

INDEX

A

- Adeno-associated virus (AAV) 96, 99
- Adult neural stem cell 13, 14, 43, 59, 64
- Alzheimer's disease (AD) 23, 33-35, 47, 80, 111, 117-119, 121, 122, 125, 126
- Amyloid B proteins 118
- Amyotrophic lateral sclerosis (ALS) 47, 78
- Animal model 1, 5, 6, 13-16, 23, 24, 26, 29-35, 41, 46, 76, 78, 88, 94, 108-111, 121, 122, 125
- App transgenic mouse model 34

B

- β -Amyloid plaque 33, 34
- Basic fibroblast growth factor (bFGF) 17, 20, 45, 98, 106
- β -Glucuronidase gene 84, 86
- Bioluminescence (BLI) 2-4, 8, 86, 88, 89
- Bone morphogenic protein (BMP) 43, 72
- Brain-derived neurotrophic factor (BDNF) 42, 43, 47
- Brain tumor 13-15, 17, 21, 54, 58, 60, 62, 64, 67, 69-72, 76, 77, 80, 82, 88, 93-96, 98, 99
- Brain tumor stem cell (BTSC) 63, 64, 67-73, 95
- Bromodeoxyuridine (BrdU) 46, 84, 108
- By-stander effects 15

C

- Ca1 pyramidal neuron 31, 35, 84
- Cag repeat 32, 33, 121
- Cancer stem cell 62, 67, 68, 70, 71, 93, 94
- Cardiopulmonary resuscitation (CPR) 31
- cDNA transfection 122
- Cellular transplant 1, 86, 88
- Central nervous system (CNS) 10, 13-17, 41-44, 46, 47, 49, 60, 67, 69, 74, 76, 78, 80, 84, 86, 88, 90, 93-96, 98, 106, 110, 111, 117, 118, 121
- Cerebral blood flow 30, 31, 111

- Cerebral ischemia 23, 29-31, 54
- Chemokine 41, 47, 95, 111
- Chemoprevention 64, 72
- Chronic experimental 41
- Ciliary neurotrophic factor (CNTF) 43, 78
- CNS pathology 74, 76, 88, 90
- Confocal fluorescence microscope 3
- Cross linked iron oxide (CLIO-HD) 8
- CXCR4 95, 96, 98
- Cytokine 16, 41, 47, 76, 78, 82, 98, 99
- Cytosine deaminase (CD) 15, 62, 63, 69, 71, 72, 80, 82, 97, 99

D

- D2r dopamine receptor 7
- Dementia with lewy bodies (DLB) 119
- Demyelination 41, 42, 44, 46, 47
- Dil 2
- Dopaminergic neuron 9, 23-26, 29, 78, 79, 119-122

E

- Embryonic stem cell (ESC) 44, 74, 78, 86, 89, 94, 106, 122
- Endogenous Nsc 95, 126
- Enzyme delivery 84
- Epidermal growth factor (EGF) 17, 45, 46, 60, 64, 69, 96, 106
- Exogenous nscs 42, 43, 46, 53, 94, 95, 96
- Experimental autoimmune encephalomyelitis (EAE) 41, 44, 47

F

- Familial AD (FAD) 33, 34
- Fibroblast-derived growth factor (FGF) 43, 45, 46
- Fibroblast growth factor (FGFs) 17, 43, 45, 46, 64, 69, 98, 106
- Focal cerebral ischemia model 30
- Four vessel occlusion 31
- Functional photoacoustic imaging 10, 11

G

Genetically modified neural stem cell 15, 16, 76, 88, 98
 Genetic metabolic disorder 42
 Genetic model 29
 Genetic therapy 27, 28
 Glial cell line-derived neurotrophic factor (GDNF) 42, 47, 78, 79, 122
 Glial fibrillary acidic protein (GFAP) 15, 45, 53, 59, 61, 63, 109, 112, 123
 Glioblastoma multiforme 13, 17, 60, 62, 64, 69, 93
 Glioma 14, 16, 58-60, 64, 68, 76, 77, 80, 82, 89, 93-99
 Gliomatropism 95, 96
 Global cerebral ischemia model 31
 Green fluorescent protein (GFP) 2, 8, 46, 52, 80

H

Hematopoietic stem cell (HSC) 106, 107, 111, 122
 Herpes simplex virus1-thymidine kinase (HSVtk) 82, 98
 hNSC 17, 108
 Homing 47, 76, 77, 80, 95, 96, 98
 Human umbilical cord blood (UCB) 110, 111, 113
 Huntington's disease (HD) 8, 10, 23, 32, 33, 117, 121, 122

I

Immortalized human teratocarcinoma cell (NT2) 110
 Immortalized NSC 74, 76, 90
 Immunomodulatory strategy 16
 Inflammatory disease 10
 Intranuclear inclusion (INI) 121
 In vitro labeling 6
 In vivo imaging 1, 3, 5, 6, 8-11, 86, 88
 In vivo microscopy 3
 Iron oxide nanoparticle 5, 6
 Ischemia 23, 29-31, 53, 54, 84, 105, 109, 110
 Ischemic injury 76
 Ischemic stroke 10, 30, 42, 54, 105

L

LacZ 44, 46, 50, 87
 Lentivirus transduction 122
 Leukemia inhibiting factor (LIF) 20, 43-45
 Lipophilic dye (DiI) 46
 Lysosomal storage disease 14, 41, 42, 84

