Manual For Sorvall Rc 5b Plus

During the past ten years, great advances have been made in the area of plant molecular biology. Such formerly esoteric techniques as gene transfer and plant regeneration are now routinely performed, making the dissection of regulatory elements of genes a common practice in many laboratories. Along with this new technology has come an almost bewildering array of rapidly changing techniques, often making it difficult for the novice to select and perform the technique most appropriate for answering a given biological question. In 1986, some of us felt that many of these techniques had become routine enough to warrant the publication of a laboratory manual. The manual is designed both for advanced college level laboratory courses and as a 'bench guide' for use in the scientific laboratory. Recognizing the rapidly changing nature of plant molecular biology technology, the editors have designed a laboratory manual that is both easy to use in the laboratory and which will be updated as the techniques change and new technologies are devised. Additional chapters that can replace or be added to this first edition will be published periodically. The editors recognize that many of the techniques described in this manual depend upon specialized plant genetic material, microbial strains, or recombinant plasmids. Those people desiring such material should contact the relevant authors directly. A list of the various contributors to this manual, including their addresses, is included.

The growing interest in the field of biological membranes in recent years is documented by the very large number of articles, reviews, journals and books which are appearing in this field. Why then now a manual on "Membrane Proteins"? The answer is multifold. The protocols which were distributes by the teachers and lecturers at the FEBS-SKMB Course organized in Bern appeared to be very useful not only during the Course to correctly perform the experi ments, but also for the future benefit of other students and other curses. To us they appeared very modern and of simple execution, ideal for a Uni versity Advanced Course, a Summer School, or similar scientific initiatives. The possibility was also foreseen that such a manual could be used by pro fessional scientists, although not initiated into the problems, assumptions and intricacies of biochemical methodology. There are also many research teams who study proteins, for example of human fluids, and who will certainly be interested in the application of new but simply described methods. At the same time we present the student with some more complicated physical techniques which are, however, simply described and easy to execute.

Vols. for 1942- include proceedings of the American Physiological Society.

The standard protocols for the purification of all known cytoskeleton proteins are presented in this manual. Proteins are listed alphabetically and each protocol follows a common format. Thus, the manual provides a quick and easy reference to all relevant procedures for cytoskeleton protein purification. The isolation procedure for each protein is shown in a clear flowchart, while the source of the protein, equipment and material needed, a list of suppliers, standard references, accession No. of sequences as well as further relevant facts and practical tips are given on a separate page.

Although previously thought to be merely passive structural components, membrane lipids have recently been found to be actively involved in cellular transport and signal transduction processes. Clear protocols for the study of membrane lipid properties, cellular transport or signal transduction are presented in this manual. Following a short introduction to membrane lipids, techniques for the isolation and extraction of membrane fractions, the analysis of the lipid composition, lipid turnover, and the involvement in signal transduction as well as the preparation of liposomes are described.

For a long time microbial ecology has been developed as a distinct field with in Ecology. In spite of the important role of microorganisms in the environ ment, this group of 'invisible' organisms remained unaccessable to other ecologists. Detection and identification of microorganisms remain largely dependent on isolation techniques and characterisation of pure cultures. We now realise that only a minor fraction of the microbial community can be cultivated. As a result of the introduction of molecular methods, microbes can now be detected and identified at the DNA/RNA level in their natural environment. This has opened a new field in ecology: Molecular Microbial Ecology. In the present manual we aim to introduce the microbial ecologist to a selected number of current molecular techniques that are relevant in micro bial ecology. The first edition of the manual contains 33 chapters and an equal number of additional chapters will be added this year. Since the field of molecular ecology is in a continuous progress, we aim to update and extend the Manual regularly and will invite anyone to deposit their new protocols in full detail in the next edition of this Manual.

This manual follows at a distance of 3 years the previous one entitled Mem brane Proteins, and, like its predecessor, it is the result of an International Advanced Course sponsored by FEBS, SKMB and SNG, which was held in Bern in September 1983. The experiments offered to the students in the course had to be largely up· dated or chosen from new areas of membrane research, because of the sub stantial and rapid development of the field. Using the protocols of the course, the participants (graduate students, postdoctoral fellows and also senior scientists), in most cases not at all ex pert in biomembrane research, were able to repeat all the experiments suc cessfully. Those few protocols which for some reason did not fulfill the role we expected were modified. These protocols have now been collected in this manual, which we are able to offer to a number of biology, biochemistry and biophysics laborato ries, hoping that the selected number of methods which have been success fully used during the Advanced Course may be useful to them. This manual is also intented for teachers of practical classes, who may use it as a text book and as source of selected references, collected not in the library, but in the laboratory, from the notebooks of the young researchers who have contributed so much to the success of the Course.

