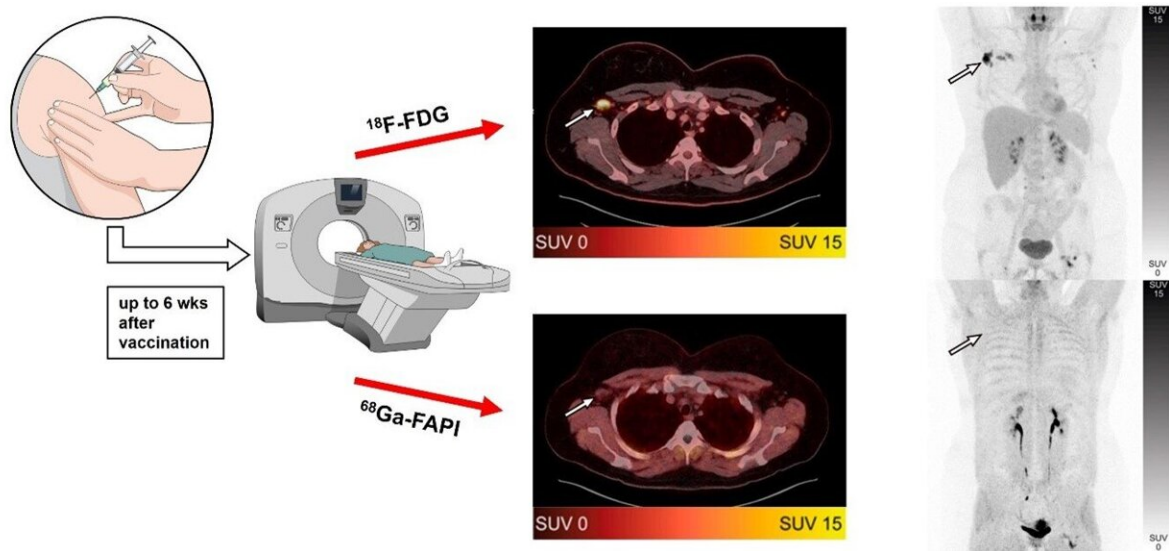


# Novel PET radiotracer reduces number of false-positive cancer findings after COVID-19 vaccination

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Novel  $^{68}\text{Ga}$ -FAPI PET/CT offers oncologic staging without COVID-19 vaccine-related pitfalls. Credit: Tristan T. Demmert et al., Department of Nuclear Medicine, University Hospital Essen.

A novel imaging agent,  $^{68}\text{Ga}$ -FAPI, can reduce the number of false-positive PET/CT findings among cancer patients recently vaccinated for COVID-19. New research published ahead of print in the *Journal of Nuclear Medicine* shows that  $^{68}\text{Ga}$ -FAPI imaging offers superior lesion detection without vaccine-related tracer uptake in locoregional lymph

nodes that is common with  $^{18}\text{F}$ -FDG imaging. This can help to prevent costly follow-up and false management decisions for cancer patients.

One side effect of the COVID-19 vaccine is that  $^{18}\text{F}$ -FDG (the most commonly used PET imaging agent) is taken up by [immune cells](#) responding to the mRNA inflammatory stimulus caused by the vaccine. This is known as a reactive uptake and does not always indicate that a tumor is present.

"This observation is concerning as [vulnerable groups](#), such as oncologic patients, undergo both regular COVID-19 booster shots and [medical imaging](#)," said Tristan T. Demmert, researcher in the Department of Nuclear Medicine at Essen University Hospital in Essen, Germany. "False positive findings on  $^{18}\text{F}$ -FDG PET due to reactive uptake may trigger false management decisions."

To find a way to avoid these false positives, researchers compared two radiotracers,  $^{68}\text{Ga}$ -FAPI and  $^{18}\text{F}$ -FDG. Using a large prospective imaging registry, researchers investigated 11 oncologic patients who had received a COVID-19 vaccination within six weeks, had  $^{68}\text{Ga}$ -FAPI and  $^{18}\text{F}$ -FDG imaging on the same day, and had documentation of tracer uptake in locoregional lymph nodes. Visual readings of the images were performed by two nuclear medicine physicians.

Significant lymph node uptake adjacent to the injection site was noted in 11/11 patients with  $^{18}\text{F}$ -FDG PET/CT versus 0/11 with  $^{68}\text{Ga}$ -FAPI PET/CT. In addition,  $^{18}\text{F}$ -FDG detected 73 percent of tumor lesions, while  $^{68}\text{Ga}$ -FAPI detected 94 percent of all tumor lesions.

"In patients with suspected tumors in the axillary region, a costly follow-up was often recommended to avoid incorrect patient treatment. According to our results, this could have been prevented by using  $^{68}\text{Ga}$ -FAPI, which would have allowed higher tumor detection at the same

time," noted Demmert. "Considering that further booster vaccinations are expected,  $^{68}\text{Ga}$ -FAPI could show its potential in avoiding vaccine-related misinterpretations on PET/CT while providing equivalent tumor detection."

**More information:** Tristan T. Demmert et al, Novel  $^{68}\text{Ga}$ -FAPI PET/CT offers oncologic staging without COVID-19 vaccine-related pitfalls, *Journal of Nuclear Medicine* (2022). DOI: [10.2967/jnumed.122.264872](https://doi.org/10.2967/jnumed.122.264872)

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