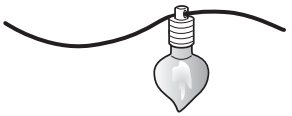


Biotechnology Explorer™

Genes in a Bottle Kit
DNA Necklace Module

Instruction Manual

Catalog #166-2200EDU

(Module supports 18 students; order 2 modules for a class of 36 students.)

BIO-RAD

Genes in a Bottle: Capture Your Unique Essence!

Once your students have extracted genomic DNA from their cheek cells using the DNA extraction module (166-2000EDU), the DNA strands can be collected and transferred to a glass vial. The glass vial is then fashioned into a necklace that can be worn with pride, kept for posterity, or shared with a loved one! **Be the first to wear DNA on your block! Read more: explorer.bio-rad.com**

Learning opportunities for all levels of instruction. This activity is designed for any classroom environment and requires no specialized equipment or stains. For secondary and college level instruction, lessons on DNA structure and function, cell structure, and enzyme function can be introduced or reinforced with this laboratory activity. For middle school students, it's a perfect introduction to the exciting world of DNA science.

We welcome your comments and suggestions. Have fun!

Biotechnology Explorer Team
Bio-Rad Laboratories
6000 James Watson Drive
Hercules, CA 94547
Biotechnology_Explorer@bio-rad.com

The DNA necklace module contains enough material to prepare 18 DNA necklaces. Order 2 modules for a class of 36 students.

Inventory Check List	Amount Provided
Glass vials*	18
Silver caps	18
Plastic stopper caps	18
Waxed cords	18
Super glue gel	1

*Vials included in each set may vary.

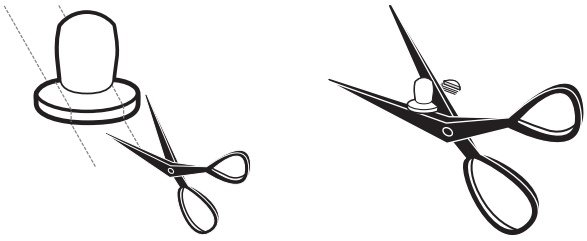
Genes in a Bottle: Capture Your Unique Essence!

Instructions

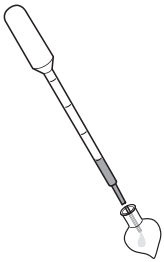
Warning: Since super glue is required for assembling the DNA necklace, it is suggested that the teacher prepare the DNA necklaces for younger students. If you accidentally stick your fingers together, soak the bonded area with nail polish remover or acetone, then rinse the area thoroughly. If nail polish remover or acetone is not available, soak the bonded area in warm soapy water and gently and slowly roll the skin to break the bond.

The vials are made of hand-blown glass and may break if too much pressure is exerted upon them. In the unlikely event a vial should break, use caution when cleaning up broken glass.

1. Using scissors, clip two sides of the rim of the plastic stopper as illustrated below. Clipping the rim of the stopper on two sides will decrease the resistance created when placing the silver cap over the stopper while ensuring that the stopper will remain seated properly when inserted into the neck of the vial (step 3).



2. Using a disposable plastic transfer pipet, carefully transfer an appropriate portion of the DNA in alcohol into the glass vial, leaving enough space for the plastic stopper cap. The vial should be filled with alcohol no higher than ½ cm from the top of the neck of the vial. Do not fill the entire vial with alcohol. (Note that students can share plastic transfer pipets for transferring their DNA into the glass vials.)



3. Firmly push the plastic stopper cap into the neck of the vial to seal the glass vial.

4. Apply one small drop of glue into the inside of the silver cap. Apply a small amount of glue around the rim of the glass vial/plastic stopper cap. Do not apply too much glue as it may interfere with the drying process.

5. Place the silver cap onto the top of the glass vial and press down gently but firmly for 30 sec. The glue should be visible around the lower rim of the cap. Allow the glue to dry for 10–15 min and then check for a complete seal. To ensure the vial lays flat when worn, align the holes for the waxed cord in the silver cap with the flat face of the vial.

6. After the glue has dried, slip the waxed cord through the silver cap and tie the cord.

Congratulations, you've created your very own DNA necklace!

Bio-Rad
Laboratories, Inc.

Life Science
Group

Web site *www.bio-rad.com* ***USA*** *800 4BIORAD*
Australia *61 02 9914 2800* ***Austria*** *01 877 89 01* ***Belgium*** *09 385 55 11*
Brazil *55 21 3237 9400* ***Canada*** *905 364 3435* ***China*** *86 21 6426 0808*
Czech Republic *420 241 430 532* ***Denmark*** *44 52 10 00*
Finland *09 804 22 00* ***France*** *01 47 95 69 65* ***Germany*** *089 318 84 0*
Greece *30 210 777 4396* ***Hong Kong*** *852 2789 3300*
Hungary *36 1 455 8800* ***India*** *91 124 4029300* ***Israel*** *03 963 6050*
Italy *39 02 216091* ***Japan*** *03 6361 7000* ***Korea*** *82 2 3473 4460*
Mexico *52 555 488 7670* ***The Netherlands*** *0318 540666*
New Zealand *0508 805 500* ***Norway*** *23 38 41 30* ***Poland*** *48 22 331 99 99*
Portugal *351 21 472 7700* ***Russia*** *7 495 721 14 04*
Singapore *65 6415 3188* ***South Africa*** *27 861 246 723*
Spain *34 91 590 5200* ***Sweden*** *08 555 12700* ***Switzerland*** *061 717 95 55*
Taiwan *886 2 2578 7189* ***United Kingdom*** *020 8328 2000*

Sig 0308

4110142 Rev B