DNA sequencing to identify species

Follow-up to Wild Yeast Isolation Project

November 14, 2018

A common part of the genome of all organisms

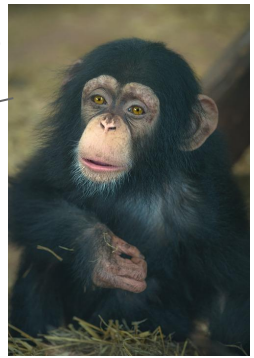
Different DNA is (mostly) what makes organisms different, so there are not many parts of the genome that are similar enough to compare between species, but different enough to be unique for each species.

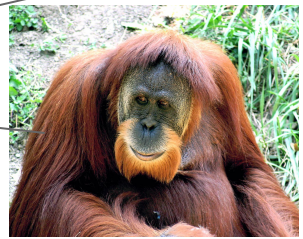
The “rDNA” sequences are among the few that can work.

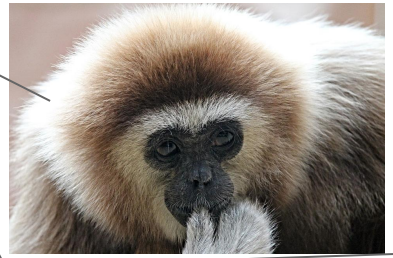
The next slide will show you an example for a small bit of rDNA sequence and some vertebrate species

rDNA sequence alignments for vertebrates

Human	**GGAAGGATCATTA**ACG-GAGCCC
Chimpanzee	**GGAAGGATCATTA**ACG-GAGCCG
Orangutan	**GGAAGGATCATTA**ACG-GAGCGA
Gorilla	**GGAAGGATCATT-ACG-G**AGCGA
Gibbon	**GGAAGGATCATTA**ACG-GGACGG
Rat	**GGAAGGATCATTA**ACG-GAGAAG
Guinea pig	**GGAAGGATCATTA**ACG-GACGAT
Rabbit	**GGAAGGATCATTA**ACG**A**G**A**CCGG
Armadillo	**GGAAGGATCATTA**ACG**A**G**A**GGAG







Now you use rDNA sequences to identify yeast!

- Choose a sequence file from this Google Drive folder (choose any class folder you want): https://drive.google.com/drive/folders/1yQ4PBbAAN36AOTlDgcj_0YKfufdHG-7O?usp=sharing

- Point your browser to https://blast.ncbi.nlm.nih.gov/Blast.cgi

- click on “Nucleotide BLAST”

- paste the sequence in the "Enter Query Sequence” field

- click the “BLAST” button about half-way down the screen

- Scroll down to list of “hits”

- Enter species in Google Form and submit: https://docs.google.com/forms/d/e/1FAIpQLSddnb4lPu0t1Zb-o31L6EnP0G5Fo3SaRtI24FKvDnZKc25imw/viewform?usp=sf_link

Basic Local Alignment Search Tool

BLAST finds regions of similarity between biological sequences. The program compares nucleotide or protein sequences to sequence databases and calculates the statistical significance. Learn more

NEWS

Learn how to use BLAST

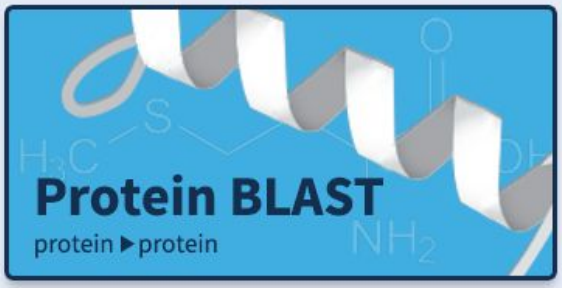
See our collection of webinars and tutorials designed to help you.
Wed, 17 Oct 2018 15:00:00 EST

More BLAST news...

