

## Method for the treatment of neurological disorders



**Business area**

*Therapeutics*

**Market sector**

*Neurology*

**Medical Indication**

*Stroke and AD patients*

### Research goal

The global burden of neurological disorders is increasing yearly worldwide, latest data showing that stroke and Alzheimer disease (AD) are the leading neurological causes of deaths by far: 67.4% and 20.3%, respectively. Although each condition represents a different type of CNS damage (stroke: acute neuronal damage, AD: chronic neuronal damage), all two lead to the same cellular outcome: stress in the endoplasmic reticulum (ER) due to the accumulation of misfolded/unfolded proteins in the organelle. Phosphorylation of the eukaryotic translation initiation factor 2-alpha increases protein-folding and degradative capacities of the ER.

### Problem to solve

Unfortunately, there are no current reliable treatments promoting neuroprotection (stroke and AD), therefore, there is an unmet medical need to discover new targets and treatments that provide neuroprotection in damaged neurons after either of this CNS injuries. The HRI kinase belongs to a family of kinases that phosphorylate the eukaryotic initiation factor 2 alpha (eIF2 $\alpha$ ), playing a key role in regulating protein synthesis in response to various cellular stresses, and so, it can be a feasible target to promote neuroprotection following acute and chronic CNS damages.

### Innovation

Preliminary in vitro data also show that a temporary-guided activation of HRI by the HRI Kinase agonist or activator BTdCPU allows a longer UPR/ISR-like metabolic state that helps neurons to overcome cellular damage after either oxygen-glucose deprivation (OGD, in vitro stroke model) or A $\beta$ s exposure. Furthermore, in vivo preliminary studies in a mouse model of ischemic stroke revealed that the BTdCPU dose of 10 mg/kg induced lower lesion volumes and best scores in motor analysis than controls. Overall, these results support a beneficial impact of activating the HRI kinase following acute and chronic CNS damages

### Market opportunity

BTdCPU, or pharmaceutical composition comprising thereof, for use in a method for the treatment of a neurological disorder or for use as a neuroprotective agent, therefore, a new method for the treatment of Alzheimer disease or ischemic stroke. The global market for neuroprotective treatments is experiencing a substantial expansion, driven by an aging population and the growing incidence of neurological disorders. The market value is expected to reach \$85.1 billion by 2027, with North America and Europe as the dominant markets due to the high health expenditure and research activity.

### Research team

Neuroaging Group (C044) - <https://www.idisantiago.es/gl/grupo-de-investigacion/c044-neuroenvejecimiento/>

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### Intellectual property

European patent **24383003** "Method for the treatment of neurological disorders"

### Development stage:



Available for: *Licensing, co-development*

