

Sequencing Platforms and Evolution

Lecture 3
Sept 3, 2016

ANNOUNCEMENTS

- Reading assignments
- Sign up for AWS

SEQUENCING PLATFORMS

- Oxford Nanopore (@nanopore)



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

<https://youtu.be/btm9lrX1I-Q>

SEQUENCING PLATFORMS

	Illumina	PacBio	ONT
Read Length			
Error Rate			
Throughput			
Expense			

SEQUENCING PLATFORMS

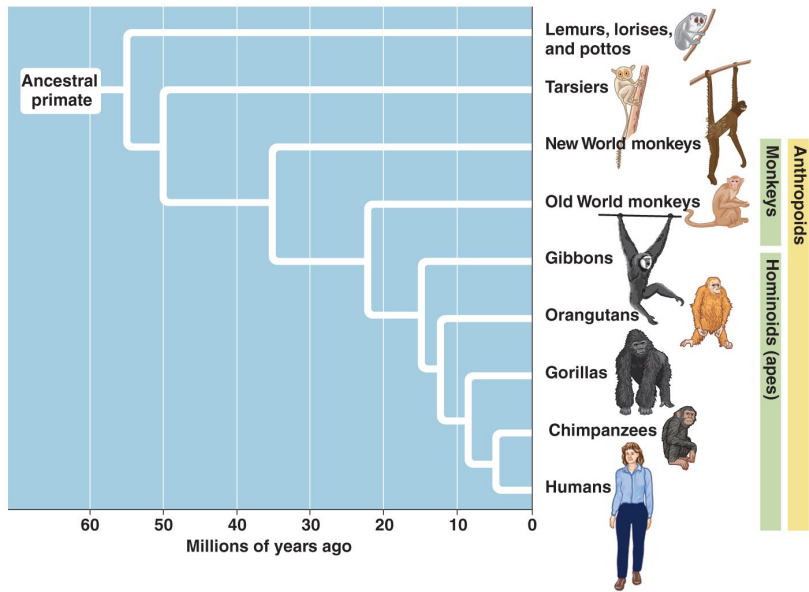
- 454 (@LifeTech)

