

Increased DNA barcode recovery using Platinum® Taq

Application

High DNA barcoding production rates demand high success in amplification of the barcode region. One particularly critical element for PCR amplification is the polymerase enzyme. Although there are many versions of *Taq* polymerase, the Canadian Centre for DNA Barcoding (CCDB) has traditionally employed standard *Taq* because of its low cost and satisfactory performance. However, in high throughput DNA barcoding, the benefits of higher performance may offset higher costs by reducing the necessity for re-amplification of challenging samples. Determining an optimal balance of reagent cost and performance is critical.

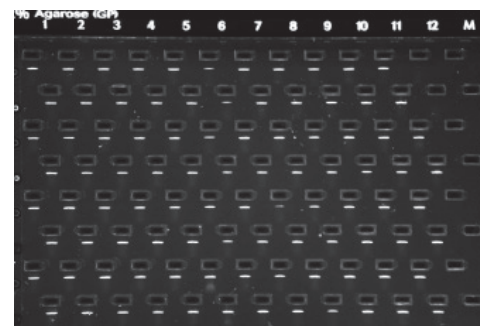
Method Overview

During the testing of DNA barcoding protocols across a broad range of taxonomic groups, from insects to mammals, it was clear that one higher-cost polymerase from Invitrogen™¹ (Platinum® *Taq* DNA Polymerase^a) delivered both greater-intensity amplicons and amplification success in cases where standard *Taq* failed. In further testing, several different high efficiency *Taq* polymerases were evaluated and compared. Results indicated that Platinum® *Taq* offers the highest performance, and it is now the standard PCR enzyme used by the CCDB.

Platinum® *Taq* also offers a number of benefits over standard *Taq* polymerases. It is a robust enzyme that needs less optimization compared to standard *Taq*. This feature is particularly useful in high throughput environments where a diversity of tissue types may be processed. As Platinum® *Taq* requires a “hot start” for activation, there is less enzyme breakdown and fewer non-specific PCR amplicons. Platinum® *Taq* is also stable at room temperature, allowing for advanced preparation and storage of PCR plates for future use.

At a glance

- » Platinum® *Taq* costs more than standard *Taq* polymerases
- » Yields much higher success rate
- » Requires less optimization
- » Requires a “hot start” for activation
- » Stable at room temperature



Platinum® *Taq* DNA Polymerase (Invitrogen™) outperformed standard *Taq* polymerases tested. In a four-replicate trial run on two 96-well plates using DNA extractions from insects, amplification using Platinum® *Taq* was 100% successful whereas the success rate for other PCR enzymes varied. PCR reactions using Platinum® *Taq* yielded high-intensity amplicons when visualized on gels (above).

More Information:

1. Invitrogen™ (www.invitrogen.com)

Materials:

- a. Platinum® *Taq* DNA Polymerase, Catalogue Number 10966