Superior BChE inhibitors for Alzheimer’s Disease

Reference No: B78084

CHALLENGE
Alzheimer’s disease (AD) is a chronic neurodegenerative disease that causes up to 70% of all dementia cases. So far, AD is incurable and treatment options aim mainly at easing its symptoms. AD is characterized by low levels of the neurotransmitter acetylcholine, and elevating acetylcholine levels has been shown to improve cognition deficits. Acetylcholinesterase (AChE) inhibitors inhibiting degradation of the neurotransmitter acetylcholine are thus currently the most prominent drugs used for AD, but often have severe adverse effects like nausea, vomiting, insomnia and headache. In addition, they are ineffective in later stages of AD.

INNOVATION
Acetylcholine degradation is catalyzed both by AChE and butyrylcholinesterase (BChE) with BChE dominating in later stages of AD by taking over most of the acetylcholine hydrolysis. The innovative drug substances, developed at the Julius-Maximilian-Universität Würzburg, inhibit BChE with high selectivity and show lasting effects both in vitro and in vivo. In addition, initial animal studies suggest a neuroprotective action of the inventive BChE inhibitors outreaching the symptomatic treatment achieved with AChE inhibitors. Based on animal studies, BChE inhibitors are expected to exhibit a disease-modifying effect in contrast to purely symptomatically acting AChE inhibitors.

COMMERCIAL OPPORTUNITIES
The innovative BChE inhibitors are prominent drug candidates for the treatment of AD, especially for the hard-to-treat later stages of the disease with great flexibility of dosage intervals due to controllable duration of action.

DEVELOPMENT STATUS
In vitro and proof-of-concept studies in an AD animal model.

REFERENCES: