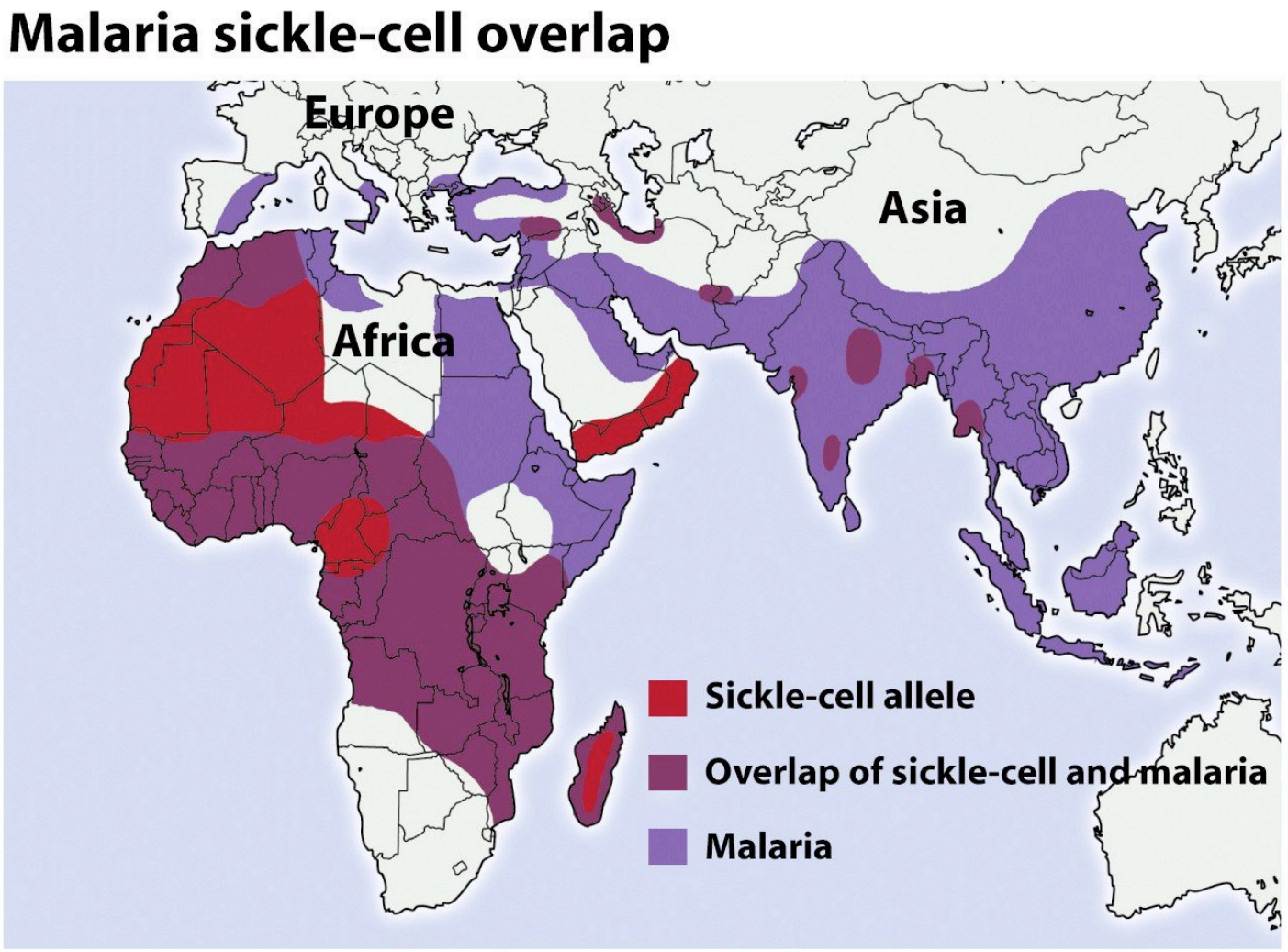
Humans and race



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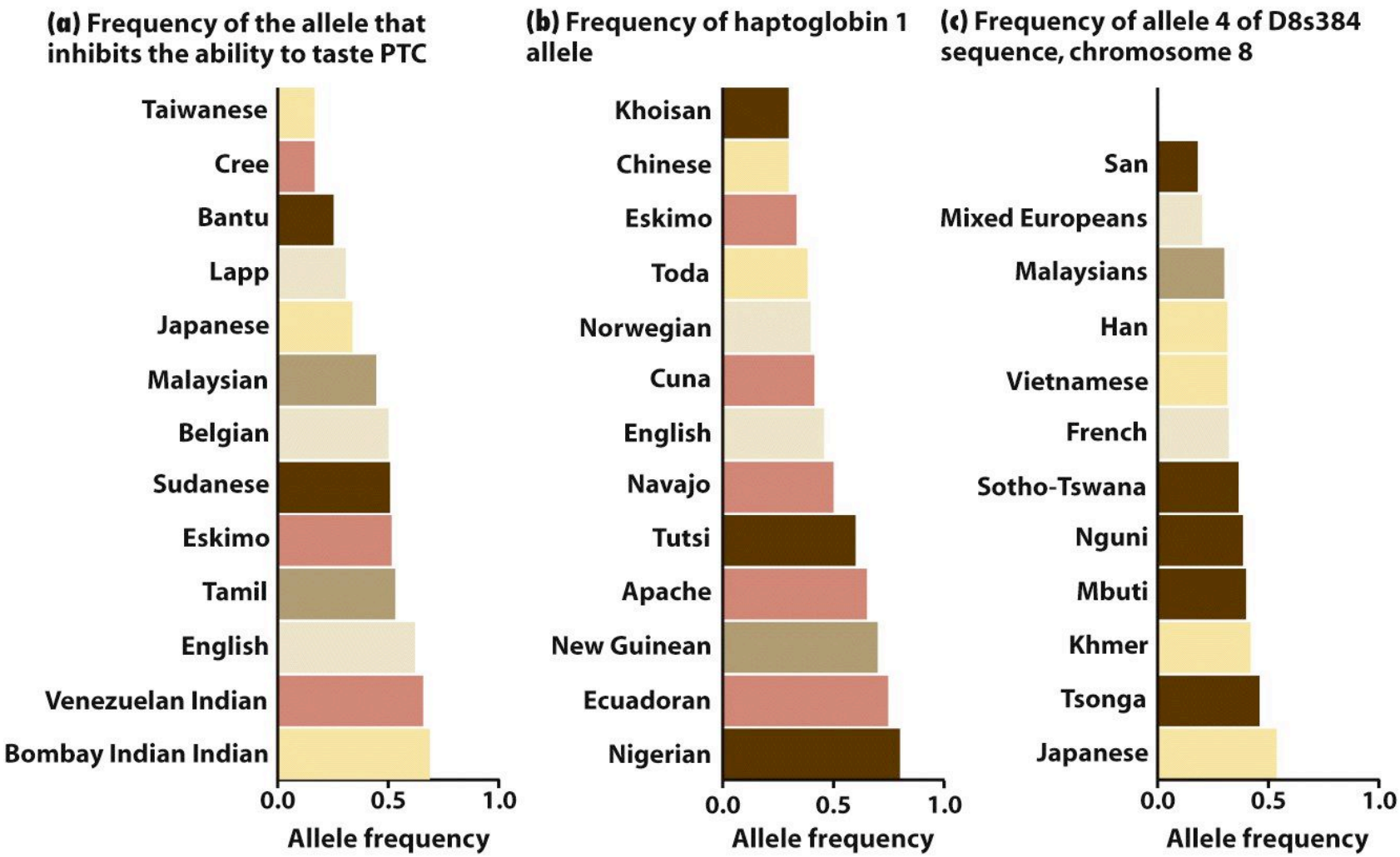
Humans and race

- Populations that are the same race
  - If two populations are the same race THEN they