Therapy and immunotherapy targeting Alzheimer’s disease

Alzheimer’s disease (AD) is an age-related progressive disorder characterized by the extracellular accumulation of amyloid β (Aβ) peptides as plaques and cerebral amyloid angiopathy (CAA), as well as intracellular neurofibrillary tangles (NFTs). AD is the most common cause of dementia globally. Care for patients with dementia accounts for ~1% of current global GDP, with this expected to rise substantially in the near future. No effective treatment is available to prevent or cure AD. Currently available treatments for AD provide largely symptomatic relief, with only minor effects on the course of the disease; hence, there is an urgent need for better therapeutic interventions. Aβ has become a major target for disease modifying treatments of AD. Unfortunately, the ongoing trials targeting amyloid Aβ failed in phase III trials. So far, the clinical benefits to the patients are limited and have no effect on tau related pathology. Previously, we reported for the first time, that active and passive immunotherapy targeting tau pathology reduces tau pathology and improves cognitive decline in two different NFT models. Recently, we developed a new monoclonal antibody against PHF-tau that reduces tau pathology and improves cognitive decline without inflammation. We have also explored the potential effects of hUCB-MSC on AD pathology. Our results suggest that use of these stem cells is associated with a reduction of amyloid burden, which correlates with improvements of cognitive function in a transgenic AD mouse model. These promising approaches using immunotherapy targeting tau or stem cells to reduce Aβ pathology in animal AD models provide critical data prior to potential clinical trials.

Biography

Allal Boutajangout graduated from Free University of Brussels (ULB-Erasme Hospital), School of Medicine (PhD in Neuropathology). He completed his Postdoctoral training at New York University School of Medicine. He is a Research Associate Professor of Neurology and Neuroscience & Physiology and Psychiatry. He is also the chief of Neurodegeneration and Drug Discovery Program within Center for Cognitive Neurology at NYU. He received prestigious award Margaret M Cahn for his outstanding research in the field of Alzheimer’s and other awards from: Alzheimer association, NIH pilot grant, Toyama Company, Revalesio Company and co-investigator in 5 RO1 NIH grants. He has published more than 30 papers in reputed journals and serves as a reviewer for many scientific journals.

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