

## Purine derivatives for the treatment of neurodegenerative diseases

CSIC has synthesized several substituted purine derivatives that are capable of inhibiting the activity of the CDC7 kinase. This inhibitory activity makes them useful for the treatment of neurological diseases. The compounds developed are, therefore, a new therapeutic alternative for Alzheimer's disease, amyotrophic lateral sclerosis or frontotemporal dementia.

Industrial partners from pharmaceutical industry are being sought to develop and commercialized the compounds through a patent licence agreement.

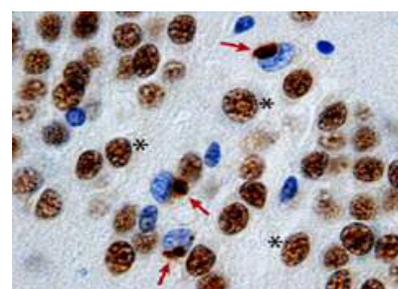
### An offer for Patent Licensing

#### Control of neurodegenerative diseases

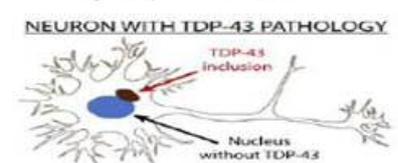
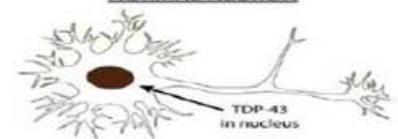
Nowadays, there is no effective treatment against neurodegenerative diseases, so finding new molecules that can be used as drugs is a priority objective in the research on these pathologies.

The hyperphosphorylation of the protein TDP-43 induces the formation of aggregates that have been detected in patients with amyotrophic lateral sclerosis or with frontotemporal lobular degeneration. It has been found that CDC7 kinase is responsible for the dual hyperphosphorylation of TDP-43 in 409/410 serines in certain models, so inhibition of this CDC7 kinase would be an interesting strategy to develop drugs for neurodegenerative diseases.

The new synthesized compounds, purine derivatives, are CDC-7 inhibitors and useful as potential drugs for diseases mediated by TDP-43 proteinopathies, such as Alzheimer's disease, amyotrophic lateral sclerosis (ALS), and frontotemporal dementia



NORMAL NEURON



Comparison of a normal neuron and one affected by a TDP-43 bound condition

#### Main innovations and advantages

- They are able to cross the blood brain barrier, an essential property for any drug that must act in the central nervous system.
- Constitute a solid and innovative alternative in the search for treatments for neurodegenerative diseases.
- They can be presented in the most suitable pharmaceutical formulation for each treatment.

#### Patent Status

Patent granted in Spain and filed in EU, US, AU.

#### For further information, please contact

Marta García Del Barrio, Ph.D..

Centro de Investigaciones Biológicas (CIB)

Deputy Vice-Presidency for Knowledge Transfer of CSIC

Tel.: 34 – 91 1098055

E-mail: [transferencia@cib.csic.es](mailto:transferencia@cib.csic.es)  
[comercializacion@csic.es](mailto:comercializacion@csic.es)