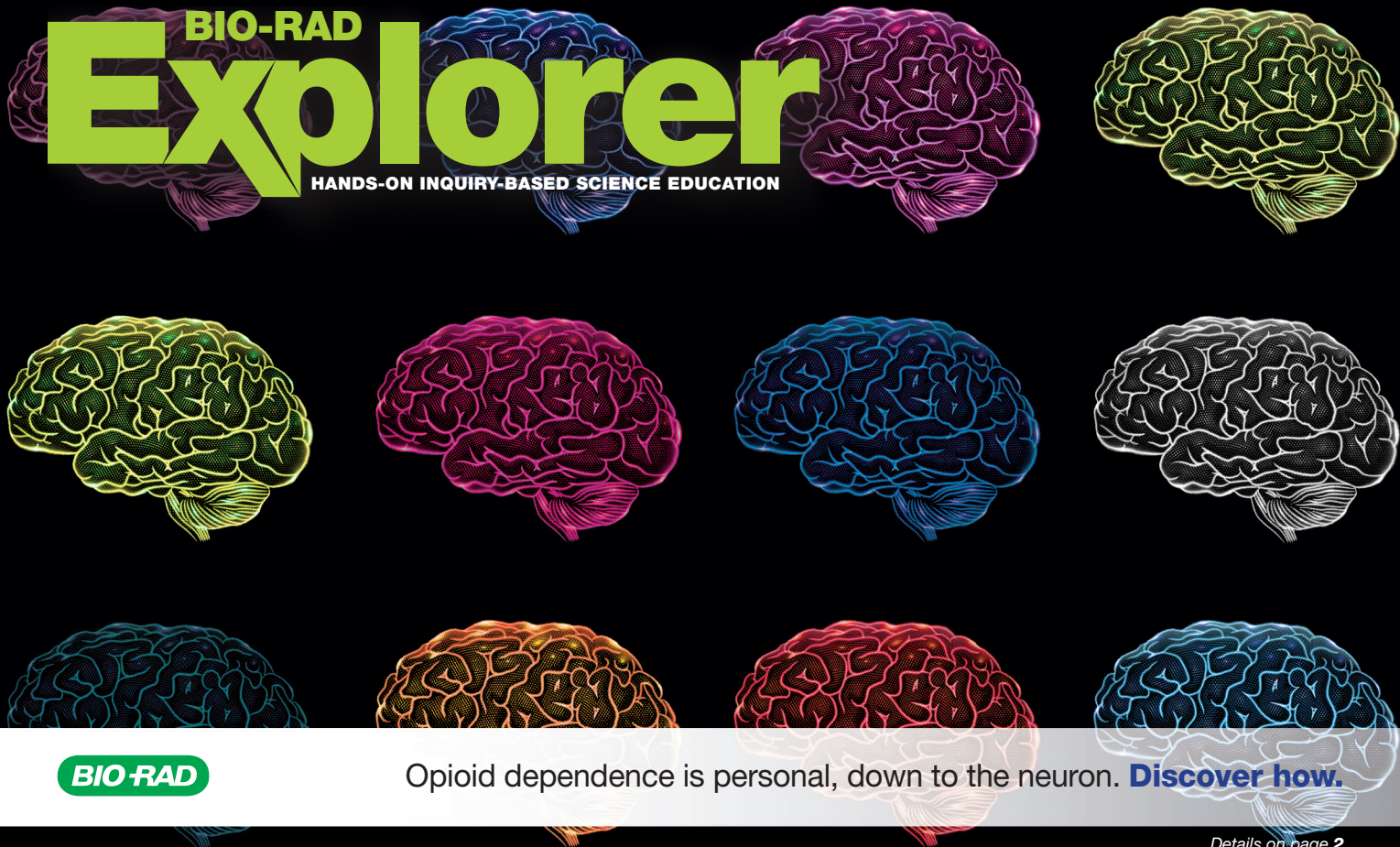


NEW KITS INSIDE >

BIO-RAD Explorer

HANDS-ON INQUIRY-BASED SCIENCE EDUCATION



BIO-RAD

Opioid dependence is personal, down to the neuron. [Discover how.](#)

