

# Extraction of DNA from Onion

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## Overview

To most students of biology, DNA is an abstraction. You can memorize the names and structures of the nitrogenous bases and know all about the history of DNA's discovery, but until you actually handle DNA, it remains a strange and mysterious substance.

The purpose of this laboratory is to give you firsthand experience with DNA by isolating it from plant tissue. You will start with whole onions and end with a relatively pure preparation of DNA, containing literally millions of genes. Once isolated, the DNA can be stored in alcohol or dried out. It will actually be possible for you to hold in your hands the key to an organism's development and structure.

## Objectives

1. To become familiar with the physical properties of DNA by isolating it from living tissue
2. To learn the purpose of each step in the isolation procedure as it relates to the physical and biochemical characteristics of the genetic material

## Materials and Equipment

The following materials can be shared by a group of students:

- 52 °C water bath
- thermometer
- ice bucket
- 0.1 g scale
- 95% ethanol kept on ice

The following materials are needed for each student or pair:

- plastic gloves
- 100 ml homogenization medium
- cutting board
- medium onion
- knife
- weighing boat (plastic cup)
- cheesecloth (4 thicknesses)
- 500 ml beaker (kept on ice)
- 2-100 ml graduated cylinders (one kept on ice)
- 250 ml beaker (kept on ice)
- 1000 ml beaker
- DNA spooling rod

# Dna Extraction Lab Instructor Manual

**Ensheng Dong**



## **Dna Extraction Lab Instructor Manual:**

**Instructor's Manual for the Laboratory Manual for Starr and Taggart's Biology : The Unity and Diversity of Life and Starr's Biology Concepts and Applications** James W. [et. al]. Perry, 2002      Forensic Investigations, Grades 6 - 8 Schyrlet Cameron, Janie Doss, Suzanne Myers, 2008-09-03 Connect students in grades 4 8 with science using Forensic Investigations Using Science to Solve Crimes In this 80 page book students build deductive reasoning skills as they become crime solving stars Most scenarios in the book have more than one plausible outcome allowing individuals or groups to broadly interpret evidence Activities include interpreting handwriting and body language and fingerprinting The book supports National Science Education Standards      **Instructor's Manual for Laboratory Preparation to Accompany Biology Laboratory Manual** Darrell S. Vodopich, 1989      **Instructor's Manual for Perry and Morton's Laboratory Manual for Starr and Taggart's Biology, the Unity and Diversity of Life and Starr's Biology, Concepts and Applications** Joy B. Perry, 1992      *Handbook of Nucleic Acid Purification* Dongyou Liu, 2009-01-14 An Indispensable Roadmap for Nucleic Acid Preparation Although Friedrich Miescher described the first isolation of nucleic acid in 1869 it was not until 1953 that James Watson and Francis Crick successfully deciphered the structural basis of DNA duplex Needless to say in the years since enormous advances have been made in the study of nucleic acid      *Instructor's Manual to Accompany Biology Laboratory* Carolyn Eberhard, 1987      **Instructors Resource Manual** Carol Lynn Martin, 2000      Resources in Education , 1997-07      **Teacher's Guide for Biology: Laboratory Manual** Stanley L. Weinberg, 1977      *Selected Exercises for the Biochemistry Laboratory* G. Douglas Crandall, 1983 Intended for the laboratory component of an introductory biochemistry course and requiring only basic laboratory equipment i e no radioactive isotopes no live animals this student manual provides all necessary instruction for eight exercises on the preparation of aqueous solutions for the laboratory colorimetry a spectrophotometric analysis of riboflavin dipeptide identification protein isolation the extraction and purification of wheat germ acid phosphatase enzymology the kinetic properties of wheat germ acid phosphatase carbohydrates the analysis of glycogen lipids an analysis of some common fats and oils and nucleic acids isolation and characterization of E coli DNA Unique to this manual is the way in which the level of difficulty and degree of student independence increases gradually Back cover      **Insights in Microbiological Chemistry and Geomicrobiology : 2022/2023** Ruiyong Zhang, 2024-07-29 We are now entering the third decade of the 21st Century and especially in the last years the achievements made by scientists in the field of Microbiology have been exceptional leading to major advancements Frontiers has organized a series of Research Topics to highlight the latest advancements in science in order to be at the forefront of science in different fields of research This specific editorial initiative led by Dr Ruiyong Zhang is focused on new insights novel developments current challenges latest discoveries recent advances and future perspectives in the field

**Biology/science Materials** Carolina Biological Supply Company, 1991      **The American Biology Teacher** , 2005

**Laboratory Investigations in Cell Biology** Allyn A. Bregman, 1987 Contained in this text are 18 laboratory projects that explore the structural biochemical and physiological nature of eukaryotic cells Topics are largely traditional however several investigations employ new methodologies Extended coverage of biochemistry is offered and materials have been selected for availability and ease of handling eg extraction of DNA and RNA done with calf liver succinate dehydrogenase activity studied in mitochondria isolate from cauliflower      Laboratory Manual of Genetics A. M. Winchester, Peter J. Wejksnora, 1995-12 Give your students the opportunity to apply the scientific method to real not simulated lab investigations in both classical and molecular genetics It is appropriate for a range of genetics and molecular biology laboratory courses because it incorporates material spanning the areas of basic genetics molecular genetics and human genetics Since the first edition Laboratory Manual of Genetics has been carefully constructed to be student oriented      **Biology**, 1999

*Laboratory Investigations in Cell and Molecular Biology* Allyn Bregman, 1996-02-02 This revised workbook lab text consists of 21 projects that can be executed with readily available materials a minimum of elaborate equipment and a reasonable amount of preparation time Early projects deal with biochemistry and cytochemistry the middle ones focus on organelles and their physiology and later activities explore more advanced molecular topics such as restriction mapping strategies New to this edition a concise section on statistics covering the mean standard deviation and standard error and a chapter designed to enable students to write up their work as a lab report      Genetics Eldon John Gardner, 1985

*Laboratory Investigations in Cell and Molecular Biology* Allyn A. Bregman, 2002 This revised workbook lab text consists of 21 projects that can be executed with readily available materials a minimum of elaborate equipment and a reasonable amount of preparation time Early projects deal with biochemistry and cytochemistry the middle ones focus on organelles and their physiology and later activities explore more advanced molecular topics such as restriction mapping strategies New to this edition a concise section on statistics covering the mean standard deviation and standard error and a chapter designed to enable students to write up their work as a lab report      **Guide** American Anthropological Association, 2005

## Unveiling the Power of Verbal Artistry: An Psychological Sojourn through **Dna Extraction Lab Instructor Manual**

In a world inundated with screens and the cacophony of quick transmission, the profound energy and emotional resonance of verbal beauty usually fade into obscurity, eclipsed by the continuous barrage of noise and distractions. Yet, set within the musical pages of **Dna Extraction Lab Instructor Manual**, a captivating function of fictional splendor that pulses with fresh thoughts, lies an remarkable trip waiting to be embarked upon. Penned by a virtuoso wordsmith, that enchanting opus courses visitors on an emotional odyssey, gently revealing the latent possible and profound influence embedded within the intricate internet of language. Within the heart-wrenching expanse of this evocative examination, we can embark upon an introspective exploration of the book is key themes, dissect their captivating writing type, and immerse ourselves in the indelible impact it leaves upon the depths of readers souls.

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