

Johns Hopkins Engineering

Methods in Neurobiology

Therapeutic Approaches in Neurodegeneration



Disease-modifying therapies in Neurodegeneration

Target	Approach	Strategy	Delivery
Tau, A β , alpha-synuclein	Vaccine	Increase protein clearance	Injection
Tau, A β , alpha-synuclein	Antibody	Decrease protein accumulation, Increase protein turnover,	Injection
HD, SMN2, alpha-synuclein, Tau, A β , SOD	Antisense oligonucleotide, siRNA	Decrease protein accumulation	Injection, Gene Therapy
Dopaminergic and cholinergic neurons	Cell replacement	Increase neurogenesis	Injection
Neuronal Loss	GDNF, BDNF, CDNF, NGF, Neurturin	Increase neuronal survival	Injections, Gene Therapy
SMN1	Gene therapy	Recover wild-type gene	Injection, Gene Therapy

Antibody Therapies in AD

Name	FDA Status	Company	Target Type
AAB-003	Discontinued	Janssen, Pfizer	Amyloid-Related
Bapineuzumab	Discontinued	Janssen, Pfizer	Amyloid-Related
Gammagard®	Discontinued	Baxter Healthcare	Amyloid-Related Inflammation
Ponezumab	Discontinued	Pfizer	Amyloid-Related
RG7345	Discontinued	Roche	Tau
Solanezumab	Discontinued	Eli Lilly & Co.	Amyloid-Related
GSK933776	Inactive	GlaxoSmithKline (GSK)	Amyloid-Related
Octagam®10%	Inactive	Octapharma	Amyloid-Related Inflammation
JNJ-63733657	P1	Janssen	Tau
BIIB076	P1	Biogen, Neurimmune	Tau
LY2599666	P1	Eli Lilly & Co.	Amyloid-Related
MEDI1814	P1	Eli Lilly & Co.	Amyloid-Related
SAR228810	P1	Sanofi	Amyloid-Related
BAN2401	P2	Biogen, Eisai Co., Ltd.	Amyloid-Related
BIIB092	P2	Biogen, Bristol-Myers Squibb	Tau
C2N 8E12	P2	AbbVie, C2N Diagnostics, LLC	Tau
Etanercept	P2	Amgen, Inc., Pfizer	Inflammation
LY3002813	P2	Eli Lilly & Co.	Amyloid-Related
LY3303560	P2	Eli Lilly & Co.	Tau
RO 7105705	P2	AC Immune SA, Genentech, Hoffmann-La Roche	Tau
Gamunex	P2-3	Grifols Biologicals Inc.	Amyloid-Related Inflammation
Aducanumab	P3	Biogen, Neurimmune	Amyloid-Related
Crenezumab	P3	AC Immune SA, Genentech, Hoffmann-La Roche	Amyloid-Related
Gantenerumab	P3	Chugai Pharmaceutical Co., Ltd., Hoffmann-La Roche	Amyloid-Related

References

Slide	Reference
3	Masand, A. 2018 Therapeutic antibodies for Alzheimer's disease: challenges and hopes. Neuroscience. Labroots https://www.labroots.com/trending/neuroscience/12838/therapeutic-antibodies-alzheimer-s-disease-challenges-hopes

