New **Refresh** Kit Components (see pages 4–5) • **Free** PCR Kit Offer (see page 13)
Up to **40%** Educator Savings • New **Free PCR Poster** Offer (see page 11)

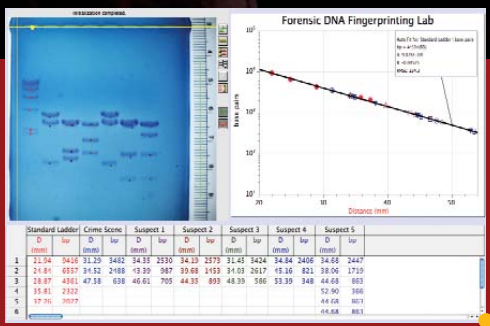
Biotechnology Explorer™

CAPTIVATING SCIENCE EDUCATION

DNA > RNA > Protein > **Refresh!**

BIO-RAD

CURRICULA • EQUIPMENT • KITS • PROFESSIONAL DEVELOPMENT • TECHNICAL SUPPORT



Collaboratory. At Bio-Rad our mission is to partner with you, our customers, so that we can deliver just what you want for your teaching laboratories. This year we are beginning the first in a series of initiatives to help you be green — by introducing biodegradable baggies for many of our products, reducing waste and providing purchasing flexibility at the same time. Our first step is the introduction of new packaging options for our classroom kits, helping you to reduce waste and maximize your space and budget for the key items you need. Read all about our new options on pages 4-5.

Vernier
Measure. Analyze. Learn.™

Partnership. The Biotechnology Explorer program was developed from a community of educators and researchers and we continue to learn from our colleagues. The core beliefs of the Biotechnology Explorer program are exemplified by Vernier Software & Technology. Bio-Rad and Vernier are teaming up to provide educators with the gold standard in hands-on science materials and technology. Vernier's expertise in data analysis complements Bio-Rad's lab activities for the life sciences. In this new partnership, Bio-Rad and Vernier are working together to broaden and enhance classroom experiences with joint experiments and curricula.

Analysis of DNA Fingerprinting results using Vernier's Logger *Pro*® software. Logger *Pro* helps your students create a standard curve and calculate the number of base pairs (molecular weight) for each experimental band in only a few minutes. **www.vernier.com/biotech**

Reduce. Reuse.

	pGLO™ Bacterial Transformation Kit	Microbes and Health Kit/ Microbial Culturing Module	Genes in a Bottle™ Kit	Analysis of Precut Lambda DNA Kit	Restriction Digestion and Analysis of Lambda DNA Kit	Forensic DNA Fingerprinting Kit	Crime Scene Investigator PCR Basics™ Kit	PV92 PCR Informatics Kit	GMO Investigator™ Kit
 LB Nutrient Agar Powder	•								
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 Petri Dishes	•	•							
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 Inoculation Loops	•			•	•	•	•	•	•
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 Gel Staining Trays				•	•	•	•	•	•
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 Disposable Plastic Transfer Pipets				•	•	•	•	•	•
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 1.5 ml Microcentrifuge Tubes			•						
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 Conical Centrifuge Tubes	•								
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 Cell Culture Tubes		•							
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Refresh.

Refresh kit components reduce packaging waste, reuse components, and refresh your kits while saving storage space by purchasing individual items. Bio-Rad now has many individual components for Biotechnology Explorer kits available for purchase.

Visit us at **explorer.bio-rad.com** to learn more. To request our kit components purchasing guide (bulletin 5872), please email us at **biotechnology_explorer@bio-rad.com**.

Description	Catalog No.	Price
pGLO Bacterial Transformation Kit Refill Package	166-0555EDU	$53.00
pGLO Plasmid, 20 µg, lyophilized	166-0405EDU	29.00
Arabinose, 600 mg, lyophilized	166-0406EDU	20.00
Ampicillin, 30 mg, lyophilized	166-0407EDU	15.00
E. coli Strain HB101 K-12, lyophilized	166-0408EDU	16.00
Transformation Solution, 15 ml	166-0409EDU	19.00
LB Broth, 10 ml	166-0421EDU	16.00
LB Nutrient Agar Powder, 20 g, makes forty 60 mm agar plates	166-0600EDU	10.00
LB Nutrient Agar Powder, 500 g, makes one thousand 60 mm agar plates	166-0472EDU	83.00
Petri Dishes, 60 mm, sterile, 500	166-0470EDU	119.00
Inoculation Loops, 10 µl, sterile, 80 — Limited time promotional price	166-0471EDU	**9.99***
Jellyfish Foam Floating Racks, 8 racks, 12 microcentrifuge tube wells	166-0479EDU	29.00
Long-Wave UV Lamp, 1	166-0500EDU	32.00
Long-Wave UV Pen Light, 1	166-0530EDU	10.00
TAE, 50x, 1 L	161-0743EDU	56.00
TAE, 50x, 5 L cube	161-0773EDU	153.60
Sample Loading Dye, 5x, 10 ml	161-0767EDU	15.20
Certified™ Molecular Biology Agarose, 25 g	161-3100EDU	39.75
Certified Molecular Biology Agarose, 125 g	161-3101EDU	113.25
Certified Molecular Biology Agarose, 500 g	161-3102EDU	392.00
Fast Blast™ DNA Stain, 500x, 100 ml	166-0420EDU	22.00
Small Fast Blast DNA Electrophoresis Reagent Pack	166-0450EDU	48.00
Medium Fast Blast DNA Electrophoresis Reagent Pack	166-0455EDU	160.00
Large Fast Blast DNA Electrophoresis Reagent Pack	166-0460EDU	500.00
Gel Staining Trays, 4	166-0477EDU	14.00
Genes in a Bottle DNA Extraction Refill Package	166-2001EDU	37.00
Lysis Buffer, 150 ml	166-2002EDU	21.00
DNA Necklace Module, 18 amulet necklaces	166-2200EDU	33.00
MasterMix for PCR, 2x, 90 units, 1.2 ml	166-5009EDU	72.00
Disposable Plastic Transfer Pipets, sterile, 500	166-0474EDU	95.00
Disposable Plastic Transfer Pipets, nonsterile, 500	166-0480EDU	48.00
Colored 1.5 ml Microcentrifuge Tubes, 6 colors, 600	166-0473EDU	29.00
EZ Micro™ Test Tubes, 1.5 ml, natural, 500	223-9480EDU	21.60
EZ Micro Test Tubes, 2 ml, natural, 500	223-9430EDU	23.20
Conical Tubes, 1.5 ml, with installed O-ring screwcaps, sterile, 500	224-0110EDU	86.40
Conical Centrifuge Tubes, 15 ml, 50	166-0475EDU	24.00
Cell Culture Tubes, 17 x 100 mm, 14 ml, sterile, 25	166-0476EDU	14.00
0.2 ml Tubes With Domed Caps, natural, 1000	TWI-0201EDU	42.40
PCR Tube Capless Adapters, 500	223-9500EDU	17.60
96-Place PCR-Tube Rack and Cover, 5	TRC-0501EDU	28.80

* Promotional price. Limited time offer expires January 31, 2010.

