

Myelin Nano-vesicles to contrast neurodegenerative diseases



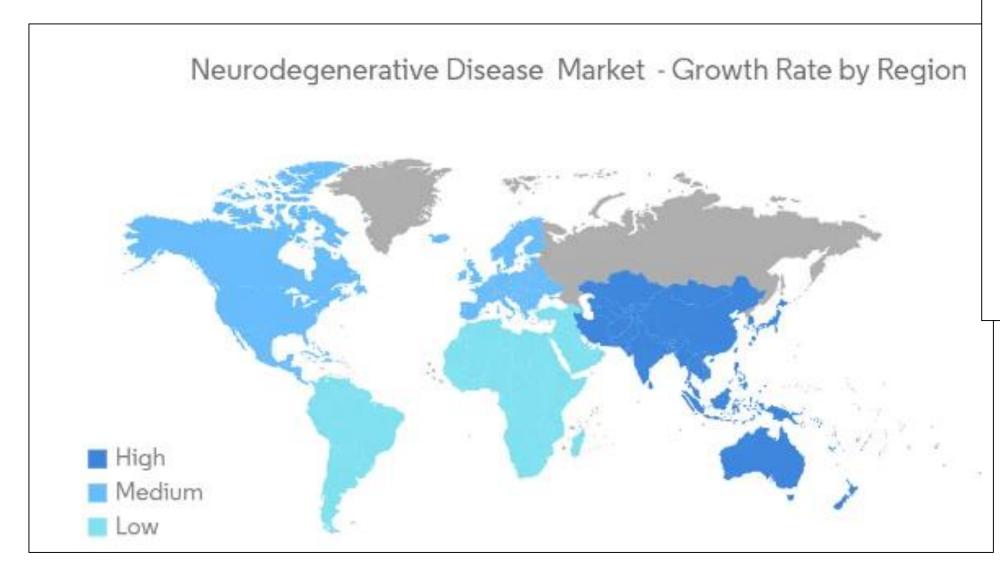


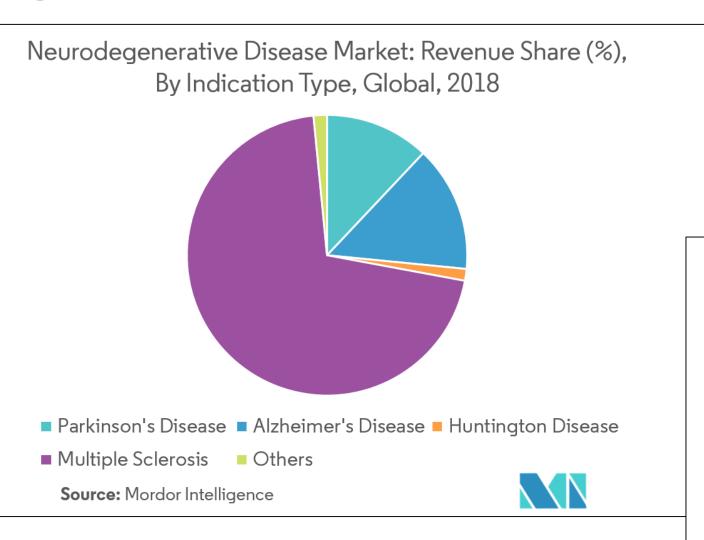


Central nervous system (CNS) disorders are a broad category of medical conditions (more than 600 human disorders) characterized by brain dysfunction limiting normal activities (Parkinson's Disease, Alzheimer's Disease, Multiple Sclerosis, Huntington Disease, and Others....).

Neurodegenerative disease market – growth and trends

Geographic distributions: North America, Europe, Asia-Pacific, Middle East and Africa, and South America.



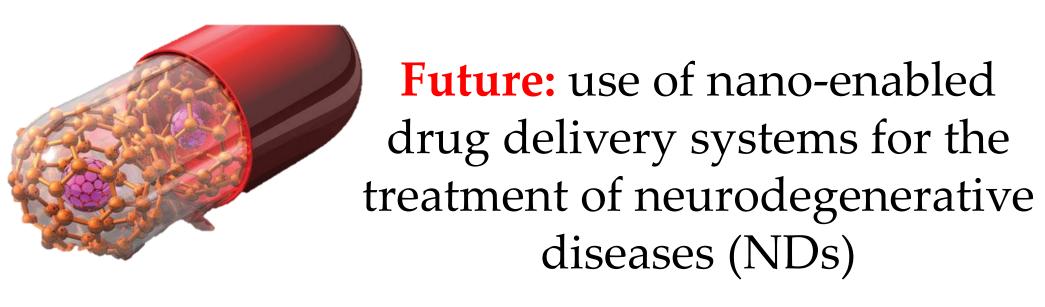


The **market** was evaluated at approximately USD million in 2021 and is expected to grow with a CAGR of 3.24% over the forecast period.