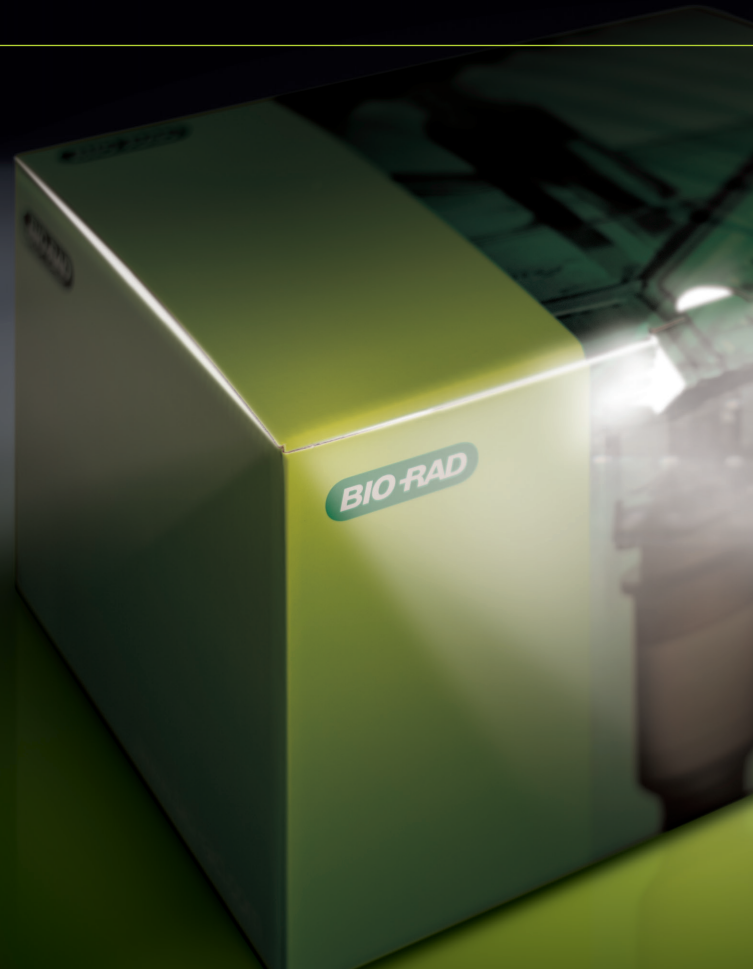
Details on page 2

Everyone's been asking...

Your Students'

~~The~~ next Wow! is coming soon.

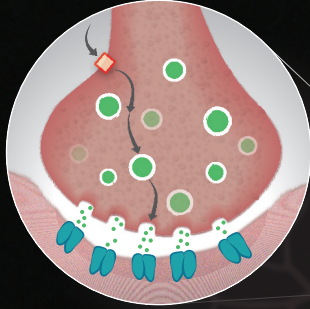
It's truly ~~leading~~ *cutting* edge.





