

Contents

List of Contributing Authors	xi
Preface	xv
Acknowledgments	xix

Part I: IASP, Pain, and the 10th World Congress

1. Outgoing President's Address: Issues and Initiatives in Pain Education, Communication, and Research <i>Barry J. Sessle</i>	3
2. Incoming President's Address: Planning the Future of IASP <i>Michael R. Bond</i>	13
3. Learning about Pain from the Friendly Giants <i>Allan I. Basbaum</i>	19
4. Ethics beyond Guidelines: Culture, Pain, and Conflict <i>David B. Morris</i>	37
5. Pain Relief in the Information Age: Let's Meet Our Children's Expectations <i>Alejandro R. Jadad</i>	49

Part II: Nociceptors: Membrane Receptors, Channels, and Types

6. The Molecular Biology of Thermosensation <i>David Julius</i>	63
7. ASIC3, but Not ASIC1, Channels Are Involved in the Development of Chronic Muscle Pain <i>Kathleen A. Sluka, Margaret P. Price, John A. Wemmie, and Michael J. Welsh</i>	71
8. Activation of MAP Kinases in Primary Sensory Neurons <i>Ru-Rong Ji</i>	81
9. Tonic Effects of BAM8-22, an Agonist at the Novel Sensory Neuron Specific Receptor, on the Nociceptive Flexor Reflex in Rats <i>Chang Qing Cao, Andy Dray, and Martin N. Perkins</i>	89
10. Sodium Channel Subtypes and Neuropathic Pain <i>Jin Mo Chung, Sulayman D. Dib-Hajj, and Sally N. Lawson</i>	99
11. Inhibition of TTX-r Na ⁺ Currents in Rat Sensory Neurons by NW-1029, a New Antihyperalgesic Agent <i>Laura Faravelli, Ruggero G. Fariello, and Patricia Salvati</i>	115

12. Peripheral Glutamate Receptors: Novel Targets for Analgesics?
Susan M. Carlton, Terry A. McNearney, and Brian E. Cairns 125
13. The Differential Effect of Nociceptor Subtypes
for Generating Chronic Pain
*Martin Koltzenburg, Hermann O. Handwerker,
and H. Richard Koerber* 141
14. Painful Peripheral Neuropathies and C-Fiber Nociceptors
*John W. Griffin, Justin C. McArthur, Michael Polydefkis,
Beth B. Murinson, Alan Belzberg, James Campbell,
Matthias Ringkamp, and Richard A. Meyer* 155
15. Potential Anatomical and Neurochemical Substrates
of Cutaneous Pain: A Role for Meissner's Corpuscles
Michel Paré, Karin L. Petersen, and Frank L. Rice 173

Part III: Nociceptive Pathways, Central Processing, and Imaging

16. The Role of Activity in Developing Pain Pathways
Maria Fitzgerald and Suellen Walker 185
17. Specificity and Integration in Central Pain Pathways
A.D. Craig 197
18. Itch: Mechanisms and Mediators
David Andrew, Martin Schmelz, and Jane Ballantyne 213
19. The Central Projection of Unmyelinated (C) Afferent Fibers
from Gastrocnemius Muscle in the Guinea Pig
*Li Jun Ling, Takashi Honda, Noriyuki Ozaki,
Yasuhiro Shimada, and Yasuo Sugiura* 227
20. Absence of Substance P and CGRP in the Dorsal Root
Ganglia of Naked Mole Rats Correlates with an Absence
of Hyperalgesia to Heat
Ying Lu, Thomas Park, Frank L. Rice, and Charles E. Laurito 235
21. In Vivo Patch-Clamp Analysis of Norepinephrine Effects
on Nociceptive Transmission in Substantia Gelatinosa
Neurons of the Rat Spinal Cord
*Hidemasa Furue, Motoki Sonohata, Akitoshi Ito,
Yasuhiko Kawasaki, Hiroshi Baba, and Megumu Yoshimura* 245
22. Descending Modulation after Injury
*Mary M. Heinricher, Antti Pertovaara,
and Michael H. Ossipov* 251
23. Imaging Visceral Sensations
*Karen D. Davis, M. Catherine Bushnell, Irina A. Strigo,
Gary H. Duncan, Chun L. Kwan, Nicholas E. Diamant,
Sanchoy Sarkar, Lloyd Gregory, and Qasim Aziz* 261

