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Development of the Inner Ear

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BOOK REVIEW

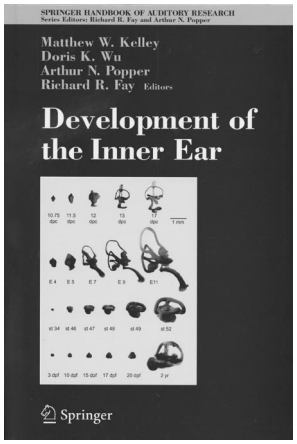
Development of the Inner Ear

M.W. Kelley, D.K. Wu, A.N. Popper, and R.R. Fay, eds. Heidelberg, Germany: Springer; 2005, 241 pages, 34 illustrations, $129.00.

In this 26th volume of the series *Springer Handbook of Auditory Research*, we are introduced to the intricate and complicated pathway of development of the inner ear. The book is organized in 7 chapters, the first introducing the highly technical presentations to follow and recognizing the limitations of current knowledge.

The middle chapters are devoted to normal development of the ear, beginning with induction of the otic placode in Chapter 2. This is a detailed basic science review of the molecular pathways that induce this phase and a description of supportive experiments that have led to this understanding. Otic morphogenesis is described in detail in the third chapter, with focus on zebra fish, frogs, chicks, and mice.

The fourth chapter describes the process of neural generation that results in wiring the ear to the brain. The authors clearly explain the role of neurotrophins in neural generation that may also, in the future, be used to regenerate neural elements lost in people who are hearing impaired. The critical notch signaling pathway is also elegantly depicted along with its influence on the development of the inner ear, other vital organs, and carcinogenesis.



One of the more detailed sections deals with the development and organization of the neurosensory hair cells, including a meticulous compilation of the complex molecular interactions that maintain this structure. The final chapter addresses abnormal embryogenesis. In this section, the authors explicate common genetic aberrations known to be associated with hearing impairment and associate specific morphologic anomalies associated with each.

This book presents a highly detailed and up-to-date report of the state of experimental embryology of the vertebrate inner ear. Contributors from leading facilities in the United States, United Kingdom, and Israel have brought forth their expertise in a wide range of specialties. The references are current and span a century of seminal research. Descriptive micrographs and illustrations are excellent and add much to the text. This book will be of great value to scientists and students working in the disciplines associated with development of the inner ear. However, value to clinicians is more limited, especially so for practicing neuroradiologists.

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