M

Magnetic resonance imaging (MRI) 1, 5, 6, 8, 82, 83, 88, 94, 98
 Magnetic resonance (MR) spectroscopy 6, 94
 Mesenchymal stem cell (MSC) 88, 107, 110, 122
 Methamphetamine model 24
 Middle cerebral artery occlusion (MCAO) 30, 83, 84
 Monocyte chemoattractant protein-1 (MCP1) 95
 Mouse model 29, 32-35, 64
 Mouse models of HD 32
 1-Methyl-4-Phenyl-1,2,3,6-Tetrahydropyridine (MPTP model) 25-27, 29, 119, 120
 Multimodal imaging 8
 Multiphoton fluorescence microscope 3
 Multiple sclerosis (MS) 10, 41, 42, 46, 47
 Mutated Htt (mHtt) 32, 33

N

Neonatal transplantation 49
 Nerve growth factor (NGF) 42, 47, 78, 80, 82, 83, 111, 125
 Nestin 53, 60, 71, 108
 Neural progenitor cell 72, 109, 122
 Neural stem cell (NSC) 13-21, 41-54, 58-60, 62, 64, 67, 69, 71, 74-78, 80, 82-84, 88-89, 90, 93-99, 106-110, 117, 122
 NSC culture 18
 NSC engraftment 14
 NSC homing 95
 NSC isolation 45
 NSC manipulation 13
 NSC migration 14, 76, 82, 88, 96
 NSC transplantation 41, 42, 49, 86
 Neuritic plaque (NP) 118

Neurodegenerative disease 1, 6, 10, 15, 23, 34, 41, 42, 44, 49, 78, 106, 110, 117-119, 121, 122, 125, 126
 Neurofibrillary tangle (NFT) 33, 35, 118
 Neurogenesis 14, 15, 17, 41-43, 47, 49, 51, 52, 86, 88, 93, 106, 111, 117
 Neurological disease 8, 9, 14, 23, 27, 32, 35, 74, 76, 90, 95
 Neuroprotective agent 83
 Neurosphere 44, 45, 69, 78, 84, 87, 108
 Neurotrophic factor 42, 43, 47, 78, 80, 111, 122, 125, 126
 Neurotrophin 43, 78, 82
 Neurovascular disease 10
 NOGO 82
 Noninvasive in vivo imaging 6
 Notch receptor 64

O

Oncogene 16, 58, 76, 90
 Optical coherence tomography 10
 Optical imaging 8

P

Parkinson's disease (PD) 8-10, 14, 23, 24, 26, 28, 29, 41, 42, 47, 54, 78, 79, 111, 117, 119-122, 125, 126
 PEX 82-84, 98
 Planar imaging 3
 Positron emission tomography 1, 5-8, 10, 88, 94
 Prodrug converting enzyme 15
 Prolyl isomerase Pin1 35
 PTEN 60, 64

Q

Quantum dot 1, 3-5, 99

R

Renilla reniformis luciferase 4
 Reserpine model 24, 25
 Retinoic acid 106, 109, 110
 Rostral migratory stream (RMS) 42, 61
 Rotenone model 29

S

Sandhoff disease 41, 42, 49, 86
 Serial transplantation 63, 69, 70, 72
 Single photon emission tomography (SPECT) 1, 5, 88
 Sonic hedgehog (Shh) 43
 Spinal cord injury 41, 42, 47, 52, 82
 Stem cell factor (SCF) 95
 Stem cell microenvironment 71
 Stem cell therapy (SCT) 49, 89, 105-111, 113, 117, 118, 121, 122, 126
 Stem cell transplantation 41, 43, 48, 50, 52
 Stereotactic guidance 51
 Striatal neuron 10, 33, 110
 Stroke 5, 10, 14, 30, 41, 42, 47, 54, 83, 84, 88, 105, 106, 108-111, 113
 Subgranular zone (SGZ) 14
 Subventricular zone (SVZ) 14, 41, 45, 49, 51, 58-61, 84, 95, 106, 107, 109
 Superoxide dismutase 1 (SOD1) 78
 Superparamagnetic iron oxide particle (SPIO) 5, 6, 8, 88

T

Tau transgenic mouse model 35
 Thymidine kinase 5, 15, 82, 95, 98, 99
 tPA 105, 113
 Tumor necrosis factor-related apoptosis inducing ligand (TRAIL) 16, 98, 99
 Transduction 7, 80, 90, 122, 125, 126
 Transgenic mouse 4, 8, 29, 32-35, 52
 Transit amplifying cell 60
 Transplantation 8, 10, 14-18, 20, 21, 41-53, 62, 63, 68-70, 72, 74-76, 78, 80, 82, 84, 86-90, 98, 109, 110, 122
 Trophic factor delivery 111
 Trophic factor 43, 106, 111, 125
 Trypan blue 20, 46, 48-50, 52
 Tumorigenesis 64, 67, 68, 71, 76
 Tumor microenvironment 67, 70-73, 95
 Tumor necrosis factor (TNF) 16, 98, 99
 Tumor 4, 6-8, 13-17, 21, 44, 46, 54, 58-60, 62-64, 67-73, 76, 77, 80, 82, 83, 86, 88, 89, 93-99
 Tumor suppressor 58
 Tumor-targeting delivery system 15
 Two vessel occlusion 31
 Tyrosine hydroxylase 78

U

Ultra small paramagnetic oxides (USPIO)
5, 6
Ultrasound guidance 51
Umbilical cord blood cell (UCBC) 111

V

Vascular endothelial growth factor (VEGF)
78, 96, 98