The Proceedings of the National Academy of Sciences (PNAS) publishes research reports, commentaries, reviews, colloquium papers, and actions of the Academy. PNAS is a multidisciplinary journal that covers the biological, physical, and social sciences.

Papers of the Denver, Colo. meeting in June 1990 address topics apposite to industrial, governmental, and environmental scientists concerned with water quality. Includes chapters on radiochemical analysis, inorganic constituents of water, methods for organics detection, sediments, microbiology, oil.

The physiological role of the cellular prion protein (PrPc) is still not fully understood. This study gives a further insight into the possible physiological function(s) of PrPc via recognizing proteome changes influenced by different levels of PrPc expression in human embryonic kidney (HEK) 293 and PrPc-deficient (Prnp0/0) ell line. The two cell lines gave largely non-intersecting results. A high proportion of proteins deregulated following PrPc overexpression in HEK 293 cells is involved in energy metabolism and cellular homeostasis. Hence, the previously reported increased sensitivity of PrPc overexpressing cells to apoptotic stimuli might be caused by perturbed expression of proteins essential for energy production and maintenance of cellular homeostasis. A particularly significant point of the present study is PrPc overexpression-induced regulation of several proteins which are known to contribute to Alzheimer and Parkinson disease

pathogenesis. This finding may be helpful in understanding the common molecular mechanisms underlying the pathogenesis of prion diseases and other neurodegenerative disorders.Conversely, the introduction of the human prion protein gene (PRNP) into Prnp0/0 cells correlated positively with regulation of proteins mainly implied in protection against oxidative stress and apoptosis. This finding is in line with earlier reports demonstrating rescue of Prnp0/0 neurons from apoptosis following an introduction of prion protein gene. Altogether, the presence/absence and the level of PrPc expression seem to be crucial for the fluctuation between PrPc's pro- and anti- apoptotic properties.In addition, this study provides first time evidence for PrPc-induced up-regulation of the glycolytic enzyme, lactate dehydrogenase (LDH) after transient focal cerebral ischemia in wild-type mice as compared to Prnp00 mice. The possibility that LDH and its product lactate, known to protect neural tissue against hypoxia/ischemia, might be involved in previously described PrPc-mediated neuroprotection against ischemic injury is considered.

Both novices and experts will benefit from this insightful step-by-step discussion of phage display protocols. Phage Display of Peptides and Proteins: A Laboratory Manual reviews the literature and outlines the strategies for maximizing the successful application of phage display technology to one's research. It contains the most up-to-date protocols for preparing peptide affinity reagents, monclonal antibodies, and evolved proteins. Prepared by experts in the field Provides proven laboratory protocols, troubleshooting, and tips Includes maps, sequences, and sample data Contains extensive and up-to-date references

Includes Part 1, Number 1: Books and Pamphlets, Including Serials and Contributions to Periodicals (January - June)

Techniques in the neurosciences are evolving rapidly. There are currently very few volumes dedicated to the methodology - ployed by neurosclentlsts, and those that are available often seem either out of date or limited m scope. This series is about the methods most widely used by modern-day neurosclentists and 1s wrltten by their colleagues who are practicing experts. Volume 1 will be useful to all neurosclentists since It concerns those procedures used routinely across the widest range of subdisciplines. Collecting these general techniques together m a single volume strikes us not only as a service, but will no doubt prove of exceptIona utilitarian value as well. Volumes 2 and 3 - scribe all current procedures for the analyses of amines and their metabolltes and of ammo aads, respectively. These collections will clearly be of value to all neuroscientlsts working m or contemplating research m these fields. Similar reasons exist for Volume 4 on receptor binding techniques since experimental - tails are provided for all types of llgand-receptor bmdmg, including chapters on general prmciples, drug discovery and - velopment, and a most useful appendix on computer programs for Scatchard, nonlinear, and competitive displacement analyses. Volume 5 provides procedures for the assessment of enzymes - volved m biogenic amme synthesis and catabolism. Volumes in the NELJROMETHODS series will be useful to neurochemists, -pharmacologists, -physiologists, -anatomlsts, psychopharmacologists, psychlatnsts, neurologists, and chemists (organic, analytical, pharmaceutical, medicinal), in fact, everyone involved m the neurosclences, both basic and clinical.