should have alleles that are more similar than two populations of different races
  - This prediction allows for easy tests to be made

Humans and race



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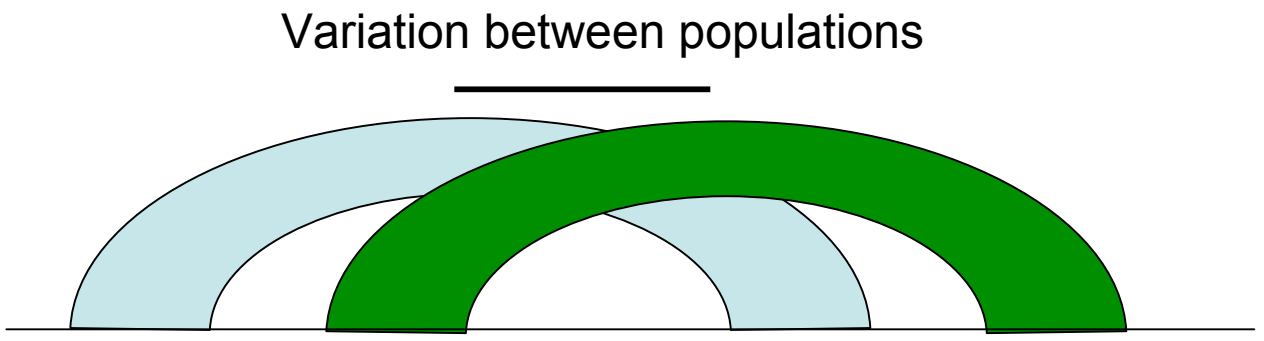
Humans and race

