

Preface

The physiological pain in humans that initially results from tissue injury is an unpleasant and aversive experience with sensory, cognitive, and motivational components. These interact to precipitate behavioral and psychological responses that serve essential survival functions, including protective behaviors that allow avoidance and escape from the pain-generating stimulus, as well as recuperative behaviors that facilitate healing. This interplay between stimulus and behavioral response becomes quite complex after the transition from acute to chronic pain, and must be addressed because chronic pain represents an enormous clinical problem that is poorly served with currently available analgesic drugs. To this end, we bring together a series of authoritative chapters written by leading experts in preclinical and clinical aspects of pain neurobiology. This volume fills several gaps not previously addressed by other books or reviews dedicated to chronic pain. First, it provides comprehensive details of the physiology, pharmacology, and neurobiology of previously neglected forms of chronic pain, with a focus on chronic postoperative pain in humans (“[Persistent Postsurgical Pain: Evidence from Breast Cancer Surgery, Groin Hernia Repair, and Lung Cancer Surgery](#)”) and several relatively new animal behavioral assays including those that model post-herpetic neuralgia (“[Animal Models and Pharmacology of Herpetic and Postherpetic Pain](#)”), the chronic pain of multiple sclerosis (“[Mechanisms and Pharmacology of Neuropathic Pain in Multiple Sclerosis](#)” and “[Pain and Cognition in Multiple Sclerosis](#)”), painful diabetic neuropathy (“[Animal Models of Diabetes-Induced Neuropathic Pain](#)”), visceral pain (“[Visceral Pain](#)”), latent central sensitization (“[Endogenous Analgesia, Dependence, and Latent Pain Sensitization](#)”), and striatal muscle pain (“[Anatomical and Physiological Factors Contributing to Chronic Muscle Pain](#)”). Second, this book treats chronic pain syndromes as a multidimensional disease and considers bidirectional comorbidities with factors such as cognitive deficits (“[Pain and Cognition in Multiple Sclerosis](#)”), drug dependence (“[The Self-administration of Analgesic Drugs in Experimentally Induced Chronic Pain](#)”), social interaction (“[The Interaction Between Pain and Social Behavior in Humans and Rodents](#)”), stress, anxiety and depression (“[Neurobiology of Stress-Induced Hyperalgesia](#)”), and prior injury history (“[Endogenous Analgesia, Dependence, and Latent Pain Sensitization](#)”).

Third, because the evoked behavioral responses so commonly used in preclinical research fail to capture the affective and spontaneous components of pain that are most relevant to chronic pain syndromes and its effective pharmacology, this volume provides one of the first comprehensive reviews of non-evoked behavioral readouts (“[Preclinical Assessment of Pain: Improving Models in Discovery Research](#)”) for the preclinical assessment of chronic pain, as well as important pitfalls and considerations for the design of animal models for pharmacological studies with adequate sensitivity and specificity (“[Behavioral Pharmacology of Pain](#)”). Further detail on operant assays is provided (“[Operant Assays for Assessing Pain in Preclinical Rodent Models: Highlights from an Orofacial Assay](#)”), along with the contention that the self-administration method of operant conditioning may be an effective approach to evaluate potential analgesics with greater sensitivity than standard reflex measures (“[The Self-administration of Analgesic Drugs in Experimentally Induced Chronic Pain](#)”). Fourth and finally, this volume is decorated with examples of new and exciting mechanisms that contribute to chronic pain, such as endogenous opioid dependence after tissue injury (“[Endogenous Analgesia, Dependence, and Latent Pain Sensitization](#)”), peripheral sensitization mechanisms underlying chronic muscle pain (“[Anatomical and Physiological Factors Contributing to Chronic Muscle Pain](#)”), and an emerging understanding of how sensitization mechanisms change from early life to adulthood (“[Acute and Chronic Pain in Children](#)”). With this increased understanding of the mechanisms of chronic pain and the body’s natural ability to inhibit it with endogenous analgesia (“[Endogenous Analgesia, Dependence, and Latent Pain Sensitization](#)”), together with new animal assays and behavioral readouts, new treatment strategies now seem achievable in the near future.

Lexington, USA
Galway, Ireland

Bradley K. Taylor
David P. Finn

Behavioral Neurobiology of Chronic Pain

Taylor, B.K.; Finn, D. (Eds.)

2014, VIII, 372 p. 37 illus., 21 illus. in color., Hardcover

ISBN: 978-3-662-45093-2