

1. Record Nr.	UNINA9910484098603321
Titolo	Models and techniques in stroke biology // Amit Kumar Tripathi, Abhishek Kumar Singh, editors
Pubbl/distr/stampa	Singapore : , : Springer, , [2021] ©2021
ISBN	981-336-679-6
Descrizione fisica	1 online resource (vii, 115 pages) : illustrations
Disciplina	574.028
Soggetti	Biology - Technique Malalties cerebrovasculars Models biològics Manuals de laboratoris Llibres electrònics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Intro -- Contents -- About the Editors -- Chapter 1: Rodent Stroke Model Guidelines: An Update -- 1.1 Introduction -- 1.2 The General Guideline for a Rodent Model for Stroke -- 1.3 STAIR Committee, Recommendations, and Guidelines -- 1.4 Intraluminal Model -- 1.5 Different Types of the Occluder and their Success Rate -- 1.6 PLL-Coated Occluders -- 1.7 Flame Blunted Occluders -- 1.8 Silicone-Rubber Coated Occluders -- 1.9 An Optimization Technique for Intraluminal Inserting Occluders -- 1.10 Optimization of Surgical Procedure -- 1.11 The Tamura Method of a Stroke Model -- 1.12 Infarction Area Estimation -- 1.13 Methods for Infarction Visualization -- 1.14 Direct Image of Infarction in Fresh Brain Sections Stained with TTC Solution -- 1.15 Digital Method for Defining the Infarction -- 1.16 Calculation of Infarction Volume -- 1.17 Preparation of Stroke Surgical Procedure -- 1.18 Koizumi's Suture Method -- 1.19 Longa's MCAO Method -- 1.20 Neurobehaviour Assessment of Functional Recovery -- 1.21 Assessment of Neurological Functional Outcomes -- 1.21.1 Composite Score -- 1.21.1.1 Bederson Scale and Neurological Deficit Scoring -- 1.21.1.2 Modified Neurological Severity Score -- 1.21.2

Motor Tests -- 1.21.2.1 Cylinder Test -- 1.21.2.2 Ledged Tapered Beam Test -- 1.21.2.3 Pellet Retrieval Task -- 1.21.3 Sensorimotor Test -- 1.21.3.1 Forelimb Flexion -- 1.21.3.2 Forelimb Placing -- 1.21.3.3 Accelerated Rotarod Test -- 1.21.3.4 Adhesive Removal Test -- 1.22 Anesthetics -- 1.23 Monitoring and Maintaining the Core Brain Temperature -- 1.24 Mechanical Ventilation, Blood Gases, Glucose, and Blood Pressure Monitoring -- 1.25 Pilot Study Plan and Implementation of a Preclinical Stroke Trial -- 1.26 Application of the Suitable Statistical Method for Data Analysis -- 1.27 Standard Operating Procedures for Creating a Stroke Model.

1.28 Conclusion and Future Direction -- References -- Chapter 2: Bilateral Common Carotid Artery Occlusion: Stroke Model -- 2.1 Introduction -- 2.2 Importance of BCCAO -- 2.3 Permanent BCCAO -- 2.4 Transient BCCAO -- 2.5 BCCAO Sham Surgery -- 2.6 Factors Affecting the BCCAO -- 2.6.1 Effect of Ischemic Preconditioning -- 2.7 Effect of ROS -- 2.8 Effect of Mitochondrial Dysfunction -- 2.9 Role of the Apoptotic Pathway -- 2.10 Effect of BCCAO Duration and Animal Model Sex -- 2.11 Effect on Blood-Brain Barrier -- 2.12 Effect of Oxygen Free Radicals -- 2.13 Conclusion -- References -- Chapter 3: Cerebral Venous Sinus Thrombosis Rodent Model -- 3.1 Introduction -- 3.2 Clinical Manifestation, Diagnosis, and Prognosis of CVST -- 3.3 Clinical Recommendation for Management of CVST Patients -- 3.4 Experimental CVST Model Protocol -- 3.5 Precautions -- 3.6 TTC Staining Technique -- 3.7 Neurological Evaluation -- 3.8 CVST as a Preclinical Model for Evaluation of Neuroprotective Agents -- References -- Chapter 4: A Non-human Primate Model for Cerebral Stroke -- 4.1 Introduction -- 4.2 Ischemia Model in NHPs -- 4.3 Major Advantages of NHPs Used as Stroke Model -- 4.4 Ethical Challenges -- 4.5 Permanent MCA Occlusion -- 4.6 Transient MCA Occlusion -- 4.7 Thrombus MCA Occlusion in NHPs -- References -- Chapter 5: Laser Doppler Flowmetry Recording for Rodent Stroke Model Confirmation -- 5.1 Introduction -- 5.2 Laser Doppler Flowmetry -- 5.3 Theory and Basic Principal Laser Doppler Flowmetry -- 5.4 Experimental Applications of Laser Doppler Flowmetry (LDF) -- 5.5 Advantages and Limitations of Laser Doppler Flow Meters -- 5.6 Conclusion -- References -- Chapter 6: Laser Speckle Imaging for Cerebral Ischemia and Reperfusion Injury -- 6.1 Introduction -- 6.2 Basic Principles of Laser Speckle Contrast Imaging -- 6.3 Application in Clinical and Biomedical Research.

6.3.1 Preclinical Application of LSCI in the Rodent Model of Cerebral Ischemic Stroke -- 6.3.2 Applications of LSCI in Stroke Induced Language Impairment -- 6.4 Limitations of the LSCI Technique -- 6.5 Conclusion and Recommendations -- References -- Chapter 7: Cerebrovascular Imaging in a Rodent Stroke Model -- 7.1 Introduction -- 7.2 Cerebrovascular Imaging -- 7.3 Cerebral Vessels Staining with a Combination of Carbon Black Inks -- 7.4 Assessment of Cerebral Vascular Network -- 7.5 Alternative Methods for Cerebral Vascular Anatomy -- 7.6 Current Challenges and Future Prospective -- References -- Chapter 8: Photothrombotic Stroke Model -- 8.1 Introduction -- 8.2 Induction of Photothrombotic Lesion -- 8.2.1 Surgery for Illumination of the Region of Interest -- 8.2.2 Injection and Activation of Rose Bengal -- 8.3 Assessment of Photothrombotic Lesion -- 8.4 Merits and Demerits of the Photothrombotic Stroke Model -- 8.5 Conclusion -- References.

---