AP LAB

pGLO™ Bacterial Transformation & GFP Extension Kits

Hands-on activities for **AP LAB 6**

pGLO Bacterial Transformation and GFP Extension Kits

Free UV pen light included with each pGLO kit

Each kit contains sufficient materials for 8 student workstations. We recommend 2–4 students per workstation.

pGLO Bacterial Transformation Kit

Catalog # . . . . . .EDU Price

166-0003EDU $89.00

pGLO Transformation Lab Prep DVD

Catalog # . . . . . .EDU Price

166-0540EDU 12.00

pGLO bacterial transformation lab preparation and techniques instructional DVD contains everything you need to know to set up and run the lab like a pro.

GFP Chromatography Kit

Catalog # . . . . . .EDU Price

166-0005EDU 99.00

pGLO Kit SDS-PAGE Extension

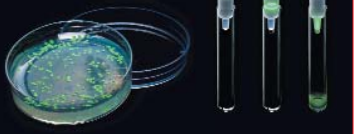
Catalog # . . . . . .EDU Price

166-0013EDU $85.00

Includes curriculum, 1 g DTT, 100 µl Precision Plus Protein™ Kaleidoscope™ protein standards, 100 ml Bio-Safe™ Coomassie stain, 1 L 10x TGS, 30 ml Laemmli sample buffer.

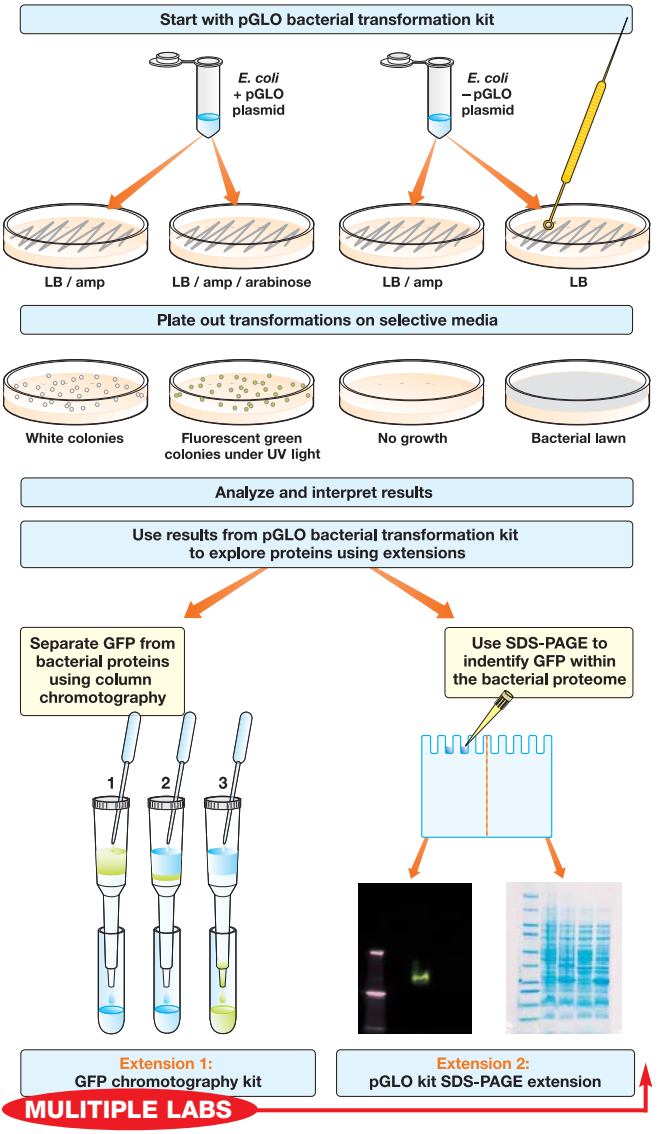
Key Kit Features

- Aligns with AP Biology **[AP LAB 6]**
- Transform bacteria with jellyfish gene
- Capture the glow
- Analyze the proteome



New **Refresh Kit Components** (see pages 4–5 and 18)

Educational discounts apply only to items ordered with an EDU suffix. EDU price discounts are for qualified educational institutions and educators only.



Genetic engineering is the process of manipulating the genetic material of an organism — often to include the DNA from a foreign organism. In the **pGLO bacterial transformation kit**, students transform bacteria with a gene from a bioluminescent jellyfish to express a new protein, green fluorescent protein (GFP). This same procedure is used for creating "designer proteins" and has led to the explosion of new medicines, agricultural applications, and environmental solutions.

What's next after the pGLO kit? Transformation is only the first step in producing bioengineered proteins. Discover more about GFP with two great lab extensions that dive deeper into the proteins expressed in the pGLO bacterial transformation lab and allow you to find or purify the protein in the haystack. Use the **GFP chromatography kit** to purify GFP using a core technique in biomanufacturing: chromatography. Or, analyze the entire bacterial proteome using one of the most commonly cited molecular techniques with the **pGLO kit SDS-PAGE extension**.

Show your students the relevance of the science they learn in the classroom to science in their lives. When students genetically engineer bacteria with the genes from a bioluminescent jellyfish, they never forget the central mantra of molecular biology: **DNA > RNA > Protein > Trait — Green Fluorescence!**

Forensic DNA Fingerprinting Kit

AP LAB

Hands-on activities for **AP LAB 6**

Forensic DNA Fingerprinting Kit

Each kit contains sufficient materials for 8 student workstations. We recommend 2–4 students per workstation.

Forensic DNA Fingerprinting Kit

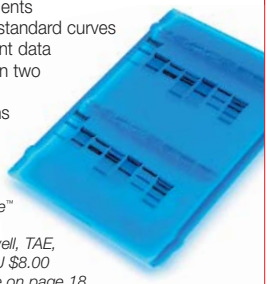
Catalog # . . . . . .EDU Price

166-0007EDU **$130.00**

Convenient lyophilized reagents. Ships at room temperature. Immediately store temperature-sensitive reagents at –20°C.

