

Contents

Peptidergic Modulation of Identified Function

Antagonistic Modulation of Neuromuscular Parameters in Crustaceans by the Peptides Proctolin and Allatostatin, Contained in Identified Motor Neurons	2
<i>Werner Rathmayer, Christian Erxleben, Stefan Djokaj, Aleksandr Gaydukov, Sabine Kreissl, Torsten Weiss</i>	
Convergence and Divergence of Cotransmitter Systems in the Crab Stomatogastric Nervous System.....	20
<i>Eve Marder, Andrew M. Swensen, Dawn M. Blitz, Andrew E. Christie and Michael P. Nusbaum</i>	
Peptidergic Release Sites Involved in Modulation of the Stomatogastric Nervous System	34
<i>Petra Skiebe</i>	
Intracellular Signals that Mediate Synaptic Modulation by a FMRFamide-Like Neuropeptide in Crayfish.....	49
<i>A. Joffre Mercier, Amit Badhwar, Andrea D. Weston and Markus Klose</i>	
Influence of Neuromodulators and Vesicle Docking Related Proteins on Quantal Release.....	63
<i>R.L. Cooper, R. Chase Southard, Ping He, and S. W. Whiteheart</i>	

Hormonal Control

The Crustacean Neuropeptides of the CHH/MIH/GIH Family: Structures and Biological Activities.....	84
<i>Detlef Böcking, Heinrich Dirksen, and Rainer Keller</i>	
Crustacean Chromatophore: Endocrine Regulation and Intracellular Signalling Systems	98
<i>Luiz E. M. Nery and Ana M. L. Castrucci</i>	
Distributed Circadian Rhythmicity in the Crustacean Nervous System.....	113
<i>Hugo Aréchiga and Leonardo Rodríguez-Sosa</i>	

Aminergic Modulation of Behavior

Neural Mechanisms of Dominance Hierarchies in Crayfish	124
<i>Joanne M. Drummond, Fadi A. Issa, Cha-Kyong Song, Jens Herberholz, Shih-Rung Yeh and Donald H. Edwards</i>	
Aminergic Systems in the Squat Lobster <i>Mundia quadrispina</i> (Anomura, Galatheidae): a Case Made for Comparative Neurobiology.....	136
<i>Brian L. Antonsen and Dorothy H. Paul</i>	
Amine Effects on Aggression in the Giant Tropical Freshwater Prawn <i>Macrobrachium rosenbergii</i>	143
<i>Maria A. Sosa and Deborah J. Baro</i>	
Synaptic Connectivity of Amine-Containing Neurosecretory Cells of Lobsters: Inputs to 5HT- and OCT- Containing Neurons	156
<i>Michael Hörner, Ralf Heinrich, Stuart I. Cromarty and Edward A. Kravitz</i>	
Intrinsic Properties of Amine-Containing Neurosecretory Cells of Lobsters: Spontaneous Activity and Autoinhibition	173
<i>R. Heinrich, M. Hörner, S.I. Cromarty and E.A. Kravitz</i>	
Quantitative Behavioral Techniques for the Study of Crustacean Aggression.....	186
<i>Robert Huber, Alisdair G. Daws, Sarah A. Tuttle and Jules B. Panksepp</i>	

Aminergic Modulation at the Cellular and Molecular Level

Multiple Effects of Dopamine on an Identified Motor Neuron Analyzed by Electrophysiological and Optical Imaging Techniques.....	204
<i>P. Kloppenburg, B.R. Johnson, W.R. Zipfel, W.W. Webb and R.M. Harris-Warrick</i>	
A-Current Diversity: Differences in Channel Hardware or Second Messengers?	217
<i>Deborah J. Baro</i>	
Molecular Biology of Crustacea: Unique Opportunities in the Crustacean Nervous System	232
<i>Timothy S. McClintock, Alexander A. Gimelbrant, and Deborah J. Baro</i>	
Aminergic Modulation of Sensory-Motor Integration in the Walking System of the Crayfish.....	236
<i>E. Pearlstein, D. Cattaert, and F. Clarac</i>	

