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Selective Clearance of Beta-Amyloid Using Bispecific Recombinant Antibody fragments

Alzheimer's disease (AD) is one of the most prominent and feared neurodegenerative diseases associated with aging. A hallmark of this disease is the formation of extra-cellular amyloid plaques in the brain. The principle component of these extracellular plaques is amyloid-ß protein (Aß). Though the mechanisms underlying Alzheimer's disease pathology remain controversial, it is believed that a local and chronic inflammatory response within the plaque area is a factor, and that complement activation contributes to this inflammatory process.

Researchers at Arizona State University and the Roskamp Institute have successfully synthesized a bispecific recombinant antibody as a treatment for AD. These antibodies are specific to only the damaging forms of ß-amyloid, and they target these neurotoxic compounds for clearance by complement or microglia. This selective targeting minimizes damaging inflammation.

The therapeutic is designed to target an early cause of AD, rather than treating symptoms, so it can potentially safely alter the course of the disease at an early stage. The very specific targeting minimizes unwanted side effects, and may provide a safer long-term therapeutic.

Potential Applications

- Antibody to treat Alzheimer's disease

Benefits and Advantages

- Specific to only the neurotoxic forms of ß amyloid
- Minimizes damaging inflammation, which is thought to contribute to AD
- Targets an early cause of AD, rather than treating symptoms
- Optimized to cross the BBB

For more information about the inventor(s) and their research, please see Dr. Sierks' directory webpageDr. Sierks' laboratory webpage