Neurodegeneration

BioLegend®

Mitochondrial Stress

Cell Death
Caspase Activation
Cytochrome C
Parkin
Oxidized Mitochondrial Protein
OMI/HTRA2
↑BAX, BID
mPTP
Mitochondria
mPTP/defect
PINK1/DJ1
I
II
III
IV
Mitochondrial Electron Transport Chain Complexes I-IV
ROS
↓ATP Production

Aging, Genetic Risk Factors, Environmental Factors

Autophagic-Lysosomal Clearance

Aggregated Proteins
β-amyloid Huntingtin Protein
Tau Protein TDP-43 Protein
α-synuclein SOD1 Protein
Exosome
Cell Membrane
Phagocytosis
Endocytosis
Exocytosis
Exocytosis
Phagosomes
Endosomes
Primary Lysosome
Autophagy
Cellular Debris
Autophagosomes
Secondary Lysosome
Fusion
Autophagic and Lysosomal Clearance Dysregulation

Protein Misfolding and Aggregation

Post-translational Modification
Truncation
Oxidative Stress
Overproduction/Faulty Clearance
Genetic Mutation

Native State
β-amyloid
Tau Protein
α-synuclein
Huntingtin Protein
TDP-43 Protein
SOD1 Protein
Aggregation Prone State
Aggregate State
Aggregate State
Soluble
Insoluble
Aggregate State
Fibrils

Mitochondrial Function
Mitochondria
Cell Membrane

Aggregated Proteins
β-amyloid
Tau Protein
α-synuclein
Huntingtin Protein
TDP-43 Protein
SOD1 Protein

Aging, Genetic Risk Factors, Environmental Factors

Neuroinflammation

Aging, Genetic Risk Factors, Environmental Factors

Oxidative Stress

Ubiquitin-Proteasome Pathway

Protein Ubiquitination
Non-degraded Proteins
Ubiquitin
Protein
Proteasomal Function
Proteasome
Proteasomal Function Dysregulation Prevents Protein Degradation

Aggregated Protein Deposits

Neuritic Plaques (β-amyloid)
Neurofibrillary Tangles (Tau)
Lewy Bodies (α-synuclein)
Other Intra and Extracellular Inclusions (Huntingtin, SOD1, FUS, Prion)

Protein Misfolding and Aggregation
Free Radicals
IL-1, TNF-α, CX3CL1
Th17
Treg
Astrocyte Activation
MCP-1, RANTES, IL-6, IL-17A, IL-17F, TNF-α
IL-17A, IL-17F
IL-10, TGF-β
Th1
TNF-α, IFN-γ
ROS
Cell Survival
M2 Macrophage
Blood Brain Barrier
IL-4, IL-13
↑ Neurotrophic factors
↑ ARG1, IL-4 and IDE
↑ Protease secretion
↑ Phagocytosis
Activated Microglia
Breakdown of Blood Brain Barrier
TNF-α, IL-1β, MCP-1, IL-6
IFN-γ, TNF-α, IL-1β
M1 Macrophage
M1 Macrophage Activation
TNF-α, IL-1β, IL-17A, Prostaglandins
↓ Neurotrophic factors
↑ Pro-inflammatory cytokine (*e.g.* IL-1β)
↑ Chemokines
↑ iNOS
↑ ROS production
Dying Neuron
Alzheimer's Disease
Parkinson's Disease
Huntington's Disease
Frontotemporal Dementia
Immune Cells: T cells, B cells, Neutrophils
Immune Cells: T cells, B cells, Neutrophils

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Interactive Poster: biolegend.com/neurodegeneration

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