

missing here (possibly because of partial common authorship with this latter review). This apart, the most satisfactory integrative section is the discussion of the modes of failure of lactate removal mechanisms which constitutes the bulk of chapter 6. It is notable that this is also one of the longest coherent sections in the book.

In sum, therefore, this volume is, so far as I am competent to judge, an excellent compendium of

information, which will be of much use to research workers and clinicians with interests in lactate metabolism and lactic acidosis, and to those who teach in this field. It is certainly not easy reading, and one feels that the deeper understanding which might have been achieved has been a casualty of the thoroughness of the treatment.

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*Use of Isolated Liver Cells and Kidney Tubules in Metabolic Studies*

Edited by J. M. Tager, H. D. Söling, J. R. Williamson

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One of the most important recent developments in studies in metabolism has been the description and increasing use of isolated cell preparations. The current interest in these preparations was recognised in the organisation of a FEBS advanced course on this topic in July 1975 and it is the proceedings of this course together with those of a companion symposium on 'Mitochondrial-Cytosolic Interactions in Cell Metabolism' which make up this volume. In some respects, the title of the book is therefore somewhat misleading, since although studies using isolated liver cell preparations receive considerable emphasis especially in the proceedings of the advanced course, the presentation and discussions are by no means restricted to data obtained using these preparations. Furthermore, possibly in reflection to the current state of the art with these two isolated cell preparations, considerably more attention is paid to the liver cell. Thus, those with a particular interest in isolated kidney tubules may find directly relevant information is somewhat sparse. In the initial section which contains the proceedings of the symposium on mitochondrial-cytosolic interrelationships, most of the major presentations focus on various aspects of metabolite distributions between the mitochondrial and cytosolic compartments including recent direct experimental approaches to the measurement of concentrations in

these sub-cellular fractions. As is clearly stated by Sir Hans Krebs in his introduction, the articles in this section will be best appreciated by those who already possess a good basic understanding of the field. They provide an excellent summary of current developments and problems in this important area. It is however rather unfortunate that no summaries of discussions appear in this section. It is hard to imagine that a symposium of this type did not include discussion between participants, especially in view of the controversial material presented. This apparent omission results in some anomalies. For example, consideration of the article on the source of ammonia for urea synthesis in liver and the role of glutamate dehydrogenase (Chappell) in the Symposium is deferred to a panel discussion following the section on Regulation of Ureogenesis in the proceedings of the Advanced Course. Although it was clearly desirable to have a unified treatment of the present controversy in this area, no acceptable rationale appears to underly the placing of Chappell's article in this volume in relationship to the relevant discussion.

In contrast, the extensive reports of both the specific and general discussions are one of the best features of the sections derived from the proceedings of the Advanced Course. I was particularly impressed with the quality of the general discussions which took up

topics such as preparative procedures for cell isolation, criteria for evaluation of the integrity and functionality of isolated cell preparations and the use of special techniques. Taken together with the articles based on the presentations which dealt with these topics and which themselves contain much experimental detail, these sections provide an invaluable source of information for anyone involved with, or wishing to initiate studies using, isolated cell preparations from these organs. Furthermore, although the techniques described have been developed for isolation of liver and kidney cells, one suspects that the general methodology described here may be applicable to other tissues, and can at the least provide a starting point for such studies.

The remaining articles treat a wide range of studies in which isolated liver cells or kidney tubules have been employed, including regulation of ureogenesis (Sies, McGuran, Tayer, Williamson), glucose transport (Baur),  $\text{Ca}^{2+}$  transport (Kleineke) and glycogen metabolism (Hue). Although probably of less general interest than the articles and discussions devoted to methodology, these specific presentations are illustrative of the versatility of the preparations and also of some of the problems encountered with them. The discussions in particular underline the necessity for agreed criteria in evaluation of cell integrity, and it is apparent that no one single measurement is likely to suffice for this purpose.

My most serious reservations concern the inclusion of a new type of publication, the so-called 'poster-papers' in this book. Presentation of additional relevant new data in the form of posters was included in both the Symposium and the Advanced Course. Authors of these posters were invited 'to prepare a manuscript for publication consisting of the material presented in the posters together with an explanatory text'. In the preface, the editors state 'we believe

that these 'poster-papers' will turn out to be a most satisfactory means of communicating new data in a preliminary form'. Although many of these poster papers are of considerable interest, they vary very much in the extent of detail and depth of presentation. Some come closer to being mini-papers whereas others could more properly be described as illustrated abstracts. Such diversity is not necessarily a bad thing, but I am concerned about the initiation of yet another form of unedited preliminary communication. Some control may be exercised by selection, both at time of submission of the abstract and also in the invitation to prepare a paper based on the presented poster. Acceptable results will probably be obtained in this way for a relatively small meeting on a well-focussed area as was the case here. However, one fears for the likely results if the principle is extended to the proceedings of a meeting of greater size and diversity. Furthermore, it will lead to a further scattering of data among different articles which in the case of books based on symposium proceedings are not likely to be as freely available to interested readers. I would hope therefore that organisers of other symposia will think carefully before adopting this new mode of data presentation.

However, these minor criticisms do not seriously detract from a book which will be of interest to all students of intermediary metabolism and provides an important source of information for workers using isolated cell preparations. The price is, unfortunately, likely to discourage its purchase by students, but I hope most libraries will find it possible to obtain a copy. The rapidity of publication is also a welcome feature, and the editors and publishers are to be congratulated on this aspect.

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