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Book review

Signal Transduction
B. Gomperts, P. Tatham, I. Kramer, Academic Press, San Diego, 2002, ISBN: 0-12 289 631-9, £55.00

Starting with a historical essay mainly on the effects of narcotics and the discovery of transmitters by Dale and Loewi, the 17 chapters of this book cover almost the entire field of fundamental biochemical signal transductions on cellular level. Besides about 10 receptor systems analyzed in detail (Chapter 3), the interactions of hormones, cyclases, lipases, kinases, adhesion molecules, protein domains, cytokines, etc. are described, e.g., by the pathway receptor–transducer (GTP-binding protein) effector (ATP–AMP).

Of particular interest for photobiologists and bioelectrochemists are ''The regulation of visual transduction'' (Chapter 6), ''Calcium and signal transduction'' (Chapter 7), ''Calcium signalling'' (Chapter 8), ''Growth factors: setting the frame work'' (Chapter 10), and ''Signal transduction to and from adhesion molecules'' (cancer apoptosis, cell cycle, Chapter 14).

Some connections between bioelectrochemical approaches and topics dealt with in the chapters are worth mentioning, such as laser therapy and electropulsation of isolated rods for Chapter 6, change of Ca-influx by alternating magnetic fields for Chapters 7 and 8, nerve growth factor stimulation by direct currents for Chapter 10, or electroporation of membranes for drug and effector delivery as well as apoptosis induction by alternating magnetic fields for Chapter 14. There are also many possibilities for the determination of reduction and oxidation potentials as well as reaction kinetics by polarography or voltammetry. These examples show that this monograph contains many stimulating ideas and a lot of problems that can be solved by bioelectrochemical theories and techniques.

The chapters are illustrated with excellent didactic figures in color, supplemented by plenty of references, margin notes and key words. Critical remarks providing insight into current concepts of models are valuable, especially for students. *Signal Transduction* is indispensable for modern life sciences.

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