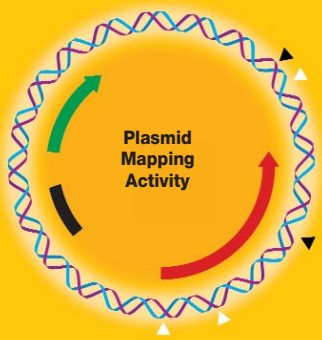
Key Kit Features

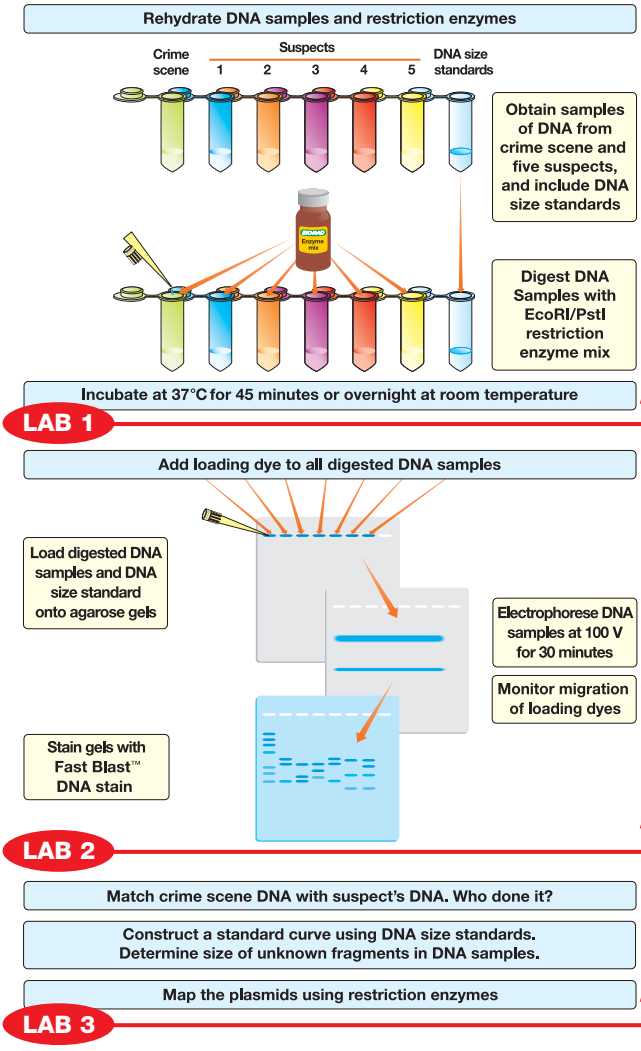
- Aligns with AP Biology **[AP LAB 6]**
- Use electrophoresis to visualize DNA fragments
- Construct standard curves from student data
- Complete in two 45 minute lab sessions



ReadyAgarose™ precast gel 1.0%, 2 x 8 well, TAE, 161-3057EDU $8.00

Find out more on page 18.





Using real DNA as evidence, your students play the role of crime scene investigators. DNA evidence assists in criminal, missing person, mass disaster, and paternity cases. It can also be used to exonerate the innocent.

The six DNA samples in this kit are plasmids engineered to mimic the variations in DNA that exist between one human being and another. One DNA sample has been collected from a "crime scene" and five samples have been obtained from various "suspects". Each sample is digested using a mixture of two DNA restriction enzymes, generating a distinct pattern of DNA fragments. From their electrophoresis results, students construct standard curves, determine DNA fragment sizes, and place a suspect at the scene of the crime.

Cutting DNA with restriction enzymes is the first step in recombinant DNA and genetic engineering. Open the door to rich discussions about the scientific, ethical, and legal implications of DNA profiling and genetic engineering.

The ability to cut DNA with restriction enzymes makes modern molecular biology possible. Cut the DNA fingerprinting kit plasmids with the PstI and EcoRI restriction enzymes and try the new plasmid mapping activity now described in detail within this kit's curriculum manual which aligns with AP Biology Lab 6.

Get our free curriculum from the Web: **explorer.bio-rad.com**.

New **Jellyfish Foam Floating Racks**

(see page 19)

Educational discounts apply only to items ordered with an EDU suffix. EDU price discounts are for qualified educational institutions and educators only.

Genes in a Bottle™ Kit

CAN YOU SEE YOUR DNA?

Genes in a Bottle Kit

Each kit contains sufficient materials for 36 students.

Genes in a Bottle Kit

Catalog # . . . . . .EDU Price

166-2300EDU* **$134.00**

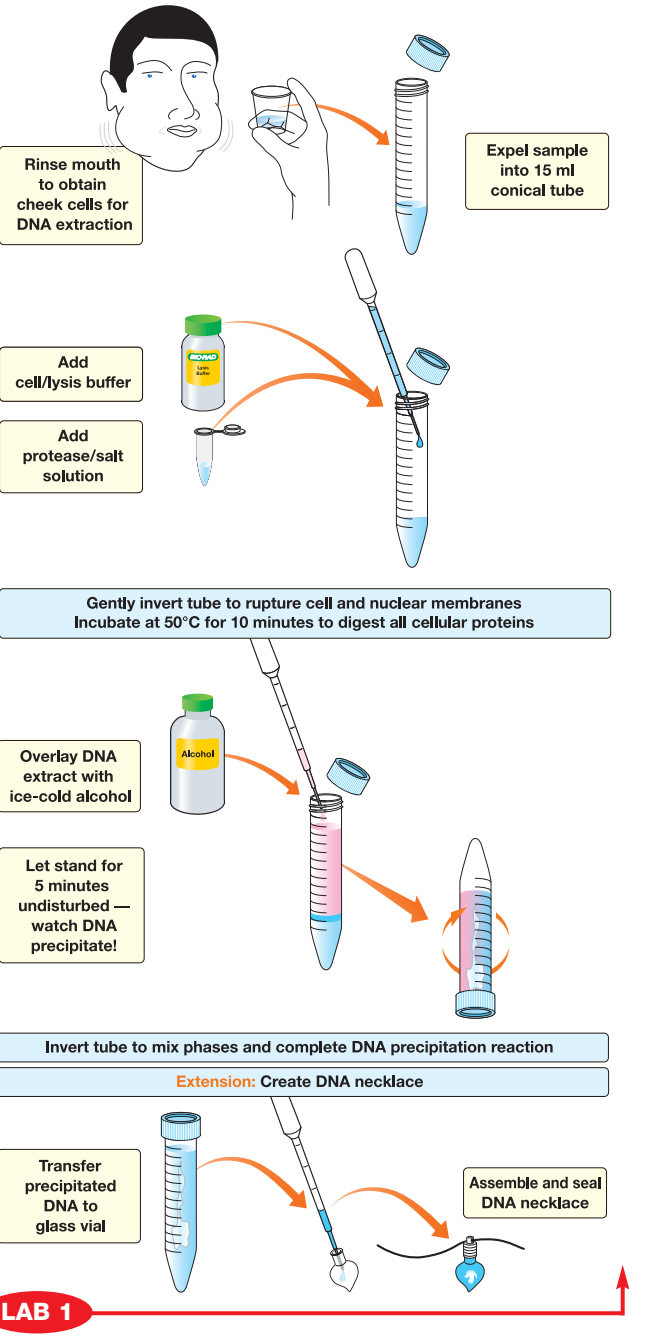
Ships and stores at room temperature.
* Includes one DNA extraction module and two DNA necklace modules

