

LIMITED ACCESS PHYLOGENOMICS A PRIMER

Lester Baldwin

Phylogenomics A Primer Introduction

Phylogenomics - Phylogenomics by CINBIO Centro de investigación 153 views 2 years ago 3 minutes, 53 seconds - Get closer and learn more about the work of our **Phylogenomics**, group, led by David Posada. ??

This group is part of ...

MIT CompBio Lecture 20 - Phylogenomics (Fall 2019) - MIT CompBio Lecture 20 - Phylogenomics (Fall 2019) by Manolis Kellis 1,752 views 5 years ago 1 hour, 22 minutes - Outline for this lecture: 1.

Reconciliation: Mapping gene trees to species trees - Inferring orthologs/paralogs, gene duplication and ...
Introduction

Recap

Outline

Trees

Species

Evolution

Speciation

Gene duplications

New functionalisation

Gene family expansions

Gene tree reconciliation

Inference

Algorithms

Reconciliation

Species Tree

Rates Model

Emergent Model

Common Choice

Decoupling

Genomic Pipeline

Sample Rates

Species Rates

Bayesian Maximum Aposteriori

Maximum Aposteriori

Deep Coalescence

Right Fisher Model

6.047/6.878 Lecture 20 - Phylogenomics (Fall 2020) - 6.047/6.878 Lecture 20 - Phylogenomics (Fall 2020) by Manolis Kellis 1,456 views 4 years ago 1 hour, 28 minutes - OVERVIEW.

Gene family evolution: Definitions

Gene duplication: a major mechanism for creating new genes and functions

Functional effects of duplication and loss

Maximum Parsimony Reconciliation (MPR) algorithm Solve recursively

Inferring events in a gene family

Reconciliation Problem

Some examples of reconciliation (2)

Rates model: rate distributions

Phylogenomic Pipeline

Improved reconstruction accuracy

Wright-Fisher model

Talk by Jonathan Eisen @phylogenomics on \"Networks in genomics: from phylogeny to Twitter\" - Talk by Jonathan Eisen @phylogenomics on \"Networks in genomics: from phylogeny to Twitter\" by Jonathan Eisen 245 views 12 years ago 37 minutes - Slideshow w/ audio for talk by Jonathan Eisen \"Networks in genomics \u0026amp; bioinformatics: from phylogeny to Twitter\"

MPG Primer: Introduction to Terra/AnVIL (2024) - MPG Primer: Introduction to Terra/AnVIL (2024) by Broad Institute 336 views 5 months ago 47 minutes - Medical and Population Genetics **Primer**, May 16, 2024 Broad Institute of MIT and Harvard Anton Kovalsky Data Sciences Platform ...

Phylogenomics And Major Evolutionary Transitions Iker Irisarri - Phylogenomics And Major Evolutionary Transitions Iker Irisarri by LIB 217 views 3 years ago 41 minutes - Digging the information of current genomes to understand our evolutionary past is one of the greatest opportunities of our time.

The Chronicles of Nylanderia: Integrating Phylogenomics and Undergraduate Training - The Chronicles of Nylanderia: Integrating Phylogenomics and Undergraduate Training by Hormigas Neotropicales 562 views 3 months ago 1 hour, 3 minutes - Nylanderia is a large, near-globally distributed ant genus with more than 123 described species and most of its biodiversity ...

MPG Primer: Introduction to population genetics (2024) - MPG Primer: Introduction to population genetics (2024) by Broad Institute 704 views 2 months ago 45 minutes - Medical and Population Genetics **Primer**, Broad Institute of MIT and Harvard Evan Koch Harvard Medical School Introduction to ...

Phylogenomics: inferring evolutionary relationships between microorganisms - Phylogenomics: inferring evolutionary relationships between microorganisms by Meren Lab 3,236 views Streamed 4 years ago 32 minutes - This week, we're going to talk about **phylogenomics**, but actually the discussion will be led by Mike Lee, who is with us right now ...

Phylogeny: How We're All Related: Crash Course Biology #17 - Phylogeny: How We're All Related: Crash Course Biology #17 by CrashCourse 84,040 views 1 year ago 13 minutes, 51 seconds - Crocodiles, and birds, and dinosaurs—oh my! While classifying organisms is nothing new, phylogeny— or, grouping organisms ...

The Platypus \u0026amp; Phylogeny

Taxonomy

Systematics

Phylogeny \u0026amp; Genetics

Dr. Motoo Kimura

Phylogenetic Trees

The Complexities of Evolution

Review and Credits

Phylogeny: A short introduction to the core concepts of trees, homologs, orthologs, and paralogs -

Phylogeny: A short introduction to the core concepts of trees, homologs, orthologs, and paralogs by Lars Juhl Jensen 2,163 views 3 years ago 5 minutes, 25 seconds - A short introduction to the core concepts of phylogeny. The presentation provides a minimal introduction to the basic ideas and ...