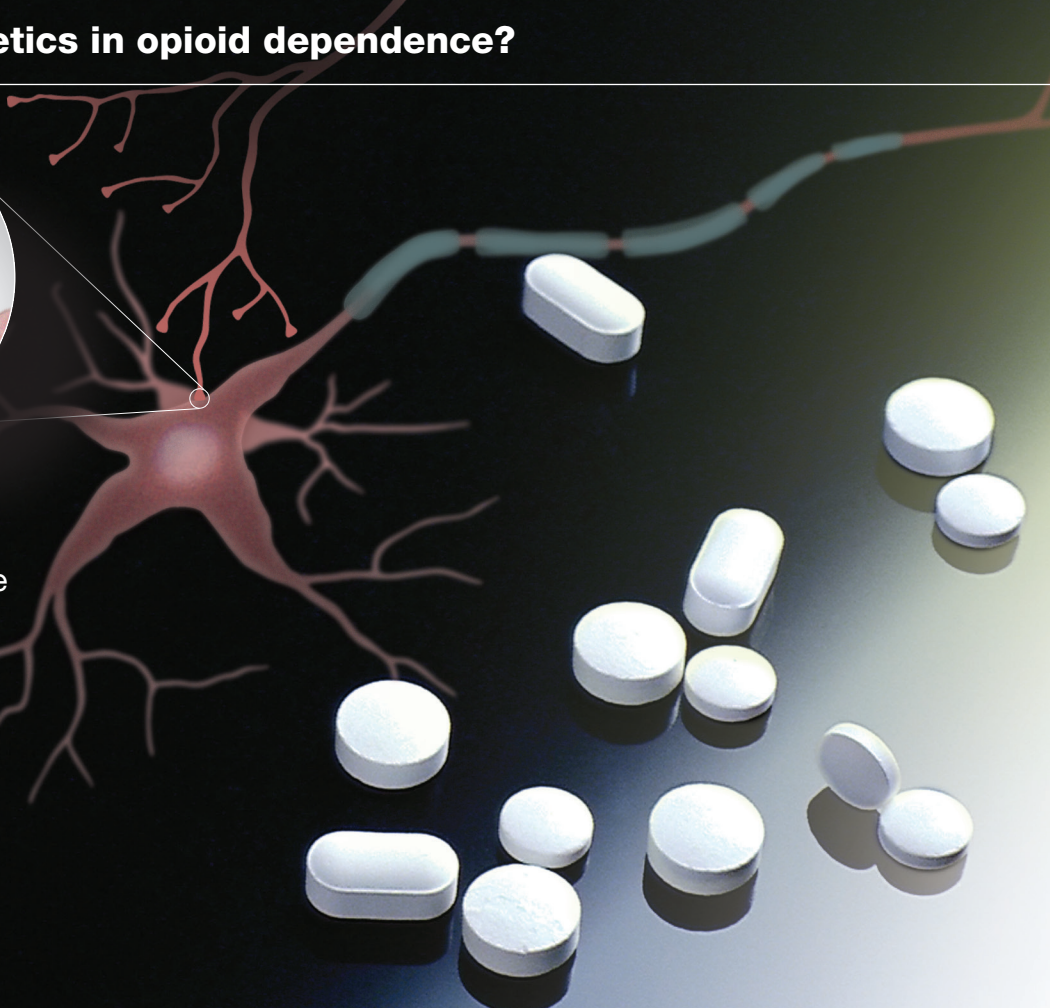
Get the first peek. **[bio-rad.com/wow](https://www.bio-rad.com/wow)**

What is the role of genetics in opioid dependence?

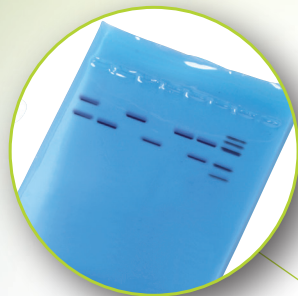
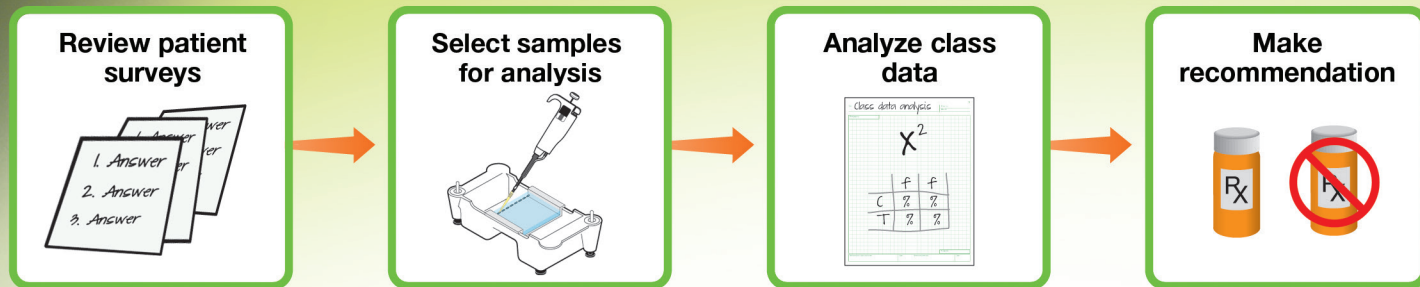


Nature and Nurture

The power of opioids to cripple families and communities is a sharp hook for students to ask questions about genetics and neurobiology. But the answers aren't always straightforward. Many factors affect one's susceptibility to opioid dependence, including environment and genetics.



New! The Science of Opioid Dependence Kit



Unravel the complex genetics of opioid dependence

In this activity students are the researchers as they design a human genetic study to find links to dependence, suggest treatment strategies for patients, and delve into the world of precision medicine.

Visit [bio-rad.com/dependence](https://www.bio-rad.com/dependence) for more information.

