

Mechanisms of Regeneration

Edited by

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This volume of *Current Topics in Developmental Biology* brings together leading experts in the mechanisms underlying regenerative processes, research that in the future could significantly improve the lives of people affected by pathologies destroying their tissues or organs. Focusing on key aspects of research *Mechanisms of Regeneration* strives to bring insightful and thought-provoking discussion in this fascinating field of research; including an overview of the genetic, epigenetic and hormonal controls of plant regeneration, novel views on the control of growth during regeneration, recent findings concerning the role of histone modifications, a discussion about cell death as a possible motor for regeneration, a tour on a process recently identified, the Systemic Wound Response, a comparative analysis of intestine regeneration across eumetazoans, an assessment of the impact of aging in mammalian tissue repair, a review of the factors that regulate degeneration and regeneration of skeletal muscles, an account of mathematical modeling applied to regenerative processes, and a report about novel strategies as re-engineering development to instruct tissue regeneration.

KEY FEATURES:

- Contributions are from leading researchers from the multidisciplinary field of regeneration, providing current and perceptive reviews
- Chapters provide novel concepts and stimulating ideas on the various mechanisms at work during regeneration

Cover showing some of the model systems and approaches used to investigate the mechanisms of regeneration as reported in this issue. From top left: the planarian *Schmidtea mediterranea* (Chapter by Robb and Sanchez-Alvarado, photo by Sofia Robb), the fruitfly *Drosophila melanogaster* (Chapters by Lee and Miura, Sun and Irvine, Rai et al., drawing by Masayuki Miura), the plant *Arabidopsis thaliana* (Chapters by Su and Zhang, Xu and Huang, photo by Ying Hua Su), the hydrozoan *Hydra vulgaris* (Chapter by Vriz et al., photo by Silke Reiter), the sea cucumber *Holothuria glaberrima* (Chapter by Mashanov and Garcia Arraras, photo by Omar Delannoy), the design of developmental re-engineering (Chapter by Tonarelli et al., drawing by Béatrice Tonarelli).



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