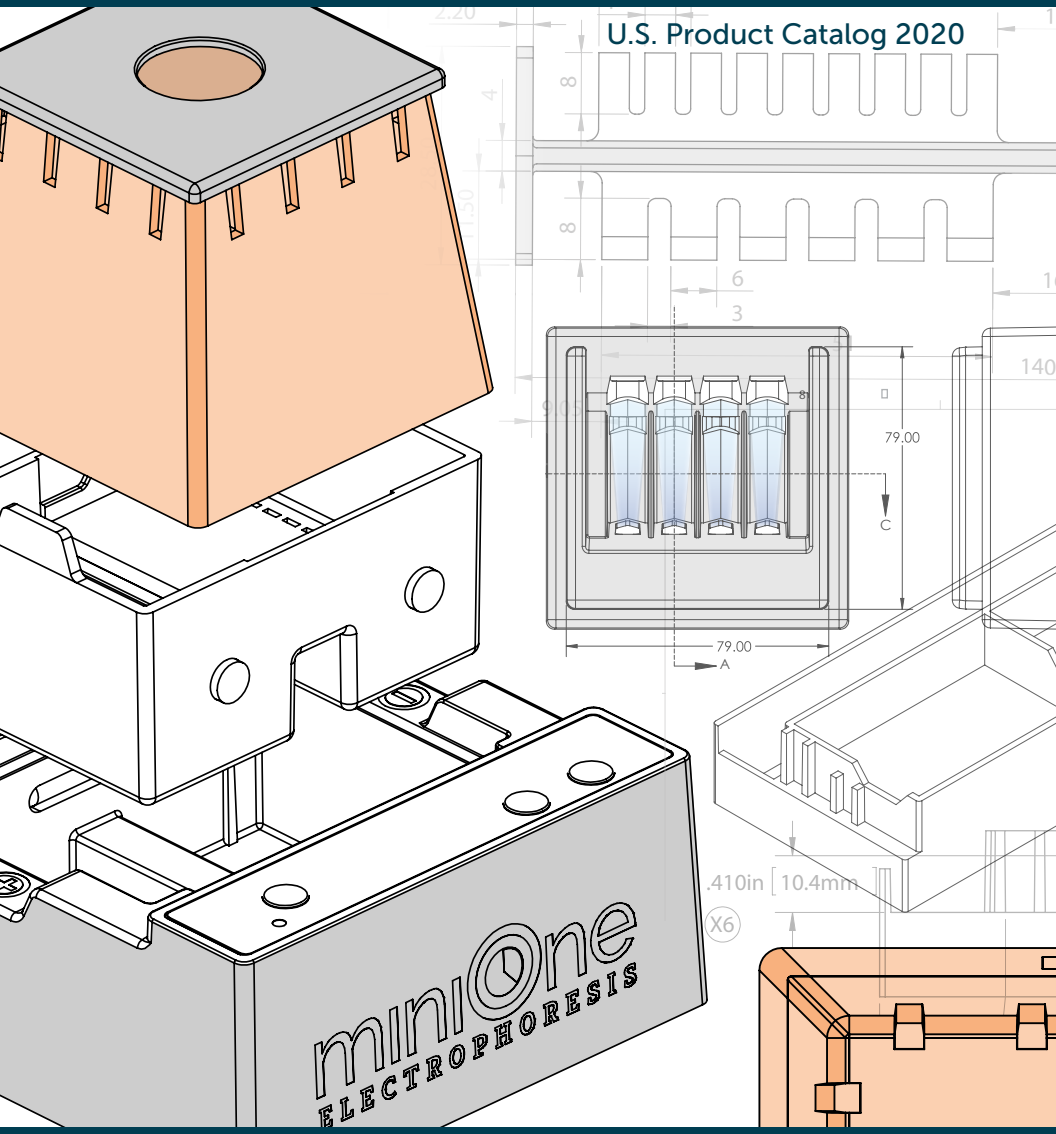
# miniOne® SYSTEMS

## U.S. Product Catalog 2020




CLICK TO SEE SECTION: ELECTROPHORESIS PCR MINILABS REAGENTS INDEX

theminione.com (858) 684-3190 info@theminione.com

# The Legacy of Winston Walker

Winston Walker dedicated his life to serving his country and finding solutions, whether it be on his aircraft or in industry after his extensive military service. His drive to make science education more accessible led to the development of the MiniOne® Electrophoresis and PCR Systems. His final contribution is The Winston viewer, which helps students of all ages answer various questions around molecules. His impact on science education is global, bringing equality to teachers and students worldwide.

## MiniOne® The Winston™

**M1050**

$49

See the GLOW! Use fluorescence to detect and see your samples glow in **colors** you won't believe!

Molecules are hard to see with the naked eye–they can be colorless, too small, or not abundant enough. Fluorescence to the rescue! Fluorescence helps you study the invisible. The Winston allows you and your students to investigate phenomena such as: "Does your sample have DNA? Prove it!", "Where is the DNA?", or "What color is chlorophyll"?

Place up to 4 samples on the base and cover with the MiniOne® Photo Hood to reveal the GLOW! Each unit includes:

- One MiniOne® The Winston™ Platform
- One MiniOne® Photo Hood
- One built-in rechargeable battery
- USB charging cable

As a part of the community that Winston helped bring together, we invite you to submit what you discover with The Winston and we will post those protocols online to share with others. For these community-submitted activities check out our website:

**https://www.theminione.com/the-winston**

To submit an activity please email us at: **info@minione.com**

The Winston will make you **GLOW!**

## MiniOne® The Winston™ Platform

**M1051**

$34

Includes the base component and charging cable. Great add-on if you already have a MiniOne Photo Hood.



# Table of Contents



**Schedule your order to ship when you need it!**
**Simply let us know future ship dates when you place your order.**

Orders must be made out to Embi Tec, and can be placed by:
**Email** orders@theminione.com
**Telephone** 1 (858) 684-3190 **or** 1 (800) 255-1777 (U.S. and Canada)
**Fax** 1 (858) 684-3195
**Online** theminione.com **(US only)**

*All prices are in US dollars and are subject to change. We accept PO and credit card payments in US dollars for purchases and shipments to USA addresses. For purchases and shipments to outside of USA, please contact us by phone or email.*

# MiniOne® Electrophoresis System

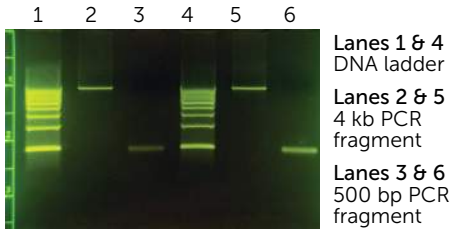
**M1000-US**

## $279

Integrated, real-time electrophoresis system for running DNA labs in one classroom period.


**Includes one each of the following items:**
(See pages 6 to 9 for complete product details)

- MiniOne® Carriage with blue LED illumination and magnet-activated safety switch
- Gel tank with graphite electrodes
- 42V power supply, 100–240V input
- Amber photo hood for real-time viewing and capturing gel image
- Casting system with casting stand, two gel trays, two reversible combs for six and nine wells, and lid
- **FREE** 2–20 µL variable volume micropipette ($59 value!)
- Validation kit: Two GreenGel™ Cups, three DNA samples and TBE buffer concentrate (one per order)




Example results from
Electrophoresis System validation kit
~20 min. run time

# MiniOne® Electrophoresis Classroom Package of 10 Systems

**M1010-US**

## ~~$2,790~~ $2,499

One classroom package is for a class of ten student groups, two to three students per group.

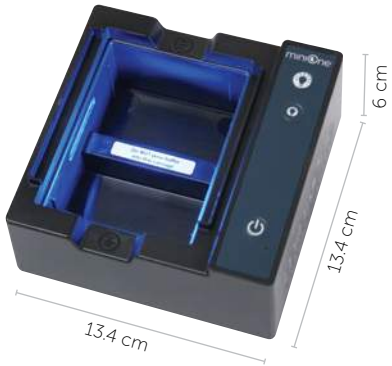
**Includes:**

- Ten sets of MiniOne® Electrophoresis System (**M1000-US**)
- Ten **FREE** 2–20 µL variable volume micropipette ($590 value!) See new Micropipette list price
- Validation kit: Two GreenGel™ Cups, three DNA samples and TBE buffer concentrate (one per order)

# MiniOne® Carriage

**M2007**

## $249



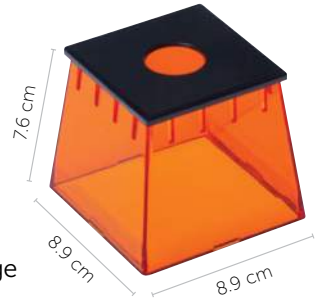

Housing and control unit with sealed LED lights and power controls.

- + and – electrical contacts for carbon electrodes of gel tank
- Design ensures correct orientation fit
- Two rows of blue LEDs illuminate the gel from the sides
- Choose from two intensities–low light for loading, bright light for DNA viewing
- Built-in, magnet-activated on/off power switch

# MiniOne® Photo Hood

**M2005**

## $29




Molded photo hood for 360° viewing with ventilation slots and black imaging platform.

- Four embedded magnets activate power carriage
- Amber filter blocks blue light and transmits green light showing bright fluorescent DNA bands against a dark background
- Ventilation slots prevent condensation inside the hood

***NEW!***

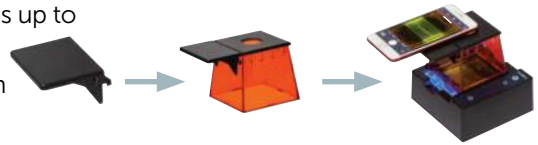
# MiniOne® Photo Hood Phone Platform

**M2017** (Set of 5)

## $25

Molded adapter allows you to place a phone on top of the MiniOne Photo Hood to easily take videos, time lapses, or still images of your electrophoresis run. (Photo Hood not included)

- Latches into the photo hood vents
- Can support mobile devices up to 6.2" (L) x 3.0" (W)" long
- Hands-free documentation





# MiniOne® 42V Power Supply

**M2006**

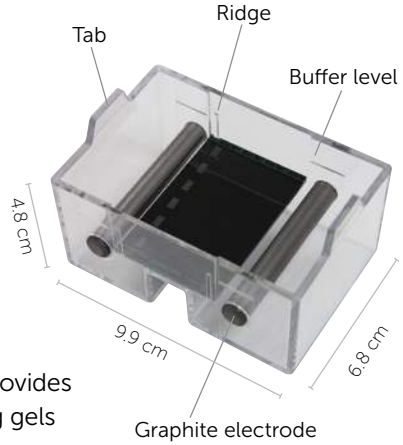
## $19


- Input voltage: 100–240 V, 50/60 Hz, 0.5A
- Output voltage: 42V, 0.19A
- Certifications: CE, FC, c UL us, RoHS compliant

# MiniOne® Gel Tank

**M2001**

## $49




Molded polycarbonate tank with graphite electrodes.

