

CAN WE CREATE A HUMAN FROM SCRATCH?

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Do you know who Frankenstein is? Probably yes, but I would like to remind you. Victor Frankenstein is the protagonist of the novel, Mary Shelley's "Frankenstein or the Modern Prometheus." In the novel, Victor Frankenstein is a young student from Geneva. He creates a living being from inanimate matter. This matter he collects from the fragments of dead bodies. Then doctor Frankenstein finds "a scientific" method to bring him back to life. However a coming back to life creature appears a monster. Frankenstein aspires to cognition that he does not limit to ethic considerations. But only when a doctor created a monster, he realizes that went a vicious way. Frankenstein and his monster illustrate the failure of human attempts to undertake the functions of God. Perhaps you want to know why I'm talking about the history of Dr. Frankenstein. The answer is simple. This story can become a reality in our time. It is not a secret that scientists already learned how to create artificial organs and successfully replant them. For example, in 2009 scientists of the Fraunhofer Institute hoped to mass-produce skin at low cost for clinical testing and other uses. Now the factory can produce 5,000 penny-sized discs of whitish translucent tissue every month. But the real goal of this factory is to pave the way for factory-produced human tissue, complete with blood vessels, which could be used to treat injuries or various medical conditions. Another example, a team of researchers at Japan's RIKEN Center - the same group who earlier this year engineered a mouse retina that is the most complex tissue ever engineered - have now derived a working pituitary gland from mouse stem cells. That's saying something. For one, the pituitary gland is an integral part of the body's endocrine system. From its position at the base of the brain it doles out key developmental hormones that instruct the body on how to grow and develop over time. But perhaps more importantly, the pituitary gland cannot itself develop without special chemical instructions from the hypothalamus (the brain region just above it). The researchers overcame this with a 3-D cell culture and some good old fashioned trial and error. They had a notion of what kind of signaling factors would be needed to make a proper pituitary gland grow and tried combinations until they found the right fit. The result is a working pituitary that expressed the right hormones. And to remove any doubt, the researchers implanted their lab-grown glands into mice with pituitary defects. The mice quickly showed restored levels of key pituitary hormones and behavioral symptoms of pituitary problems disappeared. These pituitary glands, by all appearances, seem to work like the original biological glands were meant to. One more example, at the University of Nottingham, a team of researchers with help from researchers elsewhere in the U.K., the U.S., Israel, and Spain is trying to create a "reprogrammable cell" that can act as the in vivo cell equivalent to a computer's operating system. In other words, they are trying to create cellular software that would let researchers alter living cells without changing their hardware. Customized living cells could be tailored to clean up environmental disasters, scrub unwanted carbon from the air, pull pollutants from drinking water, attack pathogens inside the human body, protect food sources from agricultural pests, the list is potentially endless. Does it mean that in a few years we will be able to become a next Frankenstein and to collect a living anthropoid creature from separate organs? Is it possible to consider him as a HUMAN? Will he have feelings and personality? Will he be able to react in adequate on environment? Is it necessary to test a fate and create the real Frankenstein's monster?