166-2000EDU **95.00**
DNA Extraction Module

166-2200EDU **33.00**
DNA Necklace Module (18 necklaces)

Key Kit Features
- Use as introductory or capstone activity
- Perform real research techniques
- Extract, precipitate, and bottle your DNA
- Complete in one 45 minute lab session

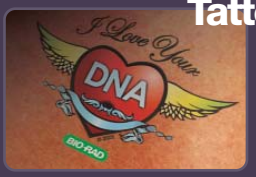
DNA Necklace Extension Activity



Make your biology personal. Introduce your students to molecular biology with their own DNA! Enable your students to see the normally invisible substance of life and begin to comprehend the meaning of their own genetic makeup. In this activity your students employ the same real-world laboratory procedure used to extract DNA from many different organisms for a variety of biotechnology research applications. Students extract genomic DNA from their own cheek cells, then precipitate and bottle it in a fabulously cool necklace.

From cell structure, to genetics, to the chemistry of life — this kit integrates multiple life science standards in a single lesson. Seeing DNA makes it real. Wearing it makes the lesson memorable!

I Love Your DNA Tattoos



Pack of 200 temporary tattoos
166-2004EDU **21.00**

Great for fundraising!

email for ideas and a PDF fact sheet.

biotechnology_explorer@bio-rad.com

Educational discounts apply only to items ordered with an EDU suffix. EDU price discounts are for qualified educational institutions and educators only.

Free Life Sciences Workshops at a Conference Near You!

Life Sciences Core Content Standards

Scientific inquiry: field and lab investigations, scientific problem solving, environmental considerations, impact of research on society, career options

Genetics: genes and heredity, chromosomes and alleles, mutations, variation; DNA structure, function, replication; central dogma

Cell and molecular biology: cell structures and processes; plant, microbe, and animal cell types; growth, development, and interaction

Chemistry of life: structure and function of cellular components and processes (proteins, carbohydrates, lipids, nucleic acids, etc.)

Evolution: change in heritable traits in populations; natural selection; allelic and species diversity, phylogeny, extinction, and fossil record

Environmental and health science: interactions in natural systems; biodiversity, natural resources, food webs, energy pyramid, human impact; disease and epidemiology

Advanced concepts and techniques: going beyond the textbook, applying the results to the real world

●	●				●		**Microbes and health kit** (166-5030EDU)	Introductory
●	●	●	●				**Genes in a Bottle™ kit** (166-2300EDU)	
●	●	●	●				**pGLO™ bacterial transformation kit** (166-0003EDU)	
●		●	●				**Green fluorescent protein (GFP) chromatography kit** (166-0005EDU)	
●	●	●	●		●		**Secrets of the Rainforest™ kit** (166-0006EDU)	
●			●				**Size exclusion chromatography kit** (166-0008EDU)	
●			●				**Got Protein?™ kit** (166-2900EDU)	
●	●	●	●		●		**ELISA Immuno Explorer™ kit** (166-2400EDU)	Intermediate
●	●		●	●			**Forensic DNA fingerprinting kit** (166-0007EDU)	
●	●	●	●				**Analysis of precut lambda DNA kit** (166-0001EDU)	
●	●	●	●				**Restriction digestion and analysis of lambda DNA kit** (166-0002EDU)	
●		●	●				**pGLO kit SDS-PAGE extension** (166-0013EDU)	
●	●		●	●			**Crime Scene Investigator PCR Basics™ kit** (166-2600EDU)	
●	●	●	●	●	●		**Comparative proteomics kit I: protein profiler module** (166-2700EDU)	
●	●	●	●	●	●		**Comparative proteomics kit II: western blot module** (166-2800EDU)	Advanced
●	●	●	●	●			**PV92 PCR informatics kit** (166-2100EDU)	
●	●	●	●	●	●		**GMO Investigator™ kit** (166-2500EDU)	
●	●		●	●		●	**Crime Scene Investigator PCR Basics real-time PCR starter kit** (166-2660EDU)	
●	●	●	●	●	●	●	**GMO Investigator real-time PCR starter kit** (166-2560EDU)	
●	●	●	●	●	●	●	**Cloning and Sequencing Explorer Series** (166-5000EDU)	

2009 Fall Teacher Conference and Workshop Schedule

October			
22–25	**CSTA**	**Palm Springs**	**California**
29–31	**NSTA Midwestern Regional**	**Minneapolis**	**Minnesota**
Oct 31–Nov 3	**STANYS**	**Rochester**	**New York**
November			
5–7	**STAT-CAST**	**Galveston**	**Texas**
11–14	**NABT**	**Denver**	**Colorado**
12–14	**NSTA Eastern Regional**	**Fort Lauderdale**	**Florida**
19–20	**NCSTA**	**Greensboro**	**North Carolina**
December			
3–5	**NSTA Western Regional**	**Phoenix**	**Arizona**

A complete schedule can be found on the Web at **explorer.bio-rad.com**.

BIO-RAD

Educational Pricing Contract Application

As an educator you are entitled to discount pricing on all Bio-Rad products. To initiate setup of a new education account, simply fax or mail this page to Bio-Rad. If you are ready to place your first order, send this page and attach a purchase order with the numbers and descriptions of the items you wish to purchase.