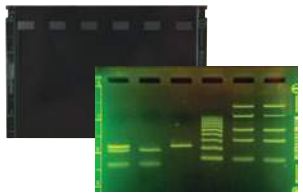
- Three ridges on walls of tank to guide correct orientation of gel tray
- Durable 1 cm graphite electrodes replace standard fragile platinum wires for easy cleaning
- Black and silver gray gel platform provides contrasting background for imaging gels

# MiniOne® Gel Tray Platforms

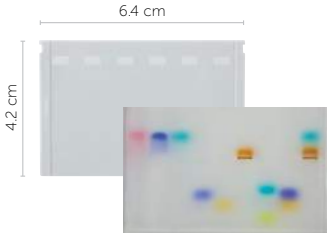
**M2014** Black gel tray platform (10 per pack)
**M2015** Silver gray gel tray platform (10 per pack)

## $19 per pack

Slots on the sides of the platform ensure that it only fits into the tank in the correct orientation.



Use with DNA separation. Black color plastic plate printed with a fluorescent green ruler on the edge, texture on well area.




Use with color dyes separation. Silver gray color plastic plate with texture on well area.

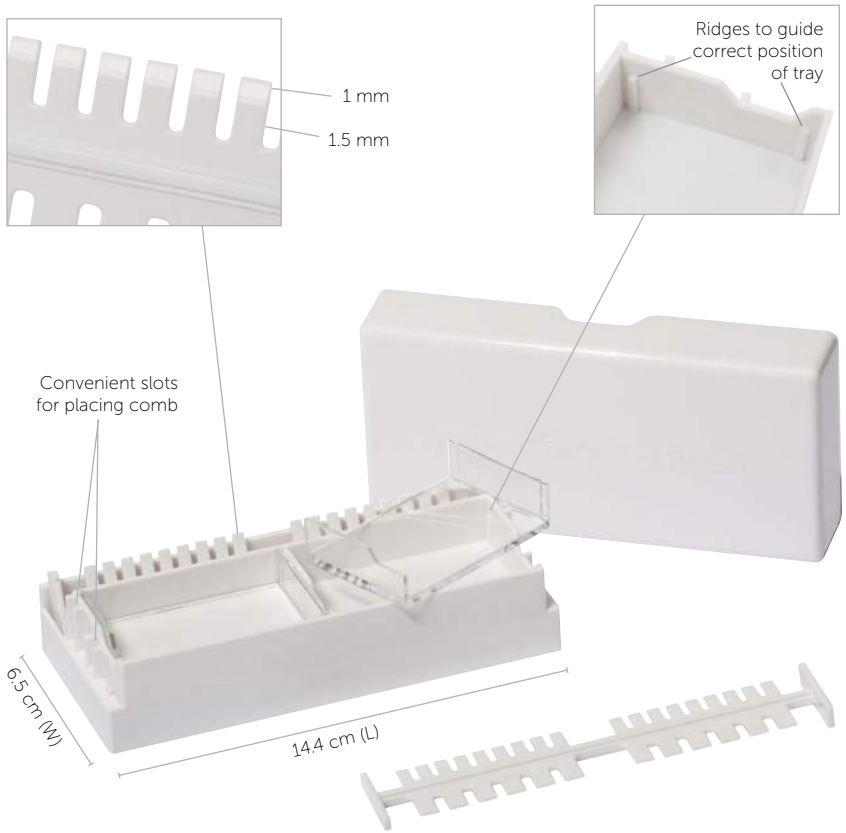
# MiniOne® Gel Casting System

**M2002**

## $49

A compact and self-contained unit with two clear gel trays and two gel combs that fit inside a casting stand with lid.

- Molded casting stand eliminates leakage–no tape needed
- Gel tray guides create a one-way fit for the gel trays when casting, ensuring the proper positioning of the wells for use in the gel tank
- Dual reversible comb with one beveled side, 1.5 mm max. thickness, six and nine wells, and white lid for overnight storage of pre-poured gels
- Beveled comb for easy comb removal and sample loading
- White cover blocks light so you can keep the gels you pour ahead of time safe from light exposure




# MiniOne® Gel Trays

**M2013** (10 per pack)

## $49

**M2013-Bulk** (50 per pack)

## $195

New gel tray design, clear acrylic trays with one orientation fit feature.

- Use in MiniOne tank and casting stand


***NEW!***

# MiniOne® Casting Stand Cover

**M2018** (5 per pack)

## $34

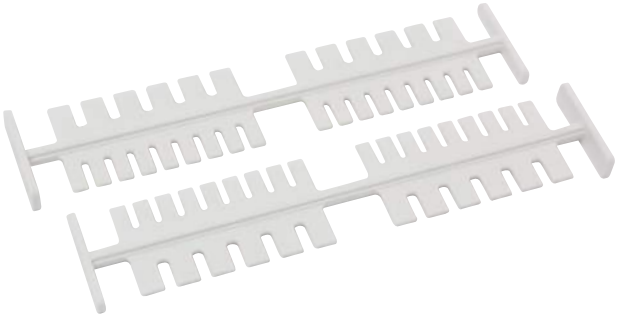
- Fits MiniOne Gel Casting Stand
- Blocks light for advanced gel prep

# MiniOne® Gel Combs

**M2004** (Set of 2)

## $19

- Dual reversible gel comb with one beveled side
- 1.5 mm max. thickness, 6+6 / 9+9 wells



**NEW!**

# Colorful MiniOne® T-Rack™ System

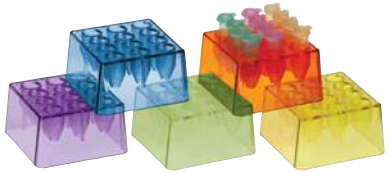
The modular MiniOne T-Racks are designed to give you the most flexibility with how you set up your lab stations.

## MiniOne® T-Rack™ MicrotubeRack - 1.5 and 2.0 mL

**M3181** (Set of 5 racks)

$49

Five assorted colors, holds 3 x 4 of 1.5 or 2.0 mL microtubes per rack.
(Tubes not included)



Capacity and configuration guide

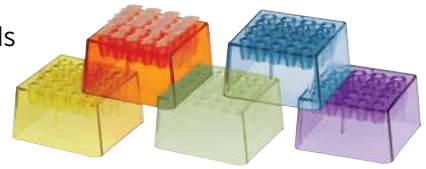
Colors may vary

## MiniOne® T-Rack™ PCR Tube Rack - 0.2 and 0.5 mL

**M3180** (Set of 5 racks)

$49

Five assorted colors, each rack holds 2 x 5 of 0.2 mL PCR tubes and 3 x 4 of 0.5 mL microtubes.
(Tubes not included)



Capacity and configuration guide

Colors may vary

## MiniOne® T-Rack™ Micropipette Tip Rack and Cover

**M3139** (Set of 5 racks)

$49

Five assorted rack colors with clear lids, pre-racked with 2–200 µL Universal tips, low binding, 36 tips/rack.

Capacity and configuration guide

Colors may vary



# MiniOne® T-Rack™ System Tray

**M3182** (Set of 5 trays)

$15

Trays for holding up to three T-Rack modules per platform for easy workstation organization.

# MiniOne® T-Rack Combo Pack

**M3143** (Set of 5)

~~$163~~ $149

Assorted colors (5), complete set of racks for 0.2 mL/0.5 mL PCR tubes, 1.5/2.0 mL microtubes, and 2–200 µL universal tips, with convenient tray to hold up to 3 racks at a time. Combo pack contains one set each of M3139, M3180, M3181, M3182, to make 5 complete sets.

**NEW!**

# MiniOne® Mini Erlenmeyer Flasks

**M2019** (Set of 5)

$19

Safer than traditional glass, this affordable set of 5 polypropylene 170 mL Erlenmeyer flasks is ideal for the biology classroom. They're light, rugged, autoclavable, and feature a pour spout, making them perfect for storing and pouring buffer. Minimize spills and breakage in the lab with MiniOne Mini Erlenmeyer Flasks. Non-microwavable, do not freeze.


- 170 mL (6 oz) graduated every 25 mL (1 oz)
- Polypropylene
- Autoclavable *(remove sticker before autoclaving)*



miniOne® SYSTEMS

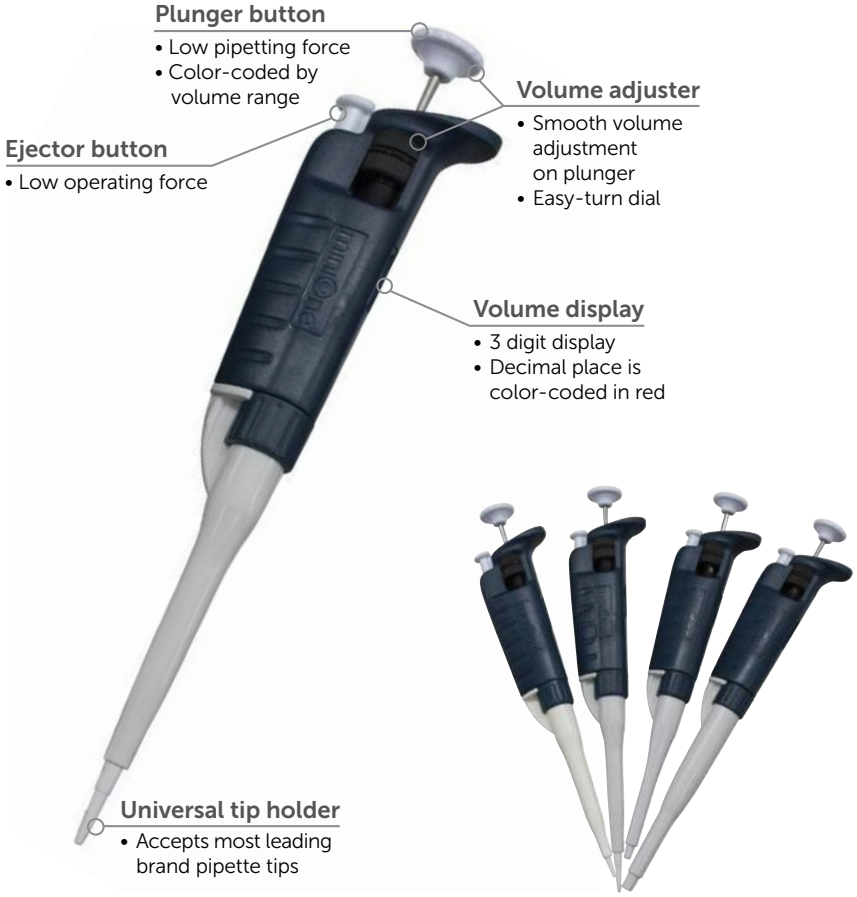
# MiniOne® Micropipettes

**M2008, M2010, M2011, M2012**

**Best Classroom Pipette at the Best Price!**

## $59

One micropipette per pack; comes with inspection certificate, calibration tool, operation manual and sample pipette tips.




