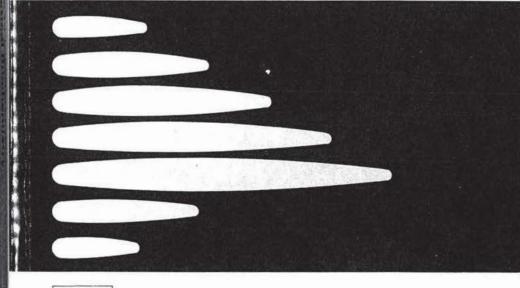
# Principles and Techniques of Practical Biochemistry

Third Edition

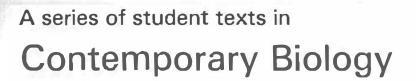
Edited by Keith Wilson and Kenneth H. Goulding





**Contemporary Biology** 





General Editors: Professor Arthur J. Willis Professor Michael A. Sleigh



# A Biologist's Guide to Principles and Techniques of Practical Biochemistry

Third Edition

### Edited by Keith Wilson

B.Sc., Ph.D. Head of Division of Biological and Environmental Sciences, The Hatfield Polytechnic

# and Kenneth H. Goulding

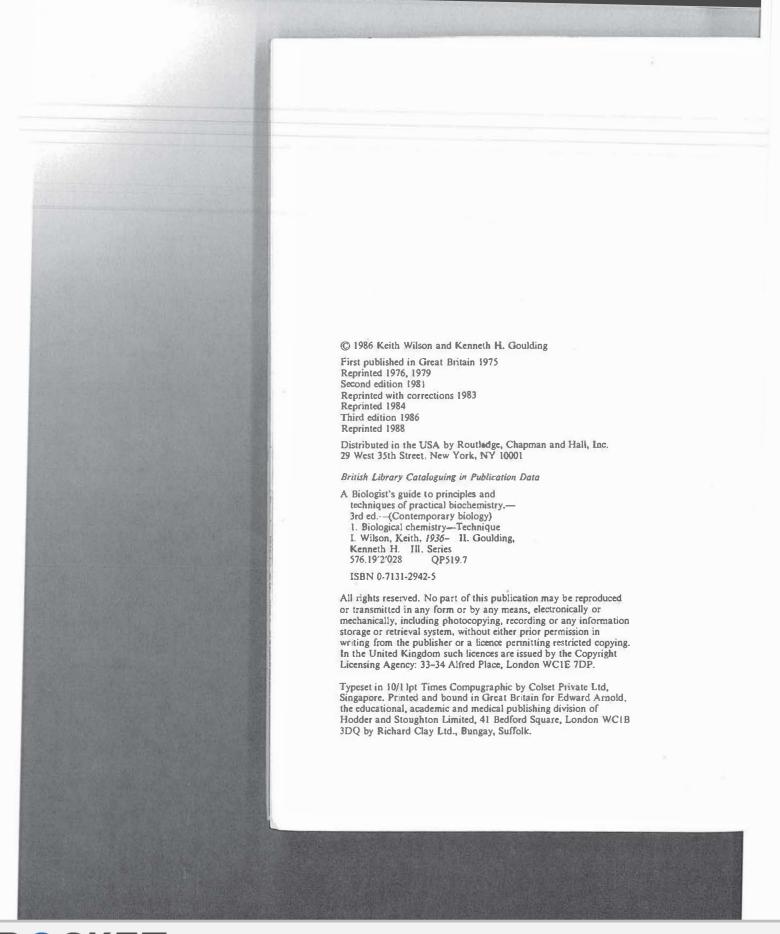
M.Sc., Ph.D. Head of School of Applied Biology, Lancashire Polytechnic

### **Edward Arnold**

A division of Hodder & Stoughton

LONDON NEW YORK MELBOURNE AUCKLAND





### 170 Molecular biology techniques

5'---TACGCTCG - 32P 3' Single-stranded DNA. labelled only at its 3' end

Modification of 'C' using hydrazine;
It this removes base, leaving ribosyl urea

---TACGCTCG-32P

---TACGCTCG-32P

Cleavage at modified bases, using piperidine

G-32P

TCG-32P

GCTCG-32P

GCTCG-32P

plus non-radioactive fragments

Separate on sequencing gel alongside products of other modification / cleavage reactions (as in Fig. 5.13)

Fig. 5.14 Maxam and Gilbert sequencing of DNA. Only modification and cleavage of deoxycytidine is shown, but three more aliquots of the end-labelled DNA would be modified and cleaved at G, G+A, and T+C, and the products would be separated on the sequencing gel alongside those from the 'C' reactions.

to that produced by the Sanger method, since each sample now contains radioactive molecules of various lengths, all with one end in common (the labelled end), and with the other end cut at the same type of base. Analysis of the reaction products by electrophoresis is as described for the Sanger method

Because the Sanger method produces oligonucleotides which are radioactively labelled throughout their lengths, rather than only at one end, the molecules can be made a lot more radioactive, and therefore easier to detect; so less DNA is needed for sequencing. Once M13 cloning has been set up in a laboratory, it provides a very convenient and rapid way to obtain singlestranded DNA. For these reasons, dideoxy sequencing of M13-cloned DNA is probably the most commonly used sequencing method, though the chemical procedure is still used by many laboratories.

### 5.5.3 Protein sequencing

Although protein sequencing may seem out of place in a section dealing with the analysis of DNA, the molecular biologist can often make use of a



# DOCKET

# Explore Litigation Insights



Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

# **Real-Time Litigation Alerts**



Keep your litigation team up-to-date with **real-time** alerts and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

# **Advanced Docket Research**



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

### **Analytics At Your Fingertips**



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

### API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

### **LAW FIRMS**

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

### **FINANCIAL INSTITUTIONS**

Litigation and bankruptcy checks for companies and debtors.

### **E-DISCOVERY AND LEGAL VENDORS**

Sync your system to PACER to automate legal marketing.

