

Amyloid Protein Blockers – Pipeline Insights – 2018 Size, Share, Industry, Forecast and outlook (2024-2031) Market -

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Contents

AMYLOID PROTEIN BLOCKERS

- Amyloid is an insoluble protein that is deposited in tissues, particularly around blood vessels and in basement membranes.
- Associated with monoclonal plasma cell proliferation, e.g., myeloma, the amyloid is light-chain-derived (AL) from fragments of immunoglobulin.
- Associated with chronic inflammation, e.g., rheumatoid arthritis, the amyloid is derived from serum AA protein (AA), an acute-phase reactant in many inflammatory conditions. Amyloid derived from polypeptide hormones may be deposited in endocrine tumors.
- Amyloid derived from prealbumin may be deposited in the brain, heart, and joints. Cerebral deposits of amyloid are significant in Alzheimer's disease. Amyloid protein is also a component of drusen in macular degeneration. In the cornea, amyloid deposition is the characteristic feature of lattice dystrophy.
- The structural and molecular mechanisms by which aggregation occurs, and how the disease is triggered, remain elusive. Several small probes able to track and inhibit protein aggregation have been developed recently.
- Some inhibit aggregation via direct interaction with the target protein, while others improve aggregation by upregulating the cellular responses to the presence of aggregates. Such 'chemical chaperones' can act by stabilizing a protein's 'native' structure, preventing misfolding and inhibiting protein self-assembly and its associated toxicity. Alternatively, by binding to the fibril surface, small molecules can disfavor secondary nucleation as a source of oligomer production.
- Combining small molecules which upregulate proteostasis mechanisms with ligands targeting the aggregation precursor is the most potent strategy, for instance, a combined therapeutic strategy for lysosomal storage diseases.
- Recently, the U.S. Food and Drug Administration approved Onpattro (patisiran)

infusion used for the treatment of peripheral nerve disease (polyneuropathy) that is caused by hereditary transthyretin-mediated amyloidosis, in August 2018.

- It is also the first FDA approval of a new class of drugs called small interfering ribonucleic acid (siRNA) treatment that was granted to Alnylam Pharmaceuticals, Inc. Biogen reported “statistically significant” evidence that the drug, BAN2401, an antibody targeting the beta-amyloid protein, can slow progression of the deadly Alzheimer’s disease, in 2018.
- The clinical pipeline of amyloid protein blockers comprises of very few studies in different phase trials. Some of the drugs in the early phase, phase I trials of drug development include Telmisartan (BIBR277) by Boehringer Ingelheim/GlaxoSmithKline and Losartan (DUP 753) by Bristol-Myers Squibb. The drug that is in phase II stage of drug development includes Candesartan by Takeda.
- The drugs LCZ696 and Valsartan are developing by Novartis pharmaceuticals that are currently under phase III trial of drug development.
- Although several clinical trials of anti-beta-amyloid drugs had previously been unsuccessful, the successful aducanumab trial published in 2016, an antibody that reduces the levels of beta-amyloid in the brain and slows the rate of cognitive decline in people with mild or preclinical Alzheimer’s disease.
- Furthermore, the macrocyclic peptides (MCIPs) could also be suitable as templates for the development of small molecule peptidomimetics (molecules mimicking peptide chains), which might also find application as anti-amyloid drugs in Alzheimer’s and type 2 diabetes.
- The factors influencing the amyloid protein blockers market include the increase in government policies in developing new drugs, the increase in technological changes that boost the development of new therapeutics, and the risks faced by the market. The growing demand for amyloid protein blockers in the market for treating various disease conditions, reduction in
- the cost of the amyloid protein blockers drug therapeutics, opportunities and challenges faced by the therapeutic market are the primary market drivers affecting the growth of the market. Probing the mechanisms of amyloid assembly and alleviating toxicity remain enormous challenges.

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