

**A phenotypic, transcriptional and TCR  $V\beta$  repertoire signature of CD8+ T cells define a population at-risk of long-term kidney graft dysfunction**

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POSTER PRESENTATION

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# A phenotypic, transcriptional and TCR V $\beta$ repertoire signature of CD8<sup>+</sup> T cells define a population at-risk of long-term kidney graft dysfunction

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## Introduction

The biological mechanisms leading to chronic antibody-mediated rejection (CAMR), a major cause of late graft failure following kidney transplantation, are still poorly defined. Although anti-donor HLA antibodies are commonly associated with poor graft outcome; less attention had been paid to other players of the adaptive immune system.

## Aim

We took advantage of a large cohort of 133 selected patients (112 patients remaining stable in time and 21 with kidney dysfunction over 6 years) to question the factors that may influence graft outcome.

## Results

We show that T cell monitoring, and especially CD8 TCR repertoire alterations, may allow identifying patients at risk of graft dysfunction. As compared to patients without TCR V $\beta$  repertoire alterations, patients with an altered TCR V $\beta$  repertoire at the inclusion have a 2.1 fold higher risk of graft dysfunction during their follow-up. The V $\beta$  repertoire alteration occurs years before the appearance of de novo anti-HLA antibodies.

Moreover, these patients with an altered TCR repertoire exhibit an increase in effector memory CD45RA<sup>+</sup>CD197<sup>-</sup>CD8<sup>+</sup> T cells with an accumulation of differentiated (CD28<sup>low</sup>) CD8 T cells. Finally, a specific CD8 gene expression pattern composed of 92 genes related to CD8

T cell function and phenotype can discriminate these patients from patients with lesions of CAMR.

## Conclusions

Monitoring the TCR V $\beta$  repertoire of circulating CD8 T cells may help to improve the identification of at-risk patients before the detection of HLA antibodies. Besides offering a new tool for monitoring patients, our data shed new light on the status of T cell immunity in long-term graft outcome.

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