Introduction: classification of organisms, evolution of species and genes, terminology, tree construction, tree comparison, and subdivision of homologs

Terminology: taxonomy, taxa, taxonomic levels, phylogeny, phylogenetic species trees, and monophyletic groups / clades

Gene and species trees: multiple sequence alignment, gene tree construction, maximum parsimony, maximum likelihood, species tree construction, marker genes, concatenated alignments, and consensus gene trees

Orthologs and paralogs: tree comparison, speciation and gene duplication events, two types of homologs, and definitions of orthologs and paralogs

The past, present and future of molecular phylogenetics - The past, present and future of molecular phylogenetics by The Genetic Basis of Stuff and Things 1,292 views 1 year ago 5 minutes, 17 seconds -

Molecular phylogenetics focuses on understanding the evolutionary relationships among different species by

analysing their ...

15. Phylogeny and Systematics - 15. Phylogeny and Systematics by YaleCourses 29,848 views 15 years ago 43 minutes - Principles of Evolution, Ecology and Behavior (EEB 122) The Tree of Life must be discovered through rigorous analysis. Genetic ...

Chapter 1. Introduction

Chapter 2. Grouping by Common Ancestry

Chapter 3. Misleading Analogies

Chapter 4. The Process of Phylogenetic Grouping

Chapter 5. The Logic of Grouping by Shared Characteristics

Chapter 6. Summary

Clint Explains Phylogenetics - There are a million wrong ways to read a phylogenetic tree - Clint Explains Phylogenetics - There are a million wrong ways to read a phylogenetic tree by Clint Explains 144,636 views 3 years ago 7 minutes, 45 seconds - Phylogenetic trees are extremely informative and valuable models that most people, even graduate students studying ...

Scott Edwards (Harvard) Part 1: Gene trees and phylogeography - Scott Edwards (Harvard) Part 1: Gene trees and phylogeography by Science Communication Lab 31,789 views 12 years ago 54 minutes - In his first lecture, Dr. Edwards explains that studying gene alleles within different populations or species allows the construction of ...

Intro

Gene trees and phylogeography

A MOLECULAR APPROACH TO THE STUDY OF GENIC HETEROZYGOSITY IN NATURAL POPULATIONS 1. THE NUMBER OF ALLELES AT DIFFERENT

Restriction enzyme analysis

The new population genetics

The first 'gene tree', 1979

"Loss of heterozygosity" effective population size

Variance effective pop. size

Long-term effective population size as harmonic mean of temporal census sizes

Nucleotide diversity in mammals

Determinants of nucleotide diversity in birds

Two rules of gene trees near the species boundary

Counting the number of interpopulation coalescent events

Gene trees and species trees in primates

s as an index of gene flow

Gene flow erodes population monophyly

Genetic differentiation between populations

Identifying outlier loci using F_{st}

Identifying loci under pollution-driven selection using F_{st} and outlier loci

Distribution of F_{st} among

Gene tree monophyly as an indicator of natural selection

Genetic diversity and climate stability

Broad Discovery Series: From genome editing to programmable medicine - Broad Discovery Series: From genome editing to programmable medicine by Broad Institute 4,337 views Streamed 1 year ago 1 hour, 9 minutes - August 15, 2023 Feng Zhang Spurred by the development of CRISPR for genome editing, researchers have for 10 years been ...

LSM2241 Introductory Bioinformatics: Intro to phylogenetics - LSM2241 Introductory Bioinformatics: Intro to phylogenetics by Biotech and Bioinformatics with Prof Greg 4,514 views 3 years ago 13 minutes, 20 seconds - A short video setting some background for LSM2241 students entering phylogenetics.

Introduction

Background

Origin of Species

Darwinism

Landmarks

How to construct DNA libraries using Genotyping-by-Sequencing (GBS)/ddRADseq - How to construct DNA libraries using Genotyping-by-Sequencing (GBS)/ddRADseq by theplantphd 2,684 views 2 years ago 27 minutes - Genotyping-by-Sequencing (GBS) is a method for processing genomic DNA into libraries for next-generation sequencing. GBS is ...

Background

What is ddRADseq?

Why do we use ddRADseq?

Step 1: gDNA dilution

Step 2: digest

Step 3: ligation

Step 4: clean up DNA

Step 5: PCR

Step 6: qubit

Step 7: pooling

Acknowledgements

Introduction to phytools and phangorn: Phylogenetics tools for R - Introduction to phytools and phangorn: Phylogenetics tools for R by phyloseminar.org 19,071 views 11 years ago 59 minutes - Liam Revell, UMass Boston and Klaus Schliep, University of Paris December 15, 2011.

Getting started

Computing distances

Maximum Parsimony

Bootstrap

MPG Primer: Introduction to Pharmacogenetics (2024) - MPG Primer: Introduction to Pharmacogenetics (2024) by Broad Institute 868 views 5 months ago 41 minutes - Medical and Population Genetics **Primer**, May 30, 2024 Broad Institute of MIT and Harvard Josephine Li Massachusetts General ...