24. Cognitive Modulation of Cortical Responses to Pain
*Roland Peyron, Pierre Rainville, Predrag Petrovic,
and Luis Garcia-Larrea* 277
25. Functional Magnetic Resonance Imaging of Capsaicin-Induced
Thermal Hyperalgesia
*Jonathan C.W. Brooks, William E. Bimson, Neil Roberts,
and Turo J. Nurmikko* 295
26. Anesthetic Effect of Barbiturates Microinjected
into the Brainstem: Neuroanatomy
Inna Sukhotinsky, Vladimir Zalkind, and Marshall Devor 305
27. Placebo Analgesia: From Physiological Mechanisms
to Clinical Implications
*Fabrizio Benedetti, Antonella Pollo, Giuliano Maggi,
Sergio Vighetti, and Innocenzo Rainero* 315

Part IV: Mechanisms of Central Sensitization

28. Sensitization of Nociceptor-Specific Neurons by Capsaicin
or Mustard Oil: Effect of GABA_A-Receptor Blockade
*Esther Garcia-Nicas, Jennifer M.A. Laird,
and Fernando Cervero* 327
29. What the Brain Tells the Spinal Cord: Lamina I/III
NK1-Expressing Neurons Control Spinal Activity
via Descending Pathways
*Rie Suzuki, Sara Morcuende, Mark Webber, Stephen P. Hunt,
and Anthony H. Dickenson* 337
30. Purinergic and NMDA-Receptor Mechanisms Underlying
Tooth Pulp Stimulation-Induced Central Sensitization
in Trigeminal Nociceptive Neurons
*Chen Yu Chiang, Bo Hu, Soo Joung Park, Sun Zhang,
Chun L. Kwan, James W. Hu, Jonathan O. Dostrovsky,
and Barry J. Sessle* 345
31. Enhanced AMPA Receptor GluR1 Subunit Expression
and Neuronal Activation within Brainstem Pain Modulatory
Circuitry after Inflammation
Cynthia L. Renn, Yun Guan, Ronald Dubner, and Ke Ren 355
32. Immune and Glial Involvement in Physiological
and Pathological Exaggerated Pain States
Linda R. Watkins, Erin D. Milligan, and Steven F. Maier 369
33. Animal Models of Neuropathic Pain Induce Apoptosis
and a Loss of GABAergic Inhibition in the Spinal Dorsal Horn
*Joachim Scholz, Daniel C. Broom, Tatsuro Kohno,
Helena A. Lekan, Richard E. Coggeshall,
and Clifford J. Woolf* 387

34. Differential Role of Spinal Prostaglandin Receptor Subtypes
EP1–EP4 in Rats with Normal and Inflamed Knee Joints
*Andrea Ebersberger, Karl-Jürgen Bär, Philipp Teschner,
Alejandro Telleria-Diaz, Enrique Vasquez,
and Hans-Georg Schaible* 397
35. Perceptual Correlates of Long-Term Potentiation
in the Spinal Cord
*Thomas Klein, Walter Magerl, Ursula Mantzke,
Hanns-Christian Hopf, Jürgen Sandkühler,
and Rolf-Detlef Treede* 407

Part V: Pharmacological Approaches

36. New Targets for Analgesic Drugs
Raymond G. Hill 419
37. Cannabinoids and Pain
*Andrew S.C. Rice, W. Paul Farquhar-Smith, Daniel Bridges,
and Jason W. Brooks* 437
38. Nociceptin, Nocistatin, and Pain
*Hanns Ulrich Zeilhofer, Rainer K. Reinscheid,
and Emiko Okuda-Ashitaka* 469
39. Effects of Sumatriptan on Rat Medullary Dorsal Horn Neurons
Ernest A. Jennings, Renae M. Ryan, and MacDonald J. Christie 481
40. Predictive Validity of Neuropathic Pain Models
in Pharmacological Studies with a Behavioral Outcome
in the Rat: A Systematic Review
Vesa K. Kontinen and Theo F. Meert 489
41. Side Effects of COX-2 Inhibitors and Other NSAIDs
Henry J. McQuay and R. Andrew Moore 499

Part VI: Genetics and Gene Therapy

42. Genetic Influence on Pain Sensitivity in Humans:
Evidence of Heritability Related to Single Nucleotide
Polymorphisms in Opioid Receptor Genes
*Hyungsuk Kim, John K. Neubert, Michael J. Iadarola,
Anitza San Miguel, David Goldman, and Raymond A. Dionne* 513
43. Gene Therapy for Pain: Different Approaches
toward a Common Goal
David C. Yeomans, Andrew Mannes, and Youichi Saitoh 521
44. Therapeutic Efficacy in Experimental Polyarthritis
of Recombinant Virus-Driven Enkephalin Overproduction
in Sensory Neurons
*Joao Braz, Alice Meunier, Caroline Beaufour,
François Cesselin, Michel Hamon, and Michel Pohl* 539

