

1. Record Nr.	UNINA9910826903703321
Titolo	Progress in molecular biology and translational science . Volume 130 Molecular basis of olfaction / / edited by Richard Glatz
Pubbl/distr/stampa	Waltham, Massachusetts : , : Academic Press, , 2015 ©2015
ISBN	0-12-802913-7 0-12-802912-9
Edizione	[First edition.]
Descrizione fisica	1 online resource (147 p.)
Collana	Progress in Molecular Biology and Translational Science, , 1877-1173 ; ; Volume 130
Disciplina	591.1826
Soggetti	Olfactory receptor genes Smell - Molecular aspects Insects - Molecular genetics Vertebrates - Molecular genetics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Front Cover; Molecular Basis of Olfaction; Copyright; Contents; Contributors; Preface; Chapter 1: Mammalian Olfactory Receptors: Molecular Mechanisms of Odorant Detection, 3D-Modeling, and Structure-Activity ...; 1. Mammalian Olfactory Receptors: From Genes to Proteins; 1.1. Genes and pseudogenes; 1.2. OR protein expression; 1.3. Olfactory signal transduction; 2. Olfactory Receptor Activity Regulation: Homodimerization, Binding Cooperativity, and Allostery; 3. Olfactory Receptor 3D Modeling and Use for Virtual Screening; 3.1. Model building; 3.2. Ligand virtual screening 3.3. GPCR inverse agonist, antagonist, and agonist ligands4. Odorant Ligands Structure-Activity Relationships; References; Chapter 2: Olfactory Signaling in Insects; 1. Introduction; 2. Insect Olfactory Receptors; 2.1. Structure; 2.2. Function; 2.3. Regulation; 3. Role of Orco; 4. Final Remarks; Acknowledgments; References; Chapter 3: Advances in the Identification and Characterization of Olfactory Receptors in Insects; 1. Introduction: The Molecular Bases of Odor Detection in Insects

2. Identification of Complete Insect OR Repertoires Could Only Be Achieved by Genome and Transcriptome Sequencing
2.1. Advances in sequencing technologies and bioinformatic tools; 2.2. Exploitation of insect genomes for OR identification; 2.3. Developing insect antennal transcriptomes for OR identification; 3. Toward the Development of High Throughput Methods for the Functional Characterization of Insect ORs; 3.1. Description of the different methodologies; 3.1.1. In vitro heterologous expression systems; 3.1.2. In vivo heterologous expression systems; 3.2. Large OR repertoire deorphanization
3.3. Future perspective in the functional characterization of insect ORs
3.3.1. Automatization for HT screens; 3.3.2. In silico HT screens; 4. Conclusion; References; Chapter 4: Olfactory Disruption: Toward Controlling Important Insect Vectors of Disease; 1. Introduction; 2. Detection of Olfactory Signals by Insect Vectors; 2.1. Odorant-binding and chemosensory proteins; 2.2. Odorant receptors; 2.3. Gustatory receptors; 2.4. Ionotropic receptors; 2.5. Sensory neuron membrane proteins; 2.6. Activation of olfactory receptor neurons; 2.7. Processing of olfactory signals in the brain
2.8. Volatile sensation in GRNs
2.9. Interaction of repellents with olfactory receptors; 3. Discovery and Development of New Repellents; 4. Conclusion; References; Chapter 5: Pheromone Reception in Moths: From Molecules to Behaviors; 1. Introduction; 2. Structure of Antennae; 3. Antennal ORNs; 4. Molecular Components of Chemical Reception; 5. Pheromone Receptors; 6. Pheromone-Binding Proteins; 7. General Odorant-Binding Proteins; 8. Sensory Neuron Membrane Proteins; 9. Antennal Lobe; 10. Behavior; Acknowledgments; References; Index; Color Plate

Sommario/riassunto

The scope of this volume of Progress in Molecular Biology and Translational Science includes the molecular regulation of olfactory processes in vertebrates and insects including detailed discussion of olfactory proteins, signaling cascades and olfactory receptor modeling. In addition, because insect olfaction is an important and emerging field, it is also discussed in the context of key research questions such as disruption of host-finding by insect disease vectors, elucidation of the diverse range of compounds that are detected by insects, and the detection of pheromones by moths. Comprehen