MPG Primer: PheWAS, UKBB (2024) - MPG Primer: PheWAS, UKBB (2024) by Broad Institute 1,457 views 7 months ago 46 minutes - March 14, 2024 Medical and Population Genetics **Primer**, Broad Institute of MIT and Harvard Wei Zhou Stanley Center Genetics, ...

EBD Seminars | Phylogenomics and major evolutionary transitions. - EBD Seminars | Phylogenomics and major evolutionary transitions. by Estación Biológica de Doñana EBD-CSIC 376 views Streamed 3 years ago 57 minutes - Abstract: Major transitions in evolution can be defined as those involving drastic habitat shifts or changes in organismal ...

Major evolutionary transitions

Symbiosis creates new emerging properti

Photosynthesis \u0026amp; photoautotrophy

Origin of plastids (Archaeplastida) PLASTID

Endosymbiosis, multicellularity, terrestrial.

Lungfishes: closest living relatives of tetra

Systematic error: precision vs. accuracy.

Fin-to-limb transition

MPG Primer: Clinical Variant and Gene Classification (2023) - MPG Primer: Clinical Variant and Gene Classification (2023) by Broad Institute 1,702 views 11 months ago 49 minutes - October 26, 2023 Medical and Population Genetics **Primer**, Broad Institute of MIT and Harvard Heidi Rehm Broad Institute Broad ...

MIT CompBio Lecture 20 - Phylogenomics - MIT CompBio Lecture 20 - Phylogenomics by Manolis Kellis 7,367 views 6 years ago 1 hour, 19 minutes - Lecture 20 - **Phylogenomics**, 1. Reconciliation: Mapping gene trees to species trees - Inferring orthologs/paralogs, gene ...

Intro

Definitions: Gene trees evolve inside a species tree

Gene family evolution: Definitions

Gene duplication: a major mechanism for creating new genes and functions

How often do gene duplications/losses occur? Estimating rates of duplication and loss

Functional effects of duplication and loss
Maximum Parsimony Reconciliation (MPR) algorithm Solve recursively
Inferring events in a gene family
Reconciliation Problem
Some examples of reconciliation (2)
Species tree reconstruction
Using species tree to improve gene tree reconstruction
Rates model: rate distributions
Phylogenomic Pipeline
Reconstruction using SPIMAP model We find the maximum a posteriori tree
Improved reconstruction accuracy
Wright-Fisher model
Coalescent model
Simulating the coalescent
Multispecies coalescent
MPG Primer: Modeling rare variation and calculating genetic constraint (2023) - MPG Primer: Modeling rare variation and calculating genetic constraint (2023) by Broad Institute 1,355 views 1 year ago 49 minutes - October 12, 2023 Medical and Population Genetics **Primer**, Broad Institute of MIT and Harvard Kaitlin Samocha Center for ...
Fungal phylogenomics: Getting lost in the moldy forest - Fungal phylogenomics: Getting lost in the moldy forest by phyloseminar.org 595 views 11 years ago 54 minutes - Jason Stajich, UC Riverside June 29, 2011.
Intro
Fungi are an old group of organisms
Awash in Fungal Genomes
Tools to access this data
Searching with FungiDB: A strategy for drug targets
Using comparative genomics towards understand pathogen evolution
Models for comparing gene family size changes
Human pathogen *Coccidioides* Life cycle
Studying the evolution of a pathogen
Gene family changes
Population genomics
Towards identifying genes underlying adaptation
Batrachochytrium dendrobatidis (Bd)- a major cause of amphibian decline
Bd genome sequence projects
Phylogenomic profiling
Expansion of CBM18 domain - Chitin binding gene family
Acknowledgements
MPG Primer: The importance of phenotype definition (2015) - MPG Primer: The importance of phenotype definition (2015) by Broad Institute 1,036 views 9 years ago 53 minutes - MPG **Primer**,: The importance of phenotype definition Jordan Smoller, M.D., Sc.D The **Primer**, on Medical and Population Genetics ...
Introduction
The DSM
What makes a good phenotype
Questions to ask
Family study
Heritability
Example
Classification
Rules of Thumb
Controls
Populationbased controls

Complex phenotypes
Largescale studies
Genetic studies
Subtyping
Stroke
Genetic Architecture
Reducing Data
Intermediate Phenotypes
Endo phenotypes
Enigma consortium
Phenotype spectrum
VWAS
Summary

27-Jun-2024: Ecology and Phylogenetics/Phylogenomics - 27-Jun-2024: Ecology and
Phylogenetics/Phylogenomics by Evolution Meetings 32 views 3 months ago 1 hour, 2 minutes
MPG Primer: The importance of phenotype definition (2016) - MPG Primer: The importance of phenotype
definition (2016) by Broad Institute 947 views 8 years ago 52 minutes - MPG **Primer**,: The importance of
phenotype definition Jordan Smoller, M.D., Sc.D The **Primer**, on Medical and Population Genetics ...

The Phenome
Issues in Phenotyping
Estimated Heritability
SNP-Chip Heritability
High-throughput Phenotyping
EHR-driven Genotyping: Deriving Valid Phenotypes at Scale
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