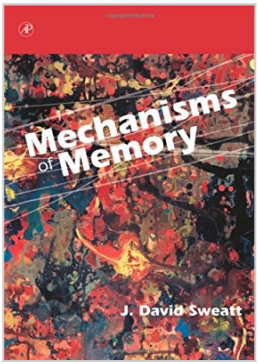

Mechanisms of Memory

By J. David Sweatt

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This book stands as the first unified overview of the cellular and molecular mechanisms underlying higher-order learning and memory. It integrates modern discoveries concerning learning and memory disorders such as mental retardation syndromes and Alzheimer's Disease, while also emphasizing the results gained from the cutting-edge research methodologies of genetic engineering, complex behavioral characterization, proteomics, and molecular biology. This book provides a foundation of experimental design that will be useful to all students pursuing an interest in laboratory research. This book is an enlightening and invaluable resource for anyone concerned with memory mechanisms.

* Presents a unified view of memory mechanisms from behavior to genes and drawing examples from many different brain regions, types of learning, and various animal model systems
* Includes numerous practical examples for the new investigator on how to implement research program in the area of learning and memory
* Provides a balanced treatment of the strengths and weaknesses in modern experimental design

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Mechanisms of Memory By J. David Sweatt Bibliography

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Editorial Review

Review
"The book is well written and includes interesting and illustrative text inserts as well as colorful fugures with detailed explanations. *Mechanisms of Memory* is a successful integration of recent discoveries and technological advances applied to learning and memory at many different levels that will appeal to its target audience of advanced undergraduates and graduates across a number of disciplines."
--AMERICAN JOURNAL OF PSYCHIATRY (November 2005, 162:11)

"This is an exceptional book in more than one aspect. David Sweatt has written a monograph in which long term potentiation (LTP) is central issue. However, this book is not an endless presentation of all the numerous experiments into a context of learning and memory...the book presents a real opportunity for the advanced student, and the interested scientists, to learn more about LTP and how to put it into a perspective...The illustrations in the book are of high quality, informative and to the point. Every chapter is introduced at an abstract level, the last item I wanted to mention which makes this a special book, bringing long term reminiscences of Rothko and Pollock."
- Journal of Chemical Neuroanatomy (2005)

From the Back Cover

Mechanisms of Memory, second edition, is the only available comprehensive overview of the cellular and molecular mechanisms underlying higher-order learning and memory. Focusing on mechanisms relevant to hippocampus-dependent memory formation, the book progresses systematically from behavior to cellular physiology to the molecular and genetic levels. Moreover, it integrates modern discoveries concerning learning and memory disorders, such as mental retardation syndromes and Alzheimer's Disease. Written in a readable and engaging style, the book emphasizes results from the cutting edge of contemporary methodologies, such as genetic engineering, molecular biology, complex behavioral characterization, cellular physiology, epigenetics, and molecular structure.

The book draws numerous examples from the recent experimental literature, and has as a unifying theme the modern hypothesis-testing approach to basic research. As such, the book provides a foundation of experimental design that should be useful to all students pursuing an interest in laboratory research. In addition, active researchers in the learning and memory field will benefit from its extensive review of recent publications in the area, cross-references to detailed recent reviews, and from the cross-disciplinary approach used in writing the book.

- Five new chapters cover human learning and memory, the molecular and cellular basis of associative learning, Aplysia non-associative learning, the NMDA receptor, and experimental design
- Extensively illustrated throughout with many new, full color figures and photographs to help explain key concepts
- Each chapter includes suggested readings for journal clubs, more introductory material for students, extensive cross-referencing to detailed, current reviews in Learning and Memory: A Comprehensive Reference (Academic Press, 2008)
- A companion website provides figures in PowerPoint format plus additional, detailed further reading references

About the Author

David Sweatt obtained his B.S. in Chemistry from the University of South Alabama before attending Vanderbilt University, where he was awarded a Ph.D. for studies of intracellular signaling mechanisms. He then did a post-doctoral Fellowship at the Columbia University Center for Neurobiology and Behavior, working on memory mechanisms in the laboratory of Nobel laureate Eric Kandel. From 1989 to 2006 he was a member of the Neuroscience faculty at Baylor College of Medicine in Houston, Texas, rising through the ranks there to Professor and Director of the Neuroscience Ph.D. program. Dr. Sweatt's laboratory studies biochemical mechanisms of learning and memory. In addition, his research program also investigates mechanisms of learning and memory disorders, such as mental retardation and aging-related memory dysfunction. He is currently the Evelyn F. McKnight endowed Chairman of the Department of Neurobiology at UAB Medical School, and the Director of the Evelyn F. McKnight Brain Institute at the University of Alabama in Birmingham. He also is a Professor the Departments of Cell Biology, Genetics, and Psychology at UAB. Dr. Sweatt has won numerous awards and honors, including an Ellison Medical Foundation Senior Scholar Award, and election as a Fellow of the American Association for the Advancement of Science. This year he won (along with Michael Meaney and Catherine Dulac) the Ipsen Foundation International Prize in Neural Plasticity, one of the most prestigious awards in his scientific field. From 1998 until 2002 he attended drawing and painting classes at the Glassell School of Art of the Museum of Fine Arts, Houston. As an artist he explores the use of painting as a medium for expressing topics of interest in contemporary biomedical research. In 2009 he published a textbook, Mechanisms of Memory, which is illustrated with original paintings and describes current models for the molecular and cellular basis of memory formation.

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