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Biotechnology for the New Millennium by Ellyn Daugherty

DNA Synthesis Kit

(In Support of Lab 13a)

(Cat. # BTNM-0040)

This kit includes perishable materials.

Upon receipt, store the materials as directed in the package literature.

MATERIALS INCLUDED

This kit provides some of the key reagents required for laboratory 13a DNA Synthesis *in Vitro.* Additional equipment and reagents are required and are described in the Biotechnology for the New Millennium Laboratory Manual. The reagents supplied in this kit are suitable for 40 groups.

Part #	Description	Size
S091	Sterile Water	2ml
023P-E	PCR Buffer (Mg^{2+} plus) [10X]	0.28ml
T060	Template DNA	150pmoles
P346	Primer: 5' Biotin	150pmoles
003D-A	dATP	0.25ml
004D-A	dCTP	0.25ml
122D-A	dGTP	0.25ml
278D-A	dTTP	0.25ml
N005	No Nucleotide Mix	120µl
D202	DTT [0.1M]	100µl
T035	Taq Polymerase 172ul at 1.625U/µl	280U
D162	DNA Synthesis Stop Solution	1.5ml
M100	Marker, 32 Bases (0.038pmoles/µl)	16pmoles
M101	Marker, 45 Bases (0.038pmoles/µl)	16pmoles
M102	Marker, 60 Bases (0.038pmoles/µl)	16pmoles

SPECIAL HANDLING INSTRUCTIONS

- Store the DNA synthesis kit at -20°C.

GENERAL SAFETY PRECAUTIONS

- The majority of reagents and components supplied in the kit are non toxic and are safe to handle, however good laboratory procedures should be used at all times. This includes wearing lab coats, gloves and safety goggles.
- The teacher should 1) be familiar with safety practices and regulations in his/her school (district and state) and 2) know what needs to be treated as hazardous waste and how to properly dispose of non-hazardous chemicals or biological material.

- Students should know where all emergency equipment (safety shower, eyewash station, fire extinguisher, fire blanket, first aid kit etc.) is located and be versed in general lab safety.
- Remind students to read all instructions including Safety Data Sheets (SDSs) before starting the lab activities. A link for SDSs for chemicals in this kit is posted at www.gbiosciences.com
- At the end of the lab**,** all laboratory bench tops should be wiped down with a 10% bleach solution or disinfectant to ensure cleanliness.
- Remind students to wash their hands thoroughly with soap and water before leaving the laboratory.

TEACHER'S PRE EXPERIMENT SET UP

Taq Polymerase

This replaces the Sequenase Version 2.0 in table 13.1 of Laboratory 13a. Do not dilute this Taq Polymerase as indicated in table 13.1 of Laboratory 13a. The Taq polymerase is supplied at the appropriate dilution and is ready to be used as described in the procedure.

PCR Buffer (Mg^{2+} plus) [10X]

This buffer replaces the reaction buffer in table 13.1 of Laboratory 13a. It is ready to be used.

No Nucleotide Mix

This is 50mM NaCl and is ready to be used.

-dATP, -dCTP,-dGTP, -dTTP mixes

Prepare the various dNTP mixes as shown in the table below:

Reagent	-dATP Mix (µl)	-dCTP Mix (µl)	-dGTP Mix (µl)	-dTTP Mix (µl)	Complete Nucleotide Mix (µl)
dATP	-	30	30	30	30
dCTP	30	-	30	30	30
dGTP	30	30	-	30	30
dTTP	30	30	30	-	30
Sterile water	30	30	30	30	-

DNA Synthesis Stop Solution

This replaces the stop mix (DNA loading dye) in table 13.1 of Laboratory 13a

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