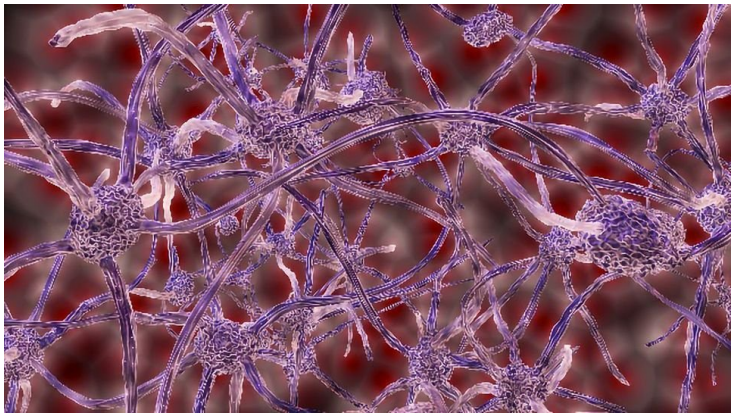
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Scientists in Bengaluru design smart gel-based sheet for non-invasive nerve repair

03 May 2023 | News

Such emerging technologies could pave the way for a new generation of medical devices



A new smart gel-based sheet using three-dimensional (3D) printing technology, by researchers at the Indian Institute of Science (IISc) in Bengaluru, that can self-roll into a tube during surgery to form a nerve conduit could help reduce the complexity of surgeries and aid rapid healing of nerve injuries.

The gold standard for the treatment of peripheral nerve injuries is still autografts. Bioresorbable polymer-based conduits are being explored for clinical use as alternatives. But these treatment strategies suffer from several limitations, such as donor site morbidity in the case of autografts and the necessity for sutures that demand highly skilled microsurgeries, and additional complications posed by sutures.

The team at IISc worked closely with researchers at the Indian Institute of Technology at Roorkee and Maharishi Markandeshwar University to test the conduits for repairing and regenerating a 2 mm gap in the sciatic nerve of rats.

This work was supported by the Science and Engineering Research Board (SERB), a statutory body of the Department of Science and Technology, under the Intensification of Research in High Priority Areas (IRHPA) special call on 3D Bioprinting.