Features:

- Adjustable volume micropipette with durable and reliable quality
- Ergonomic design provides comfortable operation for small or large hands
- Two 'stops' on the plunger to allow for accurate and complete sample dispensation
- Ultra-affordable for educational use
- Can be self-calibrated



# MiniOne® Micropipette Set

**M2016**

## $195

This set of three lab-quality micropipettes comes protected in a case constructed of durable, easy-to-clean, waterproof-coated Lycra, ensuring your pipette set stays safe, organized, and clean.

Includes one of each variable volume micropipettes:

**M2008** 2–20 µL
**M2010** 20–200 µL
**M2011** 100–1000 µL

# MiniOne® Micropipette Stand

**M2021**

## $75

Keep your bench organized!
Holds up to nine MiniOne Micropipettes.

| Cat. No. | MiniOne® Micropipette Volume Range | Accuracy | Repeatability | Price |
|---|---|---|---|---|
| M2008 | 2–20 µL (H20) | ± 2.5-1.0% | ≤ 1.50–0.30% | $59.00 |
| M2010 | 20–200 µL (H200) | ± 1.8-0.6% | ≤ 0.50–0.15% | $59.00 |
| M2011 | 100–1000 µL (H1000) | ± 1.5-0.6% | ≤ 0.30–0.15% | $59.00 |
| M2012 | 1–10 µL (H10) | ± 2.5-1.0% | ≤ 1.50–0.40% | $59.00 |
| M2016 | Set of 3 MiniOne® Micropipettes, 2–20 µL, 20–200 µL and 100–1000 µL adjustable volume micropipettes (one each) in a protective carrying case | | | $195.00 |
| M2021 | Pipette stand for the MiniOne® micropipettes; hold 9 micropipettes | | | $75.00 |

All micropipettes are manufactured according to the standards ISO13485. QC inspection and test are complying with standard ISO8655.

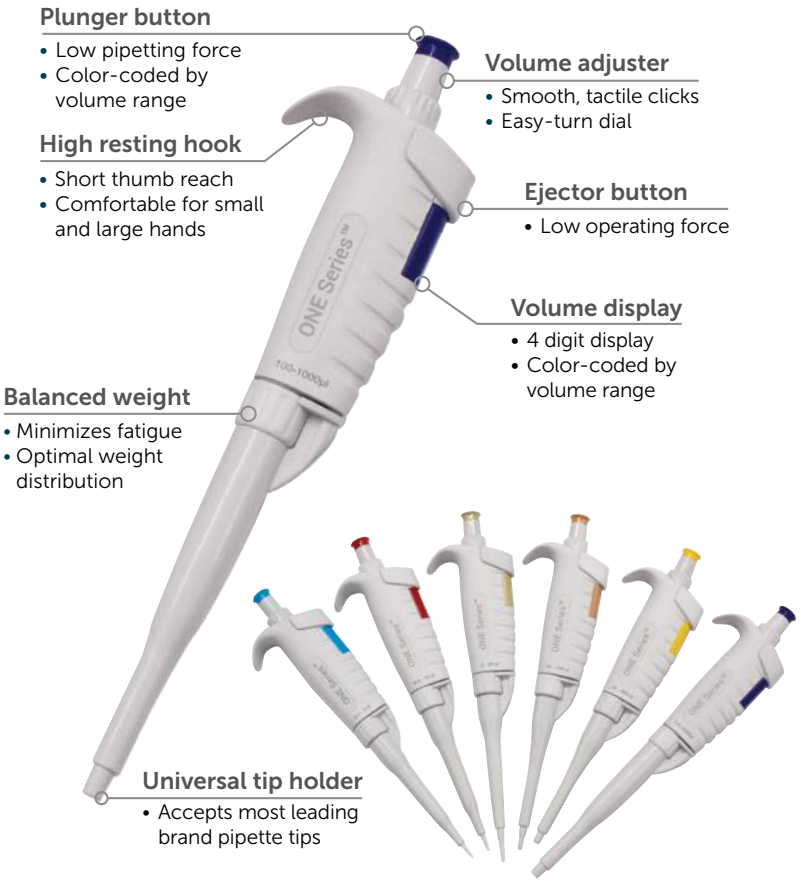
| Micropipette Tips - See page 49 for specifications | | |
|---|---|---|
| M3112 | 1-10 µL, pk of 250 tips 1-10 µL, pk of 250 tips | $9.50 |
| M3111 | 2–200 µL, pk of 250 tips | $9.50 |
| M3134 | 2–200 µL, pk of 1,000 tips | $28.50 |
| M3118 | 100–1,000 µL, pk of 250 tips | $9.50 |
| M3139 | Micropipette Tip Rack and Cover, set of 5 assorted colors<br>• 36 x 2–200 µL Universal tip per rack<br>• See page 10 for details | $49.00 |

# ONE Series™ Micropipettes

## EA-1001 to EA-1006

## $89

One micropipette per pack; comes with inspection certificate, calibration tool, operation manual and sample pipette tips.




Features:

- Adjustable volume micropipette combines all the features of accuracy, reliability, and ergonomic design in one
- Great value for scientific research and educational uses
- Autoclavable
- Can be self-calibrated

# ONE Series™ Micropipette Stand

## EA-1011

## $75

Keep your bench organized!
Holds up to nine ONE Series Micropipettes.

| Cat. No. | ONE Series™ Micropipette Volume Range | Accuracy | Repeatability | Price |
|---|---|---|---|---|
| EA-1001 | 0.1–2 µL | ± 12.0–1.5% | ≤ 6.00–0.70% | $89.00 |
| EA-1002 | 2–20 µL | ± 2.5–1.0% | ≤ 1.50–0.30% | $89.00 |
| EA-1003 | 20–200 µL | ± 1.8–0.6% | ≤ 0.50–0.15% | $89.00 |
| EA-1004 | 10–100 µL | ± 1.8–0.8% | ≤ 0.50–0.15% | $89.00 |
| EA-1005 | 100–1000 µL | ± 1.5–0.6% | ≤ 0.30–0.15% | $89.00 |
| EA-1006 | 0.5–10 µL | ± 2.5–1.0% | ≤ 1.50–0.40% | $89.00 |
| EA-1010 | Set of 3 ONE Series Micropipettes: 2–20 µL, 20–200 µL and 100–1000 µL adjustable volume micropipettes and MiniOne pipet holder | | | $265.00 |
| EA-1011 | Pipette Stand for the ONE Series Micropipettes;holds 9 micropipettes | | | $75.00 |
| EA-1014 | Set of 4 ONE Series Micropipettes: 0.1-2 µL, 2–20 µL, 20–200 µL and 100–1000 µL adjustable volume micropipettes (one each), w/Holder | | | $349.00 |

All micropipettes are manufactured according to the standards ISO13485. QC inspection and test are complying with standard ISO8655.

| Micropipette Tips - See page 49 for specifications | | |
|---|---|---|
| M3112 | 1-10 µL, pk of 250 tips 1-10 µL, pk of 250 tips | $9.50 |
| M3111 | 2–200 µL, pk of 250 tips | $9.50 |
| M3134 | 2–200 µL, pk of 1,000 tips | $28.50 |
| M3118 | 100–1,000 µL, pk of 250 tips | $9.50 |
| M3136 | 2–200 µL, ten racks<br>• Tips packed in racks of 96 micropipette tips for easy use and storage<br>• Has all features of the bulk packaging version | $55.00 |

# MiniOne® Centrifuges

Portable mini centrifuges ideal for bringing small droplets to the bottom of tubes, for micro-filtrations, or basic separations. Brushless motor for low noise level. CE marked.

## MiniOne® Multi Speed Centrifuge

**M2031**

## $350

Features:

- Adjustable speed from 1,000 to 10,000 RPM
- One combi-rotor with positions for varied sizes of microcentrifuge tubes and PCR tubes—no need to change rotors

| Specifications | |
|---|---|
| Input Voltage | 100-240V AC, 50-60Hz |
| Rotor Capacity | 2 x 8 x 0.2 mL PCR tubes and 6 x 1.5/2.0 mL and 6 x 0.5 mL microcentrifuge tubes |
| Speed Range | Adjustable speed: 1,000 to 10,000 RPM, max 3,200 x g |
| Timer | 15 sec to 99 minutes or continuous operation |
| Dimensions | 20 x 16 x 13 cm |
| Weight | 1.05 kg |

## MiniOne® Single Speed Centrifuge

**M2032**

## $150

Features:

- Easy operation: one button to control ON or OFF
- Fixed speed at 10K RPM providing 4,800 x g (RCF) when using the microcentrifuge tube rotor

| Specifications | |
|---|---|
| Input Voltage | 100–240V AC, 50–60Hz |
| Rotor Capacity | PCR tube rotor: 2 x 8 x 0.2 mL PCR tubes, Microcentrifuge tube rotor: 6 x 1.5/2.0 mL or 6 x 0.5 mL with adaptors or 6 x 0.2 mL with adaptors |
| Speed Range | Fixed speed, 10,000 RPM |
| Dimensions | 17 x 15 x 13 cm |
| Weight | 0.95 kg |



# PrepOne™ Sapphire and Photo Hood

**M5000**

## $549

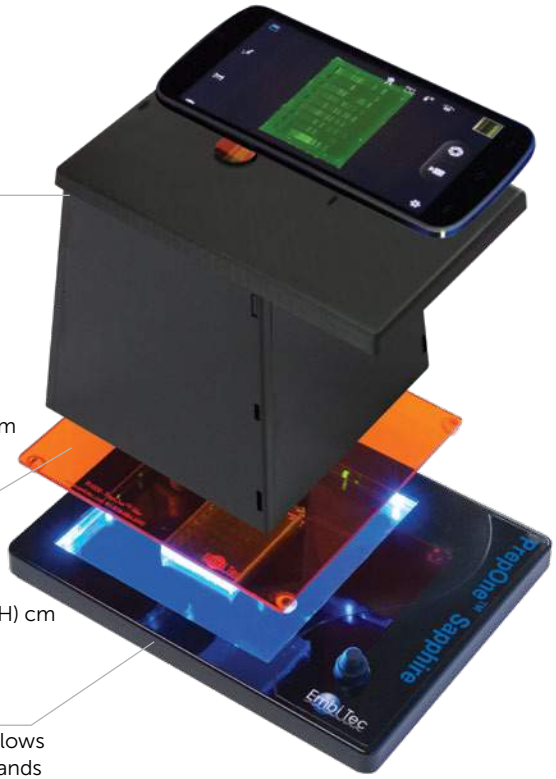
A blue LED illuminator for smart devices to take gel images with ease. Adapt your current electrophoresis system for safe blue light illumination and non-toxic GelGreen™ stain.

