PS35
MOLECULAR AND GENETIC APPROACH TO ALZHEIMER'S DISEASE
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Alzheimer's disease (AD) is a complex neurodegenerative condition marked by gradual cognitive decline and memory impairment, posing significant challenges for healthcare and society globally. It is the predominant form of dementia, affecting millions worldwide. AD manifests in two main forms: familial and sporadic. Familial AD, comprising a small percentage (1-5%) of cases, is linked to genetic mutations leading to early-onset AD (EOAD) before age 65, often aggressive and genetically driven by mutations in genes like PSEN1, PSEN2, and APP. On the other hand, sporadic AD constitutes 95% of cases, where aging is the primary risk factor, though a complex interplay of genetic and non-genetic factors contributes. Multiple genes, including PSEN1, PSEN2, APP, and APOE, have been identified as key players in inherited AD risk, notably impacting late-onset AD (LOAD). The genetic landscape of AD has been extensively explored, shedding light on mechanisms like amyloid precursor protein dysregulation and Aβ plaque accumulation. Advances in genomic research, such as GWAS, have uncovered additional candidate genes influencing AD susceptibility, revealing the intricate and varied genetic underpinnings of the disease. Understanding AD's genetic foundation is pivotal for targeted treatments, early detection, and personalized interventions. Ongoing research aims to untangle the complex interplay of genetic, environmental, and neurobiological factors in AD, paving the way for more effective therapeutic and preventive strategies.

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