

Intro to Bioinformatics

**Lecture 2
Sept 2, 2015**

ANNOUNCEMENTS

SEQUENCING PLATFORMS

- Illumina (@illumina)



SEQUENCING PLATFORMS

- Pacific Biosystems (@PacBio)



SEQUENCING PLATFORMS

- Oxford Nanopore (@nanopore)

<https://www.youtube.com/watch?v=CE4dW64x3Ts>

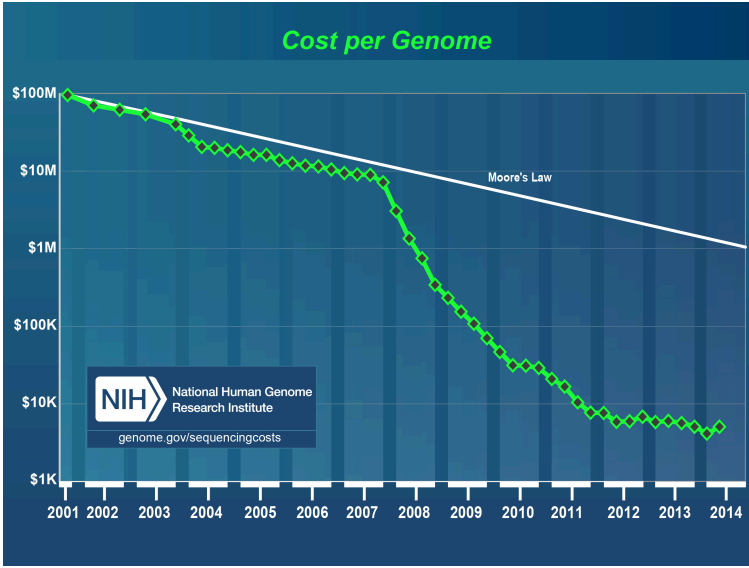
SEQUENCING PLATFORMS

- 454 (@LifeTech)