- Lack of isolation may eliminate large-scale genetic differences
  - In humans, there is more genetic variation within a population than there is between populations



Humans and race

- What factors may influence why humans show variation?
  - Natural selection
  - Convergent evolution
  - Genetic drift
  - Sexual selection

Humans

- Natural selection
  - Nose shape
    - May be a function of environment
      - Narrow noses retain more moisture

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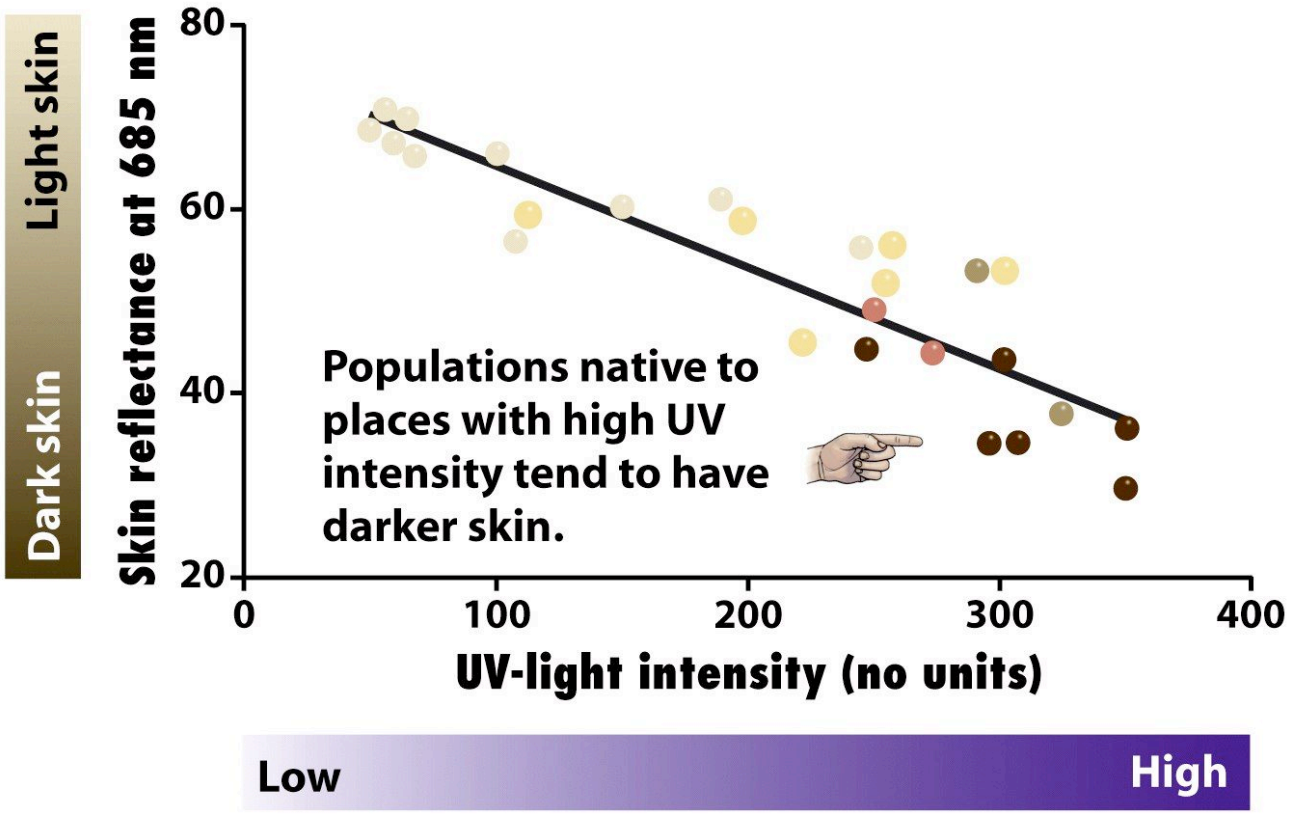
Humans

- Selection and convergent evolution



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Humans

- Genetic drift
  - Amish of Pennsylvania descendants of 200 German settlers
    - Recessive syndrome that causes dwarfism and polydactyly is 5000 times more likely than in non-Amish

Humans

- Sexual selection