Package includes:

One PrepOne™ Sapphire Blue LED Illuminator

One photo hood for smart devices (assembly required)

One amber filter




### Photo hood

- Compact and collapsible design turns your bench into an instant dark room.
- Wide top platform holds most smart devices
- Height: 15.4 cm, provides a suitable focal length for most phone cameras
- Base DIM: 13.8 (W) x 13.8 (L) cm

### Amber filter

- Cuts out excess blue light to enhance the contrast of the DNA signal
- DIM: 15.2 (W) x 15.2 (L) x 0.3 (H) cm

### PrepOne™ Sapphire

- Side illuminating blue light allows direct visualization of DNA bands
- 4x4 blue LEDs last over 50,000 hours
- Two built-in light intensities
- DIM: 21.4 (W) x 16.3 (L) x 1.5 (H) cm

# MiniOne® PCR System

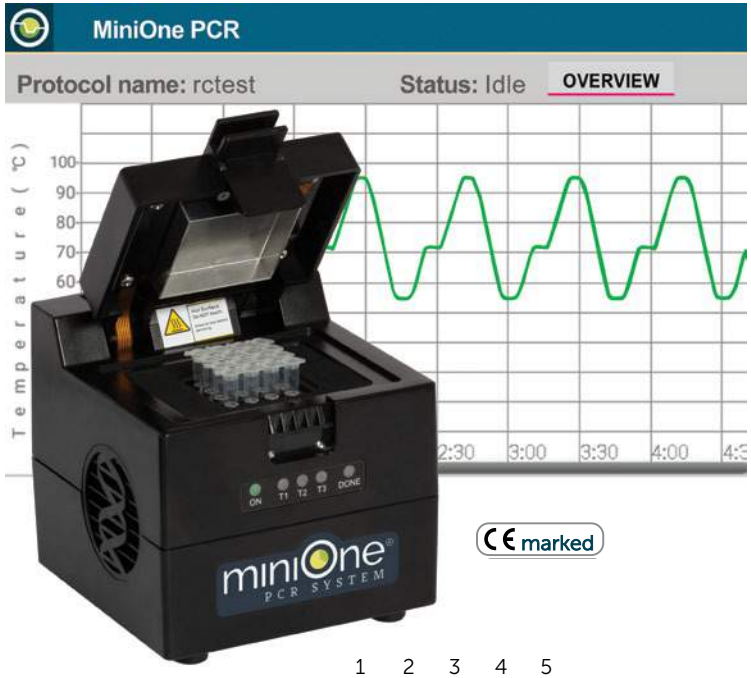
**M4000-US**

**Teach and Do PCR Labs in 45 minutes!**

## $799

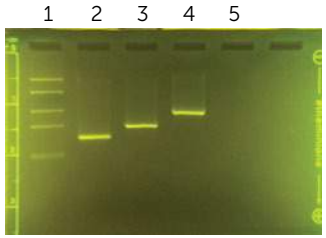
Fast PCR thermal cycler controlled by App on Bluetooth® LE mobile device (see page 22). Amplify DNA in one classroom period.

- One MiniOne thermal cycler for PCR with 16 sample wells
- One 12V, 100W power supply, 100–240 VAC
- One **FREE** validation kit
- Temperature range **4°C (below ambient) to 99°C**
- Ability to pause run to evaluate cycle number




CE marked

Validation kit provides enough reagents for three PCR runs, each amplifying three different size fragments, then visualizing the results with MiniOne® Electrophoresis




Example results from PCR System validation kit ~ 20 min. amplification and ~ 20 min. run time

**Lane 1**: MiniOne DNA marker (see page 34)
**Lane 2**: PCR fragment 1
**Lane 3**: PCR fragment 2
**Lane 4**: PCR fragment 3
**Lane 5**: negative control

Features:

- Peltier cooling technology and custom algorithm drives **fast thermal** cycling
- **Mobile App** for programming and monitoring via **Bluetooth® LE**
- Indicator lights on front show status of the run
- Fully compatible with standard reagents, consumables, and protocols

Benefits:

- Complete a PCR protocol in a single class period
- Intuitive programming interface for students
- Keep your samples at 4°C when done


### Specifications

| | |
|---|---|
| Sample capacity | 16 x 0.2 mL standard PCR tubes |
| Temperature range | 4°–99°C |
| Heated lid | Yes, with safety interlock |
| Communications | Bluetooth® Low Energy wireless technology |
| Software | Graphical programming interface; Real-time protocol monitoring |
| Weight | 1.9 lb (860 g) approx. |
| Dimensions | 12 x 12 x 12 cm (4.7 x 4.7 x 4.7 in) approx. |
| Operating voltage | 100–240 VAC |



PCR System

# MiniOne® PCR System (continued)

## 16 sample capacity

Perfect for two to four student groups or a small class.

For larger classes, add more systems to maintain student exposure and participation.


## Active heating and cooling

The Peltier element drives rapid temperature transitions and faster protocols. Keeps your samples at 4°C at the end of the run.

## Specialized algorithm

Custom control algorithm is the key for fast cycling and precise thermal control.

## Visual indicators

Bright LEDs show the state of the machine and progress of the protocol.


Denature

Anneal

Extend

Done,
hold at 4°C



## Compact

The MiniOne® PCR System takes up minimal space on your bench, stores easily, and can be moved wherever it's needed.


## Safe

Fully enclosed system for safe operation in the classroom.

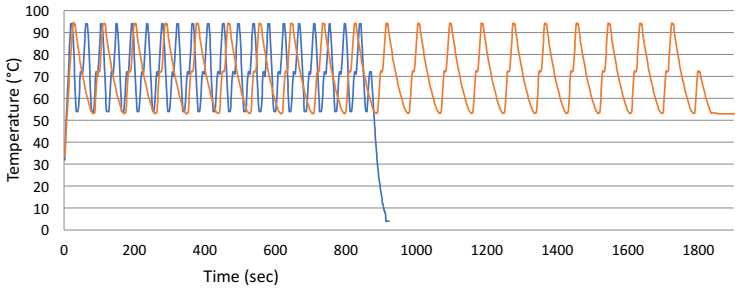
## Heated Lid

No condensation or messy mineral oil. Safety switch keeps protocol from starting until the lid is closed.

## How fast is it?

A typical fast protocol - MiniOne® PCR System is done in **50%** of the time.

| Step | Temperature | Duration | Cycles |
|---|---|---|---|
| Denaturation | 94°C | 5 sec | 20 cycles |
| Annealing | 54°C | 5 sec | |
| Extension | 72°C | 5 sec | |






PCR System

# MiniOne® PCR App

Intuitive, student-centered app for programming and monitoring your PCR protocols.

Features:

- Interactive screens lead students through each step of setting up the PCR protocol
- **Pause** feature stops the protocol at the end of the extension step for convenient cycle number analysis
- Graphical output **displays real-time temperature data** that can be saved or emailed at the end of the run
- **Linked protocol** to automatically run consecutive protocols

1
Bluetooth® LE connection


View and connect to available PCR Systems with a wireless Bluetooth® LE connection. No cables or wifi needed!

2
Setup


Create a new protocol, access your last protocol or browse the library of saved protocols from the Setup menu.

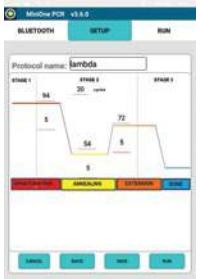
3
Protocol


Select constant temperature mode for restriction digests, transformation and DNA extractions, or PCR mode for DNA amplification.

4
Constant Temperature


Set up constant temperature protocols to incubate samples at 0-99°C using a simple, intuitive interface.

5
PCR




Graphic PCR programming interface allows students to enter time and temperatures directly on the PCR overview graph.

6
Cycling


The run screen shows a continuously updated, real-time readout of the temperature, current cycle, current step, and elapsed time.






MacBook or PC Laptop*

Chromebook
(Bluetooth 4.1 or above)

*Requires MiniOne® Bluetooth® LE Dongle **M4060** $99

## Android Mobile Controller

**M4050**

$99

Android mobile controller with MiniOne® PCR App pre-loaded.

- 7-inch, full color graphic display for a modern, student-centered interface
- Bluetooth® LE connectivity for programming and monitoring your MiniOne® PCR System

# MiniOne® PCR with Android Mobile Controller

**M4001**

## $898

- One MiniOne® PCR System with one validation kit - CE marked
- One Android Mobile Controller with MiniOne® PCR App installed



# MiniOne® PCR/Electrophoresis Package I

**M4011**

## $995

- One MiniOne® PCR System with one validation kit - CE marked
- One MiniOne® Electrophoresis System - CE marked
- One **FREE** 2–20 µL variable volume micropipette

For a group of two to three students


# Package II

**M4012**

## $1,259

- One MiniOne® PCR System with one validation kit - CE marked
- Two MiniOne® Electrophoresis Systems - CE marked
- Two **FREE** 2–20 µL variable volume micropipettes

For two groups of students

# Package III

**M4026**

## $2,995

- Two MiniOne® PCR Systems with two validation kits - CE marked
- Six MiniOne® Electrophoresis Systems - CE marked
- Six **FREE** 2–20 µL variable volume micropipettes

For six groups of students



PCR/Electrophoresis Packages

# MiniOne® PCR/Electrophoresis Package IV

**M4039**

## $4,475

- Three MiniOne® PCR Systems - CE marked
- Two PCR validation kits
- Nine MiniOne® Electrophoresis Systems - CE marked
- Nine **FREE** 2–20 µL variable volume micropipettes

For nine groups of students

# MiniOne® Bioscience Classroom Starter Package V

**M4040**

## $4,990

This bioscience classroom starter package includes the essential equipment for teaching hands-on molecular biology concepts using DNA amplification and separation in the classroom. The starter package is ideal for nine groups of two to three students, and includes:

- Three MiniOne® PCR Systems - CE marked
- Two PCR validation kits
- Nine MiniOne® Electrophoresis Systems - CE marked
- Three MiniOne® Single Speed Microcentrifuges - CE marked
- One MiniOne® Micropipette Set with Case, includes one of each: 2–20, 20–200, 100–1000 µL variable volume micropipettes
- Nine **FREE** 2–20 µL variable volume micropipettes

For nine groups of students

Includes micropipette set for teacher prep!

# MiniOne® MiniLabs

Our hands-on MiniLabs are a fun and engaging series of modules that take students from mastery of basic biotech skills, through popular applications of electrophoresis in forensics, DNA fingerprinting, and human genetics, and finally, to a challenging, real-world investigation of a foodborne outbreak.

## Gel Loading Practice MiniLab

**M3002**

$49

Teach your students how to read, adjust, and use a micropipette. Practice pipetting and loading samples into the wells of a real gel before handling valuable DNA samples.

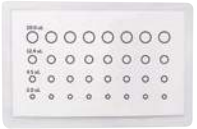
For middle school students and any first-time micropipette users (grades 4–12).

