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Researchers collaborate to study neuro-degenerative diseases

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A collaboration between researchers in Japan and the United States has resulted in the creation of a microdevice that allows the formation of three-dimensional nerve bundles for drug discovery and the study of neurodegenerative diseases.

Inside the body, axons or nerve fibres aggregate to form fascicles. These fascicles are disrupted in many neurodegenerative diseases and hence, the understanding of fascicle formation could give clues on the prevention of a number of diseases.

Several technologies allow scientists to generate and study single axons in the lab, but none are effective at creating nerve fascicles.

Although many scientists have examined axon development and degeneration in two-dimensional (2D) systems, it is becoming increasingly apparent that the fascicle's 3D structure has an essential role in axon function.

The microdevice thus developed allows the successful formation of fascicles in the lab. The research findings suggest that the microdevice can be used to test experimental drug compounds that prevent fascicle degeneration caused by disease.