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IASST explores use of neurotrophin peptidomimetic drugs for treating neurodegenerative disorders

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Peptidomimetics have improved stability and bioavailability compared to endogenous neurotrophins



A team of scientists at the Institute of Advanced Study in Science and Technology (IASST), an autonomous institute of the Department of Science and Technology (DST), has been exploring peptidomimetics, synthetic compounds designed to mimic neurotrophins.

Peptidomimetic drugs – or synthetic molecules that mimic the structure of natural proteins can be repurposed to provide an effective therapeutic strategy to treat neurodegenerative diseases (NDs) by promoting neuronal growth and survival.

Neurotrophin peptidomimetics are developed to target specific biological functions and can be valuable tools in drug discovery, especially when natural peptides have limitations like poor oral bioavailability or susceptibility to degradation.

One of the significant advantages of peptidomimetics is their improved stability and bioavailability compared to endogenous neurotrophins. This means they can be delivered more effectively to the brain and maintain their therapeutic activity for a longer duration. Additionally, peptidomimetics can be designed to be more specific to their target receptors, reducing the risk of side effects.

The researchers have highlighted the potential of peptidomimetics to treat NDs by promoting neuronal growth and survival. They have also explored the possibility of repurposing existing peptidomimetic drugs for other diseases, such as cancer, and the potential for developing new drug prototypes based on neurotrophins mimetics.

As research progresses, the hope is that peptidomimetics could become a key therapeutic strategy, offering new hope for managing and treating neurodegenerative disorders for future generations.