**Each MiniLab contains enough materials for 10 workstations, 2–3 students per workstation.**
**Materials include:**

- Twenty precast agar plates with 3 rows of 8 wells per row
- Twenty adhesive practice pipetting sheets
- Two tubes of dye samples (10 mL each)
- One bag of 1.7 mL microcentrifuge tubes
- One bag of 2–200 µL micropipette tips
- Teacher's Guide

## Laminated Practice Pipette Cards

**M2022** (Set of 20)

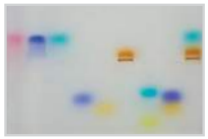


$24

Reusable practice pipette cards from our Gel Loading Practice MiniLab. Lamination makes it easy to clean so you are ready for your back-to-back classes.

## Colorful Dye Electrophoresis MiniLab

**M3007**



$59

This fun and colorful lab introduces students to gel electrophoresis principles, including the basics of electricity and macromolecules. Predict how molecular size and electrical charge affect a molecule's migration in a separation matrix.

Appropriate for middle school and beginning high school students (grades 7–10)

**Each MiniLab contains enough materials for 10 workstations, 2–3 students per workstation.**
**Materials include:**

- Ten 1% agarose gel cups
- Nine color dye samples
- One bottle of 100 mL Tris-Borate-EDTA (TBE) buffer concentrate
- One bag of 0.65 mL microcentrifuge tubes
- One bag of 2–200 µL micropipette tips
- Teacher's Guide



Each MiniLab is an all-inclusive science lab kit. The ready-to-pour gel cups greatly simplify steps to make agarose gels. The TBE buffer concentrate and easy-to-load DNA/color dye samples assure good results, minimize teacher prep work, and maximize student success in the lab.

## Candy Color Electrophoresis MiniLab

**M3009**

$59

Investigate the phenomenon of food dyes using candy to illustrate the effect of mass and charge during electrophoresis.

Appropriate for middle school and beginning high school students (grades 7–10).

**Each MiniLab contains enough materials for 10 workstations, 2–3 students per workstation.**
**Materials include:**

- Ten 1% agarose gel cups
- One bottle of 100 mL Tris-Borate-EDTA (TBE) buffer concentrate
- One bag of 1.7 mL microcentrifuge tubes
- One bag of 2–200 µL micropipette tips
- Dye extraction buffer
- Candies in six colors
- Ten 10-well dye extraction trays
- Teacher's Guide

## Laminated Gel Annotation and Photo Template

**M2023** (Set of 10)

$14

Place your gel on these laminated cards make the color dyes POP after your electrophoresis run! Dual sided for 6- or 9-well dye electrophoresis activities.

## Determining the Genetics of a Ca$H Cow MiniLab

**M3011**

$59

Using an understanding behind cheese production, genetic inheritance, and gel electrophoresis, students will determine genotype of two bulls and three cows, and recommend which combination a dairy farmer should purchase to produce more valuable offspring.

Appropriate for middle school life science classes, genetics classes, and agriculture courses (grades 7–12).

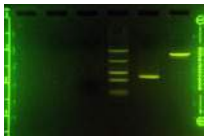
**Each MiniLab contains enough materials for 10 workstations, 2–3 students per workstation.**
**Materials include:**

- Eight color dye samples
- Ten 1.5 % agarose gel cups
- One bottle of 100 mL Tris-Borate-EDTA (TBE) buffer concentrate
- One bag of 0.65 mL microcentrifuge tubes
- One bag of 2–200 µL micropipette tips
- Teacher's Guide

## Electrophoresis 101 MiniLab

**M3001**

$39



Students are introduced to the principles of gel electrophoresis by separating colorful dyes and DNA samples on an agarose gel. Challenge your students' analytical and mathematical skills as they construct a standard curve to determine the sizes of unknown DNA fragments.

Appropriate for high school students (grades 9–12).

**Each MiniLab contains enough materials for 10 workstations, 2–3 students per workstation. Materials include:**
Ten 1% agarose GreenGel™ Cups
Three color dye samples and three DNA samples
One bottle of 100 mL Tris-Borate-EDTA (TBE) buffer concentrate
One bag of 0.65 mL microcentrifuge tubes
One bag of 2–200 µL micropipette tips
Teacher's Guide

## DNA Fingerprinting MiniLab

**M3004**

$69

How is DNA used to trace the history and heritage of an individual? Students help scientists identify the father of a baby humpback whale using DNA fingerprinting technology. Engage your students with a real-world application of genetics as they analyze a complex array of DNA bands to arrive at a logical solution.

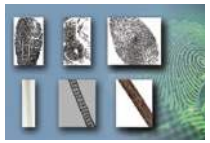
Appropriate for high school students (grades 9–12).

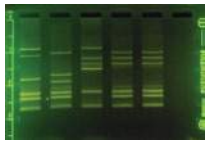
**Each MiniLab contains enough materials for 10 workstations, 2–3 students per workstation. Materials include:**
Ten 1% agarose GreenGel™ Cups
Five DNA samples
One bottle of 100 mL Tris-Borate-EDTA (TBE) buffer concentrate
One bag of 0.65 mL microcentrifuge tubes
One bag of 2–200 µL micropipette tips
Teacher's Guide

## CSI Forensics MiniLab

**M3005**

$69





Explore a crime scene investigation in the classroom. Learn an exciting real-world application of gel electrophoresis and the statistical principles of human genetic identification. Students will logically integrate multiple lines of evidence, including fingerprints, hair samples, and DNA fingerprinting to connect an individual to a crime scene and solve the mystery of "Who Killed Dr. Ward?"

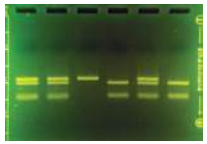
Appropriate for high school students (grades 9–12).

**Each MiniLab contains enough materials for 10 workstations, 2–3 students per workstation. Materials include:**
Ten 1% agarose GreenGel™ Cups
Five DNA samples
One bottle of 100 mL Tris-Borate-EDTA (TBE) buffer concentrate
One bag of 0.65 mL microcentrifuge tubes
One bag of 2–200 µL micropipette tips
Teacher's Guide

## PTC Genetics MiniLab

**M3003**

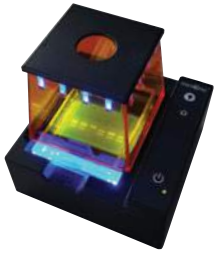
$69



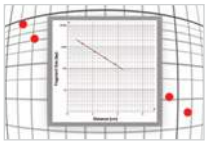
Solve a genetic mystery using gel electrophoresis. Students develop a hypothesis about the inheritance of a trait in a family, then test their hypotheses by running restriction fragments on a gel, analyzing a Punnett square, and constructing a family tree.

Appropriate for high school students (grades 9–12).

**Each MiniLab contains enough materials for 10 workstations, 2–3 students per workstation. Materials include:**
Ten 2% agarose GreenGel™ Cups
Six pre-digested DNA samples
Forty pieces of PTC tasting and taste control papers
One bottle of 100 mL TBE buffer concentrate
One bag of 0.65 mL microcentrifuge tubes
One bag of 2–200 µL micropipette tips
Teacher's Guide



## PTC Inheritance and Graphical Analysis MiniLab



**M3012**

$99

Explore Mendelian genetic inheritance, use Punnett Squares to make a claim, and see your evidence with DNA electrophoresis. This lab also features DNA fragment size analysis and demystifies why the standard curve is plotted as Log-Y!

Appropriate for AP Biology, Honors and Advanced Biology (grades 9-12).

**Each MiniLab contains enough materials for 10 workstations, 2–3 students per workstation.**
**Materials include:**

- Ten 2% agarose GreenGel™ Cups
- Six pre-digested DNA samples
- MiniOne® DNA Marker
- Forty pieces of PTC tasting and taste control papers
- One bottle of 100 mL Tris-Borate-EDTA (TBE) buffer concentrate
- One bag of 0.65 mL microcentrifuge tubes
- One bag of 2–200 µL micropipette tips
- Teacher's Guide

## Hunting the Inheritance of Huntington's Disease MiniLab

**M3010**

$99

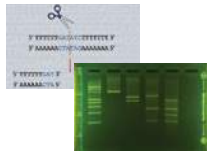
In this lab, students will examine family history to construct a pedigree and will assess molecular data to make predictions about inheritance of the disease in fraternal twins. Students will then perform gel electrophoresis to confirm genotype.

Appropriate for high school life science, genetics classes and AP Biology.

**Each MiniLab contains enough materials for 10 workstations, 2–3 students per workstation.**
**Materials include:**

- Ten 2% agarose GreenGel™ Cups
- Four Ready-to-Load DNA samples
- 100 bp DNA Ladder
- One bottle of 100 mL Tris-Borate-EDTA (TBE) buffer concentrate
- One bag of 0.65 mL microcentrifuge tubes
- One bag of 2–200 µL micropipette tips
- Teacher's Guide

## Restriction Digest Basics MiniLab



**M6050**

$69

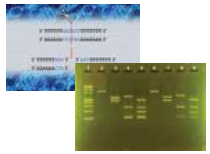
Cells have mechanisms for cutting long strands of nucleic acid into shorter strands—a type of molecular scissors. There are several reasons why cells need to cut their DNA or RNA. In this lab students will explore what restriction enzymes do and determine electrophoresis fragment sizes by comparing bands to a molecular weight standard.

Appropriate for high school students (grades 9-12).

**Each MiniLab contains enough materials for 10 workstations, 2-3 students per workstation.**
**Materials include:**

- Ten 1.5% agarose GreenGel™ Cups
- Four DNA samples (three pre-digested, one undigested)
- MiniOne® Universal DNA Marker
- One bottle of 100 mL Tris-Borate-EDTA (TBE) buffer concentrate
- One bag of 0.65 mL microcentrifuge tubes
- One bag of 2–200 µL micropipette tips
- Teacher's Guide

## Restriction Analysis of DNA MiniLab



**M6053**

$120

"Molecular scissors" for cutting DNA or RNA are used by cells for many reasons, including defense against an invading host, or genetic recombination. These restriction enzymes allow researchers to study smaller pieces of DNA more thoroughly. In this restriction digestion lab, students will explore what restriction enzymes do, perform a single and double digest of a synthetic piece of DNA, predict fragment sizes and compare to fragment size of the actual digested DNA run on an agarose gel.

Appropriate for AP Biology, Honors and Advanced Biology (grades 9-12).

**Each MiniLab contains enough materials for 10 workstations, 2–3 students per workstation.**
**Materials include:**

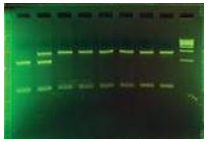
- Ten 1.5% agarose GreenGel™ Cups
- Undigested DNA Sample
- Four pre-digested DNA controls
- MiniOne® Universal DNA marker
- Enzyme dilution buffer
- Two restriction enzymes
- MiniOne® 5X Sample Loading Dye
- One bottle of 100 mL Tris-Borate-EDTA (TBE) buffer concentrate
- One bag of 0.65 mL microcentrifuge tubes
- One bag of 2–200 µL micropipette tips
- One bag of 0.2 mL PCR tubes
- Teacher's Guide

# MiniOne® MiniLabs (continued)

## Foodborne Outbreak Investigation MiniLab

**M3006**

$120



This MiniLab is a student-driven discovery process based on a real *Shigella* outbreak in 2000. Students use scientific reasoning and forensic science principles to analyze epidemiological data, develop a hypothesis, and test their hypothesis with gel electrophoresis. They will tabulate data expressed as text to systematically analyze the case and evaluate experimental approaches used by their team and others in the class. Along the way they will develop an understanding of foodborne outbreaks and foodborne illness, topics that are frequently in the news and relevant to students' lives.