Drug Types: N-methyl-D-aspartate receptor antagonists, Cholinesterase inhibitors, Dopamine agonists, Immunomodulatory drugs..... Market Concentration Consolidated- Market dominated by 1-5 major **Market Snapshot** 2019-2027 Study Period: Market Summary 2021 Neurodegenerative Disease Asia Pacific Fastest Growing North America 3.24 % Fragmented - Highly competitive market without Source: Mordor Intelligence

The market studied is moderately competitive. Some of the major market players are AbbVie Inc., Amneal Pharmaceuticals Inc., Boehringer Ingelheim International GmbH, F. Hoffmann-La Roche Ltd, Merck & Co. Inc., Pfizer Inc., Teva Pharmaceutical, Novartis AG, and UCB SA.

Future: Microglia-targeting nanotherapeutics for neurodegenerative diseases



To date there is no innovative nanotechnological approach to contrast NDs

The main obstacle for the treatment of NDs is the presence of the blood brain barrier (BBB) which limits the accessibility to the brain and reduces the efficacy of the therapies

Blood Brain Barrier

It is important that drug reaches the specific neuronal cells involved in particular neurodegenerative pathologies

Astrocytes

sclerosis Microglia Huntington Parkinson's 's disease disease

Amyotrophic

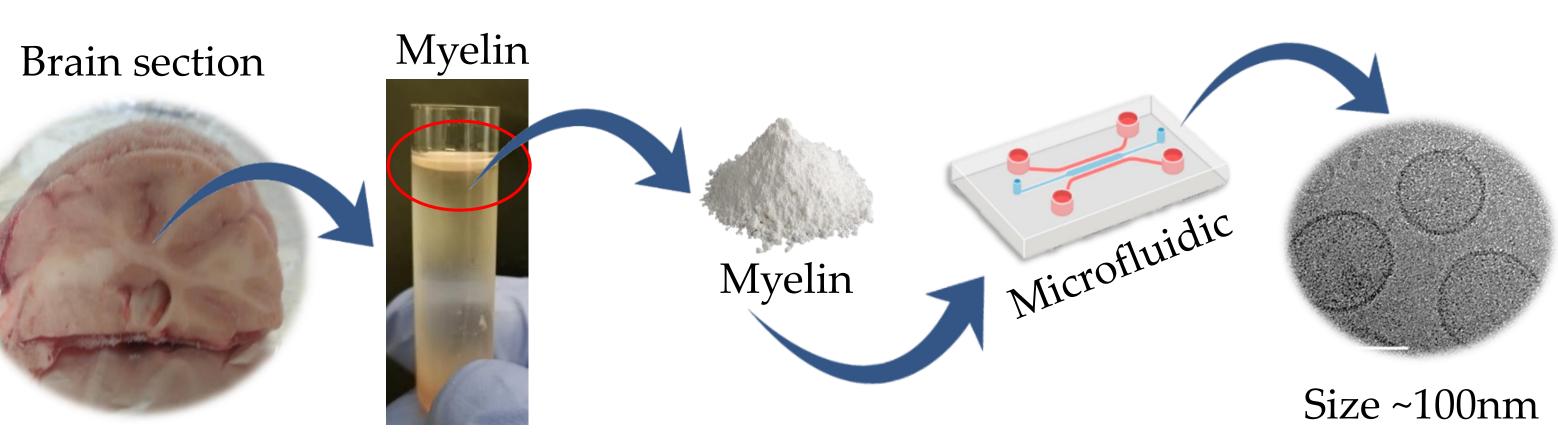
lateral

Alzheimer's disease

Multiple

Sclerosis

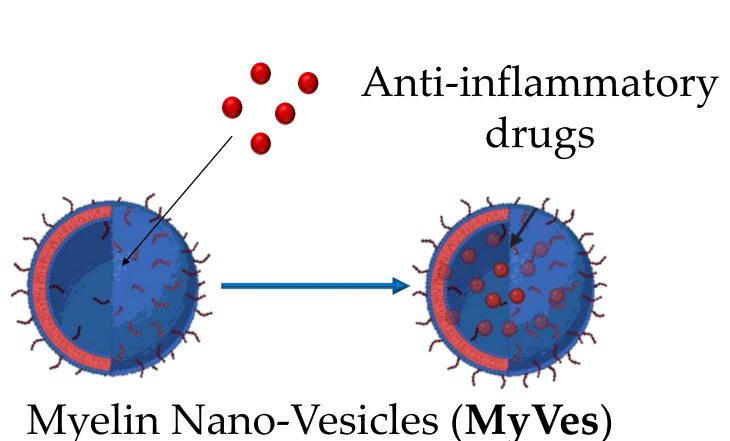


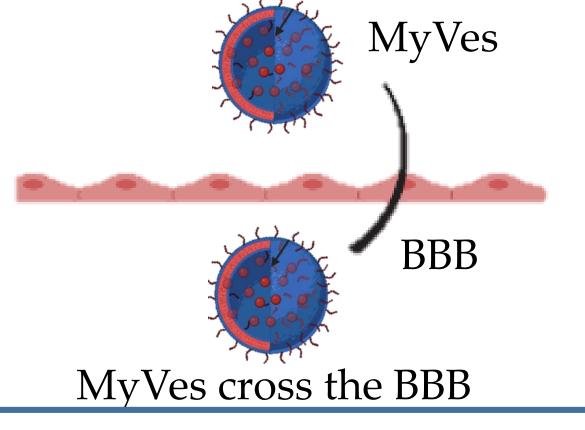


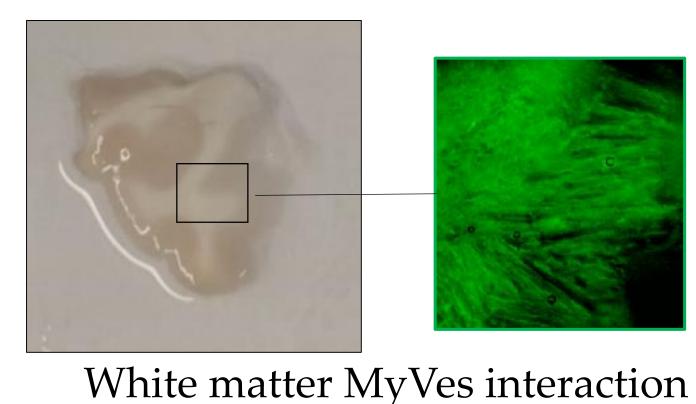
Microglia

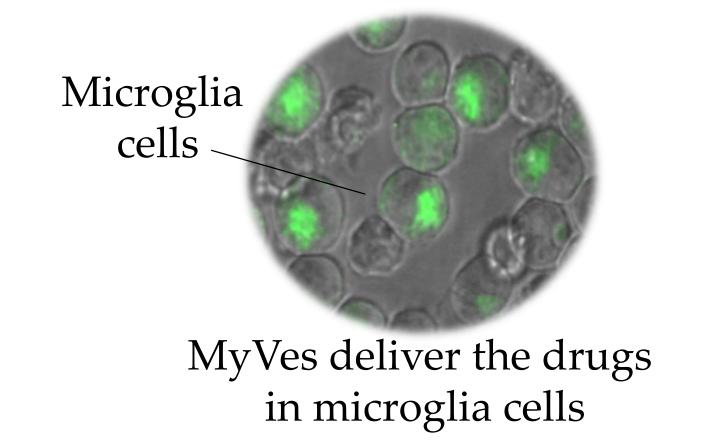
THE QUESTIONS: How reach the brain and specifically deliver the drug into the microglia cells?

THE ANSWER: Brain extraction of the myelin and bio-fabrication of Nano-vesicles to be injected into the body!









Several drug delivery systems are present in the pre-clinical phase, very few in the clinical trials, none used in current therapies. Differences/advantages: our system is made up of the same material (myelin) that microglia cells normally recognize and phagocyte, therefore it does not require specific directing agents. Furthermore, the MyVes are cyto-compatible and, being degradable they do not accumulate. MyVes commercial potentiality: low production costs, industrial scale production, high economic impact on market.

Applications:

