DOPAM – A novel prodrug for the treatment of Parkinson Disease (PD)

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Technology

DOPAM is a new family of chemical entities that combines mannitol and L-DOPA. While introducing DOPAM to the blood circulation, it releases both LDOPA and mannitol over a period of 24 hours. Thus, administration of the prodrug allows to maintain therapeutic concentrations of L-DOPA for prolonged periods and at the same time it provides bioavailable mannitol, which has been shown to prevent α-synuclein aggregation. These members of the DOPAM family have been tested *in vitro* and *in vivo* models., Prolonged release of L-DOPA and mannitol was demonstrated in human serum over a period of 24 hours, while the capability of maintaining significant L-DOPA blood levels in mice was demonstrated for at least 8 hours following systemic administration (IV).

Application

Currently continuous dopaminergic stimulation is achieved either by electronic stimulation, achieved by implanted electrodes in the basal ganglia in the brain, or by a pump that delivers L-DOPA continuously via the gastrointestinal tracts to the blood circulations. Both methods require surgery and may not be suitable to all PD patients. A drug that will be given orally and will allow to maintain L-DOPA levels in the blood circulation for a prolonged period may provide a solution for providing continuous dopaminergic stimulation and overcoming the late motor complications without the need for surgical procedures.

Advantages

- May be orally administrated. prevents surgical procedures, long recovery, and complications.
- Non-invasive continuous dopaminergic stimulation (not require surgery, long recovery, and complications as in other technologies).
- Allows to maintain L-DOPA levels in the blood circulation for a prolonged period.
- Double beneficial effect for PD, one is symptomatic relief, and the other is neuroprotection.
- Can prevent the accumulation of the pathogenic α-synuclein aggregates and thus, stop neurodegeneration.
- May prevents or overcome the late motor complications that are related to the main known problem of L-DOPA, short pharmacokinetic features.

Patent

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