Ordering Information

17005316EDU	Science of Opioid Dependence Kit	\$89.00
17005297EDU	Science of Opioid Dependence Kit plus Fast Blast Electrophoresis Reagents	99.00
17005313EDU	Science of Opioid Dependence Kit plus UView Electrophoresis Reagents	105.00

Take on a global issue with your students — world hunger.

Engineering and biology

Through an iterative engineering design process, your students will measure protein content in foods and design treatment plans for communities suffering from undernutrition.

Designed for the Next Generation Science Standards,* this activity is a great way to bring engineering into your biology classroom.

* Next Generation Science Standards is a registered trademark of Achieve. Neither Achieve nor the lead states and partners that developed the Next Generation Science Standards were involved in the production of this product and do not endorse it.

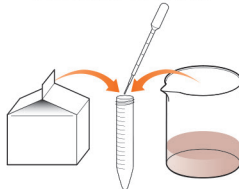


New! Engineering Solutions for Global Health Kit

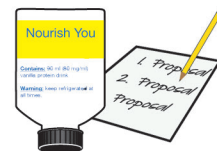
Understand
protein-energy
undernutrition (PEU)



Investigate protein
content in food



Design a treatment
proposal for PEU



An iterative process

The engineering design process is an iterative approach to defining problems and designing solutions. In this activity your students measure protein content in foods and cycle through the design process as they use their data to design a treatment plan to combat undernutrition.

Visit [bio-rad.com/health](https://www.bio-rad.com/health) for more information.

Ordering Information

17005278EDU

Engineering Solutions for Global Health Kit

\$99.00

The fastest crime scene investigation yet!

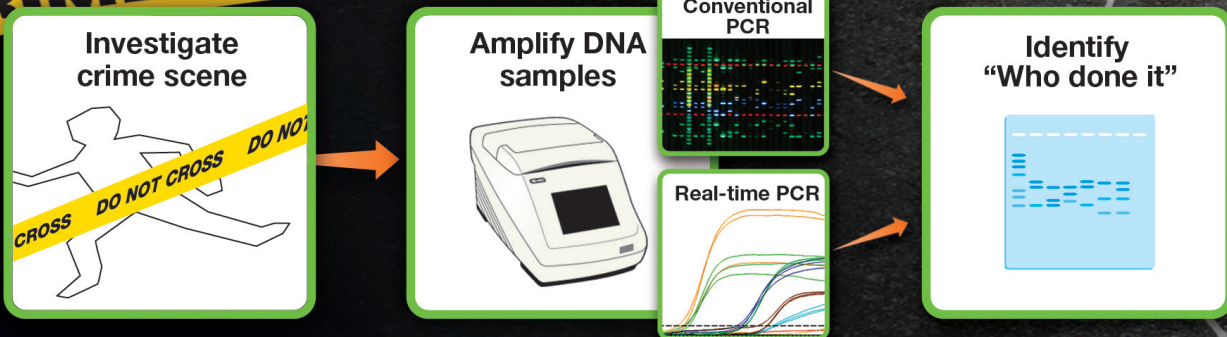
Tap into your students' fascination with forensic science

Your students are the detectives as they amplify crime scene and suspect DNA by PCR. Using the same statistical approach that the FBI uses to match suspect DNA, determine who was at the scene of the crime. Then hold a mock trial to discuss whether the evidence is sufficient to convict.

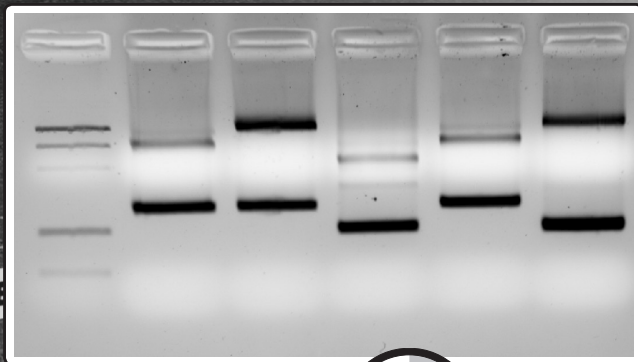
Ordering Information

1662600EDU	Crime Scene Investigator PCR Basics Kit (conventional PCR)	\$176.00
1662660EDU	Crime Scene Investigator PCR Basics Real-Time PCR Starter Kit	552.00

CRIME SCENE DO NOT CROSS



PCR in less than 60 minutes



Electrophoresis results from the Crime Scene Investigator Kit using the fast PCR protocol

CRIME SCENE DO NOT CROSS



**55
Minutes**

Fast PCR protocol

Step	Temperature	Time	35 cycles
Initial denature	94°C	2 min	
Denature	94°C	4 sec	
Anneal	52°C	4 sec	
Extension	72°C	20 sec	
Hold	12°C		

Find out whodunit before the bell rings.

