Abstract

Memory T cells represent a specific subpopulation of cells formed during the first encounter with antigen. The main role of these cells is to elicit faster and more effective secondary response during reinfections. In transplant immunity, they may affect graft survival directly with donor-specific memory T cells or with cross-reactive virus-specific memory T cells.

In this study, we focused on donor-specific and CMV-specific memory/effector T cells. We were interested in the effect of immunosuppressive therapy on the frequency of these cells in periphery. We found that the immunosuppression, prophylaxis and length of dialysis did not significantly affect the number of CMV-reactive cells 6 months after transplantation.

We were also interested in the cross-reactivity between CMV and donor antigens, so-called heterologous immunity, which we verified by analyzing the TCR-β repertoire using next-generation sequencing (NGS) in CMV and donor-reactive T cells. Functional cross-reactive T cell clones (shared the same TCR-β sequence) were then found both in the peripheral blood of pre-transplant patients and in the post-transplant graft biopsy.

We were also interested if long-term dialysis treatment affects immune memory. Dialysis therapy is often associated with the presence of poorly defined immune system disorders. We found that long-term dialysis treatment affects circulating marginal zone B cells, however, virus-reactive T cells, like other subpopulations of T and B lymphocytes and dendritic cells (DC), were not affected by previous dialysis.