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Autore	Ishikawa Yuji
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Nota di contenuto	Chapter 1. Introduction -- Chapter 2. General Rules of Brain Morphogenesis in Vertebrates: An Hourglass Model -- Chapter 3. Neural Tube Formation -- Chapter 4. Subdivisions of Neural tube along the Dorsoventral Axis -- Chapter 5. Subdivisions of Neural Tube along the Rostrocaudal Axis: Neuromeric Models -- Chapter 6. Left-right Patterning of Neural Tube -- Chapter 7. Ventriculo-pial Patterning of Neural Tube -- Chapter 8. Development of Neural Circuits in Neural Tube -- Chapter 9. From Neural Tube to Larval Brain: Blood Vessels and Proliferative Zones -- Chapter 10. Development of Telencephalon -- Chapter 11. Development of Diencephalon, Optic Tectum, and Cerebellum -- Chapter 12. Nervous System in Medaka Larvae -- Chapter 13. From Larval Brain to Adult Brain and Summary of Telencephalic Ontogenesis -- Chapter 14. Adult Brain and General Brain Functions -- Chapter 15. Functional Neuroanatomy of Teleost Brains.

Sommario/riassunto

This book describes the developmental process of the brain of the medaka fish. It aims to understand the brain structure of vertebrates, including humans, by taking the brain of the medaka fish as an example and showing its actual developmental process. From developmental and evolutionary viewpoints, the understanding of the brain proceeds from simple to complex structures. Fish retain the basic form of vertebrates, and their brain morphology is relatively simple. Therefore, the fish brain is useful in understanding the brain structure. This book is unique for describing the entire process of the brain development in a specific fish. In addition, the book introduces the readers to a new concept of "Hourglass of Brain Morphogenesis", concerning the general rule of brain morphogenesis in vertebrates. The authors propose that the brain morphology is highly conserved at the middle developmental stage but diverges more extensively at earlier and later stages. The new concept challenges the accepted theory that has been widely shared for about 200 years since K. von Baer (1828, 1837) and K. von Kupffer (1906) who proposed that three primary brain vesicles at earlier developmental stages develop into five secondary brain vesicles at later developmental stages in all vertebrates. The book provides a basic understanding of the vertebrate brain and is useful for all readers who wish to understand the complex structure of the brain.
