

The Dictyostelia are soil amoebae capable of extraordinary feats of survival, motility, chemotaxis, and development. Known as the "social amoebae," or cellular slime molds, these organisms have been the subjects of serious study since the 1930s. Research in this area has been instrumental in shaping general views of differentiation, morphogenesis, and communication.

Beginning with the history of Dictyostelids, this book considers the problems of the evolution of this multicellular organism, which is characterized by its ability to transform from a single-celled organism into an elaborate assemblage of thousands of synchronously moving cells. Each stage of its development is treated in a separate chapter. The special properties of the Dictyostelid genome are rigorously analyzed, and the methods available to manipulate genes are presented in detail. Research techniques that enable many cell biology problems to be approached are also presented. Throughout, the emphasis is on combining classical experiments with modern molecular findings, and this book represents the only modern synthesis of such material.

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Cover illustration: Streams of adherent Dictyostelium amoebae migrate toward central sources of cyclic AMP and then form multicellular structures. This photograph was provided by Peter Newell of the University of Oxford.

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