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systems by microdialysis: relevance for mood disorders and Parkinson's disease. -- 1. Introduction. -- 2. Pathophysiology of Serotonin-Dopamine Interaction: Implication for Mood Disorders. -- 3. Dopamine Depletion in the Nigrostriatal System: Parkinson'S Disease. -- 4. Conclusions. -- Chapter 5: Monitoring Neurotransmitter Amino Acids by Microdialysis: Pharmacodynamic Applications. -- 1. Introduction. -- 2. Monitoring neurotransmitter amino acids by microdialysis. -- 3. Basic Research on receptors. -- 4. Psychostimulants and addictive drugs. -- 5. Analgesia. -- 6. Ischemia/ anoxia. -- 7. Conclusion and perspectives. -- Chapter 6: Microdialysis as a tool to unravel neurobiological mechanisms of seizures and antiepileptic drug action. -- 1. Introduction. -- 2. Microdialysis to characterise the seizure-related neurobiological and metabolic changes in animal models and in humans. -- 3. Microdialysis as chemoconvulsant delivery tool in animal seizure models. -- 4. Microdialysis as an elegant tool to elucidate mechanisms of electrical brain stimulation and neuronal circuits involved in the generation and control of seizures. -- 5. Microdialysis to unravel the mechanisms of action of established antiepileptic drugs and new therapeutic strategies. -- 6. Microdialysis studies in search for mechanisms of adverse effects of clinically used drugs, drugs of abuse and toxins. -- 7. Combination of microdialysis with other complementary neurotechniques to unravel mechanisms of seizures and epilepsy. -- 8. The advantage of microdialysis to sample biophase levels of antiepileptic drugs and to monitor central neurotransmitters as pharmacodynamic markers for their anticonvulsant activity. -- 9. Microdialysis as a tool to study relationships between epilepsy and its comorbidities. -- Chapter 7: Microdialysis in lung: Monitoring of exogenous and endogenous compounds. -- 1. Introduction. -- 2. Special aspects associated with lung microdialysis compared to microdialysis in other tissues. -- 3. Insertion of microdialysis probes into lung tissue. -- 4. Insertion of microdialysis probes in the bronchial system. -- 5. Types of probes. -- 6. Endogenous compounds. -- 7. Exogenous drugs. -- 8. Animal data. -- 9. Clinical data. -- 10. Comparison of pharmacokinetic data in lung obtained by microdialysis and other techniques. -- 11. Predictability of lung concentrations by measurements in other tissues. -- Chapter 8: Microdialysis in the hepatobiliary system: Monitoring drug metabolism, hepatobiliary excretion and enterohepatic circulation. -- 1. Introduction. -- 2. Experimental considerations of pharmacokinetic studies. -- 3. Pharmacokinetic and hepatobiliary excretion studies employing microdialysis. -- 4. Conclusions. -- Chapter 9: Microdialysis on the metabolism of glucose, lactate and glycerol. -- 1. Introduction. -- 2. Glucose. -- 3. Lactate. -- 4. Lactate/pyruvate ratio. -- 5. Glycerol. -- Chapter 10: Clinical microdialysis in skin and soft tissues. -- 1. Introduction. -- 2. Tissue Bioavailability. -- 3. PK/PD Indices. -- 4. Topical Bioequivalence. -- 5. Endogenous Compounds. -- 6. Conclusion. -- Chapter 11: Microdialysis on Adipose Tissue: Monitoring Tissue Metabolism and Blood Flow in Humans. -- 1. Introduction. -- 2. Principle and Practical Considerations for Application of Microdialysis on Adipose Tissue. -- 3. Application of Microdialysis on Adipose Tissue in Humans. -- 4. Summary and Conclusions. -- Chapter 12: Microdialysis as a monitoring system for human diabetes. -- 1. Introduction. -- 2. Monitoring of the acute complications of diabetes. -- Chapter 13: Microdialysis in Tumors: Drug Disposition and Tumor Response. -- 1. Introduction. -- 2. Considerations of microdialysis as a sampling technique in oncology. -- 3. Experimental considerations. -- 4. Examples of using microdialysis techniques to characterize drug disposition in tumor. -- 5. Application of microdialysis in evaluation of

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-- Chapter 14: Microdialysis versus imaging techniques for in vivo drug distribution measurements. -- 1. Introduction. -- 2. Microdialysis. -- 3. Imaging techniques. -- 4. Magnetic resonance imaging and magnetic resonance spectroscopy. -- 5. Positron Emission Tomography (PET). -- 6. Combination of Microdialysis and Imaging Techniques. -- 7. Summary and Conclusion. -- Chapter 15: In vitro applications of microdialysis. -- 1. Introduction. -- 2. Microdialysis applied in culture systems. -- 3. Microdialysis applied in enzyme kinetics. -- 4. Microdialysis applied in protein binding. -- 5. Conclusions. -- Chapter 16: Microdialysis in Drug-Drug Interaction. -- 1. Introduction. -- 2. Pharmacokinetic drug interaction. -- 3. Pharmacodynamic drug interaction. -- 4. Conclusions. -- Chapter 17. Microdialysis in environmental monitoring. -- 1. Introduction. -- 2. In-vivo sampling vis-a-vis in-situ sampling: Similarities and differences. -- 3. Critical parameters influencing relative recoveries. -- 4. Detection techniques. -- 5. Calibration methods. -- 6. Environmental applications of microdialysis. -- 7. Conclusions and future trends.

Sommario/riassunto

"This book emphasizes the applications of microdialysis in different organs and tissues for pharmacokinetic and pharmacodynamic studies, covering the range of current clinical uses for microdialysis. Along with details of the basics of this analytical technique, topics in the book include applications for drug discovery, analytical consideration of samples, neurological disease investigations, sampling at different organs, diabetes evaluations, tumor response estimations and comparison of microdialysis"--