SEQUENCING PLATFORMS

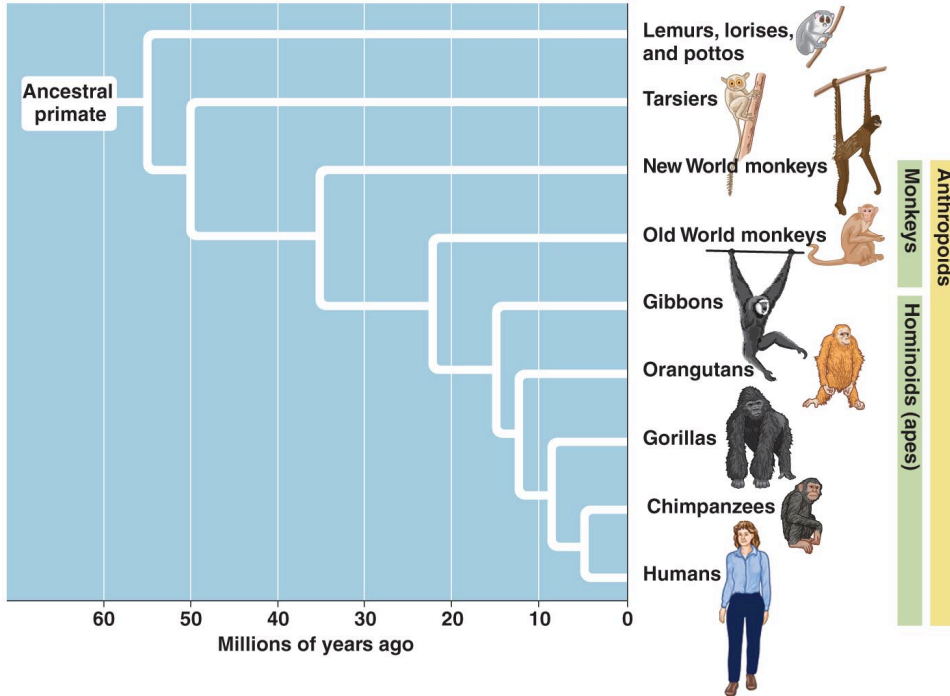
- Sanger

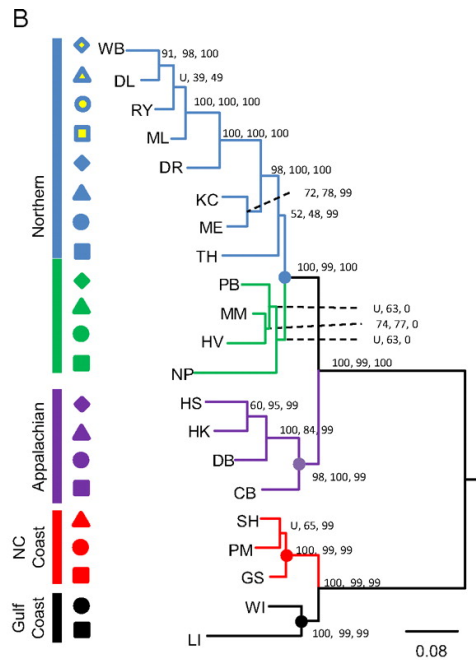
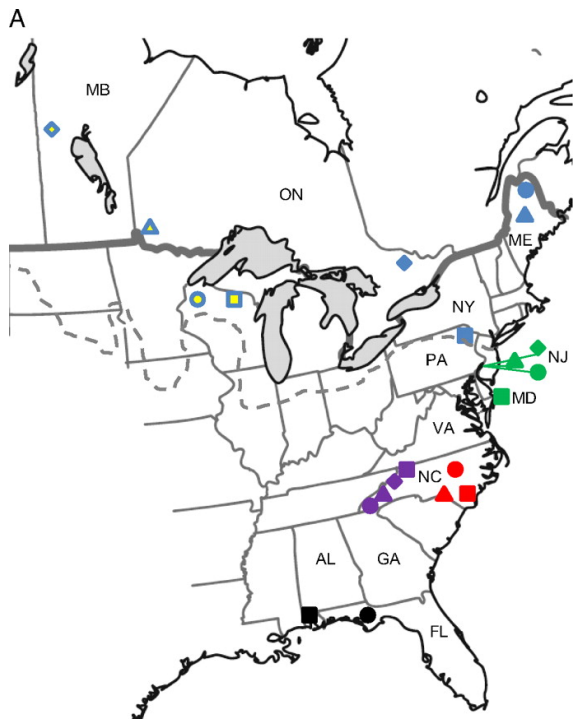
SEQUENCING PLATFORMS



