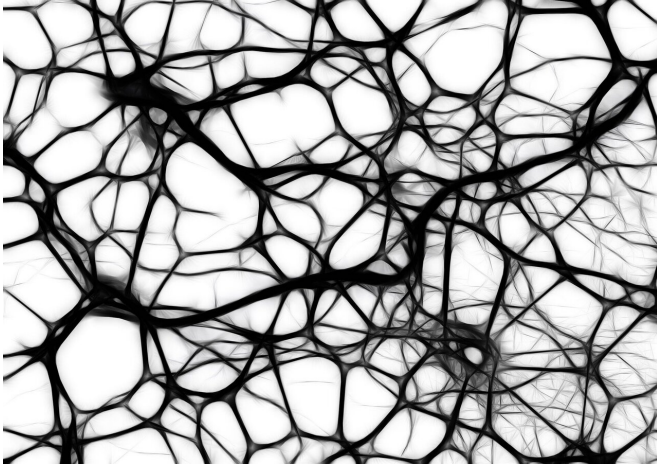


Harnessing the body's ability to heal

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Researchers at Mayo Clinic are studying ways to engineer human-like tissue to bolster the body's ability to heal itself. Scientists in the Regenerative Medicine Biomaterials and Biomolecules Lab have engineered biomaterials that could regenerate tissue capable of restoring injured nerves and bones.

They've discovered that biomaterials derived from polymers are biodegradable. When used along with [growth factors](#) to form scaffolds, these materials are capable of recruiting cells that grow into replacement nerves and bones. Scaffolds are devices that assist in creating [tissue](#). As the new tissue develops, [synthetic materials](#) gradually decompose, leaving no trace of its existence in the body.

"The hypothesis for this work is that these biomaterials will be able to function as scaffolding material for the cells to attach to once they are in the [human body](#), so they can support tissue regeneration. At the same time, they will degrade in a controlled fashion and will disappear at the end of the process and leave completely natural living tissue in place," says Lichun Lu, Ph.D., a

professor of Biomedical Engineering and Orthopedics in the Biomaterials and Biomolecules Lab.

With support from the Center for Regenerative Medicine, Dr. Lu leads a team of researchers that are developing biomaterials compatible with the human body. Those materials, researchers found, can be manipulated to perform many different functions. Some examples are a synthetic nerve scaffold with the ability to conduct [electrical signals](#) from the brain and a manmade bone scaffold porous enough to integrate new blood vessels.

"We have been developing more sophisticated, multifunctional biomaterials that can interact with the cells for tissue generation. These materials offer multiple functions that are similar to the natural environment of the body. They support cell attachment, proliferation and tissue growth," says Lu.

Another objective of this research is to improve drug delivery in the body - a key role that tissue plays in good health.

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