

Activators of the human 20S proteasome as potential neuroprotective drugs

About the invention

The invention concerns peptide- and peptidomimetic-based activators of human 20S proteasome containing a C-terminal HbYX motif, capable of efficiently enhancing the degradation of misfolded and pathogenic proteins in cells. These activators are stable in human plasma and cell-permeable, allowing restoration of proteostasis and reduction of pathological protein aggregation associated with neurodegenerative diseases, including Alzheimer's disease, Parkinson's disease, ALS, and type II diabetes.

Designed activators are based on the Blm-pep peptide sequence, mimicking the natural Blm10 activator mechanism, and can be modified to improve bioavailability and proteolytic activity. Studies show that these compounds selectively stimulate 20S proteasome without activating the 26S proteasome, reducing potential side effects.

Technology readiness level

TRL 4 - Technology validated in laboratory conditions.



TRL 4

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IP protection

The invention is protected by a patent application in the Patent Office of the Republic of Poland under the number: **P.447134**

Applications

- Development of therapeutics for neurodegenerative diseases and type II diabetes,
- Tool for studying protein degradation mechanisms and proteostasis,
- Platform for designing novel 20S proteasome activators.

Possible cooperation

- Joint development of activators,
- Technology licensing,
- Preclinical projects.