

# Biomarker tests could someday help improve outcomes for organ transplant patients

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Organ transplants save lives, but the story doesn't end when a patient emerges from the operating room. Rejection episodes, in which the immune system rallies against the new organ, can occur. According to an article in *Chemical & Engineering News (C&EN)*, the weekly newsmagazine of the American Chemical Society, researchers are turning to biomarkers to help them get a better idea of which patients are more likely to have an episode.

Senior Editor Celia Henry Arnaud reports that more than 33,000 organs were transplanted in the U.S. in 2016, and as many as 15 percent of patients receiving transplants experience acute rejection. At present, the only way to monitor how well the transplant worked is to put a needle into the organ and take a biopsy weeks, months and even years afterward. But a biopsy is invasive and comes with potential complications. And then there's the time, expense and anxiety associated with the procedure. That's why researchers are investigating whether biomarkers—often, [nucleic acids](#) or proteins—in the blood or urine could be used as an initial noninvasive test before resorting to a biopsy.

Researchers explain that current biomarkers fall short. For example, creatinine has been used for decades to monitor [kidney function](#), but it's not accurate enough. So, various teams are now hunting for other markers, such as RNA levels; the composition of vesicles called exosomes; and the presence of "proteoforms," which are modified proteins. To begin the process of getting these discoveries to patients, the National Institutes of Health funded a consortium to run some of these

biomarkers through clinical trials. There have been positive results, but it's still unclear whether treating patients based on the markers will alter their outcomes. That's the hope, but as one researcher says, "We have our work cut out for us."

**More information:** Uncovering the hidden signs of organ transplant rejection, [cen.acs.org/articles/96/i5/unc...plant-rejection.html](https://cen.acs.org/articles/96/i5/unc...plant-rejection.html)

Provided by American Chemical Society

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