



HAL
open science

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

Pierre Tonnerre, Nathalie Gérard, Pierre-Jean Gavlovsky, Simon Mazalrey, Maryvonne Hourmant, Mary-Luce Cheneau, Anne Cesbron Gautier, Karine Renaudin, Céline Bressollette-Bodin, Béatrice Charreau

► To cite this version:

Pierre Tonnerre, Nathalie Gérard, Pierre-Jean Gavlovsky, Simon Mazalrey, Maryvonne Hourmant, et al.. MHC CLASS I-RELATED MICA IS AN IMMUNOGENETIC FACTOR THAT MAY FUNCTIONALLY INFLUENCE BK POLYOMAVIRUS REACTIVATION, IMMUNE RESPONSES AND INFECTION OUTCOME. 1rst International Symposium on Immune Responses in Cancer and Infection, Feb 2017, Lyon, France. 10.13140/RG.2.2.29366.91208 . inserm-02159966

HAL Id: inserm-02159966

<https://inserm.hal.science/inserm-02159966v1>

Submitted on 19 Jun 2019

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

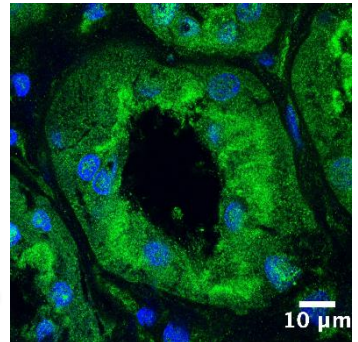
MHC CLASS I-RELATED MICA IS AN IMMUNOGENETIC FACTOR THAT MAY FUNCTIONALLY INFLUENCE BK POLYOMAVIRUS REACTIVATION, IMMUNE RESPONSES AND INFECTION OUTCOME

Pierre Tonnerre, Nathalie Gérard, Pierre-Jean Gavlovsky, Simon Mazalrey, Maryvonne Hourmant, Mary-Luce Cheneau, Anne Cesbron Gautier, Karine Renaudin, Céline Bressollette-Bodin*, Béatrice Charreau*

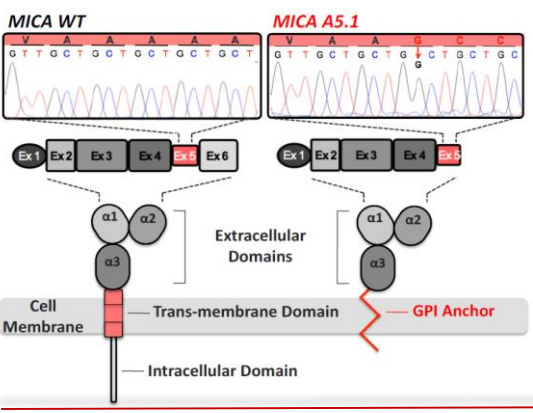
INSERM UMR1064, CHU de Nantes, Université de Nantes, France.

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.

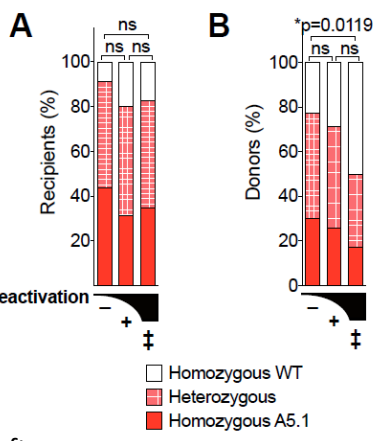
We show that, in kidney, MHC class I related chain A (MICA) is predominantly expressed in tubule epithelial cells, the natural targets of BKPyV, questioning a role for MICA in the immune control of BKPyV infection.



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



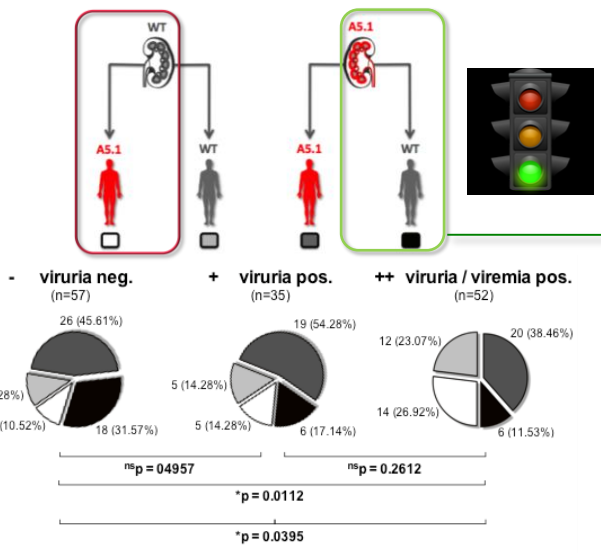
Focusing on MICA genotype we found a lower incidence of BKPyV reactivation in recipients transplanted with renal graft carrying MICA A5.1 mutant, encoding a truncated non-conventional MICA protein.



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