Appropriate for high school students (grades 9–12), AP, honors, and advanced biology students.

**Each MiniLab contains enough materials for 10 workstations, 2–3 students per workstation.**
**Materials include:**
Ten 1% agarose GreenGel™ Cups
Eleven DNA samples
One bottle of 100 mL Tris-Borate-EDTA (TBE) buffer concentrate
Two bags of 0.65 mL microcentrifuge tubes
One bag of 2–200 µL micropipette tips
Teacher's Guide
A two-part detailed guide with background information, step-by-step procedures and worksheets for students
Quiz question bank and answers

| | 1 | 3 | 7 | 9 | 10 | 11 | 2 | 4 | 5 | 6 | 8 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Potato Chips | | X | X | X | | X | X | X | | | | |
| French Onion Dip | | | X | X | | X | X | X | | | | |
| Tortilla Chips | X | X | X | X | X | X | X | X | | X | | X |
| Salsa | | X | X | | X | | X | | X | X | X | |
| Guacamole | | | X | X | X | | | X | | | X | |
| Homemade Potato Salad | X | | X | | | | | X | | | | X |
| Burgers | | | X | | | | | | X | | X | X |
| Hot Dogs | X | X | | X | X | X | X | X | X | | | |
| Five Layer Bean Dip | | | X | | | | | | | X | | |
| Garden Salad | | | X | X | | X | | X | | | X | |
| Buttermilk Ranch | | X | X | X | | X | | X | | | | X |
| Eggs | | | | | | | | | | | | X |



## NGSS-Aligned Color Dyes and Gel Electrophoresis MiniLab

**M3008**

$199


A comprehensive, 5E inquiry, week-long lesson plan that introduces students to separation science in a variety of contexts. Student-driven inquiry activities impart the scientific background needed to understand gel electrophoresis. The curriculum culminates in a gel electrophoresis experiment using colorful dyes. The curriculum is provided as a downloadable PDF manual which includes comprehensive background readings, student worksheets, and teacher support materials. Lab materials and a PowerPoint presentation are also included.

Recommended for middle school students (grades 6-9).

**Each MiniLab contains enough materials for 10 workstations, 2-3 students per workstation.**
**Materials include:**
Ten 1% agarose gel cups
Six color dye samples
One set of filter papers and green food coloring for exploring paper chromatography
One bottle of 100 mL Tris-Borate-EDTA (TBE) buffer concentrate
One bag of 0.65 mL microcentrifuge tubes
One bag of 2–200 µL micropipette tips
One copy of the curriculum

Start

10 minutes run time →

Finish

**Bundle and Save!**

| | |
|---|---|
| **M3008 3-Pack** Reagents for 30 workstations, 1 copy of the curriculum | $337 |
| **M3008 5-Pack** – Reagents for 50 workstations, 1 copy of the curriculum | $475 |

## PCR 101 MiniLab: Amplification from the Lambda Phage Genome

**M6001**

$99

In this hands-on PCR MiniLab, students use polymerase chain reaction (PCR) to amplify three segments of the Lambda phage genome. They will look at sequence data, predict the fragment sizes of the PCR products, then compare their predictions to the PCR products they amplify and run on an agarose gel. Complete amplification in 17 minutes with the MiniOne® PCR system and the FastTaq™ Master Mix.

Appropriate for high school students (grades 9–12), AP, honors, and advanced biology students.

**Each MiniLab contains enough materials for 10 workstations, 2–3 students per workstation. Materials include:**

- Ten 2% agarose GreenGel™ Cups
- FastTaq™ PCR MasterMix (2X)
- Three primer sets, both forward and reverse primers included in each set
- Lambda phage genomic DNA
- Sterile nuclease-free water
- MiniOne® DNA marker
- MiniOne® 5X Sample Loading Dye
- One bag of 0.2 mL thin-wall PCR tubes
- One bag of 0.65 mL microcentrifuge tubes
- One bottle of 100 mL Tris-Borate-EDTA (TBE) buffer concentrate
- Teacher's Guide

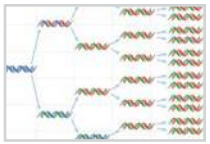
COMPLETE PACKAGE!

| Bundle and Save! | M6001 $99 | M6002 $85 | M6004 $129 | M6003 $139 |
|---|---|---|---|---|
| **M6002** - PCR 101 MiniLab, PCR Reagents (no electrophoresis reagents) | ✓ | ✓ | ✓ | ✓ |
| **M3103TBE** - Ten 2% agarose GreenGel™ Cups with TBE buffer concentrate (see page 45) | ✓ | | | ✓ |
| **M3136** - 10 racks of micropipette tips (2–200 µL) (see page 49) | | | ✓ | ✓ |

## PCR Cycle Number Analysis MiniLab

**M6005**

$99

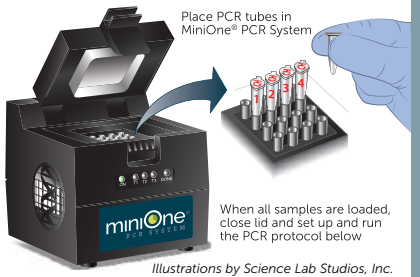


Visualize the power of exponential growth with PCR! Students will set up PCR reactions and analyze the products after a variable number of cycles. Students will estimate the minimum number of cycles needed to detect a PCR product on an agarose gel, and visualize and appreciate exponential growth.

Appropriate for high school students (grades 9–12), AP, honors, and advanced biology students.

**Each MiniLab contains enough materials for 10 workstations, 2–3 students per workstation. Materials include:**

- Ten 1% agarose GreenGel™ Cups
- MiniOne® DNA marker
- MiniOne® 5X Sample Loading Dye
- FastTaq™ PCR MasterMix (2X)
- One primer set, forward and reverse
- Lambda phage genomic DNA
- One bag of 0.65 mL microcentrifuge tubes
- One bag of 0.2 mL thin-wall PCR tubes
- One bottle of 100 mL TBE buffer concentrate
- Teacher's Guide




*Illustrations by Science Lab Studios, Inc.*

## Need some racked tips? or PCR tube racks?

Try the

MiniOne® T-Rack Micropipette Tip Rack and Cover (**M3139**) or the MiniOne T-Rack™ PCR Tube Rack - 0.2 and 0.5 mL (**M3180**)

(see pg. 10 for details)

# MiniOne® MiniLabs (continued)

## A Taste of Genetics MiniLab: Extract and Amplify the PTC Gene

**M6010**

$115

This hands-on MiniLab introduces students to the science of human genetic variation through DNA extraction, PCR amplification, restriction digest, and analysis of the TAS2R38 taster gene of their own DNA, and compare genotype to phenotype.

Appropriate for high school biology students, especially honors and advanced placement, and college level biology.

**Each MiniLab contains enough materials for 10 workstations, 2–3 students per workstation.**
**Materials include:**

- DNA extraction solution
- Forward and reverse primers for PTC genes
- Taq polymerase master mix (2X)
- HaeIII restriction enzyme
- Restriction enzyme dilution buffer
- MiniOne® 5X Sample Loading Dye
- MiniOne® DNA Marker
- One bag of 0.2mL thin-walled PCR tubes
- One bag of 0.65 mL microcentrifuge tubes
- Forty pieces of PTC taste paper and taste control papers
- Ten 2% agarose GreenGel™ Cups
- One bottle of 100 mL Tris-Borate-EDTA (TBE) buffer concentrate
- Two grams table salt
- Teacher's Guide

| Bundle and Save! | M6010 $115 | M6012 $99 | M6013 $155 COMPLETE PACKAGE! |
|---|---|---|---|
| **M6012** - A Taste of Genetics MiniLab, DNA Extraction and PCR Reagents (no electrophoresis reagents) | ✓ | ✓ | ✓ |
| **M3103TBE** - Ten 2% agarose GreenGel™ Cups with TBE buffer concentrate (see page 45) | ✓ | | ✓ |
| **M3136** - 10 racks of micropipette tips (2–200 µL) (see page 49) | | | ✓ |

## Extension Activities

**available at https://theminione.com/free-classroom-activities/**

**Introduction to NCBI Bioinformatics** – Students will learn to navigate NCBI, explore the different types of information available, and apply it to look deeper at the TAS2R38 gene, including sequence, chromosomal location, and associated phenotypes and variants.

**Hardy-Weinberg** – Students will create a simulation of allele frequencies in a population using principles from the Hardy-Weinberg model and a TI-84 Plus graphing calculator or computer including evaluating classroom results from A Taste of Genetics (**M6012**).

**BLAST** – Students will use BLAST to investigate the TAS2R38 protein sequences across various species and lineages to determine in which lineage did Type 2 taste receptor evolve, and use that information to construct a phylogenetic tree.



## BSE – Don't Let the Cows Go Mad MiniLab

**M6020**

$149

Regulations around cattle that exhibit Bovine Spongiform Encephalopathy (BSE), or Mad Cow disease, are strict and actions need to be swift when a potential contamination violation occurs. In this scenario a feed mill has self-reported a possible contamination. Students track down the source of contamination through species-specific PCR amplification and gel analysis, selecting which feed samples to test, and which controls to use.

Appropriate for high school biology students, especially honors and advanced placement, and college level biology.

**Each MiniLab contains enough materials for 10 workstations, 2–3 students per workstation.**
**Materials include:**

- Ten 2% agarose GreenGel™ Cups
- FastTaq™ PCR MasterMix (2X)
- Primer set (forward and reverse)
- Three PCR control template DNA
- DI Water
- Six DNA samples extracted from feed batches
- MiniOne® 5X Sample Loading Dye
- MiniOne® DNA Marker
- One bag of 0.2 mL thin-wall PCR tubes
- One bag of 0.65 mL microcentrifuge tubes
- One bottle of 100 mL Tris-Borate-EDTA (TBE) buffer concentrate
- Teacher's Guide

## Organize your PCR workstations

**with the**

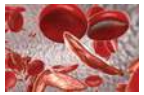
MiniOne® T-Rack Combo Pack **(M3143)**

**(see pg. 11 for details)**

# MiniOne® Supplemental Reagent Packs

Designed for use in standardized biomedical curriculum programs that include a storyline, these supplemental reagent packs boost the activities as efficient hands-on labs. Each reagent pack includes enough materials for 10 workstations:

## Sickle Cell Inheritance Reagent Pack



**M3050**

$99

Students will run patient samples and compare against the controls to identify which family members are affected, carriers or normal for sickle cell anemia.

