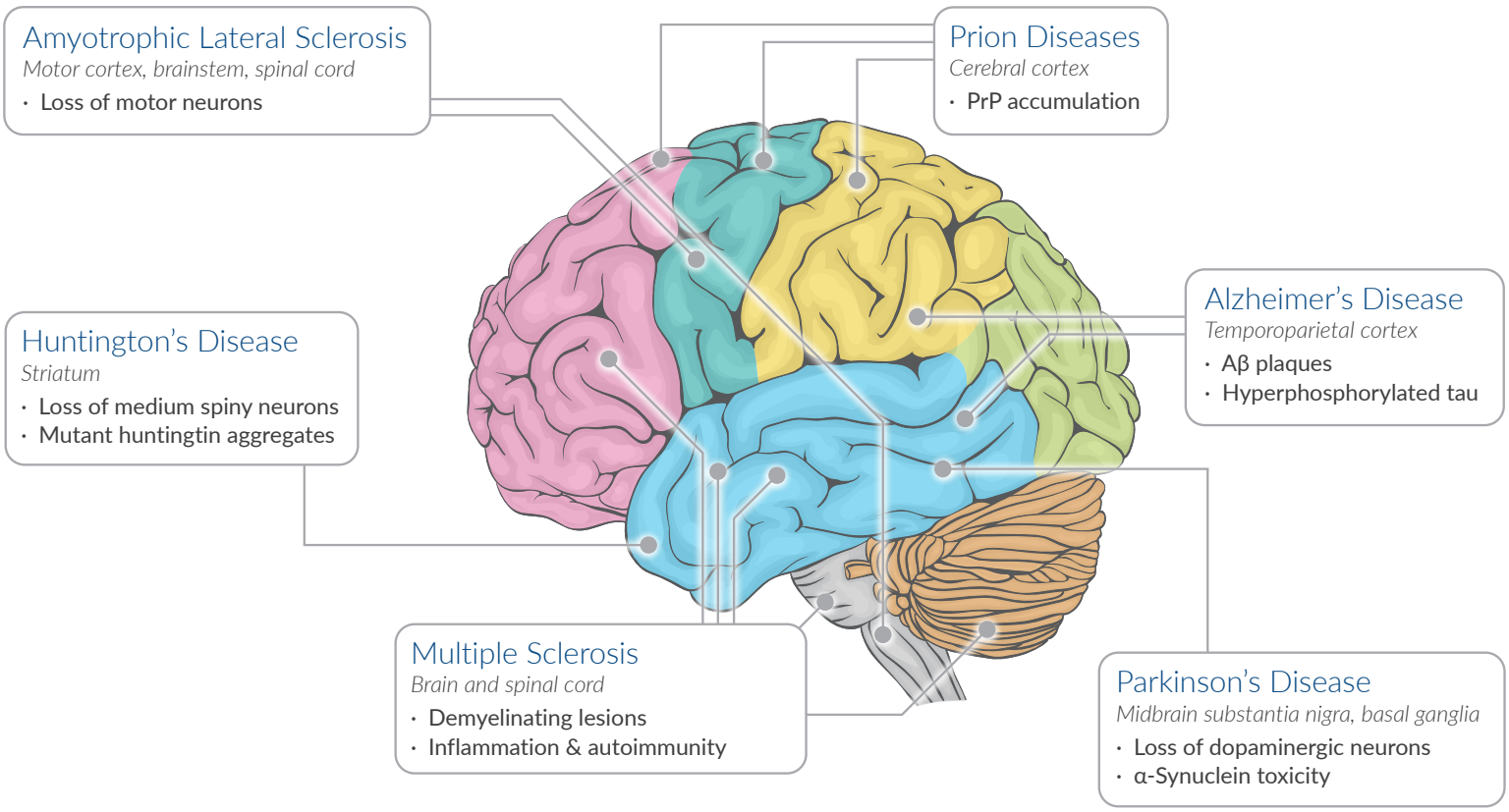
Neurodegenerative Disorders

Cayman Chemical offers a broad collection of tools to study the mechanisms underlying various neurodegenerative disorders. This includes key compounds, peptides, antibodies, and assay kits used to research the disease pathways of Alzheimer's disease, Parkinson's disease, amyotrophic lateral sclerosis (ALS), multiple sclerosis (MS), Huntington's disease, and prion diseases.



