

SCIENCE

Worms in space

The lowly invertebrate could provide key to developing safe travel to Mars

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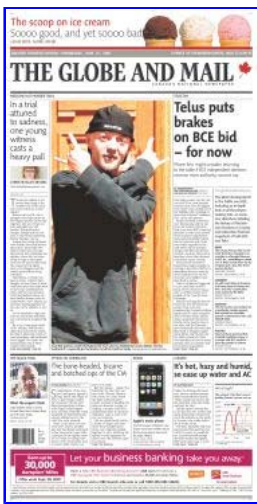
VANCOUVER -- At only one millimetre in diameter, *C. elegans* might just be one squirm of a worm, but the 100,000 that returned to Canada this week from space could prove to be one giant leap for mankind.

Over the next year, Bob Johnsen and his colleagues at Simon Fraser University will study the worms to see how they mutated over the 25 generations that were born during their six-month jaunt in space. The scientists hope to gain insight into how space radiation causes biological changes. This could lead to new technology to help humans who might spend prolonged amounts of time in space - on a trip to Mars, for example.

"Humans have always wanted to explore. We've expanded our knowledge and the human story has grown, but who knows what could happen," Dr. Johnsen said yesterday at a press conference to celebrate the worms' successful return to this planet.

"If something does happen to the Earth, we won't have all our eggs in one basket."

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Current research shows that one in eight travellers going to Mars and back would die of radiation poisoning. Dr. Johnsen said he hopes the research on the worms could lead to new drugs or protective shielding technology that could mitigate these effects.

The worms, which are the superstar of invertebrate studies, are ideal for this research because they are quite comparable to humans, Dr. Johnsen said. Along with having skin, a nervous system and a complex reproductive system, both species have had their genes sequenced and have similar DNA repair structures.

Unlike humans, however, the worms go from hatching to laying an egg in about 3½ days. In space, this period extended to a week, because NASA did not allow the bacteria that *C. elegans* usually eat in a lab situation on board the Atlantis shuttle that recently returned to Earth. Still, at a rate of a generation each week, the worms managed to create about 25 generations worth of progeny during their trip. Their DNA will now be put on microwave computer chips and compared against regular DNA for mutation as a result of radiation.

The worms didn't exactly have a smooth vacation on their trip through the solar system. Their stay in space was almost doubled because the shuttle that was to come and get them was hit by hail, cancelling their planned March return. Then, last week, when Dr. Johnsen flew to Florida to retrieve them, their shuttle landing was delayed for several days because of rain, causing the scientist some panic.

"I was quite concerned about the worms coming back alive, but fortunately, they did," he said.

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