

Developmental drug may help bone fractures heal after radiation exposure

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A drug currently under development by the University of Pittsburgh School of Medicine may help bone fractures heal more quickly after radiation exposure, according to a study by Pitt researchers. The study's results will be presented today during the American Society for Radiation Oncology (ASTRO) annual meeting in Chicago.

The drug, JP4-039, is a free-radical scavenger targeted to the mitochondria, the energy generator of all cells. For this study, researchers compared the healing time of fractures in a mouse model system treated immediately after [radiation exposure](#) with JP4-039 against a control group of mice that did not receive the drug. The fractured bones in the group treated with JP4-039 healed much more rapidly than the control group.

"This study has important implications on two levels," said study author Abhay S. Gokhale, M.D., M.B.A., chief resident in the Department of Radiation Oncology. "From a patient care standpoint, this drug could eventually be beneficial to pediatric cancer patients who are vulnerable to the late effects of [radiation treatment](#) on bone growth and development. From an emergency response perspective, if the ideal dosage of the drug is developed and we find a way to have it easily administered, it could potentially help people exposed to radiation in an accident or attack."

The study, carried out in the laboratory of Joel Greenberger, M.D., and Michael Epperly, Ph.D., with co-investigator Peter Wipf, Ph.D., in the

Department of Chemistry at Pitt, is overseen by Pitt's Center for Medical Countermeasures Against Radiation. The center is dedicated to identifying and developing small molecule radiation protectors and mitigators that can be easily accessed and administered in the event of a large-scale radiological or nuclear emergency.

Previous research conducted by this team showed that JP4-039 helps protect cells from the damaging effects of radiation.

Source: University of Pittsburgh Schools of the Health Sciences ([news : web](#))

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