SEQUENCING PLATFORMS

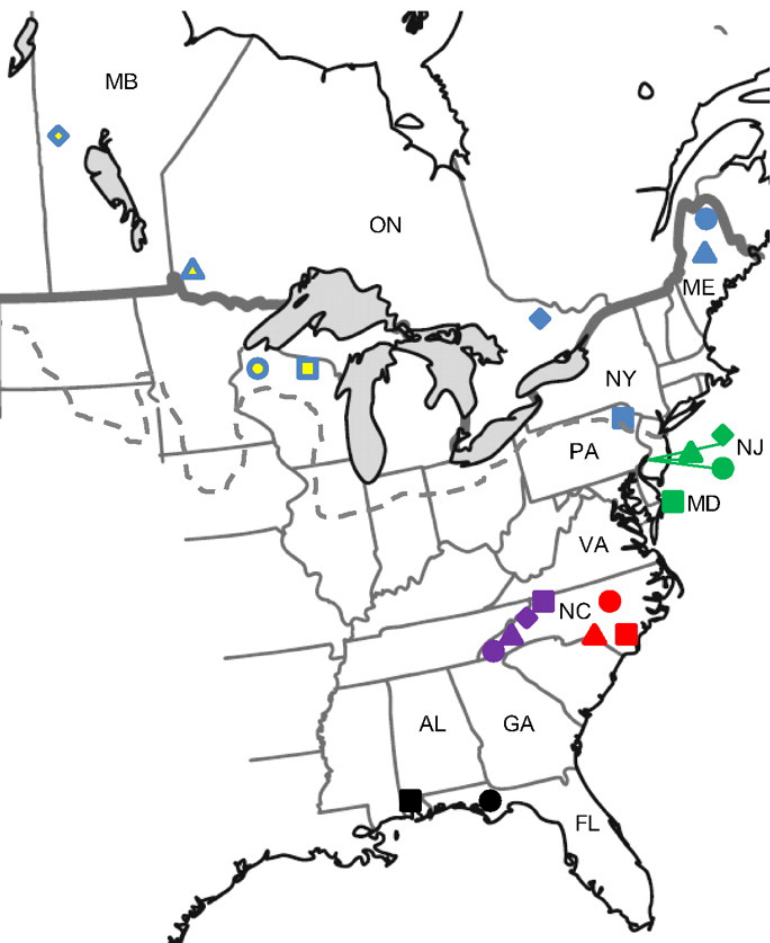
- Sanger

CONTEXT IS EVOLUTION

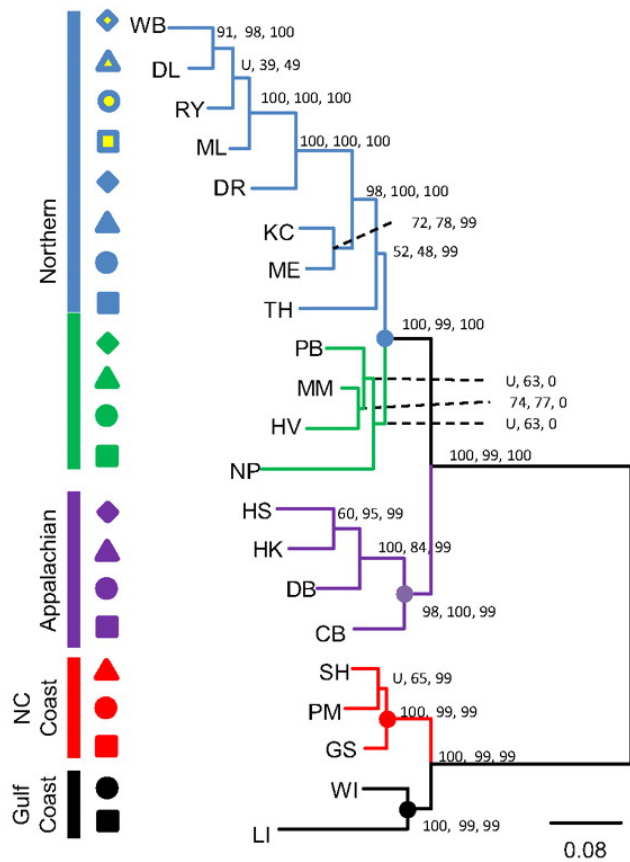
- Evolution



A



B



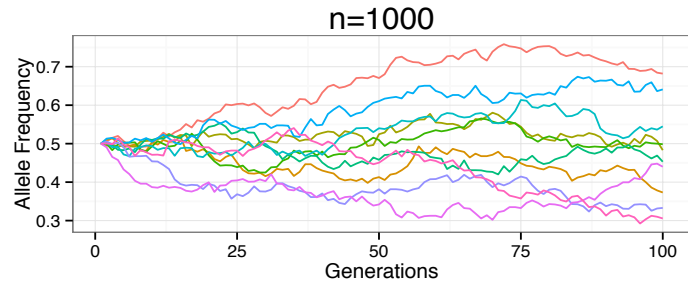
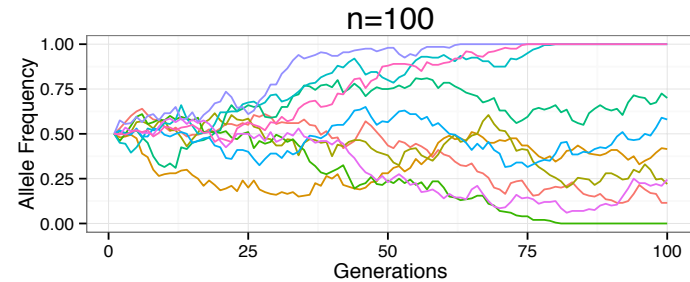
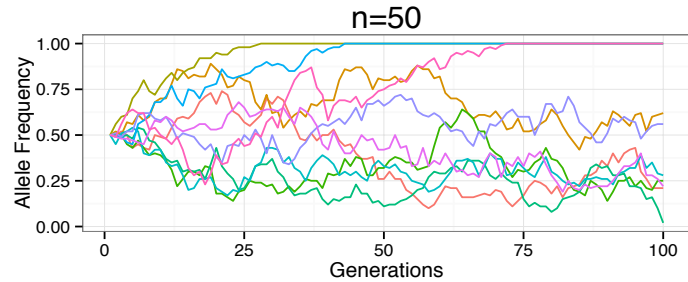
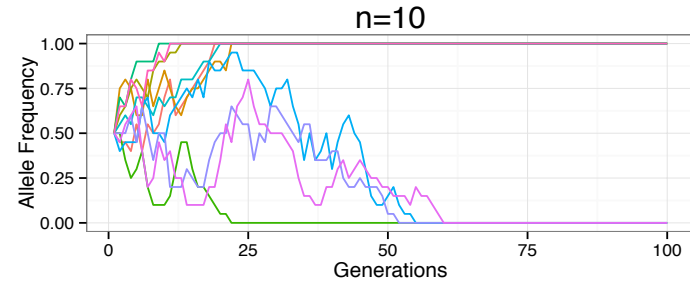
MECHANISMS OF EVOLUTION

