

Fallon in a concise review have put together much of the new data about agrin and the proposed mechanism by which it causes clustering of acetylcholine receptors at the postsynaptic junction. Current evidence also points strongly to a role for this molecule in synapse formation in the CNS.

The article by Ranganathan, Malicki and Zuker has made a strong case for studying sensory transduction processes in *Drosophila*. The combined genetic and molecular approach, possible in this organism, has helped identify genes required at almost every step of the visual transduction pathway. As stated by the authors, while there is a great deal of similarity in the overall strategy of visual transduction between vertebrates and invertebrates, much of the underlying molecular machinery is different. Another field in which *Drosophila* molecular genetics has had an important contribution is that of circadian rhythms. In his review on the molecular neurobiology of circadian rhythms in mammals, Takahashi tells us how attempts are being made to understand the molecular basis of this behaviour using both physiological and genetic experiments. The review argues for a molecular genetic approach in mouse similar to that taken by Konopka and Benzer twenty years ago in *Drosophila*.

This issue also provides a good introduction to some new and exciting areas in neuroscience. The field of integrative processing is one such topic reviewed by Knudsen and Brainard. It looks at the two better understood stimuli – vision and audition – and their integration in the brain. Principles that emerge from the study of these two stimuli may be useful in studying other integrative processes. Another interesting new area where research is still fairly preliminary is that of plasticity in the adult sensory cortex. This has been reviewed by Weinberger. It is still too early to say what the level of plasticity is in the adult sensory cortex and the suggestion from this review is that both plastic and nonplastic populations of cells may exist. Their relative roles in adult cortical functioning await further research.

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Textbook of Molecular Biology.
K. Sivarama Sastry, G. Padmanaban and
C. Subramanyam. Macmillan India Ltd.,
2/10 Ansari Road, New Delhi 110 012.
pp. i–xiii + 498. Price: Rs. 168.

Molecular biology is all pervasive in life sciences today. Although it started as a rather narrow field, the commonality of biological information and its application in living systems caused this discipline to break all barriers of specialized fields in biology so that now there is no area in biology which has not been influenced by molecular biology and which has not influenced molecular biology. Therefore, a study of molecular biology is imperative for any student of biology. Since molecular biology spans a very wide canvas, a book on this topic needs to cover a much wider area than most other subjects in biology. In this context, the book by Sastry, Padmanaban and Subramanyam is a welcome addition to the many books available in this general area. However, compared to most of the other books published in India in this area, the present book is more comprehensive and better organized. The authors have done a remarkable job in putting so many different areas together in a relatively simple narrative style which makes it easy reading for young students, to whom it is primarily addressed. Relevant topics from biochemistry, genetics, cell biology, cytology, immunology, cancer biology, genetic engineering, etc., have been amalgamated to produce this book. With so many different topics to be covered, the order of their appearance in the book can be a matter of individual choice, but as the authors point out in their preface to the book, each chapter can also be read as stand-alone since extensive cross-references to different topics help the reader navigate through related topics. Inclusion of references to more extensive books as also to articles on specific topics is very helpful.

With a constraint on the overall volume of the book (presumably to keep the price within reasonable limits), the book provides, in most cases, only the basal information on any given topic without going in for a detailed exposition. This limits the utility of the book for students at different levels of studies and for those interested in certain topics in more detail. Nevertheless, the book can be used by

most students and teachers either as a primer for details in other more extensive treatises available or as a summary after having read a given topic in more detail elsewhere. In either case, the book will be useful for the student community.

This book is fairly strong in the biochemical aspects of molecular biology, as may be expected. However, factual and/or conceptual errors exist in the book, particularly in topics that relate to genetics, cell biology and developmental genetics, etc. (these are the ones that I read more carefully due to my own bias). Rather than making an exhaustive listing of these, a few examples may be noted. The $2N$ of *Drosophila melanogaster* is given as 4 instead of 8 (p. 90). The chapter on genome organization includes a brief discussion on X-inactivation in mammals (p. 111); unfortunately, however, this discussion does not make it clear that X-inactivation occurs only in somatic cells of female mammals (also the term 'lyonization' is after 'Mary Lyon' rather than 'Mary Lyons').

While discussing recombination during meiosis, the authors have also considered sister chromatid exchanges and imply that sister chromatid exchanges are central to recombination (p. 353, last para); the description gives an impression as if sister chromatid exchanges and chiasma points in meiosis are similar. While sister chromatid exchanges in mitosis and the homologous recombination during meiosis (which correlates with the cytologically visible chiasma, different from sister chromatid exchange) may share some of the enzymatic pathways, the two are distinctly separate phenomena with very different genetic consequences. In the absence of a more detailed discussion, the reader would remain misinformed on these issues.

Consideration of the genetic control of development in *Drosophila* on pp. 420–424 is rather incomplete and confusing. The classification of segmentation genes into three categories (the gap, pair rule and segment polarity genes) was proposed by Nusslein-Volhard and Wieschaus in 1980 rather than by Gehring, as the book seems to suggest (p. 421). The *fushi tarazu* gene is not a part of the *Ant-C* complex; although it is physically included in the *Ant-C* complex DNA region, it acts independently as a pair rule gene rather than as a member of the *Ant-C* homeotic gene complex. Another common

misconception, that seems to have affected the description in this book as well, is about the term homeotic genes and homeo-box: all genes that carry the homeo-box sequence are not homeotic genes. I think the elucidation of specific details of the cascade of gene activity (beginning with the maternally acting genes and followed by the gap, pair rule, segment polarity and homeotic genes in that order) that defines the embryonic segmentation and fate determination in *Drosophila* and other higher animals has been one of the exciting hallmark achievements of the combined use of molecular biology, genetics and developmental biology. This chapter does not convey the

specific information now available on this cascade of embryonic gene activity. The presentation in the book gives impression of a disjointed piecemeal information on certain genes and thus fails to carry the excitement to readers.

The chapter on genetic engineering is essentially confined to some of the basic recombinant DNA techniques (random-primed labelling deserved a place here). To justify the topic fully, it could have included examples where genetic engineering techniques have actually been employed as also the potential uses and hazards of these technologies.

While the book is generally well illustrated, the figures could be more attractive

and self-sufficient: this would allow a better comprehension to the reader. This text book has made a good beginning. It is to be expected that its subsequent editions will take care of the shortcomings of the type noted above so that it evolves into a popular and authoritative textbook that is badly needed by our student community.

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Corrections

Bose-Einstein condensation in a dilute atomic vapour

N. Kumar

[*Curr. Sci.*, 1995, 69, 492-493]

Read '...the condensate size is "greater" than...' instead of '... "less" than...' in column 2, line 2 from the bottom of the article.

Evaluation of efficacy of bricks as geochemical monitor of atmospheric heavy metal pollution

Rohit Shrivastav, Sanjay Kumar Mathur, Shobhit Shrivastav, M. M. Shrivastav, Sahab Das and Satya Prakash

[*Curr. Sci.*, 1995, 69, 272-275]

The mean concentration of metals in Table 2 and Table 3 should read mg per 100 g instead of mg kg⁻¹.