Synaptic Mechanisms

- Determinants of Synaptic Strength and Stability at Crustacean Neuromuscular Junctions 248
Harold L. Atwood
- Activity-Dependent Development and Plasticity of Crustacean Motor Terminals 266
Gregory A. Lnenicka and Eric J. Morley
- Crustacean Neuromuscular Glutamatergic and GABAergic Channels with Some Comparison to *Drosophila* Channels 282
J. Dudel, H. Adelsberger, and M. Heckmann
- Correlation of the Synaptic and Mechanical Properties of Two Slow Fibre Phenotypes in a Crustacean Muscle 292
J. M. Holmes, D. M. Neil, S. Galler and K. Hilber
- Nitric Oxide and Cyclic GMP Modulate Synaptic Transmission in the Local Circuits of the Crayfish 305
Hitoshi Aonuma and Philip L. Newland

Learning and Memory

- Crustaceans as Models to Investigate Memory Illustrated by Extensive Behavioral and Physiological Studies in *Chasmagnathus* 314
Héctor Maldonado
- Visual Learning in Crabs Investigated by Intracellular Recordings in Vivo 328
Daniel Tomsic

Olfaction

- A Compound Nose: Functional Organization and Development of Aesthetasc Sensilla 346
Charles D. Derby, Pascal Steullet, Holly S. Cate, and Paul J. H. Harrison
- Molecular Physiology of G-Proteins in Olfactory Transduction and CNS Neurotransmission in the Lobster 359
Timothy S. McClintock and Fuqiang Xu
- Properties and Functional Role of a Sodium-Activated Nonselective Cation Channel in Lobster Olfactory Receptor Neurons 367
Asylbek B. Zhainazarov, Richard E. Doolin, and Barry W. Ache

- Development and Growth Patterns of Olfactory Sensilla in Malacostracan Crustaceans 376
Mattias Ekerholm and Eric Hallberg

- Olfactory Centers in the Brain of Freshwater Crayfish 386
David Sandeman and De Forest Mellon Jr.

Development

- Cell Lineage of Crustacean Neuroblasts 406
Gerhard Scholtz and Matthias Gerberding

- From Stem Cell to Structure: Neurogenesis in the CNS of Decapod Crustaceans 417
Steffen Harzsch

- Adult Neurogenesis in the Central Olfactory Pathway of Decapod Crustaceans 433
Manfred Schmidt

- Role of Modulatory Inputs in the Ontogeny of Neural Networks 454
Valérie S. Fénelon, Yves Le Feuvre and Pierre Meyrand

Visual Systems

- The Detection and Analysis of Optic Flow by Crabs: from Eye Movements to Electrophysiology 468
Barnes, W. Jon. P., Horseman, B. Geoff. and Macauley, Martin W.S.

- Signal Processing in the Crayfish Optic Lobe: Contrast, Motion and Polarization Vision 486
Raymon M. Glantz and Clyde S. Miller

- Spectral Sensitivity in Crustacean Eyes 499
Thomas W. Cronin and Takahiko Hariyama

- Evolution of Optical Design in the Malacostraca (Crustacea) 512
Stefan Richter

Sensory Integration

- Ventilatory Activity in Free-Moving Crayfish Is Indicative of Its Functional State and Perception of External Stimuli 526
Zhanna Shuranova and Yuri Burmistrov

- Sound Production in Crustacea with Special Reference to the Alpheidae 536
Barbara Schmitz

- Sound Perception in Aquatic Crustaceans 548
Thomas Breithaupt

Neural Networks Controlling Vegetative Rhythms

- Connections of the Head to Networks of the Stomatogastric System in Crayfish 560
Hans-Georg Heinzel, Eva Dybek, Hartmut Böhm and David Sandeman

- Performance of Neural Networks Controlling Vegetative Rhythms 567
Hartmut Böhm, Christian Gutzen, Stefan Hinterkeuser and Hans-Georg Heinzel

- Sensory Feedback in the Operating Stomatogastric Nervous System of the Crab (*Cancer pagurus*) 573
Dirk Weigeldt, Hartmut Böhm and Hans-Georg Heinzel

Circuitry Analysis

- Motor Pattern Switching by an Identified Sensory Neuron in the Lobster Stomatogastric System 582
Denis Combes, Pierre Meyrand and John Simmers

- Synaptic Organization of Local Circuit Neurons in the Terminal Abdominal Ganglion of the Crayfish 591
Toshiki Nagayama

- Proprioception in the Tailfan of the Crayfish 601
Philip L. Newland

- Active Shaping of Proprioceptive Message in Crayfish 610
Daniel Cattaert, Didier Le Ray, and Michelle Bévengut