

**LAB \_\_\_\_: CLONING PAPER PLASMID**

In this exercise you will use paper to simulate the cloning of a gene from one organism into a bacterial plasmid using a restriction enzyme digest. The plasmid (*puc18* plasmid) can then be used to transform bacteria so that it now expresses a new gene and produces a new protein.

1. From the white paper, cut out the *puc18* plasmid DNA in a long strip.

AAATCGTTTGC

2. Attach the ends together to make a loop to simulate the circular DNA of a plasmid.



3. From the green paper, cut out the Jellyfish *Glo* gene DNA in a long strip. Leave it as a straight strip. (This is a gene from a vertebrate not a bacterium, so it is not circular.)

GGATCGAAAGC

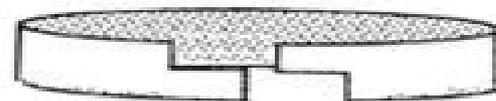
The start and stop sequences for transcribing the Jellyfish *GFP* or *Glo* gene are highlighted. These are needed to transcribe the gene properly when it is read.

In addition, the *Hind*III & *Eco*R1 restriction enzyme cutting sites (sequences of bases) are marked in **bold** on the Jellyfish *Glo* gene DNA. The two restriction enzymes and their respective restriction sites are listed below. These enzymes act as "molecular scissors" to cut the DNA at these sequences in the DNA:

Restriction enzyme	Recognition site (5'→3')
<i>Hind</i> III	<b>A</b> ↓AGCT <b>T</b> T TCGA↑ <b>A</b>
<i>Eco</i> R1	<b>G</b> ↓AATT <b>C</b> C TTAA↑ <b>G</b>

The six letter sequence represents the nitrogen base sequence that the enzyme recognizes, and ↓ represents the place where the DNA will be cut by the enzyme. For example, *Hind*III cuts between A and A whenever it encounters the six base sequence AAGCTT.

4. Cut the green Jellyfish DNA as if you have used the a restriction enzyme, *Hind*III. Be sure to leave "sticky ends."
5. Also, cut the white *puc18* plasmid DNA as if you have performed a restriction enzyme digest with *Hind*III. Be sure to leave "sticky ends."



# Biology Lab Cloning Paper Plasmid Answers

**RJ Alexander**



## **Biology Lab Cloning Paper Plasmid Answers:**

**CBSE Class 12 Biology Previous Year Solved Paper Code 004 Chapterwise Questions with Videos and Online Test Papers** Jaishree Soni,2025-08-01 We are pleased to present this compilation of CBSE Class 12th Biology Previous Year Solved Paper Code 004 Chapterwise Questions with Videos and Online Test Papers designed to help students prepare efficiently and strategically for their board examinations This book is structured to provide a clear understanding of each chapter by organizing previous years questions in a systematic topic wise format as per the latest CBSE syllabus and exam guidelines Biology is a subject that requires both theoretical clarity and the ability to apply concepts accurately in exams To bridge this gap we have provided thoroughly solved questions from actual board exams arranged chapter by chapter so students can strengthen their understanding one concept at a time *CBSE Class 12 Biology Previous Year Solved Paper Code 004 With Videos and Online Test Papers* Jaishree Soni,2025-08-01 We are delighted to present this comprehensive collection of CBSE Class 12th Biology Previous Year Solved Paper Code 004 With Videos and Online Test Papers Designed as a practical guide this book aims to assist students in achieving outstanding results in their CBSE board exams It features fully solved question papers based on the most recent syllabus and exam pattern issued by CBSE Science is a subject that requires a blend of conceptual understanding and practical application To perform well students need both a clear grasp of the concepts and effective exam writing techniques With this in mind this book offers a series of real board exam papers meticulously solved by subject matter experts helping students learn the proper approach to answering various types of questions **Addison-Wesley Biology** Addison Wesley,1996-04 *Cracking the Code Or Cloning Paper Plasmid* , Patricia Colbert and Phillis Unbehagen offer a collection of activities for biology students in grades 10 12 entitled Cracking the Code or Cloning Paper Plasmid Access Excellence a service of the nonprofit National Museum of Health provides the activities online The activities were created as part of the National Leadership Program for Teachers of the Woodrow Wilson National Fellowship Foundation *Molecular Biology of the Cell* ,2000 *Neural Science* ,2000 *Energy Research Abstracts* ,1981-10 *Genetic Engineering News* ,2000 *Cumulated Index Medicus* ,1996 **Essentials of Genetics** William S. Klug,Michael R. Cummings,2005 An exciting and dynamic way to communicate basic math concepts to your young learner The Complete Book of Math for first and second graders covers topics such as number recognition counting comparing patterns place value time and money graphing fractions and more The Brighter Child R Book of series offers instruction activities and information about specific topics and subject areas With full color illustrations children will master important educational concepts while having fun The user friendly format offers an engaging way for children to acquire knowledge and hone skills essential to learning success Each book also includes a complete answer key and easy to follow instructions *The Scientist* ,1997-07 [Recombinant DNA Laboratory Manual, Revised Edition](#) Judith W. Zyskind,Sanford I. Bernstein,2012-12-02 The latest edition of this introductory benchtop manual is up to date affordable and easy to follow This

text is perfect for your two quarter or one semester course in Recombinant DNA Techniques and is specifically designed to lead your student or technician who is a newcomer to molecular biology from the basic skills of growing and maintaining bacterial colonies through plasmid DNA isolation cloning DNA sequencing and hybrid detection Comb bound three column large 9 1 4 x 7 1 2 format Exercises contain explanatory material and margin notes that pinpoint critical steps and important concepts Necessary reagents and equipment are presented in a checklist at the beginning of each protocol Techniques for bacteria are complemented with those for Drosophila Each experiment has been tested in the laboratory by students for five years Features a complete chapter on computers in the molecular biology laboratory Presents helpful appendixes on safety in the laboratory frequently used ancillary techniques and recipes for buffers media and strains *E. coli Plasmid Vectors* Nicola Casali, Andrew Preston, 2010-11-10 A comprehensive collection of readily reproducible techniques for the manipulation of recombinant plasmids using the bacterial host E coli The authors describe proven methods for cloning DNA into plasmid vectors transforming plasmids into E coli and analyzing recombinant clones They also include protocols for the construction and screening of libraries as well as specific techniques for specialized cloning vehicles such as cosmids bacterial artificial chromosomes l vectors and phagemids Common downstream applications such as mutagenesis of plasmids recombinant protein expression and the use of reporter genes are also described **Plasmid** Munazza Gull, 2019-06-19 This book captures in a single volume the wealth of information on the plasmid structure function and biology of all organisms that have been examined to date Plasmids exhibit wide variations in size modes of replication and transmission host ranges and the genes they carry and have provided us with a great understanding of basic life principles at the molecular level Written by experts in the field this book is a valuable source of up to date information delivering the latest impacts on studies in the areas of plasmid types genomes purification analysis and expression of recombinant proteins in bacteria Plasmid utilization in the synthesis of plasmid based vaccines plasmids as genetic tools and their applications in ecology and the evolutionary process are also covered This book is a single source of valuable information for instructors and students in advanced undergraduate and graduate courses on plasmids It will also appeal to researchers seeking to find new relationships between biological processes that are linked by plasmids to the environment **Plasmids** Kimber G. Hardy, 1987

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