

A SMALL MOLECULE REPAIRS THE DAMAGE CAUSED BY NUCLEAR RADIATION

Invisible and often dangerous, **nuclear radiation** is all around us. It comes at low levels from natural sources – radon gas, the earth’s radioactive elements and cosmic rays – as well as from human activities. Testing of nuclear weapons, nuclear waste disposal and accidents at nuclear power plants increase our exposure to radiation – sometimes at very high doses.

Nuclear disasters such as those at **Chernobyl** and **Fukushima** generate global fear and profound emotional responses, while radiation’s medical applications raise safety concerns despite their beneficial use.

Because of our fear of all things nuclear, we might welcome a recent discovery.



Photo

Credit: <http://www.defenseimagery.mil/imagery.html?&guid=30bd4289d1523c2caff4688bc58b6bdb77a77d8a>

A group of researchers has shown that a small molecule protects from death caused by lethal doses of radiation. The small molecule is effective even if given after exposure and is, therefore, a **radiation mitigator**. In contrast, radio protectors are effective only if given before or during exposure to radiation.

The study, published in the journal *Proceedings of the National Academy of Sciences of the United States of America* (October 14, 2013), and entitled “DIM (3,3'-diindolylmethane) confers protection against ionizing radiation by a unique mechanism” was carried out using an animal model.

Rodents were exposed to total body, lethal doses of radiation and then treated with a daily injection of the small molecule 3,3'-diindolylmethane (**DIM**) for two weeks. The results were very encouraging – all of the untreated animals died, but over half of the animals that received DIM remained alive 30 days after exposure to radiation.

Radiation damages DNA, eventually leading to cell death. Results from the study indicate that DIM induces repair of damaged DNA and activates signals that tell cells with damaged DNA to go on living instead of dying.

DIM derives from indole-3-carbinol, a naturally occurring phytochemical present in cabbage, cauliflower, broccoli and other cruciferous vegetables. It's already known to be safe for humans.

Eliot Rosen, one of the study's senior authors, says that DIM could be used to protect individuals from the lethal consequences of a nuclear disaster and to protect normal tissues in patients receiving radiation therapy for cancer.

Source: <http://theglobalfool.com/a-small-molecule-repairs-the-damage-caused-by-nuclear-radiation/>