

# Scientists seal \$1 million from NASA to put stem cells in space

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As British scientists are given the go-ahead to clone human embryos, two Kingston University researchers have linked up with [NASA](#) in the first ever collaboration on space medicine between the United Kingdom and the United States. The \$US1 million project aims to explore **ways to protect astronauts from space radiation in preparation for a manned mission to Mars in 2020**. Dr Colin McGuckin and Dr Nico Forraz, from the University's School of Life Sciences, will fly out to NASA's Johnson Space Centre later this year to begin a series of experiments that could also produce significant health benefits for people back on Earth.

Dr McGuckin and Dr Forraz first met NASA officials at an international stem cell biology conference in San Francisco last year. The agency is particularly keen to tap into the scientists' expertise gained from studying cancer victims in the Chernobyl nuclear disaster. "Radiation can destroy cells in the body which naturally defend it against illnesses such as cancer," Dr McGuckin said. "From our previous research, we know these anti-cancer cells are common in blood from umbilical cords, which are usually discarded after babies are born. Using NASA's advanced technology, we will work on ways to increase the body's natural cancer destroyers."

In further research, the team will combine umbilical blood and bone marrow stem cells with tissues from adults to grow new body tissue. The tissue is best grown in zero gravity, which mimics the conditions in the female womb. "Long-term space exposure can cause bones to weaken,

so this research will help us to develop preventative medicines for the astronauts to take with them to Mars,” said NASA’s Head of Space Medicine Dr Steve Gonda, who visited the University last month. “The technology developed will be tested in NASA’s unmanned space mission in 2008.”

Using NASA’s zero gravity facilities, the researchers will develop new tissue from blood, brain, vascular, nerve, cornea and liver cells. Dr McGuckin said the technology could be used to offer partial liver transplants within five years. “NASA’s zero gravity facilities can actually speed up the growth of liver cells and form a larger tissue mass, which would then be transplanted into the human body. Depending on the individual, this could provide short or long-term benefits for patients with liver disease,” he said. “Within the next 20 years, there is also the potential to grow nerve pathways to repair damaged spines or brain damage caused by Alzheimer’s disease.”

The project is also backed by the British Government. The Department of Trade and Industry has pledged £40,000 to fund the Kingston researchers travel to NASA’s Johnson Space Centre and other expenses incurred during their stay.

Source: Kingston University

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