Editorial

N.G.	Natale Gaspare	De Santo
G.	Giovambattista	Capasso

In the last few years our understanding of the kidney function has been mainly related to the elucidation of the fundamental mechanisms involved in cellular and molecular aspects of renal cell biology. This has been mainly dependent on the development of new techniques and new concepts in membrane and transport physiology. The introduction of in vivo and in vitro micro-perfusion, the application of special glass microelectrodes and fluorescent methods, the use of isolated single membranes, the development of the patch-clamp technique and the more recent attempt to identify, isolate, express and clone individual transport molecules by powerful methods of molecular biology have greatly stimulated and contributed to our comprehension of renal function.

However, such a large body of information has constrained the clinical investigator to face a major problem: to try and integrate the complex and vastly expanded knowledge of the cellular and molecular aspects of renal function into clinical medicine.

The current volume was prepared to pursue two goals: first, to clarify our understanding of renal function by studies that place this problem into the forefront of biology of epithelial cells in general; second, by taking a molecular approach to renal physiology, it was intended to give an instrument to all workers in this important area and bring recent advances to the attention of medical scientists.

We hope that the description of the fascinating world of renal cell organization will contribute to the clarification of some of the most relevant clinical aspects of kidney function in health and disease; in addition, it was our aim to introduce specific recent issues in cellular and molecular physiology in order to raise new questions on the fundamental problems of renal function.