Biotechnology Explorer Program

Bio-Rad Laboratories, Inc.
2000 Alfred Nobel Drive
Hercules, CA 94547 USA

Fax to: 1-800-879-2289
or 1-510-741-5800

Re: Educational Discount

We are an educational facility interested in using Bio-Rad products to teach our students. We would like to receive a teaching lab discount and understand that the Bio-Rad education discount is only available to educators at the K–12 and undergraduate levels. This letter is our confirmation that the products we order through our educational account will be used only to educate students in a classroom or teaching lab environment and will not be used for basic scientific research. We are sending this letter in order to:

- ☐ Initiate setup of a new educational account with Bio-Rad Laboratories (If tax exempt, please include copy of the school's tax certificate.)
- ☐ Place a new order, with PO attached
- ☐ Confirm an order identification number (please fill in) _____

Name of contact: _____

Department: _____

School or institution: _____

We are a (please check one):

☐ High school ☐ Community college ☐ Undergraduate university ☐ Other _____

Bill to address: _____

City/state/ZIP code: _____

Phone number/fax number: _____

Ship to address: _____

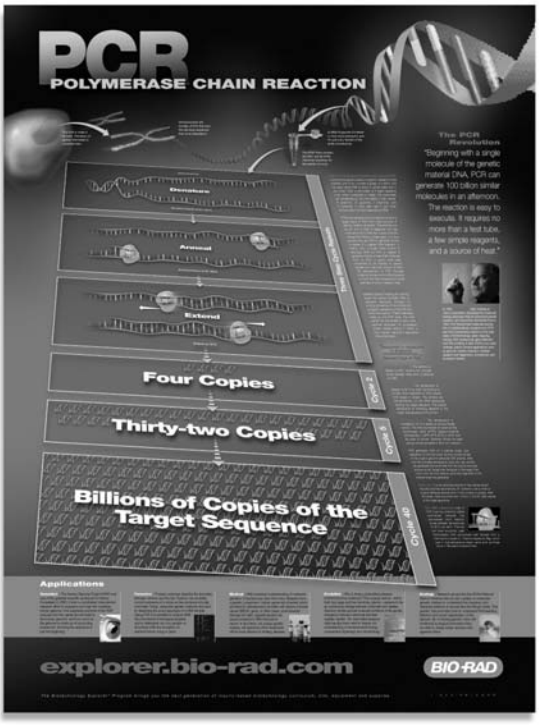
City/state/ZIP code: _____

Phone number/fax number: _____

Email address: _____

Signature: _____

Get Your Free Biotechnology Explorer™ Stuff



Free Giant 40″ Full-Color **PCR Poster**

While supplies last, get your **free PCR poster** — see the detailed visual process of the polymerase chain reaction process: how it works, why it works, and what you need it for in the scientific research world.

- **Learn** about the PCR revoltution
- **See** the process step by step
- **Learn** about the hot research areas using PCR now

To get your **free Biotechnology Explorer catalog**, call **1-800-424-6723**, fill out and mail the attached postage-paid card, or visit us on the Web at **explorer.bio-rad.com**.

Find out more about the **Biotechnology Explorer™ program professional development options** & **get some free stuff!**

***20 to* 40% off** *list prices*

Name _____ Title _____

Institution _____

Department _____ Bldg _____ Room no. _____

Address _____

City _____ State _____ ZIP code _____

( ) Phone _____

( ) Fax _____

Email _____ *(By providing my email address I agree to receive email about Bio-Rad products and events)*

We want to hear from you!

What are your professional development objectives? _____

What challenges do you face in preparing students for biotech careers? _____

☐ Please have a Bio-Rad curriculum training specialist contact us about meeting our teaching goals and professional development needs in our own district today.

Free stuff and more:

☐ Free PCR poster (bulletin 5886)
☐ Free Biotechnology Explorer catalog (bulletin 2112)
☐ Hey! Have my Bio-Rad account representative call me
☐ I would like to receive the Bio-Rad eFocus email newsletter

Fill out and return this card today, or for immediate information, call **1-800-4BIORAD** (1-800-424-6723).

Bulletin 5873 09-0628 809

On-Site Professional Development

professional_development@bio-rad.com

Professional development — designed to fit your needs and surpass your expectations. With over 30 years of classroom teaching experience, our curriculum training specialists know how to develop and implement curriculum within your classroom that will boost student achievement in science. Let them help you with all your training needs and make the most of your precious time and resources. **Can't travel?** They can come to your classroom, train the educators within your region or district, and help you find the resources you need to make teaching biotech exciting and engaging!

Contact us today for:

- Personalized training to meet your curriculum goals
- Laboratory activities aligned with your education standards
- Help setting up a biotech lab or curriculum

professional_development@bio-rad.com

NO POSTAGE
NECESSARY
IF MAILED
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UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO 42 RODEO, CALIF

POSTAGE WILL BE PAID BY ADDRESSEE

BIO-RAD

Bio-Rad Laboratories, Inc.
2000 Alfred Nobel Drive
Hercules, CA 94547-9980

Get a Set of PCR-Tube Racks and One PCR Lab Kit Free!

Free 96-Place PCR-Tube Rack and Cover Set
See page 18 for more information (TRC-0501EDU).

MyCycler™ Thermal Cycler Special Offer

Your Choice of One PCR Kit Free!
See below for details.

MyCycler Thermal Cycler

With its 96-well sample capacity and rapid heating and cooling technology, this compact thermal cycler provides high sample throughput in less time. This classroom-scale instrument also features a large 12 cm screen, intuitive programming, and real-time graphical display of your PCR protocol, at an economical price.

Specifications

Sample capacity	96 wells x 0.2 ml
Speed of ramping	Up to 2.5°C/sec
Temperature range	4–100°C
Heated lid	Adjustable to 110°C
Reaction volumes	15–100 µl
Display	12 cm high-resolution 1/4 VGA
Ports	1 USB
Memory	99 typical programs
Dimensions	25 x 44 x 21 cm (10 x 17 x 8") (W x D x H)

MyCycler Thermal Cycler Special Offer

Purchase a MyCycler thermal cycler and get a free set of PCR-Tube racks and your choice of one PCR kit free — over $188 value. Choose from the following kits: Crime Scene Investigator PCR Basics™ kit, PV92 PCR informatics kit, and GMO Investigator™ kit (Quote #09-Q25874).

Catalog #	Description	List Price	EDU price	Special Offer
170-9701EDU	MyCycler Thermal Cycler, 96 wells, 120/240V	4,750.00	3,575.00	**3,575.00**
TRC-0501EDU	96-Place PCR-Tube Rack and Cover, 5	36.00	28.80	**Free**




Choose one of the following PCR kits:

166-2600EDU	Crime Scene Investigator PCR Basics kit	200.00	160.00	
166-2100EDU	PV92 PCR informatics kit	248.75	199.00	**One Free**
166-2500EDU	GMO Investigator kit	218.75	175.00	

Must reference quote #09-Q25874. Provide all catalog numbers including free PCR racks and PCR kit choice when placing order. Limited to two MyCycler thermal cyclers with free PCR racks and kit per customer. Limited-time offer expires January 31, 2010.

GMO Investigator™ Kit

Free Catalog!

HAVE YOUR FAVORITE FOODS BEEN GENETICALLY MODIFIED?

GMO Investigator Kit

Each kit contains sufficient materials for 8 student workstations. We recommend 2–4 students per workstation.

GMO Investigator Kit[1]

Catalog # . . . . . .EDU Price

166-2500EDU $175.00

Required DNA electrophoresis reagents available separately; see p. 18. Ships at room temperature. Immediately store temperature-sensitive reagents as indicated.