CONTEXT IS EVOLUTION

- Evolution





MECHANISMS OF EVOLUTION

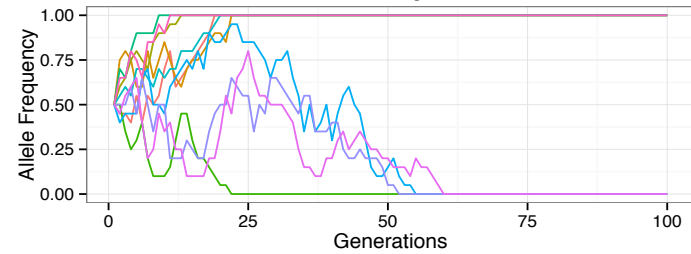
- Gene Flow

MECHANISMS OF EVOLUTION

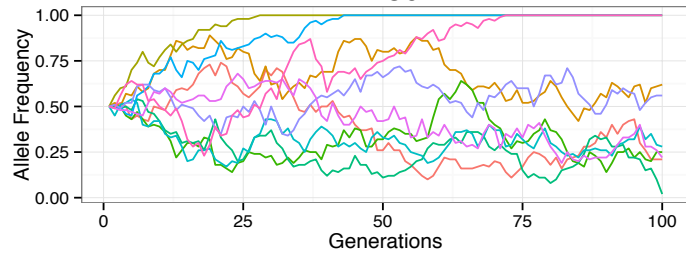
- Genetic Drift

MECHANISMS OF EVOLUTION

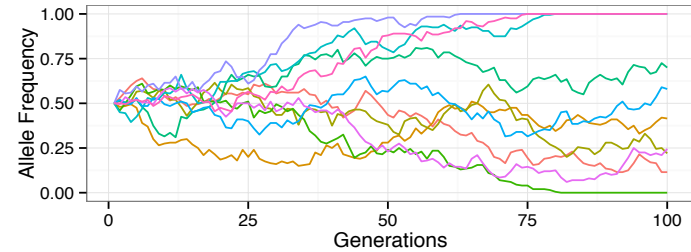
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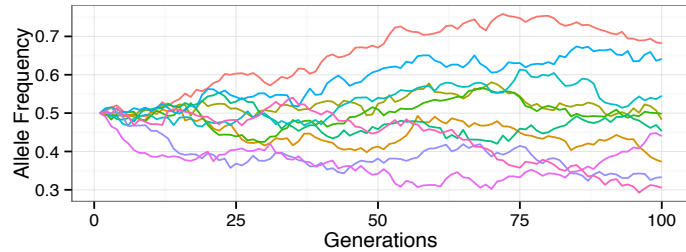
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n=100



n=1000



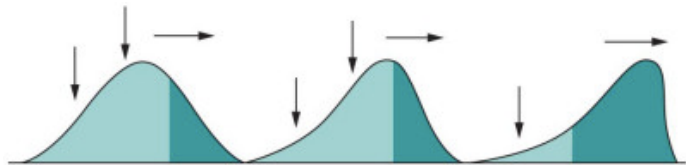
MECHANISMS OF EVOLUTION

- Mutation

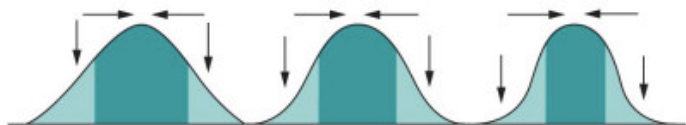
MECHANISMS OF EVOLUTION

- Natural Selection

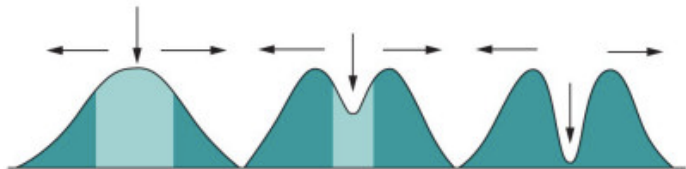
SELECTION



(a) Directional selection



(b) Stabilizing selection

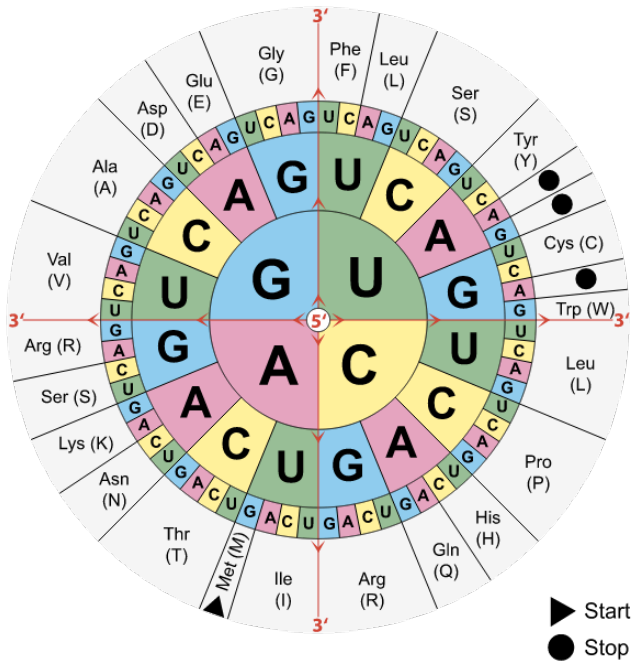


(c) Disruptive selection

SELECTION

- Synonymous change
- Non-synonymous

SELECTION



SELECTION

- dN/dS