

Nanomaterials key to developing stronger artificial hearts

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On January 30, 2013 *ACS Nano* published a study by Ali Khademhosseini, PhD, MAsC, Brigham and Women's Hospital Division of Biomedical Engineering, detailing the creation of innovative cardiac patches that utilize nanotechnology to enhance the conductivity of materials to induce cardiac tissue formation.

Creation of these ultra-thin cardiac patches put medicine a step closer to durable, high-functioning [artificial tissues](#) that could be used to repair damaged hearts and other organs.

The cardiac tissue patches utilize a hydrogel scaffolding reinforced by nanomaterials called carbon nanotubes.

To create the patches, the researchers seeded neonatal rat [heart muscle tissue](#) onto carbon nanotube-infused hydrogels.

These novel patches showed excellent mechanical integrity and advanced electrophysiological functions. Moreover, they demonstrated a protective effect against chemicals toxic to heart tissue.

Provided by Brigham and Women's Hospital

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