

# New oral agents may prevent injury after radiation exposure

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Researchers from Boston University School of Medicine (BUSM) and collaborators have discovered and analyzed several new compounds, collectively called the "EUK-400 series," which could someday be used to prevent radiation-induced injuries to kidneys, lungs, skin, intestinal tract and brains of radiological terrorism victims. The findings, which appear in the June issue of the *Journal of Biological Inorganic Chemistry*, describe new agents which can be given orally in pill form, which would more expedient in an emergency situation.

These agents are novel synthetic "antioxidants" that protect tissues against the kind of damage caused by agents such as "[free radicals](#)." Free radicals, and similar toxic byproducts formed in the body, are implicated in many different types of tissue injury, including those caused by [radiation exposure](#). Often, this kind of injury occurs months to years after radiation exposure. The BUSM researchers and their colleagues are developing agents that prevent injury even when given after the radiation exposure.

This paper describes a newer class of compounds, the "EUK-400 series," that are designed to be given as a pill. According to the researchers, experiments described in their paper prove that these agents are orally active. They also show that the new agents have several desirable "antioxidant" activities, and protect cells in a "[cell death](#)" model.

These same BUSM researchers and collaborators had previously discovered novel synthetic antioxidants that effectively mitigate

radiation injuries, but had to be given by injection. "We have developed some of these agents and have studied them for over 15 years beginning with our work at the local biotechnology company Eukarion," said senior author Susan Doctrow, PhD, a research associate professor of medicine at BUSM's Pulmonary Center. "These injectible antioxidants are very effective, but there has also been a desire to have agents that can be given orally. A pill would be more feasible than an injection to treat large numbers of people in an emergency scenario," she adds.

Future studies will focus on the EUK-400 compounds' effects in various experimental models for radiation injury. Data showing their benefits in models for radiation injury in blood vessel cells have been presented at two major scientific conferences and will be the topic of future publication. More broadly, beyond the potential for treating victims of radiological terrorism, these compounds could also be useful drugs against a variety of diseases where an effective antioxidant has potential benefits, for example, various neurological, pulmonary, cardiovascular, and autoimmune disorders. Previously, Doctrow's lab and others have published studies showing that the injectible versions of these compounds are beneficial in models for several such diseases.

Source: Boston University Medical Center

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