Antioxidant in mouse feces could make radiation therapy safer against cancer

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Abstract

Radiation is a powerful therapy for fighting cancer. But it can prove toxic to tissues in the bone marrow and gastrointestinal tract, a condition known as acute radiation syndrome. In 2017, researchers discovered that transplanting fecal matter from healthy mice to mice with acute radiation syndrome can alleviate radiation toxicity. To find out how, the researchers analyzed fecal pellets from mice receiving radiation to treat tumors. They discovered elevated levels of indole 3-propionic acid, or IPA, a protective antioxidant produced by microbes in the gut, suggesting that IPA is lost following exposure to radiation. Administering IPA orally to irradiated mice recouped this loss. and produced notable improvements in the spleen and thymus of mice with acute radiation syndrome without accelerating tumor growth. The evidence suggests that administering IPA could be a safe way to prevent acute radiation syndrome during radiotherapy without requiring fecal matter transplantation.