GMO Investigator Kit[1] Plus Small DNA Electrophoresis Reagent Pack

Catalog # . . . . . .EDU Price

166-2550EDU 219.00

Key Kit Features

- Extract and amplify DNA from 8 food samples
- Perform genuine diagnostic procedures
- Use PCR and electrophoresis to find GM foods
- Complete in three 45 minute lab sessions

Pour you own gel (shown) 3.0% agarose, 2 x 8 well, TAE buffer, or order ReadyAgarose™ precast gel 3.0%, 1 x 8 well, TAE, 161-3017EDU $6.40. Find out more on page 18.

Genetically modified (GM) foods do not require labeling as such in the U.S. Using state-of-the-art DNA extraction techniques, PCR, and electrophoresis, students determine whether their favorite foods have been genetically modified — or not!

Students test for the presence of two different genetically modified organism (GMO)-associated DNA sequences present in most (>85%) of the genetically modified crops that are approved for distribution worldwide. This kit incorporates multiple controls, allowing students to engage in a complete investigation and to assess the validity of their results.

Are GM crops a good thing? Some argue that there is a potential for "superweeds" to arise through cross-pollination or for "superbugs" to evolve. Proponents of GM crops argue that they increase crop yield and reduce the use of chemicals that are potentially toxic to the environment and human health. Regardless of where you stand in the GM debate, wouldn't it be interesting to know if the corn- or soy-based foods you eat are GM foods?

Download the free curriculum from the Web and see how at **explorer.bio-rad.com**.

MJ Mini™ 48-Well Thermal Cycler

(see page 19)

Hot real-time PCR kit extension

Free downloadable PDFs

Web Check This Out!

explorer.bio-rad.com

Educational discounts apply only to items ordered with an EDU suffix. EDU price discounts are for qualified educational institutions and educators only.

Crime Scene Investigator PCR Basics™ Kit

WHICH HUMAN DNA SEQUENCES ARE USED IN FORENSIC INVESTIGATIONS?

Crime Scene Investigator PCR Basics Kit

Each kit contains sufficient materials for 8 student workstations. We recommend 2–4 students per workstation.

Crime Scene Investigator PCR Basics Kit[1]

Catalog # . . . . . .EDU Price

166-2600EDU $160.00

Required DNA electrophoresis reagents available separately. Ships at room temperature. Immediately store temperature-sensitive reagents at –20°C.

Crime Scene Investigator PCR Basics Kit[1] Plus Small DNA Electrophoresis Reagent Pack

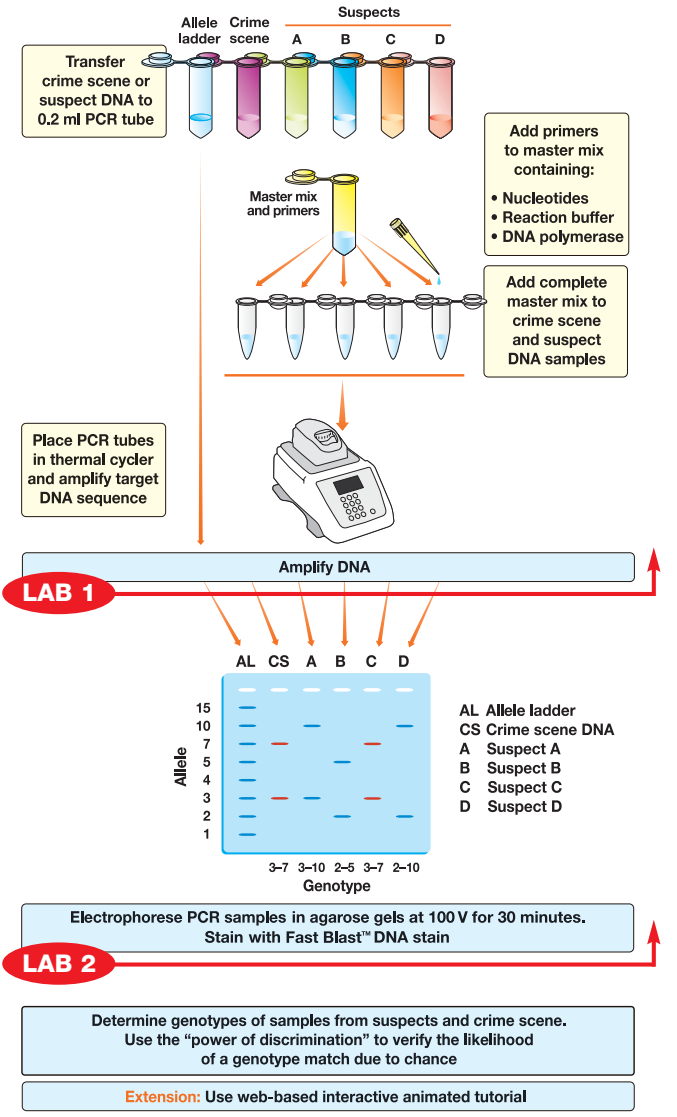
Catalog # . . . . . .EDU Price

166-2650EDU 205.00

Key Kit Features

- Perform genuine DNA profiling
- Use PCR to amplify multiple DNA samples
- Use electrophoresis to visualize results
- Complete in two 45 minute lab sessions

ReadyAgarose™ precast gel 3.0%, 1 x 8 well, TAE, 161-3017EDU $6.40.
Find out more on page 18.



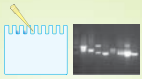
Using real-world forensic lab techniques, students learn which human DNA sequences are used for crime scene, missing person, mass disaster, and paternity investigations. Using the polymerase chain reaction (PCR) and DNA electrophoresis, students determine the genotypes of five DNA samples and experience how real-world crime labs solve mysteries.

DNA profiling determines the exact genotype of a DNA sample and distinguishes one human being from another by identifying a DNA "bar code" that is unique to every individual. There are over 3 billion bases in the human genetic blueprint, and more than 99.5% of them do not vary between human beings. Within the variant areas of the genome exist unique polymorphic sequences called short tandem repeats (STRs) of uncertain biological function. It is these DNA sequences that are used in forensic applications.

The DNA samples contained in this **introductory PCR kit** are plasmids that have been engineered to mimic the natural variations in human DNA that exist between one human being and another at a single STR locus. Students determine the genotypes of five samples and perform a simple statistical analysis on their own results to solve a forensic mystery.