- Gene Flow

MECHANISMS OF EVOLUTION

- Genetic Drift

MECHANISMS OF EVOLUTION



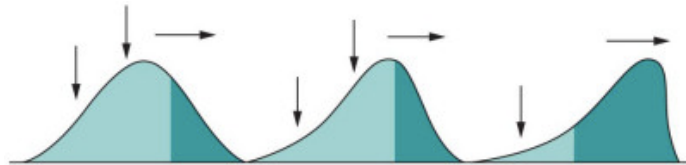
MECHANISMS OF EVOLUTION

- Mutation

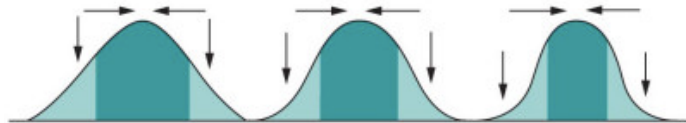
MECHANISMS OF EVOLUTION

- Natural Selection

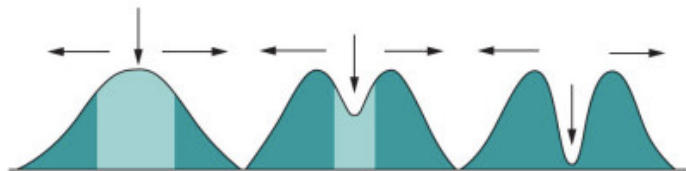
SELECTION



(a) Directional selection



(b) Stabilizing selection



(c) Disruptive selection

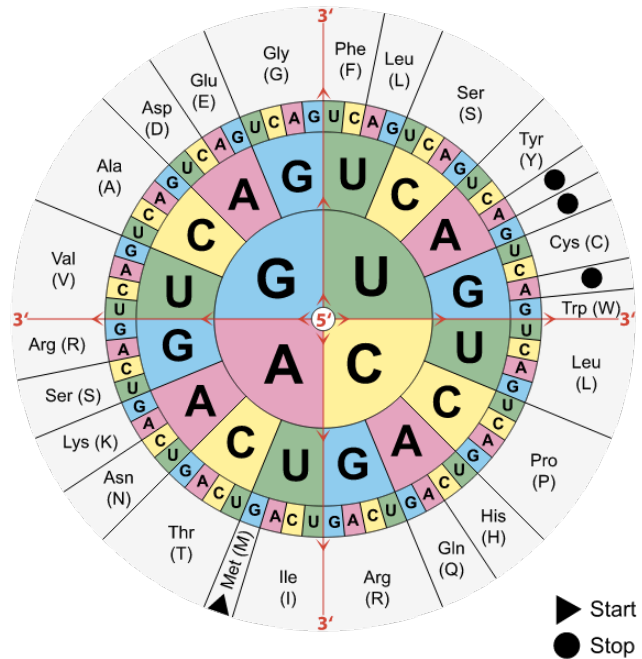
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SELECTION

- Synonymous change
- Non-synonymous

SELECTION

5'-AUGCAGGCAUGA-3'



SELECTION

- dN/dS

Finding Data & Pairwise Alignment

Lecture 2
Sept 9, 2014

FINDING DATA

- Genomics has embraced Open Science & Open Data

[Genbank](#)

[Uniprot](#)

Refseq

Swiss-prot

Pfam

[Ensembl](#)

SRA

ENA

dbSNP

ClinVar

Rdp

[OMIM](#)

[UCSC GB](#)

FINDING CODE

- Genomics has embraced Open Science & Open Data

Github
[Biostars](#)

[Stackoverflow](#)