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Acetylcholine; Noradrenaline; Dopamine; Serotonin; GABA; Glutamate; Glycine; Neuropeptides: Substance P and Enkephalins; Conclusions
6. Characterizing Receptors (1905-1983)Essential Issues; Drug-Receptor Interactions; Receptor Classification; Structure-Activity Relationships; Receptor Identification and Purification; Responses of Individual Receptor Molecules; Conclusions; 7. Second Messengers (1951-1990); Cyclic AMP; Protein Kinases and Phosphatases; G-Proteins; Ca[sup(2+)]; Inositol-trisphosphate and Diacylglycerol; Conclusions; 8. Receptor Structures and Receptor Families (1983-1990); Molecular Biology and Recombinant DNA Techniques; Nicotinic Cholinergic Receptors; Ligand-Gated Ion Channels; Adrenergic Receptors
G-Protein Coupled ReceptorsReceptor Regulation; Conclusions; 9. Synthesis, Storage, Transport, and Metabolic Degradation of Neurotransmitters; Steps in Chemical Transmission; Synthesis; Storage; Degradation; Transport (""'Reuptake""); Conclusions; 10. Neurotransmitter Release; Proposals; Evidence for Exocytotic Release; Triggering of Release; Mechanism of Release; Endocytotic Retrieval of Vesicles; Ca[sup(2+)]-Independent Non-Exocytotic Release; Conclusions; 11. Formation of Specific Synapses; Embryonic Development of Synaptic Connections; Approaches and Possible Mechanisms
Early Arguments Concerning Chemotaxis (1890-1963)Cell Death and Neurotrophic Factors; Chemical Guidance (1963-1990); Growth Cone Motility; Synapse Formation; Conclusions; 12. Learning; Background; Chemical Representations; Learning in Aplysia; Learning in Drosophila; Learning in Mammals: The Hippocampus and Long-Term Potentiation (LTP); Conclusions; 13. Diseases and Therapies; Defining and Developing; Parkinson's Disease; Schizophrenia; Depression and Manic-Depressive Illness; Conclusions; 14. Epilogue; Progress; Historical Accounts and Conclusions; Assumptions; Approaches; Goals Generalities and Exceptions

Sommario/riassunto

This book describes a century of research on how nerve cells communicate with one another, beginning with the formulation of the Neuron Theory and proceeding through studies embracing a broad range of disciplines. The Neuron Theory initially depicted discrete nerve cells interacting at their points of contact (""synapses""); since nerve impulse were often indentified as electrical signals traveling along neuronal processes, it seemed plausible that impulses would also pass from cell to electrically. Over the next hundred years, however, ingenious experiments, facilitated by powerful new techni