

Paperback Re-issue

With the elucidation of the complete fly genome, traditional fly genetics is in more demand than ever. Genetics will allow us to explain the role of each of the 14,000 genes, many of which are involved in the development of imaginal discs. These hollow sacs of cells make adult structures during metamorphosis, and their study is crucial to comprehending how a larva becomes a fully functioning fly.

This book examines the genetic circuitry of the well-known "fruit fly," tackling questions of cell assemblage and pattern formation, of the hows and the whys behind the development of the fly. The book first establishes that fly development relies primarily on intercellular signaling, and then discusses how this signaling occurs. After an initial examination of the proximity versus pedigree imperatives, the book delves into bristle pattern formation and disc development, with entire chapters devoted to the leg, wing, and eye. Extensive appendices include a glossary of protein domains, catalogs of well-studied genes, and an outline of signaling pathways. More than 30 wiring diagrams, among 67 detailed schematics, clarify the text. The text goes beyond the Internet databases insofar as it puts these myriad facts into both a conceptual framework and a historical context. Overall, the aim is to provide a reference guide for students and researchers exploring this fascinating, but often bewildering, field.

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