**Materials include:**

Ten 1.5% agarose GreenGel™ Cups
Eight DNA samples (three controls, five patients)
MiniOne® DNA Marker
One bottle of 100 mL TBE buffer concentrate
One bag of 0.65 mL microcentrifuge tubes
One bag of 2–200 µL micropipette tips
Experimental protocol

## Hypercholesterolemia Reagent Pack

**M3051**

$99

Students will determine genotype for familial hypercholesterolemia for a family of five.

**Materials include:**

Ten 0.8% agarose GreenGel™ Cups
Seven DNA samples (two controls, five patients)
MiniOne® Universal DNA Marker
One bottle of 100 mL TBE buffer concentrate
One bag of 0.65 mL microcentrifuge tubes
One bag of 2–200 µL micropipette tips
Experimental protocol

## DNA Investigations Reagent Pack

**M3052**

$120

Students will try to identify a missing person using restriction enzymes on DNA from two missing people and comparing to the restriction patterns from DNA from a skeleton.

**Materials include:**

Ten 1% agarose GreenGel™ Cups
Four DNA samples (Two Skeleton DNA pre-cut with EcoRV or HindIII, Undigested DNA from Missing Person's 1 and 2)
MiniOne® DNA Marker
Two restriction enzymes
One bag of 0.65 mL microcentrifuge tubes
One bag of 0.65 mL microcentrifuge tubes
One bag of 2–200 µL micropipette tips
MiniOne® 5X Sample Loading Dye
One bottle of 100 mL TBE buffer concentrate
Enzyme dilution buffer
Experimental protocol



# MiniOne® Gel Electrophoresis Starter Kit

**M3200**

$75

This kit includes all supplies your class needs to get started with gel electrophoresis. Includes materials for making and running fifty MiniOne gels (1–2% agarose) - a great value! An exclusive MiniOne® DNA marker for analyzing a wide range of fragment sizes is also included.

**Kit contents:**

| Item | Description |
|---|---|
| Agarose | 10 grams, Electrophoresis Grade, Low EEO |
| TBE buffer concentrate | 500 mL at 20X concentration |
| GelGreen™ DNA stain | 50 µL at 10,000X stock |
| 5X Sample Loading Dye | 1 mL at 5X concentration, with Orange G and Xylene Cyanol tracking dyes |
| MiniOne® DNA Marker | 500 µL for 50 loads, with 100, 300, 500, 1,000 and 2,000 bp bands in a ready-to-use format |
| 1XTE buffer | 2 mL, for DNA sample dilution |
| Reusable plastic gel cups | 15 pieces, for making your own GreenGel™ Cups |
| Instruction manual | "How to Make MiniOne® Agarose Gels" |

# MiniOne® MiniLabs Alignment

## Table of Courses/Grades and Recommended Kits

| MiniLab Part # | MiniLab Name | Catalog Page | Middle School | Gen Bio | Honors Bio | AP Bio | Forensics | Health Science | Food Science | Agriculture | Environmental | Biotech | Biomed curriculum |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **ELECTROPHORESIS** | | | | | | | | | | | | | |
| M3001 | Electrophoresis 101 | 30 | x | x | x | x | x | x | x | x | x | x | |
| M3002 | Gel Loading Practice Kit | 28 | x | x | x | x | x | x | x | x | x | x | x |
| M3003 | PTC Genetics | 31 | | x | x | x | | x | | | | x | |
| M3004 | DNA Fingerprinting | 30 | x | x | | | x | | | | x | | |
| M3005 | CSI Forensics | 31 | | x | | | x | | | | | | |
| M3006 | Foodborne Outbreak Investigation | 34 | | | x | x | | x | x | x | x | | |
| M3007 | Colorful Dye Electrophoresis | 28 | x | x | x | x | | | | | | x | |
| M3008 | NGSS-Aligned Color Dyes and Gel Electrophoresis | 35 | x | x | | | | | | | | | |
| M3009 | Candy Color Electrophoresis | 29 | x | x | | | | | x | | | | |
| M3010 | Hunting the Inheritance of Huntington's Disease | 32 | | | x | x | | x | | | | | |
| M3011 | Determine the Genetics of a Ca$H Cow | 29 | x | x | | | | | | x | x | | |
| M3012 | PTC Inheritance and Graphical Analysis | 32 | | | | x | | | | | | x | |
| M6050 | Restriction Digest Basics | 33 | | x | x | x | | | | | | | |
| M6053 | Restriction Analysis of DNA | 33 | | | x | x | | | | | | x | |
| **PCR and ELECTROPHORESIS** | | | | | | | | | | | | | |
| M6001 | PCR 101 | 36 | | | x | x | | | | | | x | |
| M6010 | A Taste of Genetics | 38 | | | x | x | | x | | | | x | x |
| M6005 | PCR Cycle Number Analysis | 37 | | | | x | | | | x | | x | x |
| M6020 | BSE - Don't Let the Cows Go Mad! | 39 | | | | x | | | x | x | | x | |
| **REAGENT PACKS** | | | | | | | | | | | | | |
| M3050 | Sickle Cell Inheritance | 40 | | | | | | x | | | | | x |
| M3051 | Hypercholesterolemia | 40 | | | | | | x | | | | | x |
| M3052 | DNA Detectives Investigations | 40 | | | | | x | | | | | | x |


MiniLab Course Alignment

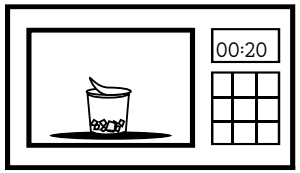
# MiniOne® GreenGel™ Cups

A ready to use, microwavable plastic cup with all ingredients to make one MiniOne gel.

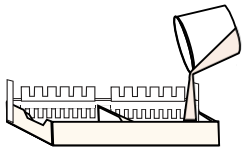

- Each cup contains GelGreen™ DNA stain* mixed in a pre-weighed amount of agarose gel cubes
- One gel cup makes one MiniOne gel (10 mL in volume)
- Making agarose gels becomes easy, convenient, and fast
- 6 month shelf life

## Procedure

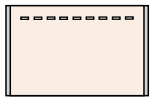
Partially peel the plastic film




Microwave for 20 seconds



Pour into gel tray



Ready to run in 10–15 minutes

*Features of GelGreen™ DNA stain:

- Safety: a non-cytotoxic, non-mutagenic substitute for ethidium bromide (EtBr)
- Stability: stable at room temperature for long-term storage and microwavable
- Simplicity: binds to dsDNA, fluoresces when exposed to blue light enabling instant visualization of DNA bands

## GreenGel™ Cups with GelGreen™ DNA stain for gel electrophoresis with DNA samples

| Cat. No. | Buffer Type | Agarose Gel Concentration | Content | List Price |
|---|---|---|---|---|
| M3102TBE | TBE | 1% | Ten GreenGel™ Cups with GelGreen™ DNA stain mixed in agarose gel cubes, and **one bottle of 100 mL TBE buffer concentrate** (Makes ten MiniOne® TBE gels) | $24.00 |
| M3142TBE | TBE | 1.5% | | $24.00 |
| M3103TBE | TBE | 2% | | $24.00 |
| M3123TBE | TBE | 3% | | $25.00 |
| M3141TBE | TBE | 0.6% | | $24.00 |
| M3140TBE | TBE | 0.8% | | $24.00 |
| M3102TAE | TAE | 1% | Ten GreenGel™ Cups with GelGreen™ DNA stain mixed in agarose gel cubes (Makes ten MiniOne® TAE gels) | $21.00 |
| M3142TAE | TAE | 1.5% | | $21.00 |
| M3103TAE | TAE | 2% | | $21.00 |
| M3123TAE | TAE | 3% | | $22.00 |
| M3141TAE | TAE | 0.6% | | $21.00 |
| M3140TAE | TAE | 0.8% | | $21.00 |

## Agarose gel cups without DNA stain for gel electrophoresis with color dye samples

| Cat. No. | Buffer Type | Agarose Gel Concentration | Content | List Price |
|---|---|---|---|---|
| M3151TBE | TBE | 1% | Ten agarose gel cups with preweighed agarose gel cubes, and one bottle of 100 mL TBE buffer concentrate (Makes ten MiniOne® TBE gels) | $20.00 |
| M3151TAE | TAE | 1% | Ten agarose gel cups with preweighed agarose gel cubes (Makes ten MiniOne® TAE gels) | $18.00 |



GreenGel™ Cups

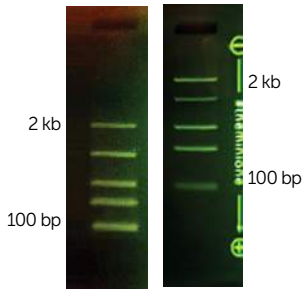
# DNA Size Markers

## MiniOne® DNA Marker
**M3104**

$35

A DNA size marker that consists of five double-stranded DNA fragments with sizes of 2K, 1K, 500, 300, and 100 base pairs (bp).

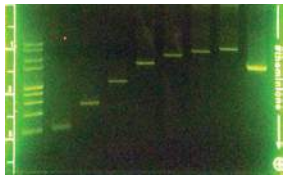
- 500 µL for 50 loads (10 µL per load)
- Suitable for 1% and 2% agarose gels
- All DNA bands will be well separated within 25 minutes




25 min 1% gel  25 min 2% gel

## MiniOne® Universal DNA Marker
**M3144**

$35



A DNA size marker uniquely designed for fast band separation on agarose gels. It is composed of nine double-stranded DNA fragments with sizes of 10K, 6K, 3K, 2K, 1K, 800, 600, 400, and 200 base pairs (bp), reference band at 1 kb.

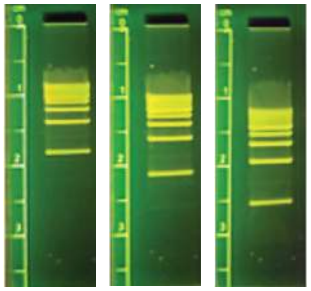
- 500 µL for 50 loads (10 µL per load)
- All DNA bands will be well separated within 25 minutes in a 1% agarose gel
- Suitable to be used as a size marker for most PCR products and recombinant plasmids and inserts

## 1 kb DNA Ladder
**M3116**

$65

Consists of fifteen double-strand DNA fragments, size ranging from 1 kb to 15 kb in exact 1 kb increments, reference band at 5 kb.

- 1,000 µL for 100 loads (10 µL per load)
- Can be used as a size marker for restriction digestions of genomic DNA, large dsDNA fragment



30 min  35 min  40 min

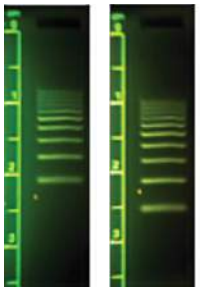
1% agarose gel, 1 kb DNA ladder

## 100 bp DNA Ladder
**M3117**

$65

Consists of ten double-stranded DNA fragments, sizes ranging from 100 bp to 1,000 bp in exact 100 bp increments.

