

Acces PDF

Cytochrome C

Comparison Lab

Answers

Cytochrome C Comparison Lab Answers

Cytochrome c - A
Model Protein for
Molecular Evolution ...

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Science-lab:

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GENERAL BIOLOGY

LABORATORY

EXERCISE Amino A S A

ytochrome ...

Mol Phyl lab -

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Massachusetts Boston

Answer Key-The

Molecular Connection -
PBS

comparing primates

lab answer key - Bing

Lesson: Molecular

Biology & Phylogeny

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Metabolism:

Cytochrome C in

Humans Compared to

Other ...

Cytochrome c equine

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recombinant,
expressed in E. coli ...

Chapter 16 Lab Amino
Acid Sequences:
Indicators of Evolution

Name Pre Lab:
Phylogeny

Evidence of Evolution-
Answers in gray

Background Fossils

L.11 Cytochrome C
Comparison Lab - Liza's
Science Lab E ...

Cytochrome C
Comparison Lab

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Answers

Using Molecular
Evidence in
Classification: the
Cytochrome ...

~~Cytochrome c—A
Model Protein for
Molecular Evolution ...
Evidence of Evolution
... Compare the
skeletal structure of
each limb to the
human arm. Relate the
differences you see in
form to ... Cytochrome~~

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c is a protein found in mitochondria. It is used in the study of evolutionary relationships because most animals have this protein. Cytochrome c is made of 104 amino acids joined together.

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answers PDF section 1
primates â€¦ ...

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Comparison Lab

~~Science lab:~~

~~Cytochrome C~~

~~Comparison Lab~~

Cytochrome C consists of about 100 amino acids. In different species, the amino acid sequences for cytochrome C are similar but not identical. In this lab, we will use bioinformatics to analyze similarities and differences in amino acid sequences for cytochrome C in

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Comparison Lab

two species of bacteria
and four species of
eukaryotes (2 humans,

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~~Bloomington~~

Cytochrome-C
Comparison Lab

PURPOSE: To compare
the relatedness
between organisms by
examining the amino
acid sequence in the
protein, Cytochrome C.

~~cytochrome c~~
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Cytochrome C

Comparison Lab

~~comparison lab~~
~~Cytochrome C~~
~~Comparison Lab ...~~

Part 3: Compare cytochrome C differences. Each group of four should verify that they have the correct number of differences for each organism with the teacher. Next, they should answer the analysis questions together. (Note: This year unlike past years my students really

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Cytochrome C
Comparison Lab
struggled with this lab.
I conducted informal
student interviews and
...

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Name . Period . Date .
Science Cytochrome C
Comparison Lab
PURPOSE: To compare
the relatedness
between organisms by
examining the amino
acid sequence in the
protein, Cytochrome C.

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Cytochrome C

Comparison Lab

BACKGROUND: Genes are made of DNA and are inherited from parent to offspring. Some DNA sequences code for mRNA which, in turn, codes for the amino acid sequence of proteins.

~~GENERAL BIOLOGY~~

~~LABORATORY~~

~~EXERCISE Amino Acid~~

~~cytochrome ...~~

In this lab, we will use the amino acid

Acces PDF Cytochrome C Comparison Lab Answers

sequence of the protein cytochrome c to examine the evolutionary connections between species. Cytochrome c is an essential part of cellular respiration and was presumably present in the first air-breathing ancestor of all modern animals and plants.

~~Mol Phyl lab
University of
Massachusetts Boston~~

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Cytochrome C

Comparison Lab

GENERAL BIOLOGY

LABORATORY

EXERCISE . Amino . A.
cid . S. equence . A.
nalysis of . C.

ytochrome C in . B.

acteria and Eukarya .

U. ... Comparison of
Cytochrome C

sequence in 5 species

Using SeaView . Use

your alignment of

cytochrome C

sequences in SeaView

to answer the following

questions. 1. Which

domain of life looks

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Comparison Lab
more diverse, bacteria
Answers

~~Answer Key The
Molecular Connection—
PBS~~

Cytochrome c has been identified as an important mediator in apoptotic pathways.

The release of mitochondrial cytochrome c into the cytoplasm stimulates apoptosis and is commonly used as an indicator of the

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Cytochrome C

Comparison Lab

apoptotic process in
the cell. Cytochrome c
is primarily known as
an electron-carrying
mitochondrial protein.

~~comparing primates~~

~~lab answer key~~ Bing

Evidence of Evolution-
Answers in gray ...