Alzheimer's Disease

Cayman offers compounds that target amyloid-β (Aβ) peptide production by β-secretase (BACE) and γ-secretase, prevent tau protein phosphorylation, and block cholinesterase (AChE and BChE) activity and excessive glutamate excitotoxicity.

Amyloid-β Antibody, Peptides, and Fluorescent Probes

Item No.	Product Name	Summary
11610	Amyloid-β Monoclonal Antibody (Clone 6C3, MOAB-2)	**Host:** Mouse · **Species Reactivity:** (+) Human · **Applications:** ELISA, WB
21617	Amyloid-β (1-40) Peptide (human) (trifluoroacetate salt)	A 40-residue Aβ protein fragment
20574	Amyloid-β (1-42) Peptide (trifluoroacetate salt)	A 42-residue Aβ protein fragment
27408	5-FAM-Amyloid-β (1-42) Peptide (human) (trifluoroacetate salt)	A fluorescently labeled 42-residue Aβ peptide
20476	Methoxy-X04	A fluorescent probe for Aβ
18520	NIAD-4	A fluorescent probe for Aβ plaques (K_i = 10 nM)
32553	Thioflavin T	A fluorescent probe for amyloid fibrils

View additional Aβ peptides at www.caymanchem.com

BACE and γ-Secretase Inhibitors

Item No.	Product Name	Summary
24934	AZD 3293	Inhibits BACE1 and BACE2 (K_is = 0.4 and 0.8 nM, respectively); reduces brain levels of Aβ40 and Aβ42 in mice
15579	Compound E	Inhibits γ-secretase, blocking the cleavage of both APP and Notch carboxyl-terminal fragments
13197	DAPT	Inhibits γ-secretase, blocking the production of total Aβ and Aβ42 in human primary neuronal cultures (IC_{50}s = 115 and 200 nM, respectively)
14627	DBZ	Inhibits γ-secretase, demonstrating anti-Alzheimer activity in an APP transgenic mouse model by reducing Aβ40 levels
27918	NGP-555	Modulates γ-secretase, inhibiting APP intracellular signaling domain (AICD) cleavage to Aβ (IC_{50}s = 531 and 131 nM for Aβ40 and Aβ42, respectively)
23388	β-Secretase Inhibitor IV	Inhibits BACE1 and BACE2 (IC_{50}s = 15 and 230 nM for human BACE1 and BACE2, respectively)

View additional inhibitors of BACE and γ-secretase at www.caymanchem.com

Tau Phosphorylation Inhibitors

Item No.	Product Name	Summary
15578	CHIR98014	An inhibitor of GSK3α and GSK3β that reduces tau phosphorylation in rat brains
25632	Compound 43 TAO Kinase Inhibitor	Inhibits TAOK1 and TAOK2 (IC_{50}s = 11 and 15 nM, respectively), reducing tau phosphorylation of residues that have been identified in tangles in Alzheimer's disease brain tissue
28431	GW 766994	An antagonist of CCR3 that decreases CCL11-induced Cdk5 and tau phosphorylation and production of Aβ42 in isolated mouse hippocampal neurons
13314	Indirubin-3'-monoxime	Inhibits GSK3β (IC_{50} = 22 nM), preventing tau phosphorylation
13237	Thiamet G	Selectively inhibits O-GlcNAcase (K_i = 21 nM) and blocks phosphorylation of tau protein

Glutamate Excitotoxicity and Cholinesterase Inhibitors

Item No.	Product Name	Summary
13245	Donepezil	Inhibits AChE (IC_{50} = 6.7 nM), increasing ACh levels in the cortex and hippocampus of aged rats
14184	Memantine (hydrochloride)	An NMDA receptor antagonist that blocks NMDA-induced currents in rat retinal ganglion cells
14270	Rivastigmine (tartrate)	Inhibits AChE and BChE (IC_{50}s = 4.15 µM and 37 nM, respectively)
70240	Tacrine (hydrochloride)	Inhibits both AChE and BChE (IC_{50}s = 31 and 26.5 nM, respectively)

Parkinson's Disease

Cayman offers dopamine-sparing compounds, dopamine receptor agonists, catechol-O-methyltransferase (COMT) inhibitors, and blockers of leucine-rich repeat kinase 2 (LRRK2), all of which have been identified as therapeutic strategies to address the decline of dopamine-generating cells in the substantia nigra.

