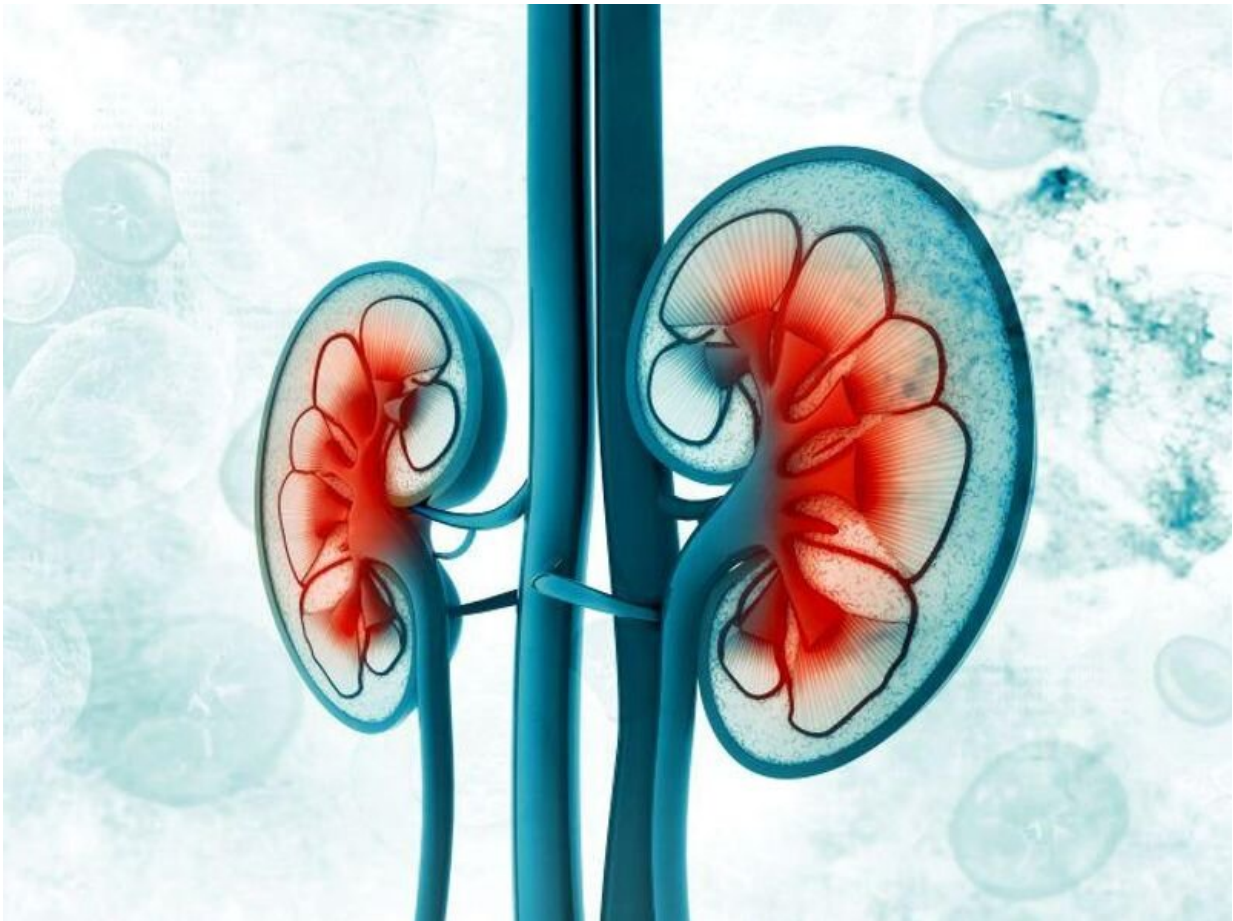


# Banff Automation System improves diagnosis of kidney allograft rejection

May 15 2023, by Elana Gotkine

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The Banff Automation System, based on an algorithm covering all

classification rules and diagnostic scenarios, can improve diagnosis of kidney allograft rejection, according to a study published online May 4 in *Nature Medicine*.

Daniel Yoo, from the Université Paris Cité and the Paris Institute for Transplantation and Organ Regeneration, and colleagues developed a decision-support system to improve diagnosis of kidney allograft rejection, based on an algorithm covering all classification rules and diagnostic scenarios. Its ability to reclassify diagnoses for adult and pediatric kidney transplant recipients in three international multicentric cohorts and two large prospective [clinical trials](#), including 4,409 biopsies from 3,054 patients, was tested.

The researchers found that the Banff Automation System reclassified 29.75 percent of 279 antibody-mediated rejection cases and 54.29 percent of 105 T cell-mediated rejection cases in the adult kidney transplant population, and reclassified 7.32 percent of 3,239 biopsies diagnosed as nonrejection by pathologists as rejection.

In the pediatric population, the reclassification rates were 30.77 percent of 26 and 30.77 percent of 39 for antibody- and T cell-mediated rejection, respectively. Reclassification of the initial diagnoses by the Banff Automation System was associated with improved risk stratification of long-term allograft outcomes.

"The results are unequivocal since more than 40 percent of diagnoses are corrected and reclassified by the machine," a co-author said in a statement. "This [tool](#) will enable better [patient care](#) as well as improve clinical trials and the development of immunosuppressive treatments."

One author disclosed financial ties to Cibiltech, a [software company](#) not involved in the study.

**More information:** Daniel Yoo et al, An automated histological classification system for precision diagnostics of kidney allografts, *Nature Medicine* (2023). [DOI: 10.1038/s41591-023-02323-6](https://doi.org/10.1038/s41591-023-02323-6)

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