

BIOLOGY OF SENSORY SYSTEMS

SECOND EDITION

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Since publication of the first edition, huge developments have taken place in sensory biology research and new insights have been provided in particular by molecular biology. These show the similarities in the molecular architecture and in the physiology of sensory cells across species and across sensory modality and often indicate a common ancestry dating back over half a billion years.

Biology of Sensory Systems has thus been completely revised and takes a molecular, evolutionary and comparative approach, providing an overview of sensory systems in vertebrates, invertebrates and prokaryotes, with a strong focus on human senses.

Written by a renowned author with extensive teaching experience, the book covers, in six parts, the general features of sensory systems, the mechanosenses, the chemosenses and the senses which detect electromagnetic radiation. Other sensory systems are also dealt with, including pain, thermosensitivity and minority senses. Finally the book provides an outline and discussion of philosophical implications.

New in this edition:

- Greater emphasis on molecular biology and intracellular mechanisms
- New chapter on genomics and sensory systems
- Sections on TRP channels, synaptic transmission, evolution of nervous systems, arachnid sensory systems, electroreception in the Monotremata, language and the FOXP2 gene, mirror neurons and the molecular biology of pain
- Updated passages on animal and human olfaction and gustation

Over four hundred illustrations, boxes containing supplementary material and self-assessment questions and a full bibliography at the end of each part make *Biology of Sensory Systems* essential reading for undergraduate students of biology, zoology, animal physiology, neuroscience, anatomy and physiological psychology. The book is also suitable for postgraduate students in more specialised courses such as vision sciences, optometry, neurophysiology, neuropathology, developmental biology.

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