

Part of the Solution:

Two new kidney tests for COVID-19 patient care



The rundown:

- Prospera transplant assessment test allows for remote, non-invasive surveillance of rejection during times when COVID presents challenges for in-person visits
- Prospera’s unique enhancement flags elevated levels of background cell-free DNA common during a COVID infection to help avoid potential false negative results
- Renasight kidney genetics panel can identify the APOL1 genes in your COVID patients to understand any risk variants associated with collapsing glomerulopathy in patients^{1,2}

Remote, non-invasive assessment of transplant rejection during COVID times

Developed by Natera with our trusted legacy in cell-free DNA, Prospera is thoughtfully optimized to be a more precise, reliable tool for early, clinically meaningful rejection assessment.^{3,4,5}

Prospera’s high sensitivity of 89% and negative predictive value of 95% (at a 25% prevalence of rejection) means you can be confident when catching rejection during this critical illness, leading to possible treatment and/or resumption of immunosuppressants if consistent with the clinical picture.⁴ Further, Prospera has been reported to flag elevated background levels of cfDNA that may occur during a COVID infection as a way to avoid a false negative result.⁶



As such, Prospera can be integrated into your remote surveillance clinical workflow to more accurately catch rejection – even during the COVID-19 pandemic and infection.^{3,4}

Impact of APOL1 gene in COVID-19 patients

APOL1 high risk variants have been associated with collapsing glomerulopathy in patients with COVID.^{1,2} It has been posited that APOL1 requires a second hit to cause chronic kidney failure – including viral infections.⁸ As such, the SARS-CoV-2 virus may be providing the second hit in individuals with high risk APOL1 genotypes, leading to an increased incidence of nephropathy in these patients.^{1,2} Wu, et al., “found no direct viral infection in the kidneys, suggesting a possible alternative mechanism: a “two-hit” combination of genetic predisposition and cytokine-mediated host response to SARS-CoV-2 infection.”²

Further, the gene has been implicated in some disparities currently related to the morbidity and mortality associated with the COVID-19 pandemic, specifically in Americans of African descent. African Americans have a higher incidence of the APOL1 risk variant than other ethnic backgrounds.⁹



Understanding an individual’s APOL1 status, using a test like Renasight, may help better understand potential risks related to COVID-19 infections.

References:

- 1 UmeukejeEM et al. AJKD 74:6; Dec 2019
- 2 Wu H et al. JASN 3.1:1688-1695.2020
- 3 Altug Y, Liang N, Ram R, et al. Analytical validation of a single-nucleotide polymorphism-based donor-derived cell-free DNA assay for detecting rejection in kidney transplant patients. *Transplantation*, 2019
- 4 Sigdel TK, Archila FA, Constantin T, et al. Optimizing detection of kidney transplant injury by assessment of donor-derived cell-free DNA via massively multiplex PCR. *J Clin Med*. 2019;8(1):19.
- 5 Grskovic M, Hiller DJ, Eubank LA, et al. Validation of a clinical-grade assay to measure donor-derived cell-free DNA in solid organ transplant recipients. *J Mol Diagn*. 2016;18(6):890-902.
- 6 Bloom RD, Bromberg JS, Poggio ED, et al. Cell-free DNA and active rejection in kidney allografts. *J Am Soc Nephrol*. 2017;28(7):2221-2232. doi: 10.1681/ASN.2016091034.
- 7 Bunnapradist, S., Schaenman, J., Lum, E.L., Gauthier, P.M., Ahmed, E., Billings, P.R. (2020, October). Case study: Kidney transplant patient with COVID-19: Impact of viral infection on background cell-free DNA in a donor-derived cell-free DNA rejection assay. Poster presented at American Association of Nephrology Kidney Week 2020. <https://www.aan-online.org/education/kidneyweek/>
- 8 Huijuan Wu, Christopher P. Larsen, Cesar F. Hernandez-Arroyo, Muner M.B. Mohamed, Tiffany Caza, Moh'd Sharshir, Asim Chughtai, Liping Xie, Juan M. Gimenez, Tyler A. Sandow, Mark A. Lusco, Haichun Yang, Ellen Acheampong, Ivy A. Rosales, Robert B. Cotvin, Agnes B. Fogo, Juan Carlos Q. Velez. *JASN* Aug 2020, 31 (8) 1688-1695; DOI: 10.1681/ASN.2020050558
- 9 Accessed on October 28 2020: <https://www.kidney.org/atoz/content/AfricanAmericans-KD>