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heteropark: Synthesis and validation of antiparkinsonian drugs targeting GPCR heteromers

Project Description

This Consortium will perform complementary translational research to propose a new therapeutical approach for Parkinson's disease (PD) with possibilities to initiate clinical trials in 3-5 years. The approach consists of a combination of novel compounds to alleviate PD symptoms and minimize side effects induced by current therapies. The approach includes the design of novel compounds and of a novel therapeutic approach, based on drug combinations and dual drugs, to target G protein-coupled receptor heteromers. The coordinator of the Consortium has discovered the occurrence of trimers formed by dopamine D2, cannabinoid CB1 and adenosine A2A receptors in the striatum, the target organ in PD therapies, and has the expertise to detect trimer alterations in PD. One member of the Consortium has the expertise and capacity to synthesize novel patentable compounds for these receptors and even of dual compounds, which target simultaneously two different receptors. The other two members of the consortium have expertise in developing animal models of PD, one in rat and another one in primates, and validating new therapeutic approaches for PD. Validating novel therapies targeting striatal receptors firstly in rodents and subsequently in primates is what is needed for initiating phase I clinical trials in humans.

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