

SIGNIFICANCE STATEMENT

BKvirus-associated nephropathy (BKVAN) is one of the major causes of graft dysfunction and loss in kidney transplantation. The management of BKVAN is challenging, partly due to the lack of predictive markers. This manuscript describes the discovery of BKV genotype-specific neutralizing antibody titers as a new predictive marker for BKVAN. We demonstrate that recipients who develop weak antibody neutralizing responses are at a significantly higher risk of developing BKVAN. In addition, we identified a cutoff value that allows patient stratification into lower and higher BKV disease risk groups at the time of transplantation. Our findings offer a useful tool for clinicians to improve kidney transplant management and pave the way for the development of new preventive or therapeutic strategies.