- 1,000 µL for 100 loads (10 µL per load)
- A size marker for most PCR products smaller than 1000 bp



25 min  30 min

2% agarose gel, 100 bp DNA ladder

## 500 bp DNA Ladder
**M3145**

$35

Consists of ten double-stranded DNA fragments, sizes ranging from 500 bp to 5,000 bp in exact 500 bp increments, reference band at 2.5 kb.

- 500 µL for 50 loads (10 µL per load)
- An ideal size marker for PCR products smaller than 5 kb

30 min

1% agarose gel, 500 bp DNA ladder

All DNA markers are supplied in ready-to-load format with Xylene Cyanol FF and Orange G tracking dyes, stable for six months at room temperature.



DNA Size Markers

# Consumables and Plastics

## TBE Buffer Concentrate (20X)

**M3101TBE**

$18 (500 mL)

- Suitable for separation of smaller size DNA fragments or PCR products (≤ 2 kb)

## TAE Buffer Concentrate (10X)

**M3101TAE**

$18 (500 mL)

- Suitable for separation of larger size DNA fragments (5-20 kb), example: restriction digests of Lambda DNA

## 5X Sample Loading Dyes with Orange G and Xylene Cyanol

**M3115**

$10 (10 mL)

## 5X Sample Loading Dyes with Orange G

**M3119**

$10 (10 mL)

- Mix with DNA sample for easy loading
- Tracking dyes give a green color to samples which can be seen easily with the blue light on
- Other commonly used sample loading dyes are dark blue color which makes the DNA sample invisible when the blue light is on

## GelGreen™ DNA Stain

(10,000X concentration)

**M3113**

$20 (50 µL)

**M3114**

$100 (500 µL)

**M3120**

$180 (1 mL)

**M3121**

$850 (5 mL)

- Simple to use: just add 1 µL per 10 mL agarose solution to make one MiniOne gel
- Safe: a non-cytotoxic, non-mutagenic, and environmentally safe substitute for ethidium bromide (EtBr)
- Stable at room temperature
- Microwavable

## Agarose

Electrophoresis grade, low EEO

**M3105**

$15 (5 grams)

**M3106**

$45 (25 grams)

**M3106-100g**

$100 (100 grams)

**M3106-500g**

$400 (500 grams)

## Microcentrifuge Tubes

**M3107**

$9.50 (0.65 mL, natural color)

**M3109**

$9.50 (1.7 mL, natural color)

**M3108**

$10 (0.65 mL, rainbow colors)

**M3110**

$10 (1.7 mL, rainbow colors)

- Pack of 200 tubes
- Non-sterile

## FastTaq™ DNA Polymerase

A specially engineered Taq DNA polymerase with a very fast PCR extension rate at 100 bp/second. Also possesses moderate 3'–5' proofreading activity, making this enzyme well suited for high-throughput PCR.

## MiniOne® FastTaq™ PCR MasterMix (2X)

**M6201**

$90 (5 x 1 mL)

- The mastermix includes FastTaq™ DNA polymerase, dNTPs, $Mg^{2+}$ ions and buffer
- Just add primers and template DNA to complete the reaction setup
- Sufficient for 500x10 uL reactions

## MiniOne® FastTaq™ DNA Polymerase

**M6202**

$90 (1,000 units at 5U/µL)

- FastTaqTM DNA Polymerase (5 U/µL): 0.2 mL
- 5X PCR Buffer, with $Mg^{++}$: 4 mL
- 25 mM $MgSO_4$: 1 mL

## 0.2 mL PCR Tubes

**M6100**

$10

- Thin-walled with attached flat cap, optically clear, non-sterile, natural color
- Pack of 100 tubes
- Nuclease free

## Taq DNA Polymerase

A regular Taq DNA polymerase suitable for a wide range of DNA assays with excellent yield and sensitivity. Routine PCR amplification of DNA templates up to 6 kb with a fast PCR extension rate at 1,000 bp/minute.

## MiniOne® Taq PCR MasterMix (2X)

**M6208**

$70 (5 mL)

- The mastermix includes Taq DNA polymerase, dNTPs, $Mg^{2+}$ ions and buffer
- Just add primers and template DNA to complete the reaction setup

## MiniOne® Taq DNA Polymerase

**M6207**

$65 (1,000 units at 5U/µL)

- Enzyme is separately supplied with 10X PCR buffer and 25 mM $MgSO_4$

## Micropipette Tips–Bulk package

**M3112** 1-10 µL, pk of 250 tips

$9.50

**M3111** 2–200 µL, pk of 250 tips

$9.50

**M3134** 2–200 µL, pk of 1,000 tips

$28.50

**M3118** 100–1,000 µL, pk of 250 tips

$9.50

- Fine tip with standardization marks
- Universal fit
- Autoclavable
- Non-sterile

## PCR Reagents

You may find the following items handy when doing PCR:

## MiniOne® dNTP Mix

**M6203**

$55 (1 mL)

- A ready-to-use aqueous solution containing dATP, dCTP, dGTP and dTTP, each at a final concentration of 10 mM

## Nuclease free water for PCR

**M6204**

$8 (5 mL)

## Nuclease free water

**M6205**

$15 (50 mL)

- Molecular biology grade
- For DNA sample dilution or general use

## 1X Tris-EDTA (TE) Buffer, pH8.0

**M6206**

$15 (50 mL)

- Molecular biology grade
- For DNA sample dilution

## Micropipette Tips–Racked package

**M3136** 2–200 µL, ten racks

~~$65~~ $55

- Tips packed in racks of 96 micropipette tips for easy use and storage
- Has all features of the bulk packaging version



Consumables and Plastics

# Visit our MiniOne® Resource Center

**https://theminione.com/minione-resource-center/**

### Grant/Funding Resources

Grant templates and Donor's Choose hints

### Instructional Videos and User Manuals

Equipment walk through, app set and GelCup prep

### Free Classroom Activities

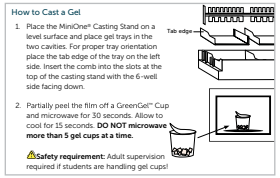
Free activities from MiniOne® Systems and our collaborators build on the skills and concepts learned in MiniOne® MiniLabs


### MiniOne® Blog

What are teachers saying about MiniOne in their classroom?

### General Information

Company information and education partners


How to Cast a Gel

1. Place the MiniOne® Casting Stand on a level surface and place gel trays in the two cavities. For proper tray orientation place the tab edge of the tray on the left side. Insert the comb into the slots at the top of the casting stand with the 6-well side facing down.
2. Partially peel the film off a GreenGel™ Cup and microwave for 30 seconds. Allow to cool for 15 seconds. **DO NOT microwave more than 5 gel cups at a time.**

**Safety requirement:** Adult supervision required if students are handling gel cups!

### MiniLab Teacher and Student Guides

Library of our MiniLab instructions

### Professional Development

In-house teacher training

### Conference Calendar

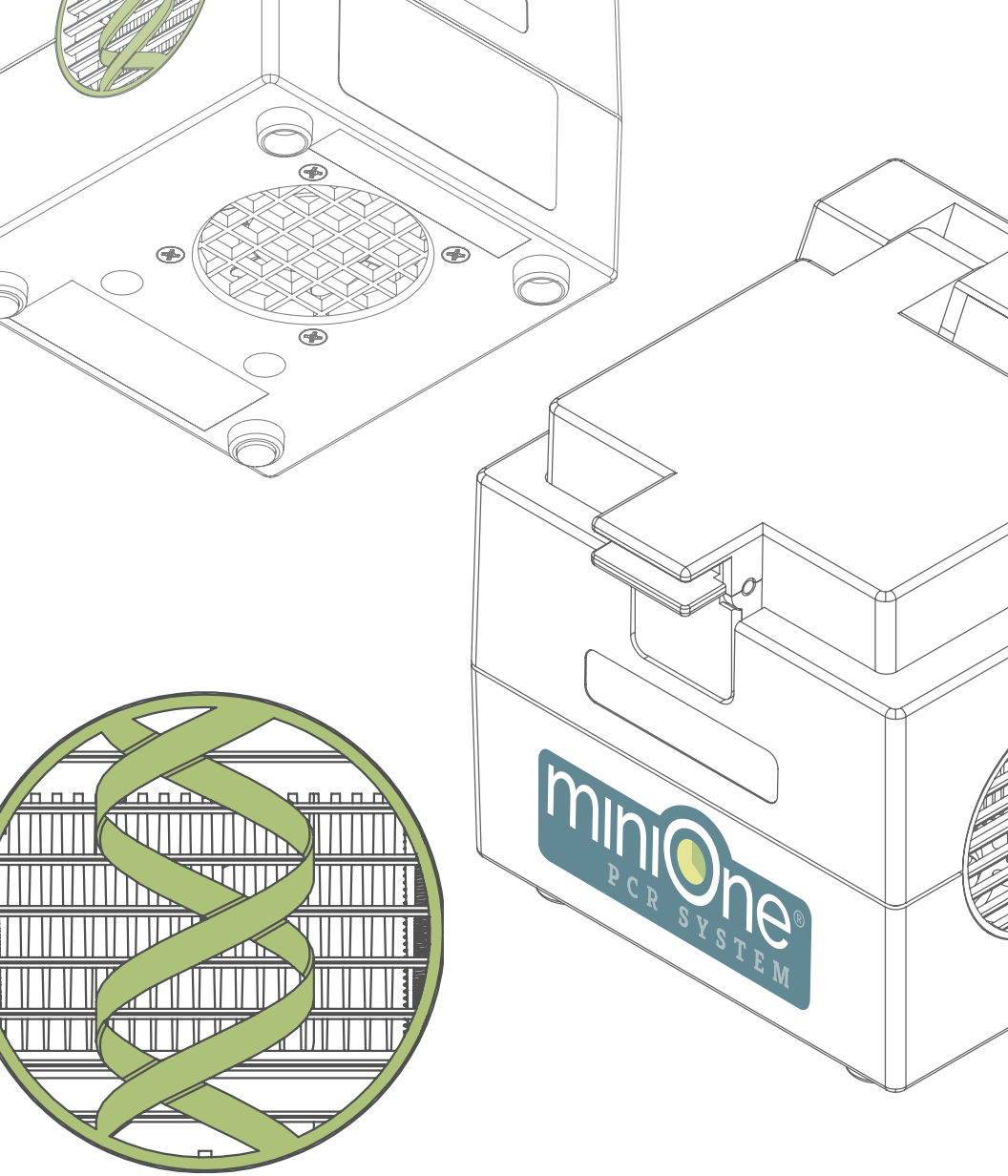
See if we're heading to a local conference in your area

### Partnerships

Programs that provide outreach, loaners, teacher training and summer workshops



# Index

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