Lab Ref

A Handbook of Recipes, Reagents, and Other Reference Tools for Use at the Bench

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Lab Ref: A Handbook of Recipes, Reagents, and Other Reference Tools for Use at the Bench

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Contents

A Note from the Publisher

In recent years, Cold Spring Harbor Laboratory Press has published more than 20 highly regarded laboratory manuals on a wide range of topics in molecular and cellular biology. These books were carefully designed to address the needs of people who work at the bench. With the same commitment, we have now developed this volume, *Lab Ref*, as a companion to a laboratory's collection of manuals.

Indispensable for the seasoned investigator and novice alike, *Lab Ref* compiles recipes and reference data drawn from a selection of our manuals. To make the book not only useful but practical, we have included blank pages for notes about recipe modifications and other necessary data, and pockets for storing critical information from other sources. We hope *Lab Ref* will help you quickly find information you need when its original sources are unknown or unavailable. Kept close at hand, the book is intended to become an essential resource that saves you time and spares you frustration.

We thank Helen McBride and Deborah Chapman for reviewing the manuscript, the authors and editors of the laboratory manuals that provided source material for *Lab Ref,* and Jane Roskams and Linda Rodgers for the care and skill with which they assembled and edited the information the book contains.

The material in this book can be found in Cold Spring Harbor Laboratory Press manuals and is cross-referenced as coded below in shaded ovals.

Lab Manuals Key:

AB	=	Antibodies: A Laboratory Manual
AH	=	Archaea: A Laboratory Manual—Halophiles
AM	=	Archaea: A Laboratory Manual—Methanogens
AT	=	Archaea: A Laboratory Manual—Thermophiles
C	=	Cells: A Laboratory Manual
DNAS	=	DNA Science, 1st Edition
DROS	=	*Drosophila*: A Laboratory Manual
DROSP	=	*Drosophila* Protocols Manual
FY	=	Experiments in Fission Yeast: A Laboratory Course Manual
GA	=	Genome Analysis Laboratory Manual Series
MC2	=	Molecular Cloning, 2nd Edition
MC3	=	Molecular Cloning, 3rd Edition
MME	=	Manipulating the Mouse Embryo: A Laboratory Manual, 2nd Edition
MP	=	Molecular Probes of the Nervous System
MYG	=	Methods in Yeast Genetics: A Laboratory Course Manual
PB	=	Genetic Analysis of Pathogenic Bacteria: A Laboratory Manual
SCBG	=	A Short Course in Bacterial Genetics
SPP	=	Strategies for Protein Purification and Characterization: A Laboratory Manual
UAB	=	Using Antibodies: A Laboratory Manual
X	=	Early Development of *Xenopus laevis:* A Laboratory Manual

Introduction

In this age of the Internet and the sequenced genome, we have more information at our fingertips than ever before. Organizing all these data and combating information overload is becoming more and more important. As a working scientist, your time is valuable. The more quickly you can find the information you need, the better, and we have compiled *Lab Ref* with that in mind.

This book is designed to be used as a handy benchtop source of recipes for reagents needed for protocols described in a variety of Cold Spring Harbor Laboratory Press (CSHLP) manuals. Each recipe is cross-referenced to the manual of origin. Please refer to the Lab Manuals Key listed on the facing page. Reagents, information, and recipes are organized by usage, with most common stocks and buffers at the front of the book, and more specialized reagents at the end. Within each category, the reagents are categorized and alphabetized. Also included is a selection of commonly used background information and reference tables and charts.

Here is a brief description of the material and its organization.

Section 1

This section comprises recipes for reagents and stock solutions utilized in protocols throughout CSHLP manuals. These are the reagents found on the shelf in every laboratory performing research in cellular and molecular biology. We have selected only the most commonly used buffers and stocks.

Section 2

The isolation and purification of DNA, RNA, and proteins is the focus of this section. Here you will find recipes suitable for isolating these macromolecules, as well as reference material on the use of ribonuclease inhibitors, protease inhibitors, and detergents to optimize purification protocols.

Section 3

Formulae for generating stock solutions and reagents used to separate DNA, RNA, and proteins by electrophoresis are found in this section. Agarose and polyacrylamide gels are covered. Solutions used for the transfer of resolved macromolecules onto a solid matrix (nitrocellulose, nylon) and subsequent hybridization and screening protocols are also included.

Section 4

This section includes a compilation of reagents involved in the visualization of genes and gene products in tissues and cells. A guide to the use of antibodies is found here, along with advice on selection procedures to optimize a given technique. Recipes for fixatives, a variety of histological stains, chromogens, and mounting media are covered in this section. There is also reference material on the use and care of equipment for fluorescence and light microscopy.

Section 5

The CSHLP manuals cover a wide range of techniques used in many different organisms. This section is subdivided by organism, and reagents specific for working with bacteria, yeast, *Xenopus*, and mammalian cells are included here.

Section 6

This section provides directions for the optimal long- and short-term storage of DNA as well as bacterial, yeast, and mammalian cells.

Section 7

The final section of the book compiles formulae, conversion tables, information tables, a nomenclature guide, useful WWW sites, and background information. This collection is designed as a "one-stop" reference section for commonly needed facts.