Dopaminergic Agents

Item No.	Product Name	Summary
16094	(−)-Apomorphine (hydrochloride hydrate)	A non-selective dopamine receptor agonist with anti-Parkinsonian and neuroprotective actions
14598	Bromocriptine (mesylate)	A dopamine receptor agonist that restores locomotor activity, without inducing dyskinesia, in a macaque model of Parkinson's disease
23934	Cabergoline	A selective dopamine D_2 receptor agonist (K_i = 0.912 nM) that stimulates motor activity and decreases dyskinesias in a monkey model of Parkinson's disease
23783	Carbidopa (hydrate)	A peripherally restricted inhibitor of dopamine decarboxylase, the enzyme that converts L-DOPA to dopamine
13248	L-DOPA	A metabolic precursor of dopamine that crosses the blood-brain barrier
14153	Entacapone	A reversible COMT inhibitor (IC_{50}s = 10, 10, 20, and 160 nM for rat duodenum, brain, erythrocyte, and liver COMT, respectively)
15622	GBR 12909 (hydrochloride)	A dopamine uptake inhibitor *in vivo*, leading to consequent stimulation of dopamine receptors
20768	Tolcapone	A reversible COMT inhibitor that increases L-DOPA efficacy and reduces L-DOPA-induced motor complications in animal models of Parkinson's disease

View additional dopaminergic agents at www.caymanchem.com

α-Synuclein Antibodies and Toxicity Inhibitors

Item No.	Product Name	Summary
29251	α-Synuclein Monoclonal Antibody	**Host**: Mouse • **Species Reactivity**: (+) Human, mouse, rat • **Applications**: ICC, WB
29252	α-Synuclein (Phospho-Ser^{129}) Polyclonal Antibody	**Host**: Rabbit • **Species Reactivity**: (+) Human, mouse, rat • **Applications**: IHC, WB
13145	AGK2	Selectively inhibits SIRT2 (IC_{50} = 3.5 µM); rescues dopamine neurons from α-synuclein toxicity
29398	ELN484228	Inhibits α-synuclein-induced toxicity

LRRK2 Inhibitors

Item No.	Product Name	Summary
14603	GSK2578215A	Inhibits both wild-type and G2019S mutant LRRK2 (IC_{50}s = 8.9 and 10.1 nM, respectively)
18094	LRRK2-IN-1	Inhibits both wild-type and G2019S mutant LRRK2 (IC_{50}s = 13 and 6 nM, respectively)
19305	MLi-2	An inhibitor or LRRK2 (IC_{50} = 0.76 nM) that inhibits cortical LRRK2 phosphorylation in a mouse model of Parkinson's disease

View all LRRK2 inhibitors at www.caymanchem.com

Multiple Sclerosis (MS)

Cayman offers a variety of small molecules to study MS, including in animal models of MS such as experimental autoimmune encephalomyelitis (EAE). These include sphingosine-1-phosphate (S1P) receptor modulators and immunomodulatory compounds.

Small Molecules

Item No.	Product Name	Summary
14404	A-771726	Also known as teriflunomide, it is an active metabolite of leflunomide and delays disease onset and decreases neurological deficits in a rat model of EAE
11479	Bindarit	Inhibits monocyte chemoattractant protein (MCP) production; reduces the incidence and severity of experimental EAE in mice
18503	BX 471	A CC chemokine receptor-1 (CCR1) antagonist that reduces disease severity in a rat model of MS
10006292	Fingolimod (hydrochloride)	A prodrug form of the S1P receptor agonist FTY720 phosphate; prevents disease development in a rat model of EAE
9000571	Glatiramer (acetate)	A mixture of synthetic polypeptides that prevents myelin basic protein binding
19922	Ozanimod	An $S1P_1$ and $S1P_5$ receptor agonist; reduces disease severity in a mouse model of EAE
22057	Siponimod	An $S1P_1$ and $S1P_5$ receptor agonist; reduces disease severity in a rat model of EAE

Amyotrophic Lateral Sclerosis (ALS)

Cayman offers small molecules, assay kits, and antibodies to study many of the targets identified as potential factors leading to the development of ALS. This includes antioxidants and superoxide dismutase (SOD) research tools, inhibitors of TAR DNA-binding protein 43 (TDP-43) aggregation, and inhibitors of glutamate excitotoxicity.