A Complete, Modular and Flexible Teaching Solution:

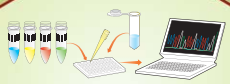
- Nested PCR
- Degenerate primers
- Exonuclease treatment



- Agarose gel analysis
- Visualize PCR products

It's Your Choice **Complete Or Individual**

- Genomic DNA extraction
- Cellular membrane disruption
- Isolation of genomic DNA



- Directional sequencing primers
- Automated sequencing
- Web-based data analysis
- Contig assembly
- Intron/exon prediction

Free Full-Color Printed **Curriculum Manual** Special Offer

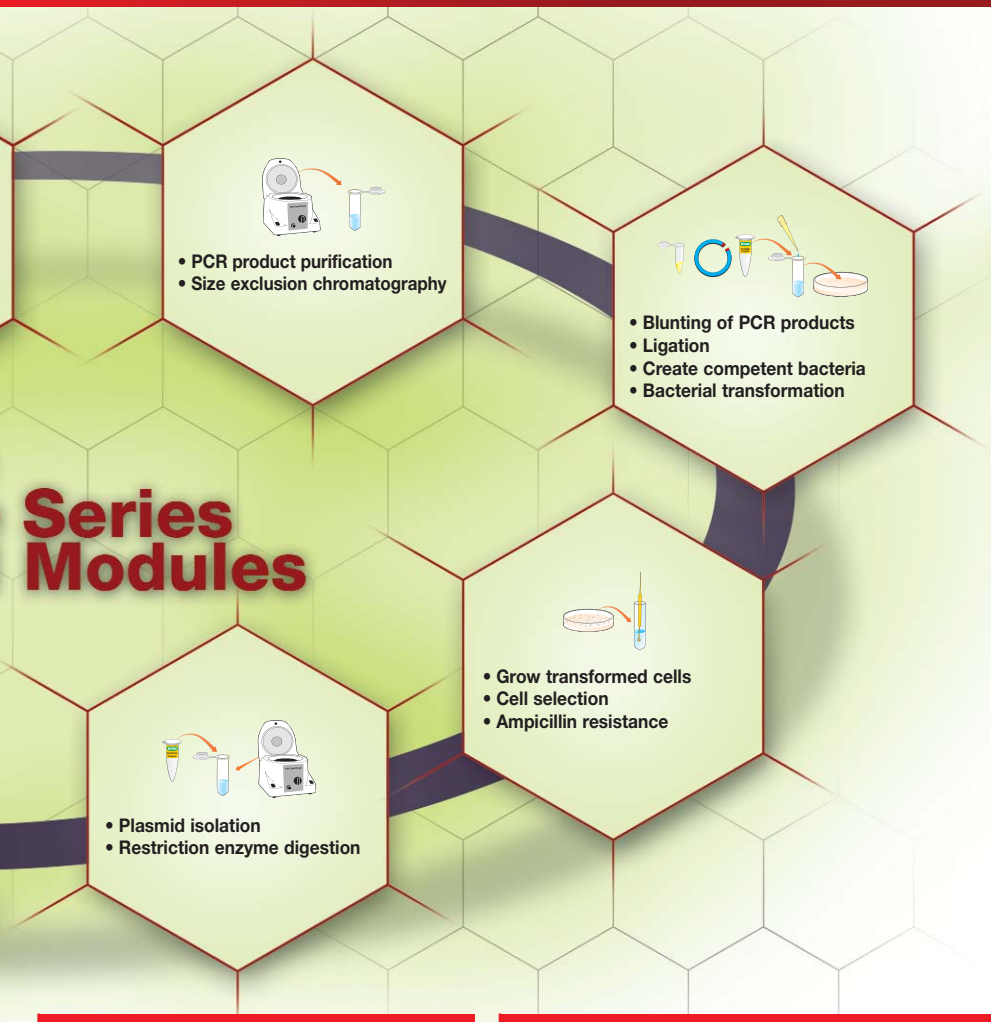
Purchase the (eight module) **Cloning and Sequencing Explorer Series and get a free Full-Color Printed Cloning and Sequencing Explorer Series Curriculum Manual** — a $236 value. (Quote #09-Q25875)

Catalog #	Description	List Price	EDU price
166-5000EDU	Cloning and Sequencing Explorer Series	$1,868.75	$1,495.00
166-5002EDU	Full-Color Printed Cloning and Sequencing Explorer Series Curriculum Manual	236.25	**Free**

Must reference quote #09-Q25875. Provide all catalog numbers when placing order. Limited-time offer expires January 31, 2010.

Prepare your students for the real world of scientific research — publish novel research in GenBank! Engage them with the opportunity to perform novel, relevant research that can actually contribute to the body of scientific knowledge. In this unique **modular lab series**, students are guided through an innovative research workflow identical to those performed in genomics labs worldwide. Over a multiple-week lab course, students will combine traditional and cutting-edge molecular biology techniques and bioinformatics. Your students will clone, sequence, and analyze a housekeeping gene from a plant of your choice allowing each class to produce unique and novel data.

The Cloning and Sequencing Explorer Series



Complete **Cloning & Sequencing Explorer Series** Eight Modules

Catalog #	List Price	EDU Price
166-5000EDU	$1,868.75	**$1,495.00**

Each module contains materials sufficient for 12 student workstations.

Ships with both temperature-sensitive and room-temperature components. Immediately store temperature-sensitive items at 4°C or –20°C as indicated.

Series Contents:

Nucleic acid extraction module	1
GAPDH PCR module	1
Electrophoresis module	1
PCR Kleen™ spin purification module	1
Ligation and transformation module	1
Microbial culturing module	1
Aurum™ plasmid mini purification module	1
Sequencing and bioinformatics module	1
EZ Micro™ test tubes	1
Curriculum resource CD (includes curriculum manual, overview webinar presentation, and master planning guide)	1

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Individual **Cloning & Sequencing Explorer Series** Modules and Supplies

Catalog #	List Price	EDU Price
Nucleic Acid Extraction Module		
166-5005EDU	$206.25	**$165.00**
***GAPDH* PCR Module**		
166-5010EDU	483.75	**387.00**
Small Ethidium Bromide DNA Electrophoresis Reagent Pack		
166-0451EDU	115.00	**58.00**
Small Fast Blast™ DNA Electrophoresis Reagent Pack		
166-0450EDU	92.00	**48.00**
PCR Kleen™ Spin Purification Module		
732-6300EDU	77.14	**54.00**
Ligation and Transformation Module		
166-5015EDU	377.50	**302.00**
Microbial Culturing Module		
166-5020EDU	118.75	**95.00**
Aurum™ Plasmid Mini Purification Module		
732-6400EDU	212.86	**149.00**
Sequencing and Bioinformatics Module		
166-5025EDU	312.50	**250.00**
EZ Micro™ Test Tubes		
223-9503EDU	39.00	**31.20**
Curriculum Resource CD		
166-5001EDU	36.25	**29.00**
Full-Color Printed Cloning and Sequencing Explorer Series Curriculum Manual		
166-5002EDU	236.25	**189.00**

