Design, synthesis and evaluation of novel levodopa pro-drugs for the treatment of Parkinson’s disease

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Parkinson’s disease (PD) is a progressive, neurodegenerative disorder that affects approximately 1% of the population above the age of 60. The dopaminergic neurons which degenerate in PD are specifically those of the nigrostriatal pathway. Since this neuronal pathway delivers dopamine to the striatum, its loss results in a functional deficit of dopamine in the striatum. L-Dopa, the metabolic precursor of dopamine, is the treatment of choice for the symptomatic relief of the advanced stages of PD. The oral bioavailability of L-Dopa is estimated to be about 10% and less than 1% of the administered oral dose reaches the brain unchanged. In an attempt to overcome the problems with peripheral L-Dopa metabolism, delivery difficulties and insufficient conversion of L-Dopa to dopamine in the brain tissue, an L-Dopa prodrug is envisioned in which L-Dopa is linked to the MAO-B inhibitor, lazabemide.

Biography

Monique Hoon has completed her Msc in Pharmaceutical Chemistry and is pursuing her PhD at the North-West University, School of Pharmacy. She has a personal drive in helping to find a cure not only for Parkinson’s disease but also other neurodegenerative disorders. She has also demonstrated a sincere interest in Medicinal Chemistry, in particular the rational design of drugs and determination of physicochemical properties of new drug candidates.

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