

A Whale of a Tale:

Using BLAST to Identify the Source of Mitochondrial DNA from Whales

Scenario #2:

Background:

After receiving a tip that restaurant in New York City was serving whale meat, the police conducted a raid and found containers in the refrigerator labeled “whale meat.” The Marine Mammal Protection Act of 1972 makes it illegal for any person residing in the United States to:

- *Kill, hunt, injure or harass all species of marine mammals, regardless of their population status*
- *Import marine mammals or products made from them into the United States*

Possession of the whale meat is a serious crime. For violating the Marine Mammal Protection Act, the restaurant owners could be facing a civil penalty up to \$11,000 and criminal penalties up to \$100,000 and up to a year of in prison. If the whale meat came from an endangered species, such as blue, fin or humpback whales, the penalties are even steeper, including larger fines. The restaurant owners claim the confiscated meat pieces were actually venison. The restaurateurs claim they were deceiving customers by passing off the much less expensive deer meat as whale meat, which people say has a similar flavor.

You are part of the NOAA (National Oceanic and Atmospheric Administration) Law Enforcement team. Your task is to identify if these samples are, in fact, whale meat. If they are, you will also need to determine the species of whale from which the meat samples came in order to properly prosecute the restaurant owners. To do this, you will take mitochondrial DNA sequences from the suspected whale meat samples and compare them to the known sequences of different whale species using BLAST (Basic Local Alignment Search Tool) from the National Center for Biotechnology Information (NCBI).

Resources

Laws Protecting Whales

<https://www.animallaw.info/article/overview-laws-and-regulations-protecting-whales>

Endangered Species Act

http://www.gc.noaa.gov/documents/gces/6-ESA/esa_1208.pdf

http://www.endangeredspecieshandbook.org/legislation_endangered.php

NOAA Law Enforcement

http://www.nmfs.noaa.gov/stories/2012/10/10_02_12mmpa_enforcment_story.html

Case of Whale Meat at a Santa Monica Restaurant

<http://www.latimes.com/local/lanow/la-me-ln-sushi-chef-whale-meat-20150518-story.html>



Photo by Stefan Powell