1. Record Nr. UNINA9910298407203321

Titolo	Marine Organisms as Model Systems in Biology and Medicine [[electronic resource] /] / edited by Malgorzata Kloc, Jacek Z. Kubiak
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2018
ISBN	3-319-92486-9
Edizione	[1st ed. 2018.]
Descrizione fisica	1 online resource (XXI, 624 p. 123 illus., 90 illus. in color.)
Collana	Results and Problems in Cell Differentiation, , 0080-1844 ; ; 65
Disciplina	616.027
Soggetti	Animal models in research Invertebrates Developmental biology Cell biology Immunology Animal Models Developmental Biology Cell Biology
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Part 1. Gametes, Maturation, Fertilization and Modes of Reproduction -- 1. Marine nemertean worms for studies of oocyte maturation and aging -- 2. Sperm Nuclear Basic Proteins of Marine Invertebrates -- 3. Fertilization in Starfish and Sea Urchin: Roles of Actin -- 4. Starfish as a Model System for Analyzing Signal Transduction during Fertilization -- 5. Towards multiscale modeling of molecular and biochemical events occurring at fertilization time in sea urchins -- 6. Monosex in Aquaculture -- Part 2. Embryonic and Post-embryonic Development, and the Evolution of the Body Plan -- 7. Medusa: A review of an ancient cnidarian body form -- 8. Sea urchin larvae as a model for post-embryonic development -- 9. The Ciona notochord gene regulatory network -- 10. Model Systems for Exploring the Evolutionary Origins of the Nervous System -- 11. Non-protein-coding RNAs as regulators of development in tunicates -- Part 3. Differentiation, Regeneration and Stemness -- 12. Differentiation and transdifferentiation of sponge cells

-- 13. Holothurians as a model system to study regeneration -- 14. Regeneration in stellate echinoderms: Crinoidea, Asteroidea, and Ophiuroidea -- 15. Solitary ascidians as model organisms in regenerative biology studies -- 16. Whole-body regeneration in the colonial tunicate Botrylloides leachii -- Part 4. Biomolecules, Secretion, Symbionts and Feeding -- 17. Beach to Bench to Bedside: Marine Invertebrate Biochemical Adaptations and their Applications in Biotechnology and Biomedicine -- 18. Coral Food, Feeding, Nutrition and Secretion: A Review -- 19. The suitability of fishes as models for studying appetitive behavior in vertebrates -- 20. Glycans with Antiviral Activity from Marine Organisms -- 21. Cnidarian jellyfish: ecological aspects, nematocyst isolation and treatment methods of sting -- 22. These Colors Don't Run: Regulation of Pigment Biosynthesis in Echinoderms -- Part 5. Bioinformatics, Bioengineering and Information Processing -- 23. Reef building corals as a tool for climate change research in the genomics era -- 24. The crown-of-thorns starfish: from coral reef plague to model system -- 25. Structures and composition of the crab carapace – an archetypal material in biomimetic mechanical design -- 26. Octopus vulgaris: an alternative in evolution -- 27. Vision made easy: cubozoans can advance our understanding of systems level visual information processing.

Sommario/riassunto

This book highlights the potential advantages of using marine invertebrates like tunicates, echinoderms, sponges and cephalopods as models in both biological and medical research. Bioactive compounds found in marine organisms possess antibacterial, antifungal, anti-diabetic and anti-inflammatory properties, and can affect the immune and nervous systems. Despite substantial research on the medicinal attributes of various marine invertebrates, they are still very much underrepresented in scientific literature: the majority of cell, developmental and evolutionary scientific journals only publish research conducted on a few well-known model systems like Drosophila melanogaster or Xenopus laevis. Addressing that gap, this book introduces readers to new model organisms like starfish or nemertera. By showing their benefits with regard to regeneration, stem cell research and Evo-Devo, the authors provide a cross-sectional view encompassing various disciplines of biological research. As such, this book will not only appeal to scientists currently working on marine organisms, but will also inspire future generations to pursue research of their own.