Part VII: Clinical Epidemiology

45. Epidemiology of Chronic Noncancer Pain in Denmark
*Marianne K. Jensen, Per Sjøgren, Ola Ekholm,
Niels K. Rasmussen, and Jørgen Eriksen* 551
46. Prevalence and Characteristics of Neuropathic
Pain in 358 Patients with Leprosy
*Patrick R.N.A.G. Stump, Rosemari Baccarelli,
Lúcia H.S.C. Marciano, José R.P. Lauris, Somei Ura,
Manoel J. Teixeira, and Marcos C.L. Virmond* 563
47. The Experience of Menstrual Pain in Belgian Women
Hugues D. Malonne and Jet Van Hoek 571
48. Pain in General Medical Patients: An Audit
Lucy Johnson, Anna Regaard, and Nina Herrington 577

Part VIII: Pain Assessment: Quantitative and Qualitative

49. Quantitative Sensory Testing in Clinical Practice: Clinical
Considerations and New Methods
Richard H. Gracely, Eli Eliav, and Per Hansson 589
50. What Decline in Pain Intensity Is Meaningful to Patients
with Acute Pain?
*M. Soledad Cepeda, Juan M. Africano, Rodolfo Polo,
Ramiro Alcalá, and Daniel B. Carr* 601
51. Should We Measure Depression, Anxiety, and Anger
as Distinct Mood States in Chronic Pain Patients?
*Stephen J. Gibson, Kathryn Garland, Pauline Gardner,
Carolyn Arnold, and George Mendelson* 611
52. How Stories Remake What Pain Unmakes
Arthur W. Frank 619
53. Fear in Musculoskeletal Pain
Johan W.S. Vlaeyen 631
54. Self, Identity, and Acceptance in Chronic Pain
*Geert Crombez, Stephen Morley, Lance McCracken,
Tom Sensky, and Tamar Pincus* 651

Part IX: Specific Clinical Syndromes and Settings

55. Molecular Mechanisms that Generate and Maintain Cancer Pain
*Patrick W. Mantyh, Christopher D. Nelson, Molly A. Sevcik,
Nancy M. Luger, and Mary Ann C. Sabino* 663
56. Pathophysiology and Treatment of Complex Regional
Pain Syndromes
*Ralf Baron, Andreas Binder, Jörn Schattschneider,
and Gunnar Wasner* 683

57.	Pain in Individuals with Developmental Disabilities: Challenges for the Future <i>Tim F. Oberlander, Frank Symons, Katinka van Dongen, and Huda Huijjer Abu-Saad</i>	705
58.	Phantom Limb Pain: Causes and Cures <i>Herta Flor, Marshall Devor, and Troels S. Jensen</i>	725
59.	Acute Pain Management in the Chronic Pain Sufferer <i>Stephen E. Abram</i>	739
60.	Opioids for Chronic Noncancer Pain <i>Eija Kalso</i>	751
61.	Pain and Aging: The Pain Experience over the Adult Life Span <i>Stephen J. Gibson</i>	767
62.	Pain in Survivors of Torture and Organized Violence <i>Amanda C. de C. Williams, Kirstine Amris, and Jannie Van Der Merwe</i>	791
63.	Legal Aspects of End of Life Treatment in Australia, Canada, the United States, the United Kingdom, Poland, France, Germany, Japan, and The Netherlands <i>Danuta Mendelson, Timothy Stoltzfus Jost, and Michael Ashby</i>	803
Part X: Nonpharmacological Treatments and Outcomes Assessment		
64.	Cognitive Behavioral Treatment <i>Amanda C. de C. Williams</i>	825
65.	Hypnotic Analgesia and Its Applications in Pain Management <i>Robert G. Large, Donald D. Price, and Russell Hawkins</i>	839
66.	Translating Evidence for Psychological Interventions to Manage Recurrent Pain and Chronic Pain in Children and Adolescents: Three Trials <i>Christopher Eccleston, Vivian P.B.M. Merlijn, Joke A.M. Hunfeld, and Gary A. Walco</i>	853
67.	A Biopsychosocial Approach to Fibromyalgia and Chronic Fatigue Syndrome <i>Laurence A. Bradley, Milton L. Cohen, and Egil A. Fors</i>	865
68.	Rehabilitation of the Injured Worker: Measurement, Management, and Evidence <i>Margareta Nordin, Jenny Strong, Maurits van Tulder, and Harriët Wittink</i>	879
69.	Rehabilitation: Assessing the Outcome <i>Alice Kvåle, A. Elisabeth Ljunggren, Liv I. Strand, Thomas E. Rudy, and Dennis L. Hart</i>	893
	Index	909