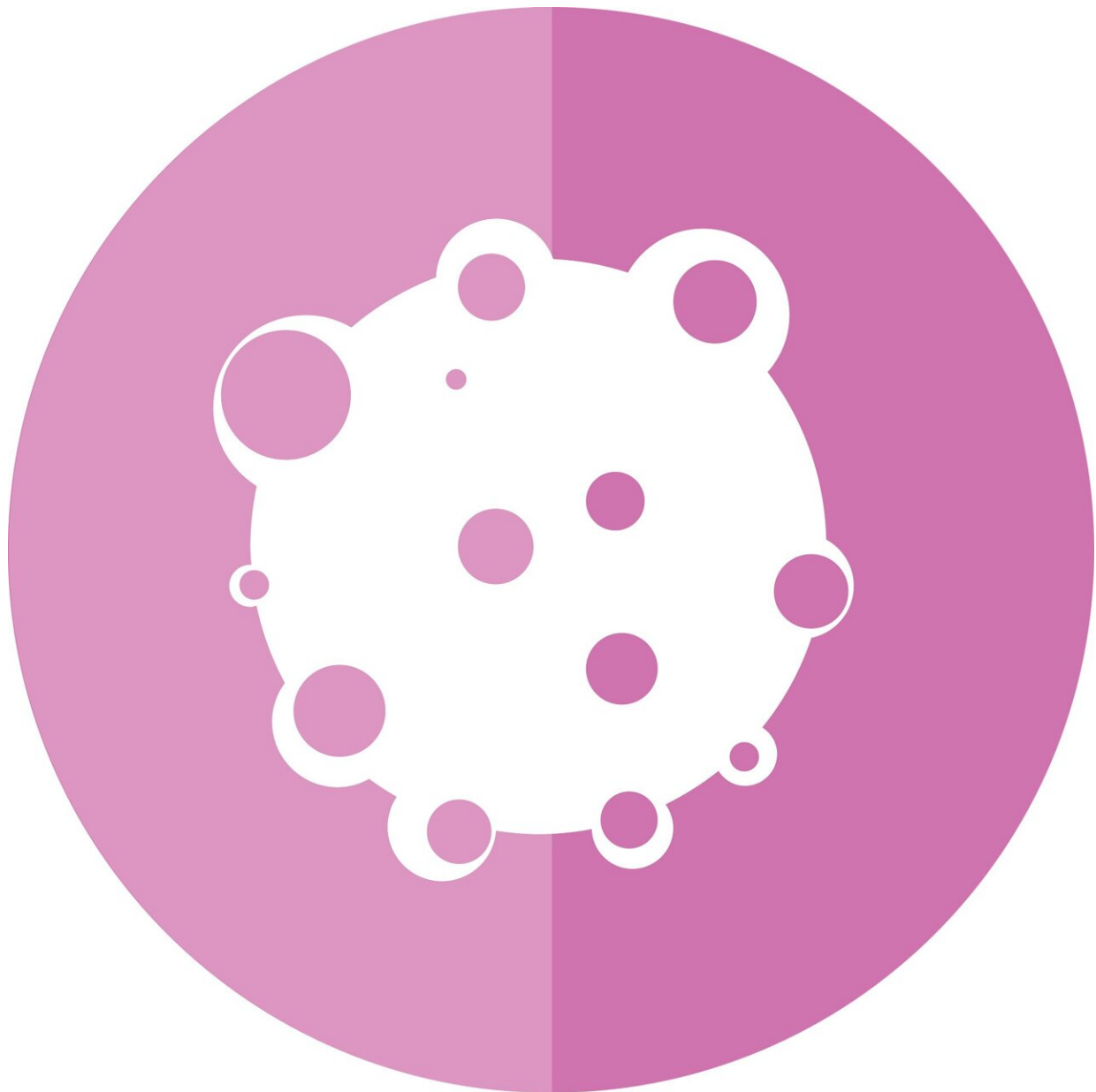


Researchers develop new agent to help root out hypertension-causing tumor

July 13 2022, by Noah Fromson



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Researchers have developed a noninvasive method to identify a potential cause of hypertension with a drastic reduction in radiation exposure, a study shows.

Around 10-15% cases of hypertension, or [high blood pressure](#), are believed to be caused by excessive production of the hormone [aldosterone](#), which affects the body's salt-water balance. This can be due to an adrenal adenoma, a tumor that causes irregular aldosterone production.

The current testing for an adrenal adenoma is invasive, sampling the blood leaving the [adrenal gland](#). For years, radiologists had used an iodine agent for measuring cholesterol uptake, the precursor to aldosterone, as a noninvasive alternative. This test was complicated by requiring patients to take steroids for a week prior to imaging and exposed them to high amounts of radiation.

A Michigan Medicine team led by Allen Brooks, Ph.D., an assistant research scientist, developed a new reagent that replaced the iodine with fluorine-18, a radioisotope commonly used in PET scans. They found that the method resulted in significantly less [radiation exposure](#) and could allow screening for hypertension-linked aldosterone adenomas. The paper is published in the *Journal of Nuclear Medicine*.

"This agent gives us a noninvasive way to find out if aldosterone is being produced abnormally, one that significantly limits the potential harm to our patients through decreased exposure to radiation and limiting of steroid use," said Benjamin Viglianti, M.D., Ph.D., senior author of the paper and associate professor of radiology at University of Michigan

Medical School.

"Adrenal adenoma, if identified, can be removed surgically, which can cure people of their hypertension. This can help people with the disease by being deployed as a screening tool."

The original iodine agent used for imaging patients with adrenal aldosteronism was developed at University of Michigan in the 1970s. It was discontinued in the late 2000s due to federal regulations.

Researchers tested the fluorine-18 reagent in nine healthy subjects, finding it safe to use and effective at detecting stimulated hormone production through increased cholesterol uptake. The next step, they say, is to conduct a larger clinical trial analyzing patients with hypertension caused by excessive aldosterone production.

However, given cholesterol is found in other diseases, particularly the cardiovascular system, there is hope that this agent could have broader clinical applications.

"This work is a modern improvement of one of the [imaging agents](#) developed 50 years ago by Raymond Counsell, William Beierwaltes and a team here at the university," Brooks said. "The continued close collaboration between physician scientists and research chemists have enabled the translation of new diagnostic agents to improve our understanding of disease and hopefully improve patient outcomes."

More information: Allen L Brooks et al, Development of Flourinated NP-59: A Revival of Cholesterol Utilization Imaging with PET, *Journal of Nuclear Medicine* (2022). [DOI: 10.2967/jnumed.122.263864](https://doi.org/10.2967/jnumed.122.263864)

Provided by University of Michigan

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