# BPN14770 Safety and Cognitive Effect in Young and Elderly Subjects

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**Country**

USA

**Title of project or programme**

BPN14770 Safety and Cognitive Effect in Young and Elderly Subjects

**Source of funding information**

NIH (NIA)

**Total sum awarded (Euro)**

€ 1,886,145.87

**Start date of award**

15/09/2016

**Total duration of award in years**

1

**The project/programme is most relevant to:**

Alzheimer's disease & other dementias

**Keywords**

Acquired Cognitive Impairment... Aging... Alzheimer's Disease... Alzheimer's Disease including Alzheimer's Disease Related Dementias (AD/ADRD)... Behavioral and Social Science... Brain Disorders... Clinical Research... Clinical Research - Extramural... Clinical Trials and Supportive Activities... Dementia... Mental Health... Neurodegenerative... Neurosciences... Translational Research... Women's Health for IC Use

**Research Abstract**

Project Abstract Tetra Discovery Partners is seeking Phase II SBIR funding for a multiple ascending dose, human Phase 1 clinical trial of BPN14770 to evaluate safety, tolerability, pharmacokinetic and cognitive profile in healthy young and elderly male and female subjects. BPN14770 is a first-in-class phosphodiesterase-4D negative allosteric modulator (PDE4D-NAM) that targets the protein kinase A – cAMP response element binding protein (PKA- CREB) pathway for synaptic plasticity. The compound has the potential to show broad cognitive efficacy across a range of neurologic, psychiatric and neurodevelopmental disorders. Lead indications are the improvement of cognitive function in the elderly with age-associated memory impairment and in patients with Alzheimer's disease. Prior experience with BPN14770 in a single ascending dose, human Phase 1 clinical trial indicates that the compound is absorbed after dosing by an oral route, reaches a level in human blood projected to show cognitive efficacy based on animal studies, and is well tolerated. The clinical objectives of the multiple ascending dose study are the following: 1. To evaluate the safety and tolerability profile of multiple oral ascending dose levels of BPN14770 in healthy young (21-45 yr) and elderly (>65 yr) subjects. 2. To characterize the steady state plasma PK profile of BPN14770 following multiple oral administration in healthy young and elderly subjects. 3. To provide assessment of the cognitive effect of BPN14770 in healthy young and elderly subjects. The study will enroll up to 84 subjects. The number of subjects to be enrolled is a balance between the need to establish safety by exposing a limited number of subjects to the experimental drug versus enrolling an expanded number of subjects to explore potential efficacy. The study will enroll sufficient subjects to obtain preliminary cognitive data to inform Phase 1b and Phase 2a studies, but is not powered to detect small changes in cognition that might be clinically relevant in patients. Steady state PK parameters will be compared between young subjects and the initial cohort of elderly subjects and an adjustment in dose will be made if needed. As this is the first multiple dose study of BPN14770 in humans, safety assessment in young subjects is needed before evaluation of the drug in more vulnerable, elderly subjects. Cognitive assessments will include measures of verbal learning and memory, visual learning (pattern separation), visual paired associate learning and measures of visual and verbal memory with 24 hr delayed recall. PDE4D is a well validated target for improving cognition through modulation of the PKA-CREB pathway for memory consolidation. Compared to the assessment of immediate memory, there have been few attempts to assess the effects of investigational drugs on longer forms of memory. Should the Phase 1a study provide an indication of cognitive benefit in elderly subjects, a larger Phase 1b trial will be designed to confirm and extend the results of the initial trial in elderly subjects with age-associated memory impairment.

**Lay Summary**
Project Narrative BPN14770 is a novel, first-in-class, phosphodiesterase-4D negative allosteric modulator (PDE4D-NAM) being developed to treat cognitive impairment in Alzheimer's disease. Currently, over 5.3 million Americans have been diagnosed with Alzheimer's disease, while as the world's population ages, there will be a quadrupling of patients world-wide to 100 million by 2050. There is a clear need for additional drugs to improve cognition in Alzheimer's patients beyond those currently available.

**Further information available at:**

**Types:**
Investments > €500k

**Member States:**
United States of America

**Diseases:**
Alzheimer's disease & other dementias

**Years:**
2016

**Database Categories:**
N/A

**Database Tags:**
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