MHC CLASS I-RELATED MICA IS AN IMMUNOGENETIC FACTOR THAT MAY FUNCTIONALLY INFLUENCE BK POLYOMAVIRUS REACTIVATION, IMMUNE RESPONSES AND INFECTION OUTCOME

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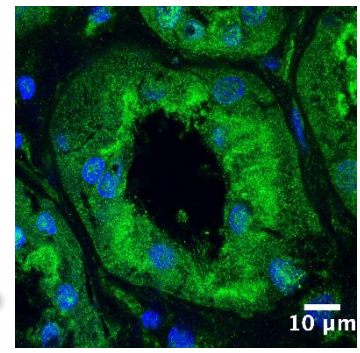
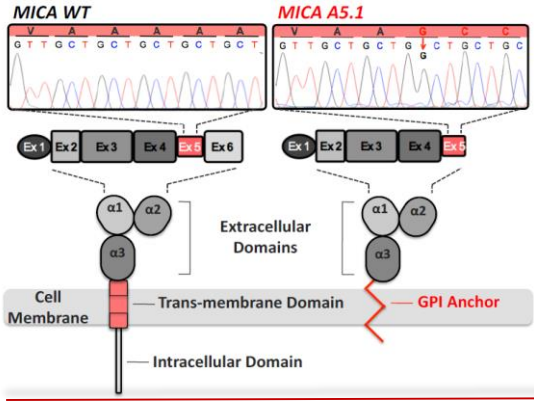
BK polyomavirus (BKPyV) frequently reactivates in kidney transplant recipients with immunosuppressive regimen and triggers BKPyV-associated nephropathy (BKPyVAN) and graft rejection. Determining effective risk factors for BKPyV reactivation is required to achieve efficient prevention.

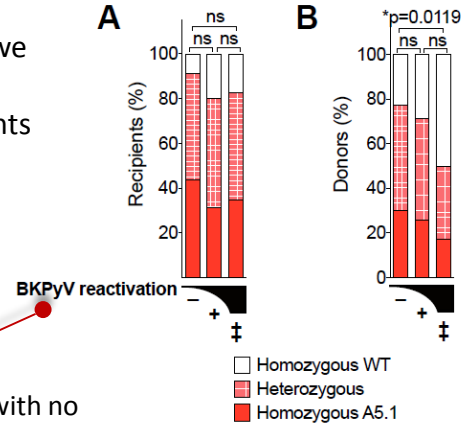
We show that, in kidney, MHC class I related chain A (MICA) is predominantly expressed in tubule epithelial cells, the natural targets of BKPyV, questioning a role for MICA in the immune control of BKPyV infection.



MICA (green) polarizes at the apical side of the tubule epithelium

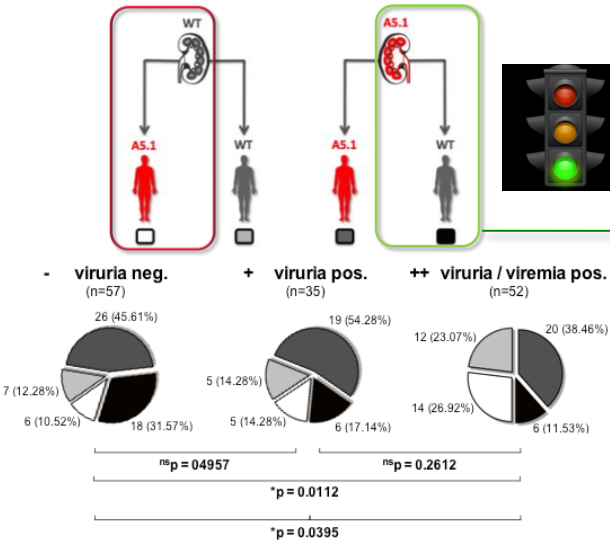


Focusing on *MICA* genotype we found a lower incidence of BKPyV reactivation in recipients transplanted with renal graft carrying *MICA A5.1* mutant, encoding a truncated non-conventional MICA protein.



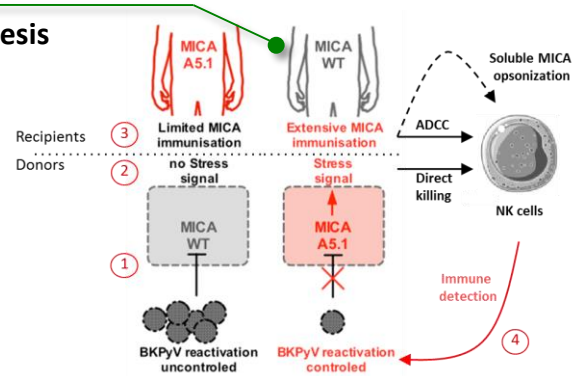
Study cohort: **144 kidney transplant donor/recipient pairs** including recipients with no reactivation (controllers), mild (virurics) or severe (viremics) BKPyV reactivation post-graft.

Donor/Recipient Mismatch for MICA A5.1 impacts on BKPyV outcome



We established that a **mismatch for *MICA A5.1* between transplant donor (D) and recipient (R) is critical for BKPyV reactivation and BKPyVAN**. Functionally, we associated a low prevalence of BKPyV reactivation with **elevated anti-MICA sensitization** and **reduced plasma level for soluble MICA** (sMICA) in recipients, two potential effector mechanisms resulting from MICA A5.1 mismatch that may improve infection outcome.

Hypothesis



Tonnerre P. et al. *JASN*, 2013.; Tonnerre P. *et al. J. Infect. Dis.*, 2016.