Comparison to Human
Arm in Function ...

Cytochrome c is a
protein found in
mitochondria. It is used
in the study of
evolutionary

Access PDF

Cytochrome C

Comparison Lab

relationships because most animals have this protein. Cytochrome c is made of 104 amino acids joined

~~Lesson: Molecular Biology & Phylogeny~~

In this lab, we will use the amino acid sequence of the protein cytochrome c as a 'molecular clock'. Cytochrome c is an essential part of cellular respiration and was presumably ...

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Comparison Lab

cytochrome c

molecules will be. We

will compare the amino

acid sequences of

cytochrome c ... Mol

Phyl lab ...

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In Part A of this lab,

you will compare

amino acid sequences

of hemoglobin from

eight mammals. In Part

B, you will analyze data

about sequences in a

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second

protein—cytochrome c.

In Part B, the

organisms will be more varied. Skills Focus

Analyze Data, Graph,

Draw Conclusions Build

Vocabulary ... Sample

answer: Mutations did

occur, ...

~~Metabolism:~~

~~Cytochrome C in~~

~~Humans Compared to~~

~~Other ...~~

L.11 Cytochrome C

Comparison Lab

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Cytochrome C

Comparison Lab

PROTEINS AND

EVOLUTION ... As a result, the amino acid sequence of Cytochrome C also changes. Cells without usable Cytochrome C are unlikely to survive. The cytochrome C is a small protein found loosely associated with the inner membrane of the mitochondrion. It is found in eucariotic cells and has an heme protein.

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Comparison Lab

~~Cytochrome c equine recombinant, expressed in E. coli ...~~

18. Cytochrome c is a protein used in cellular respiration in many species. Refer to Model 3 to answer the following questions about cytochrome c.

a. How many different species are represented in the cytochrome c amino acid sequences? Eight.

b. What do the individual letters

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Comparison Lab
Answers

represent? Amino acids. c. What do the asterisks represent?

~~Chapter 16 Lab Amino Acid Sequences: Indicators of Evolution~~
Compare the sequence of amino acids (letters) in human Cytochrome-c to the sequences for each of the 5 remaining animals (shown in the diagram below) by counting the number of differences.
HINT: Highlight or

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underline the organism being checked, then circle each amino acid which is different from the one above it in the human sequence (use pencil).

~~Name Pre Lab:~~

~~Phylogeny~~

Answer Key-The
Molecular Connection

1. Find the human, rhesus monkey, kangaroo, snapping turtle, bullfrog, and tuna on the "Amino

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Comparison Lab

Acid Sequences in
Cytochrome-C Proteins
from 20 Different
Species" chart pro-
vided and underline
their names. 2.

Compare the human
amino acid sequence
with each of these five
animals by counting
the

~~Evidence of Evolution-~~
~~Answers in gray~~

~~Background Fossils~~

Cytochrome c is a
highly conserved ~12

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kDa protein consisting of a single 104 amino acid peptide with a single heme group, which is covalently attached to Cys and Cys. Because of its ubiquitous nature and sequence homology, cytochrome c has been used as a model protein for molecular evolution.

~~L.11 Cytochrome C~~

~~Comparison Lab Liza's~~

~~Science Lab E ...~~

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Comparison Lab

Cytochrome C

Comparison Lab

Purpose: To compare the relatedness between organisms by examining the amino acid sequence in the protein Cytochrome C.

Background:

Cytochrome C is a protein involved in using energy in the cell. Cytochrome C is found in most, if not all, eukaryotes. Over time, random mutations in the DNA

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sequence occur.
Answers

~~Cytochrome C
Comparison Lab
Answers~~

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Science Cytochrome C
Comparison Lab

PURPOSE: To compare
the relatedness
between organisms by
examining the amino
acid sequence in the
protein, Cytochrome C.

BACKGROUND: Genes
are made of DNA and

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are inherited from parent to offspring. Some DNA sequences code for mRNA which, in turn, codes for the amino acid sequence of proteins.

~~Using Molecular Evidence in Classification: the Cytochrome ...~~

c a q c h t v e k g g k h
k t g p n l h g l f g r k t
g q a p g f t y t d a gray
whale..... - - - - - g

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Comparison Lab
Answers
k k i f v q k c a q c h t v
e k g g k h k t g p n l h
g l f g r k t g q a v g f s
y t d a [continued from
above] 60 70 80 90
100 110

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