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IIT-H team develops a novel drug delivery system

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The team has fabricated a highly water repelling transdermal patch containing the water soluble drug.



A team of researchers at the Indian Institute of Technology (IIT) Hyderabad have developed a novel drug-delivery system that releases a commonly used pain killer called diclofenac sodium at the target site in a controlled fashion such that there is constant release of the drug for as long as 12 hours. The drug has low half-life of one–two hours and so constant release for up to 12 hours becomes particularly significant.

To prevent burst or quick release of the drug, the team has fabricated a transdermal patch containing the drug and made the patch highly water repelling, so as to ensure that the highly water-soluble drug is released in a slow and sustained fashion.

The patch was developed by mixing the drug with cellulose acetate bio-polymer and electrospun in the form of a nanofabric. Ordinary nylon mesh with different pore sizes (50, 100 and 200 microns) was used at the site of the collector and this allowed the nanofibres to get deposited with micron-sized gaps in between.

The transdermal patch loaded with the pain killer can be used for treating local muscular pain. The researchers plan to develop transdermal patch prototypes and test them on animals.