New Refresh Kit Components

☐ **LB Nutrient Agar Powder**
500 g, makes 1,000 plates (60 mm)
166-0472EDU **$83.00**

☐ **Petri Dishes** (500)
60 mm, sterile
166-0470EDU **$119.00**

☐ **Inoculation Loops** (80)
10 ul, sterile
166-0471EDU **$9.99***
** Limited-time offer expires January 31, 2010.*

☐ **Gel Staining Trays** (4)
166-0477EDU **$14.00**

☐ **Disposable Plastic Transfer Pipets** (500) Sterile
166-0474EDU **$95.00**

☐ **Disposable Plastic Transfer Pipets** (500) Nonsterile
166-0480EDU **$48.00**

☐ **1.5 ml Microcentrifuge Tubes** (600) 6 colors
166-0473EDU **$29.00**

☐ **Conical Centrifuge Tubes** (50) 15 ml
166-0475EDU **$24.00**

☐ **Cell Culture Tubes** (25)
17 x 100 mm, 14 ml, sterile
166-0476EDU **$14.00**

ReadyAgarose gels ship and store at room temperature.

☐ **ReadyAgarose™ Precast Gels**
Individually packaged precast agarose gels provide resolution of nucleic acids from 20 to 20,000 base pairs.

- UV-transparent trays
- ReadyAgarose gels lock into Mini-Sub® cell GT or ReadySub-Cell™ GT cells electrophoresis chambers.

Visit us on the Web for a complete gel listing at **discover.bio-rad.com**.

☐ **96-Place PCR-Tube Rack and Cover**
Stackable storage units for 0.2 ml PCR tubes, 5
TRC-0501EDU **$28.00**

☐ **PowerPac™ Mini Power Supply**

- 100 V or 200 V constant
- 200 mA maximum current
- 40 W maximum power
- Constant voltage output

165-5048EDU **$175.00**

EN-61010 safety compliant

☐ **PowerPac™ Basic Power Supply**
Constant voltage or current output, real-time monitoring, and pause/resume features

- Runs 4 cells simultaneously
- 400 mA maximum current
- 10–300 V in 1 V steps
- Timer controlled
- Fully programmable

164-5050EDU **$341.25**

☐ **Mini-PROTEAN® Tetra Cell**
for 1-D vertical gel electrophoresis.

- Runs one to four mini gels
- Easy assembly
- Leak-free electrophoresis
- Run precast or handcast gels

165-8004EDU **$390.75**
4-gel system

165-8005EDU **267.00**
2-gel system

☐ **Mini-PROTEAN Tetra Cell and Mini Trans-Blot Module**
for Ready Gel® precast gels
includes 165-8004EDU and 170-3935EDU
165-8030EDU **$628.50**

☐ **Mini Trans-Blot Module**
Includes 2 gel holder cassettes, 4 fiber pads, modular electrode assembly, blue cooling unit only (no tank or lid)
170-3935EDU **$285.75**

☐ **DNA Electrophoresis Systems**

Mini-Sub® Cell GT Cell
Includes 7 x 10 cm gel tray and two 8-well combs
166-4000EDU **$225.00**

Mini ReadySub-Cell™ GT Cell
for ReadyAgarose™ precast gels.
170-4487EDU **175.00**

Free Catalog!

20–40% off

Cool **New** Floaty

☐ **Jellyfish Foam Floating Racks**
Package of 8 racks,
12 microcentrifuge tube wells

166-0479EDU **29.00**

☐ **MJ Mini™ Thermal Cycler**

PTC-1148EDU **$3,196.00**

☐ **MiniOpticon™ Two-Color Real-Time PCR Detection System**
Precise thermal control, temperature gradient capability, performs applications including quantitative real-time PCR, relative gene expression analysis, and allelic discrimination

- Compact, portable system
- 48-well plate or 6 x 8-tube strips
- 10–100 µl sample volumes

CFB-3120EDU **$15,196.00**

☐ **Professional Adjustable-Volume Digital Micropipets**

- Slender, contoured grip
- Ergonomic tip ejector
- Autoclavable

166-0505EDU (0.5–10 µl)
166-0506EDU (2–20 µl)
166-0507EDU (20–200 µl)
166-0508EDU (100–1,000 µl)

Each pipet only **$219.00**

☐ **Classroom Adjustable-Volume Digital Micropipets**

166-0550EDU (0.5–10 µl)
166-0551EDU (2–20 µl)
166-0552EDU (20–200 µl)
166-0553EDU (100–1,000 µl)

Each pipet only **$110.00**

☐ **Fixed-Volume Micropipets**

166-0511EDU (5 µl)
166-0512EDU (10 µl)
166-0513EDU (20 µl)
166-0515EDU (50 µl)

Each pipet only **$24.00**

☐ **Water Bath**
Temperature-controlled, dependable, and affordable

- Stainless-steel tank and lid
- Temperature range up to 100°C
- Over-temperature protection
- Includes thermometer

166-0504EDU **$590.00**

☐ **Mini Incubation Oven**
80-dish capacity, up to 60°C, includes thermometer

166-0501EDU **$367.00**

☐ **Mini Centrifuge** (2,000 x g)
Includes microtube and PCR strip tube rotors, and 0.4 ml and 0.5 ml tube adaptors

- Max. speed 6,000 rpm

166-0603EDU **$299.00**

Adaptor sold separately

☐ **Model 16K** (16,000 x g) **Microcentrifuge**

- 1.5 ml or 2.0 ml tubes
- Quick-spin feature
- Max. speed 14,000 rpm

166-0602EDU **$1,900.00**

☐ **PCR Tube Adaptor**
(for #166-0602EDU)
Holds two PCR 8-tube strips or 16 individual 0.2 ml tubes

166-0620EDU **$105.00**

Adaptor sold separately

☐ **BR-2000 Vortexer**
General-purpose vortex mixer

166-0610EDU **$275.00**

☐ **Flathead Dimpled Adaptor**
(for #166-0610EDU)

166-0622EDU **$45.00**

☐ **Long-Wave UV Pen Light**
Small, disposable ultraviolet light

166-0530EDU **$10.00**

☐ **Long-Wave UV Lamp**
Portable, mini ultraviolet lamp

166-0500EDU **$32.00**

Discount EDU prices.
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Email: Send your request for a price quote to: **lsg.quotes.us@bio-rad.com**.

Phone: 1-800-424-6723 x6757. Always include catalog number(s), your name, address, and phone and fax numbers. (Quote requests may also be left on voicemail.)

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For more laboratory equipment or for immediate information, call 1-800-4BIORAD (1-800-424-6723).

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See page 13 for more information.

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VISA MasterCard AMERICAN EXPRESS

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