Use the new fast PCR protocol with the Crime Scene Investigator Kit to run PCR in less than 60 minutes. Combine this with the fast gel protocol (p. 13) and your students can analyze crime scene DNA and match suspects all within a single block period.

Visit [bio-rad.com/fastCSI](https://www.bio-rad.com/fastCSI) for more information.



Bio-Rad Explorer Program Educational Pricing Contract Application

Educational Pricing Contract Application

As an educator you are entitled to discount pricing on all Bio-Rad products. To create 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 with a purchase order with the numbers and descriptions of the items you wish to purchase.

Bio-Rad 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 available only 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:

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

Name of contact: _____

Department: _____

School or institution: _____

We are a (please check one): ☐ Middle School/Jr. High ☐ High school
☐ Two-year/Community college ☐ College or undergraduate teaching laboratory
☐ Other _____

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Phone number: Fax number: _____

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☐ I would like to receive the Bio-Rad eFocus
email newsletter

We want to hear from you!

What science classes do you teach? _____

Which life science skills, topics, or concepts would you
like to see addressed in a kit?

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

Fill in and return this card today or visit us online at **bio-rad.com/EDUcatalog** to request your free catalog.
For immediate information, call **1-800-424-6723**.

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2019 Teacher Conference and Workshop Schedule

Go to bio-rad.com/explorerworkshops for a complete schedule.



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2019

October 18-20

CSTA Annual Conference San Jose, CA

October 24-26

NSTA Area Conference Salt Lake City, UT

November 6-8

National Health Science Conference St. Louis, MO

November 14-16

NSTA Area Conference Cincinnati, OH

November 14-17

NABT Annual Conference Chicago, IL

November 21-23

STAT CAST Dallas, TX

December 12-14

NSTA Area Conference Seattle, WA

2020

April 2-5

NSTA National Conference Boston, MA

Why spend more than 10 minutes electrophoresing?

You and your students can run agarose gel electrophoresis in just 10 minutes.



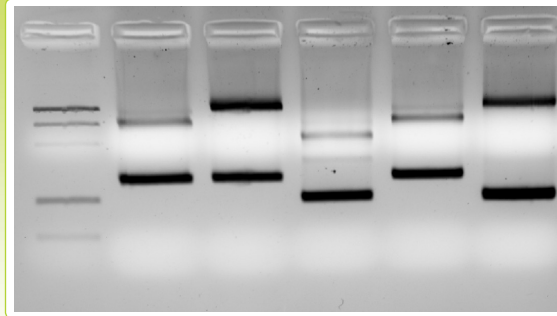
Minute Gels

1. Use 0.25x TAE running buffer.
2. Set your power supply to 300 V.
3. See sufficient DNA fragment separation in just 10 minutes.

This 10-minute protocol requires a power supply that can deliver 300 V, like Bio-Rad's PowerPac Basic power supply.

- Adjustable voltage (up to 500 V)
- Built-in timer
- Powers four electrophoresis rigs at a time

Visit **[bio-rad.com/fastgel](https://www.bio-rad.com/fastgel)** for more information.



3% agarose gel run at 300 V in 0.25% TAE buffer for 10 minutes.

Crime Scene Investigator PCR Basics Kit gel results



PowerPac Basic Power Supply

Never stop asking questions!



Author: J. Kirk Brown

“Students must engage with interesting phenomena, *ask their own exciting questions*, and learn the relevant skills along the way!”

What do your students wonder about life science?

Empower your students with the tools to pursue their own questions about life science with ***Biotechnology: A Laboratory Skills Course, second edition***.

Kirk Brown shares decades of high school and undergraduate biotechnology classroom experience to help you guide your students through the scientific process.



New in the second edition!