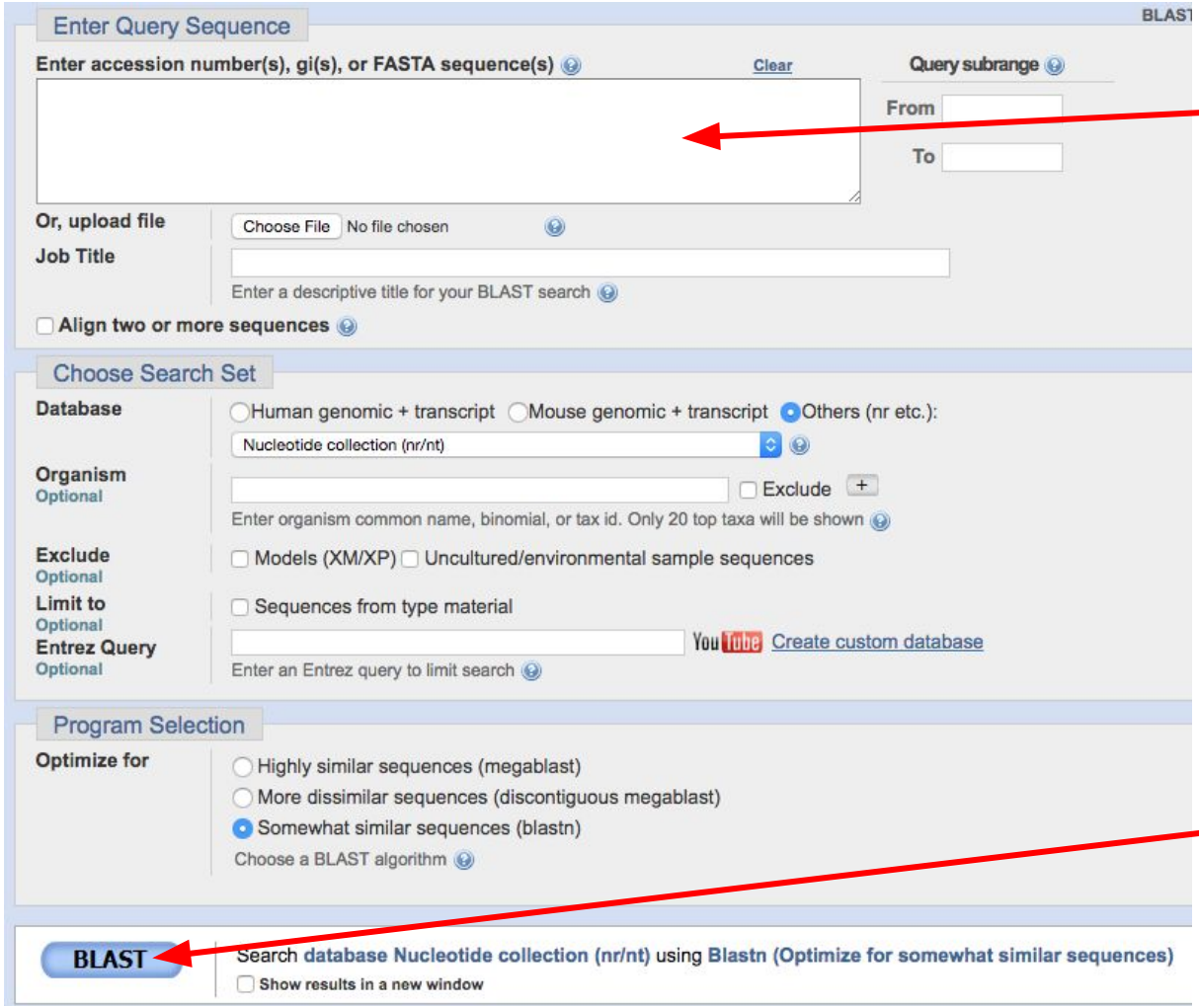
Web BLAST

blastx
translated nucleotide ▶ protein

tblastn
protein ▶ translated nucleotide



Click here!



Paste here

Then click here