Book Reviews

The Androgens of the Testes. Edited by KRISTEN B. EIK-NES. Marcel Dekker, Inc., New York, N. Y. 1970. XI + 249 pp. 15 × 23 cm. $14.75.

This valuable book consists of 5 chapters, each by a different author, and each dealing with an important aspect of androgen biochemistry. The first chapter is written by the editor and gives a clear and concise account of the formation of androgens in the Leydig cells and other tissues. Also included is a critical discussion of the transport of androgens in biological systems. The author's extensive experience in these areas permits him to call attention to pitfalls often encountered by the novice.

The catabolism of testosterone and androstenedione is expertly treated by E. E. Baulieu and P. Robel. The research of these authors over the past decade has done much to clarify the complex picture of androgen metabolism in humans. For example, it was once viewed that sulfate and glucuronide conjugates of the androgens were hormonally inactive excretory forms, but work from Baulieu's laboratory has shown that these conjugates can undergo further catabolism leading to metabolites having important physiological properties. Moreover, the authors point out that testosterone glucuronide is a "unique" metabolite of testosterone which can be used to determine the rate of testosterone production. The difficulties encountered in attempting to quantitate the *in vivo* catabolism of other androgens are also explicitly outlined.

In a chapter titled "Gonadotrophic Regulation of Testicular Function," Peter F. Hall atempts to account for the action of interstitial cell-stimulating hormone (ICSH) and follicle-stimulating hormone (FSH) in molecular terms. Particular emphasis is placed on recent studies dealing with trophic stimulation of steroidogenesis. The evidence that the locus of action may involve 20α-hydroxylation of cholesterol is critically appraised. The relationship of cyclic AMP to these events is similarly evaluated. Chemists and biochemists interested in the regulation of steroidogenesis will especially appreciate this chapter.

As has come to be expected, H. G. Williams-Ashman has expertly reviewed the actions of androgenic hormones at the molecular level. Because of the author's own interests, the chapter deals primarily with the androgenic control of RNA production and ribosomal protein synthesis. Also reviewed is the recent experimental evidence supporting the possibility that dihydrotestosterone is the "active form" of testosterone at the target organs. The author also cautions scientists from prematurely proposing structure–activity relationships based on animal bioassays. "It is most unlikely that such data could provide anymore than the most superficial insight into the nature of the active sites of the primary receptors for these hormones."

The final chapter is an exhaustive treatment of the "Estimation of Androstenedione and Testosterone by Physicochemical Methods" by H. V. van der Molen. The chapter is introduced by a summary of the historical background to the development of methods for the measurement of testosterone and androstenedione in biological fluids (*i.e.*, protein bound, conjugates, etc.). The various analytical methods are surveyed and evaluated according to sensitivity, specificity, accuracy, and precision of measurement. Gas chromatographic (especially electron capture) and competitive protein binding techniques receive the most attention because of their high degree of sensitivity. The chapter exposes the reader to the problems remaining to be solved in this difficult area of clinical chemistry.

In conclusion, this text represents a succinct, up-to-date, and well-documented review on the current state of the art in an important area of steroid biochemistry and will be of immediate interest to graduate students and researchers involved in reproductive biology.

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