- Updated content, including 10 new advanced topics, a new DNA barcoding activity, and more industrial practices
- New teacher supports to infuse student-centered instruction into laboratory activities
- More than 30 new and updated vignettes spanning careers in biotech, bioethical issues, and biotechnology in the real world
- Aligned to the Biotechnicians Assistant Credentialing Exam (BACE) from Biotility

Visit **bio-rad.com/textbook** for more information.



Coming this fall in digital format!

Visit **bio-rad.com/ebook** for more information.

How do plants store and use energy?



Energy transfer your students can see!
Reusable algae beads cause a dramatic shift in the color of indicator solution when doing either photosynthesis or cellular respiration.

Photosynthesis and cellular respiration kits

Dispel the misconception that plants only photosynthesize.

Easy-to-use premade algae beads are part of a simple system to observe both photosynthesis and cellular respiration in a single hands-on lab.

Visit [bio-rad.com/algae](https://www.bio-rad.com/algae) for more information.

Ordering Information

17001238EDU	Photosynthesis and Cellular Respiration Kit for AP Biology	\$145.00
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Also available for General Biology

12005534EDU	Photosynthesis and Cellular Respiration Kit for General Biology	145.00
12002353EDU	Photosynthesis and Cellular Respiration Reagent Refill Pack	119.00

Refill reagents for both the General and AP Biology versions



We've partnered with Vernier to take algae beads to the next level. Use the Go **Direct[®] SpectroVis Plus Spectrophotometer** to quickly and easily measure the effects of photosynthesis and cellular respiration in algae beads.

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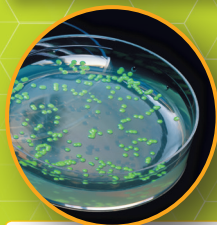
DNA Analysis

Catalog No		EDU Price
1660001EDU	Analysis of Precut Lambda DNA Kit	\$96.00
1662000EDU	DNA Extraction Module	95.00
1662250EDU	DNA Helix Necklace Module	68.00
1667015EDU	DNA Model	24.99
17005297EDU	Science of Opioid Dependence Kit plus Fast Blast Electrophoresis Reagents	99.00



Agarose Gel Electrophoresis

Catalog No		EDU Price
1665075EDU	IDEA Kit — Inquiry Dye Electrophoresis Activity	\$55.00
1660001EDU	Analysis of Precut Lambda DNA Kit	96.00
1665080EDU	STEM Electrophoresis Teacher Demonstration Kit	99.00
1665085EDU	STEM Electrophoresis Engineering Kit	57.00
17005297EDU	Science of Opioid Dependence Kit plus Fast Blast Electrophoresis Reagents	99.00



Bacterial Culture and Transformation

Catalog No		EDU Price
1660003EDU	pGLO Bacterial Transformation Kit	\$99.00
1665030EDU	Microbes and Health Kit	99.00



Protein Analysis

Catalog No		EDU Price
1660013EDU	pGLO SDS-PAGE Extension	\$96.00
1660005EDU	Green Fluorescent Protein Chromatography Kit	99.00
1660008EDU	Size Exclusion Chromatography Kit	89.00
17005278EDU	Engineering Solutions for Global Health Kit	99.00

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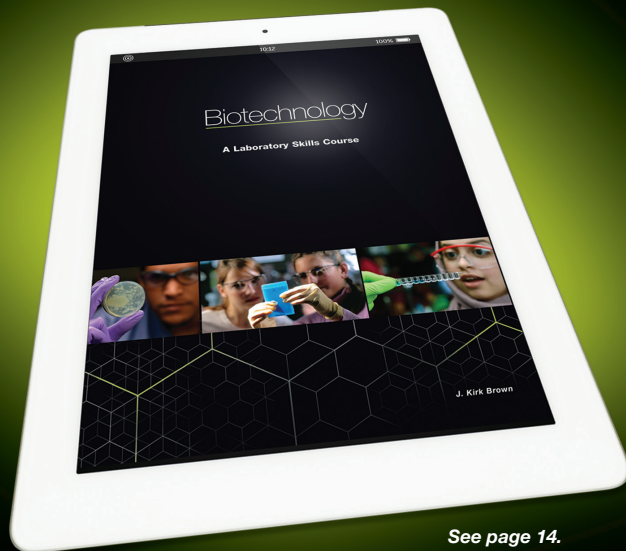


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See page 14.

New Edition. New Format.

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