Small Molecules

Item No.	Product Name	Summary
17122	Cu-ATSM	A copper-containing compound that increases $SOD1^{G37R}$ levels but also increases the number of α-motor neurons in a mouse model of ALS
28715	EN6	An activator of autophagy that increases cellular clearance of TDP-43 protein aggregates
13320	MCI-186	A free radical scavenger with diverse protective effects *in vivo*; also known as edaravone
33302	MTP 131 (acetate)	A mitochondria-targeted peptide antioxidant that increases survival and improves motor function in a mouse model of ALS
14577	Riluzole (hydrochloride)	Blocks presynaptic release of glutamate, indirectly antagonizing glutamate receptors and inactivating neuronal voltage-gated Na^+ channels (ED_{50} = 2.3 µM)

SOD Antibody and Assay Kit

Item No.	Product Name	Summary
10011388	Cu/Zn SOD (human) Polyclonal Antibody	**Host**: Rabbit • **Species Reactivity**: (+) Human, mouse, rabbit, and others • **Applications**: IHC, WB
706002	Superoxide Dismutase Assay Kit	Measure SOD activity in plasma, serum, tissue homogenates, and cell lysates

Huntington's Disease

Cayman offers compounds to investigate polyglutamine (polyQ) expansion and the accumulation of mutant huntingtin protein, which is thought to lead to degeneration of neurons in the striatum.

Small Molecules

Item No.	Product Name	Summary
21177	C2-8	Inhibits polyQ aggregation; reduces huntingtin aggregate size and reduces neuronal atrophy in a mouse model of Huntington's disease
16946	7,8-Dihydroxyflavone	A flavone that increases survival, neocortical volume, and whole brain volume in a mouse model of Huntington's disease
17729	Ferrostatin-1	A ferroptosis inhibitor; increases cell survival in models of Huntington's disease
21982	LM11A-31 (hydrochloride)	A $p75^{NTR}$ ligand that decreases huntingtin aggregate formation and striatal cholinergic degeneration in a mouse model of Huntington's disease
22082	LM22A-4	An agonist of TrkB (IC_{50} = 47 nM) that reduces neurite degeneration and formation of intranuclear huntingtin aggregates in a mouse model of Huntington's disease
15043	Probucol	An antioxidant; protective against behavioral and striatal oxidative damage by increasing the activity of glutathione peroxidase in a mouse model of Huntington's disease
28380	SRT 2104	A SIRT1 activator; reduces atrophy of the neocortex in a mouse model of Huntington's disease
20380	Tetrabenazine	An inhibitor of VMAT2 that prevents decreases in the number of striatal medium spiny neurons in a mouse model of Huntington's disease

Prion Disease

Cayman offers small molecules that can be used to study prion protein (PrP) misfolding and aggregation, as well as antibodies for PrP detection.

Small Molecules

Item No.	Product Name	Summary
25338	Alprenolol	A β-AR and 5-HT receptor antagonist that reduces the level of PrP^{Sc} in the brain of prion-infected mice
26420	6-Aminophenanthridine	An antiprion agent
34259	Anle138b	Inhibits brain accumulation of PrP^{Sc} in prion-infected mice
13533	E-64d	Inhibits protease-resistant PrP accumulation in scrapie-infected neuroblastoma cells (IC_{50} = 0.5 µM)
15041	Quinacrine (hydrochloride hydrate)	Prevents misfolding of PrP (EC_{50} = 0.3 µM)

Antibodies

Item No.	Product Name	Summary
10009035	Prion Protein Monoclonal Antibody (Clone BAR 224)	**Host:** Mouse • **Species Reactivity:** (+) Ovine; (-) Human, bovine, mouse **Applications:** EIA, FC, IHC, WB
189720	Prion Protein Monoclonal Antibody (Clone SAF 32)	**Host:** Mouse • **Species Reactivity:** (+) Human, bovine, hamster, mouse, ovine **Applications:** EIA, FC, IHC, WB
189775	Prion Protein Monoclonal Antibody (Clone SAF 84)	**Host:** Mouse • **Species Reactivity:** (+) Hamster • **Applications:** IHC, WB

View additional PrP antibodies at www.caymanchem.com

Manufactured by: bertin bioreagent

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