

Document 1

Biohybrid Robots Built From Living Tissue Start to Take Shape

Think of a traditional robot and you probably imagine something made from metal and plastic. Such "nuts-and-bolts" robots are made of hard materials. As robots take on more roles beyond the lab, such rigid systems can present safety risks to the people they interact with. For example, if an industrial robot swings into a person, there is the risk of bruises or bone damages

Researchers are increasingly looking for solutions to make robots softer or more compliant — less like rigid machines, more like animals. With traditional actuators — such as motors — this can mean using [air muscles](#) or adding springs in parallel with motors. For example, on a [Whegs robot](#), having a spring between a motor and the wheel leg (Wheg) means that if the robot runs into something (like a person), the spring absorbs some of the energy so the person isn't hurt.

Researchers fabricate biobots by growing living cells, usually from heart or skeletal muscle of rats or chickens, on scaffolds that are nontoxic to the cells. If the substrate is a polymer, the device created is a biohybrid robot — a hybrid between natural and human-made materials.

www.livescience.com , Victoria Webster, August 11 2016

Document 2

AVA, from the movie "Ex-Machina" 2015

