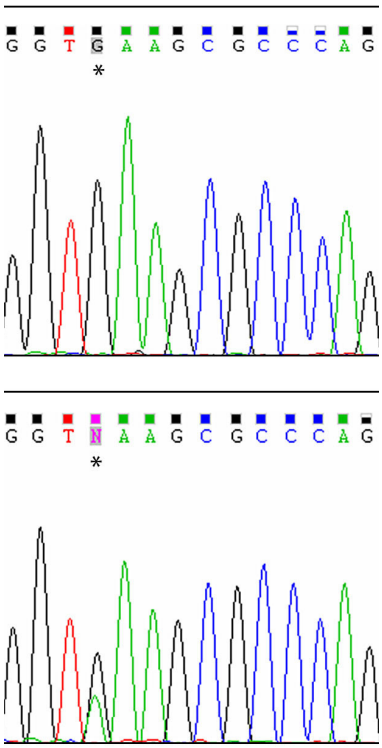
DNA BARCODING KIT

UTEX Teaching Kits

WHAT IS DNA BARCODING?

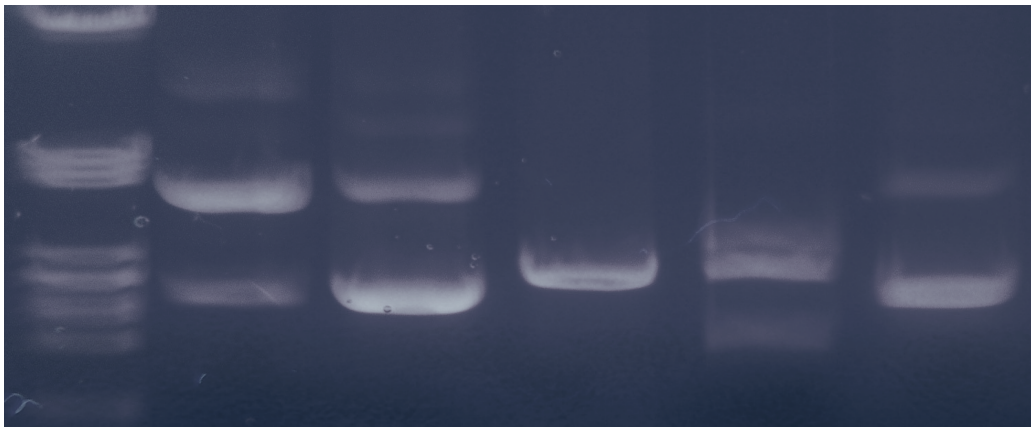
A DNA barcode is a short genetic marker or combination of such markers that can be used to create a unique fingerprint for identification of a wide range of organisms. In order for a marker to be effective as a DNA barcode, it should, ideally, have sufficient sequence variation to distinguish between closely related species, exist in all taxa, be capable of amplification by universal primers, and sequence cleanly. A number of markers that meet these criteria have been identified for microalgae including eukaryotic ribosomal RNA genes in the nucleus (18s and ITS), bacterial ribosomal RNA genes in cyanobacteria and chloroplasts (ITS, 16s and 23s), and mitochondrial cytochrome oxidase genes (cox1 and cox2).

This kit includes four genera of microalgae from two kingdoms of life (Plantae and Chromista). It also includes UTEX standard protocols for DNA purification, PCR amplification of the nuclear internal transcribed spacer region and the chloroplast 23s ribosomal DNA gene, and a basic bioinformatics protocol. These protocols are effective for extraction of DNA and PCR amplification of barcoding regions from a wide variety of microalgae.



MICROALGAE BARCODING OVERVIEW

The identification of microalgae has traditionally been performed by the use of light and electron microscopy in combination with growth kinetics, assessment of nutritional requirements, and metabolic product characterization. These can be extremely effective tools in the hands of experienced phycologists but these methods can be time consuming and the identification of algae with relatively few morphological keys is often problematic. The proliferation of readily available and relatively inexpensive PCR and DNA sequencing technologies has made DNA barcoding an accessible means of identifying microalgae for most laboratories.



INCLUDED WITH THIS KIT

- Genomic DNA Extraction Protocol
- Amplification of the 23s rDNA Region from Cyanobacteria and Chloroplasts of Eukaryotic Microalgae PCR Protocol
- Nuclear ITS PCR Protocol
- Bioinformatics Worksheet
- UTEX 2714 *Chlorella vulgaris*
- UTEX 646 *Phaeodactylum tricornutum*
- UTEX 1237 *Scenedesmus dimorphus*
- UTEX 2164 *Nannochloropsis oculata*

Any of your cultures arrive in a non-viable condition? Submit a replacement request within 48 hours of receiving this kit by scanning the QR code.
Unable to scan the QR code? Visit **http://bit.ly/request-replacement** on your desktop or mobile device.