

Scientists find new benefit to Lou Gehrig's drug in treating melanoma

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Suzie Chen

A drug used to treat Lou Gehrig's disease (ALS) makes radiation more effective when treating melanoma that has metastasized to the brain, according to new research on laboratory models at Rutgers Cancer

Institute of New Jersey and the Ernest Mario School of Pharmacy at Rutgers.

Melanoma – the deadliest of skin cancers – is often resistant to [radiation therapy](#), creating a risk of [neurotoxicity](#) when large doses need to be administered to the whole [brain](#) in order to treat the disease. The new study, published in the current print edition of *Pigment Cell & Melanoma Research*, examines [radiation treatment](#) when combined with the drug riluzole and its impact on melanoma that has spread to the brain.

Riluzole targets a protein known as GRM1 that is often abnormally produced by melanoma cells and increases growth and spread of the disease. Riluzole has been approved by the United States Food and Drug Administration and is being used to block activation of the GRM1 protein in the treatment of ALS, a disease that affects nerve cells in the brain and spinal cord.

In the new Rutgers research, investigators found that treating the melanoma daily, over a 37 day period, with riluzole and a weekly dose of radiation, led to a decrease in tumor cell growth.

"What this indicates is that riluzole sensitizes GRM1, helping these proteins act like a beacon for radiation so that only [melanoma cells](#) with the GRM1 protein will be targeted, sparing the rest of the brain and preserving the brain's functionality," notes senior author, Suzie Chen, Cancer Institute member and professor of chemical biology at the Ernest Mario School of Pharmacy.

"With approximately 50 percent of patients with [melanoma](#) developing brain metastasis and fewer than 13 percent of those patients surviving one year or more, identifying new therapies for this population is paramount," says James S. Goydos, director of the Melanoma and Soft Tissue Oncology Program at the Cancer Institute and professor of

surgery at Rutgers Robert Wood Johnson Medical School, who is another author on the study. He also notes their findings could have even broader implications. "Because the GRM1 protein is also found in breast and prostate cancers, pre-treatment with riluzole before [radiation](#) for these particular cancers might also result in the same outcomes," he said.

More information: Wall, B. A., Yu, L. J., Khan, A., Haffty, B., Goydos, J. S. and Chen, S. (2015), "Riluzole is a radio-sensitizing agent in an in vivo model of brain metastasis derived from GRM1 expressing human melanoma cells." *Pigment Cell & Melanoma Research*, 28: 105–109. doi: 10.1111/pcmr.12327

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