

PREFACE

One of the central problems in biomedical research is the extrapolation of data from experimental animals to the human situation. This is especially a problem in studies of chronic diseases such as atherosclerosis, diabetes, and cancer. Extrapolation is made difficult by variation among species as well as variation among individuals within a species. Such variation may be wide, particularly in outbred populations such as humans. Finally, within a single individual one may find variations in response to exogenous agents among different tissues and within a tissue among different cell types.

The use of cultured human tissues and cells for investigations in biomedical research can be a logical bridge between experimental animals and the beneficiary of our research, humans. Volumes 21A and 21B of *Methods in Cell Biology* describe the current state of methodology in culturing human tissues and cells. The organization is on the basis of organ systems and both explant and cell culture approaches are included. A common strategy in this field of research is initially to develop the methodology with cells and tissues from experimental animals and then to adapt this methodology for use with human cells and tissues. Thus far, some investigations have been conducted only in cells and tissues from experimental animals. Studies with human material are still at an early stage of development. A few chapters are included that reflect the progression in methodology from experimental animals to humans. In general, this progression has been easier than most of us would have predicted.

The primary objective of these methodologic studies is to provide experimental tools for investigating the pathogenesis of human disease. In fact, as noted in many of the chapters, cultured human cells and tissues are already being used in conjunction with sophisticated methods to investigate a wide variety of important problems in biomedical research. The purpose of these volumes is to further encourage future investigations.

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